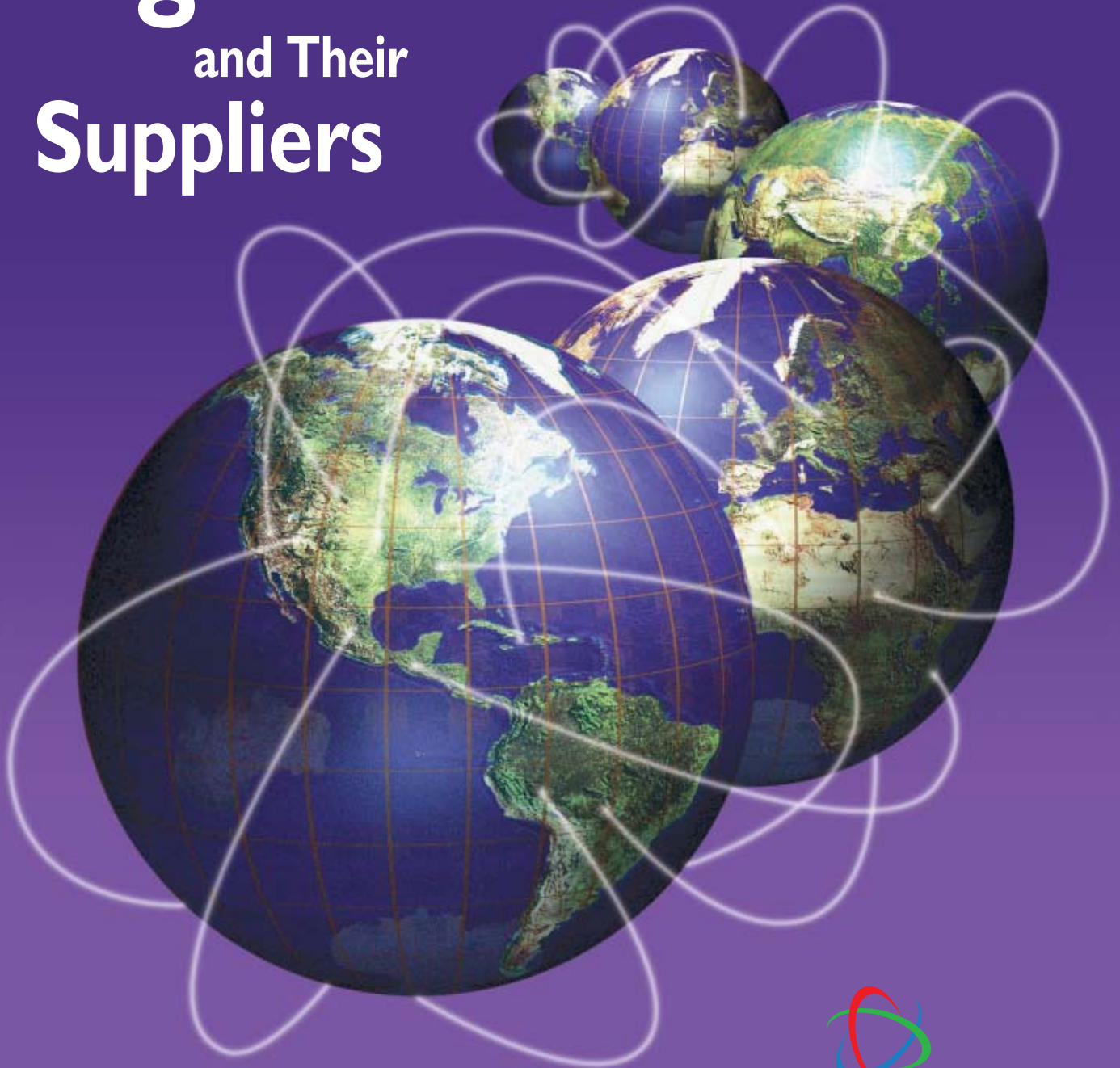


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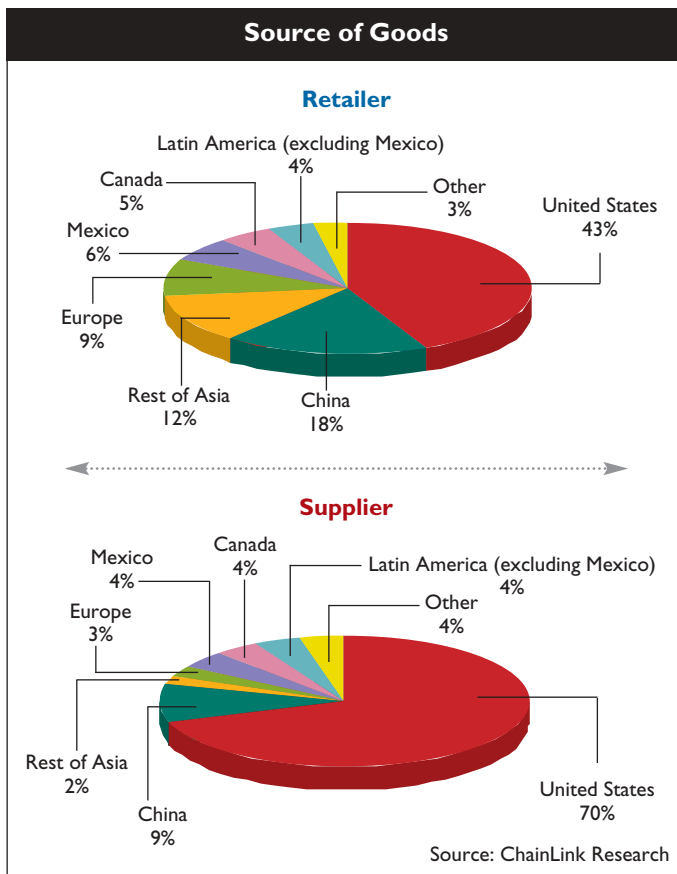
AUGUST 2004

International **Trade** and
Logistics for **Retailers**
and Their
Suppliers





International Trade and Logistics in 2004 for Retailers and Their Suppliers



Global markets and the widespread movement of manufacturing to low-labor-cost regions are creating an increasing array of tough decisions and challenges for retailers and suppliers. What is the right region for sourcing various goods (e.g., lower costs of China vs. shorter lead times of Caribbean/Mexico)? Who should be responsible for the movement of goods—the retailer, the supplier or a third party? Should we ship from the contract manufacturer to the supplier's distribution center (DC) or directly to the retailer? What is the right role for third-party logistics (3PL) providers and what is the best way to manage them? Where should we invest limited resources to improve international logistics?

Even when retailers or suppliers are not directly responsible for international transportation, they need to understand this area (or remain ignorant at their own peril). Sarbanes-Oxley mandates accurate accounting, including understanding off-balance-sheet liabilities from an increasingly outsourced global-supply base. Post-Sept. 11th security regulations and customs requirements have created a new reality that must be understood and adapted to.

To shed some light on this, ChainLink Research surveyed more than 100 retailers and suppliers, examining issues as diverse as where shipments go when they first enter the country, who is responsible for the transportation, the role of total-cost-of-goods calculations, visibility infrastructures and the key to successful management of 3PLs. We conclude with a vision of the global virtual factory that is fast becoming a reality. Knowledge is power—and necessary for survival in the complex and increasingly crucial world of international trade.



Product Sources and Destinations

Source of Products

Suppliers in our primarily U.S.-based survey said they manufacture 70% of goods domestically in the United States (see chart on page 2B). In contrast, retailers sourced almost 60% of their goods internationally. Retailers have developed an increasingly broad international sourcing base, which is a combination of non-U.S. suppliers, outsourced manufacturers building on behalf of U.S.-based brand-owners and the retailers' own private-label products manufactured outside the United States.

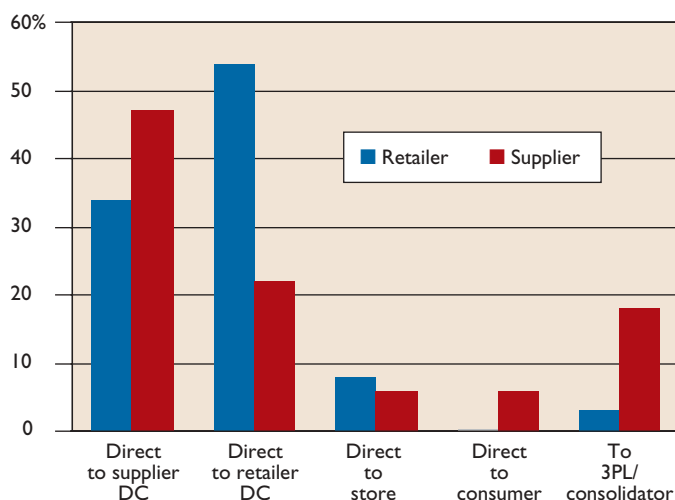
Who Takes Responsibility for International Logistics

The pace of growth in international shipments received directly by retailers is striking. However, the manufacturer still takes responsibility for the majority of shipments and, if anything, the trend is toward even fewer collect shipments. Retailers are rightfully wary of the challenges of taking on responsibility for international transportation.

However, for some retailers with unique requirements and capabilities, managing shipments from the global sources may be the right thing, e.g., if there is a high value in small improvements to lead time or inventory reduction. In general, only very large retailers will have the scale to get the shipping volumes necessary to justify the considerable investments required in infrastructure and expertise.

One example of a company that actively manages imports is Best Buy. It established West Coast cross-dock facilities to spread the peak load over many first ports of call, effectively increasing product flow by more than 125% in each of the past three years. Its consolidation/deconsolidation facilities pro-

First Domestic Destination of International Shipments



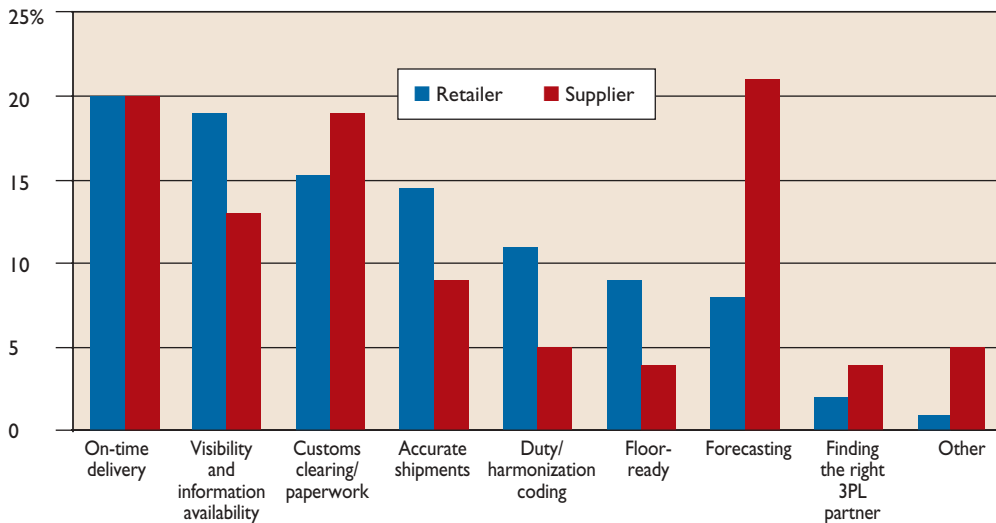
Source: ChainLink Research

vide inventory flexibility—they permit postponing decisions on which destination DC will receive goods until just before the product leaves the deconsolidation point, rather than being forced to make those decisions before the shipment leaves the country of origin. This improves the chain's responsiveness to changing demand and ability to ship to the right place, avoiding stockouts and excesses. Best Buy estimates that these strategies have removed eight days of inventory from its pipeline of international orders. Many other retailers also have managed international transportation for their private label for years.

Retailers that are trying to decide whether to manage inbound transportation need to examine their scale vs. their suppliers' scale and ask who can realize the most cost savings and negotiating power. In addition, they need to take a long, hard look at the huge investment in expertise and infrastructure required to manage the additional complexity of an international supply chain.



Most Important International Problems for 2004



Source: ChainLink Research

sorts and removes the bad product before sending it on to its retail customers. In some cases, a distributor or 3PL may provide this type of quality-assurance function.

Some companies are trying to solve compliance for goods shipped from a contract manufacturer by shipping it to their own DC and handling the labeling and packaging there. However, this is an expensive approach. In the long run, suppliers will do better to build the compliance consistency into their source

Destination of International Shipments

Our U.S.-based sample of suppliers said most goods come into their DC first (see chart on page 3B). The retailers, which source not just from U.S.-based suppliers, but also from foreign suppliers and direct from contract manufacturers, receive the majority of shipments directly to their DC. Direct-to-store or direct-to-consumer is reserved for a select set of items such as high-value, short-life products.

Shipping full-container loads of product directly to the retailers' DCs has some advantages, including:

- Reduction in warehouse infrastructure required
- Reduction in labor and handling costs
- Reduced pilferage/increased security

In addition to these operational benefits, in many cases, manufacturers provide incentives in the form of discounts for drop shipments.

Some suppliers want to ship to their own DC for quality-control or compliance purposes. This is critical, for example, in the produce industry where a certain portion of the product goes bad in transit. The produce supplier

plants. Overcoming challenges, such as language barriers and training issues, requires active participation of the supplier's representative on the ground at the source factory.

3PLs may offer specialized facilities and services that cater to industry-specific requirements, such as processing and distributing flowers or providing "store ready" services in clothing and apparel. Another value some 3PL companies can provide is in-transit merge. For example, containers of tables and other containers of chairs from a different origin are delivered to a centralized cross-dock location where the 3PL unpacks the containers, sorts the tables and chairs into the appropriate configuration and delivers them to regional distribution centers.

Key International Issues and Areas of Investment

Our survey showed that the top international issue for retailers in 2004 is on-time delivery (see chart above). For suppliers, it's forecasting. These are, of course, two sides to the same coin. With international shipments, there is a much higher degree of uncertainty or variation in delivery times due to weather



conditions, customs and paperwork delays, many hand-off delays, etc. As a result, on-time delivery is much more challenging than domestic transport. Because of the longer and less-predictable lead times, forecasting becomes a bigger challenge, as well.

Also high on the list of issues were product visibility and customs clearing/documentation—both of which are key to improving on-time delivery.

2004 International Investments

We asked where companies are investing in 2004 to tackle their international challenges. The responses fell into the following categories:

- Cost-of-Goods Reduction
- Time to Market, Lead Times and Service Levels
- Forecasting and Demand Management
- Visibility and Technology Infrastructure
- Sourcing
- Packaging
- Third-Party Management
- Transportation
- Customs
- Country-of-Origin Labeling
- Compliance

Cost-of-Goods Reduction

Reduction of COGs continues to be a primary motivator for international sourcing. This was identified as a key area of investment for 2004. Smart companies, however, don't focus on material price alone, but rather try to get a handle on total cost. As companies are buying increasingly complex components and services from an increasingly dispersed global supply base, the drivers of total cost beyond the base-material costs become much more important. These include such things as transportation costs, duties and tariffs, the cost of quality, manufacturability, serviceability, demand-supply matching

Total-Cost Requirements

Total-cost calculation requires a sophisticated data model and capabilities for accumulating the elements of landed cost. It includes:

- Ability to efficiently obtain quotes on raw material—i.e., cotton or wool—from multiple vendors around the world (New Zealand, Australia, United States, China, etc.) through a timely RFQ process.
- Ability to track and accumulate various logistics, customs and additional processing costs as the materials flow from the source factory through each processing facility to the next until they arrive in their final packaged state at the retailer.
- Tracking additional costs to the retailer throughout their inbound-logistics process all the way to checkout, including things such as return or disposal of shipping/packaging materials, and carrying costs of the inventory between receipt and sale.
- Providing sourcing personnel with a comparative total estimated landed cost for the “final state” product from the various vendors so that an “optimal” buy can be identified.
- Comparison of actual vs. predicted costs for these elements to validate the total-cost model.
- Providing a complete, accurate view of the item from the “final state” back to the raw-material state, showing the original vendor and country of origin, processing steps, etc.

risks—i.e., flexibility of supply (upside and downside), disposal costs, packaging costs, inventory carrying costs, relationship costs, currency fluctuations, etc.

Global strategic sourcing offers a more sophisticated approach to selecting and managing the supply base and the procurement of direct materials—longer-term relationships, continuous improvement, supplier scorecards, and tools and methodologies for measuring the true total cost of supply. An ideal approach accurately calculates the effect of the supplier's performance on all aspects of the total cost. This ideal is much harder to realize than to visualize (see sidebar above). Take, for example, calculating the true total cost of quality. You need to know the fail-



ure rate for each component or assembly at each stage of its life (incoming inspection, final test, in the field, etc.) and the total cost per failure at each stage, including things such as inspection costs, repair costs, paper-work costs, transportation, technician's time, slow-downs in production, etc. This requires rigorous activity-based costing. On top of that, you need to factor in and put a dollar figure on the damage to customer loyalty and the resulting long-term loss of revenue and market share from failures in the field.

You also may need to understand the currency risks that arise from sourcing overseas. If there is a six-month period from the time you place an order until it arrives, the currency fluctuations could put the goods at a very different price than originally planned. Right now, that is not an issue for China since it's pegged to the dollar, but that eventually may change.

Although achieving true total-cost calculation capabilities can appear overwhelming, companies can realize significant value by taking modest incremental steps in that direction, e.g., implementing landed-cost calculators to include tariffs and duties. Knowing the total cost helps drive smarter decisions on sourcing and helps companies pinpoint the areas ripest for improvement.

Visibility and Technology Infrastructure

Visibility and the integration infrastructure were mentioned by many respondents as key areas of investment for 2004. These are required for dealing with the complexities and

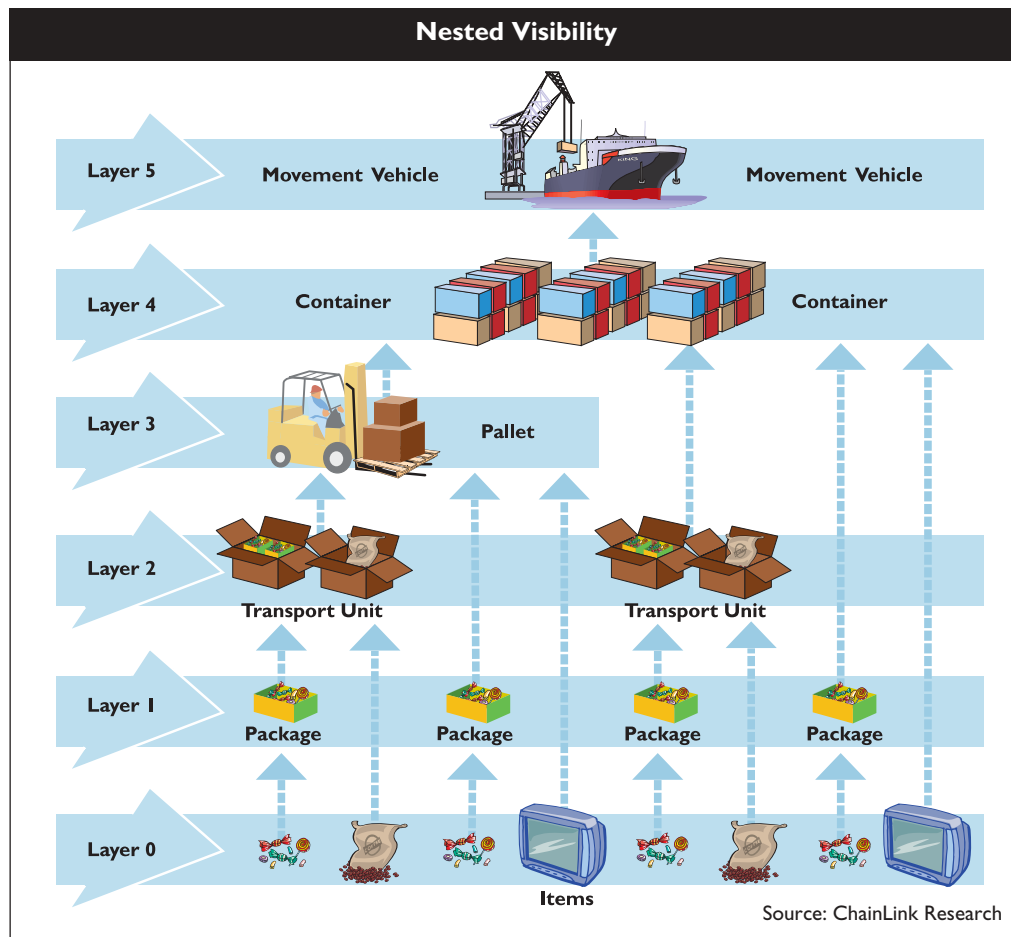
Visibility/Technology Areas Mentioned by Respondents:

- RFID
- Trace and track
- Case-level visibility
- ITL (international trade and logistics) solutions
- WMS (warehouse management systems)
- Data integrity and integration
- Information availability
- Communications and information infrastructure
- Standardization
- IT investments with OEM/ODM partners to meet retail and commercial partners' order and shipment requirements
- Traceability

variabilities in the international supply chain (many hand-offs, customs delays, etc.). This includes visibility for both goods in motion (trace and track) and goods at rest (factory/warehouse/DC visibility). The longer the supply chain is, the more links are involved, and the greater the opportunity for delays and document errors. Additional complexity related to language, unit of measure and other regional differences makes it important to identify key events along the supply chain, and implement technology to manage and monitor these events.

Front-End—Back-End Integration

The requirement for integrating front-end order management with the back-end visibility across the global-supply network is becoming increasingly important as companies have warehouses, DCs and factories spread out all over the world. It may make sense to pull a single order from multiple locations, and this requires technology, integration and collaboration with various locations to make those decisions intelligently in real time. This requires interaction between the rules in the order-fulfillment and WMS (warehouse management systems) with some sophistication built into the allocation algorithms. For example, for products with a limited shelf life, if the oldest products are in a location further away, the system should determine if it's worth the extra transportation cost to use up the older product, rather than pull the newer product that is in a closer location. Visibility alone is not enough—there needs to be built-in intelligence to make these decisions. Many of today's information systems (such as Yantra) have business rules built in to facilitate these complex scenarios.



Item-level visibility is possible if the data model supports nesting. Different items will have different nesting configurations—for example, candy bars in store-ready packages in cases on pallets in a container vs. a large screen TV loaded individually into the container. These nested units often are reconfigured as items make their way from factory to retail shelf. With a complete nested data model and support for accurately recording reconfigurations at each step of the delivery chain, you can track the status down to the level of individual items in your vehicles and warehouses.

Nested Visibility

To get visibility down to the item level does not necessarily require item-level tagging and tracking. Item-level visibility throughout the chain can be achieved if your systems are capable of nesting (i.e., they understand items within cases within pallets within containers—see illustration above). The nesting relationship's data model needs to be updated at each hand-off point as containers are moved from ship to rail or pallets are moved to different containers, etc. This requires that the 3PLs, consolidators, deconsolidators and other partners along the chain have the processes and technology in place for nested tracking—one more argument for careful trade-lane mapping and selection of all end-to-end transportation-chain partners. Because few companies (includ-

ing 3PLs) are capable of this level of global coordination and information management, some large firms have decided to build their own hubs and infrastructure.

Management by Exception

Visibility should be used to create alerts about key events, not to create an overwhelming tidal wave of data. This is where a lot of the work is—building in the intelligence and rules to know what events are important. For example, if a truck bound for port is delayed, it is not necessarily important unless it will miss the ship's loading deadline. By understanding the impact down the chain of each event, the system can be designed to minimize alerts to only those relevant ones that require action.

Avoiding Blind Spots

You lose visibility when product moves into



Packaging Mentioned by Respondents:

- Packaging and flavor application capabilities
- Specialized packaging developments
- Full-pallet shrink wrapping
- Redesign of source packing to eliminate duplication of costs in the United States

Third-Party Management Areas Mentioned by Respondents:

- 3PL partners
- Consolidators
- 3PL performance

a location that is not adding information, e.g., a container depot that does not track and transmit to you the movement of goods through it. You may know product went to the depot, but have a blind spot until it arrives at the vessel site. These blind spots also can potentially compromise security and “green lane” status. To maintain certification, you need to be able to audit and record every change in custodianship to ensure that only trusted parties have handled the shipment. Good, clean documentation with accurate product and shipment information all along the line is needed, whether export or import.

Networked Integration Model

Ideally, the documents and records of changes of custodianship are being recorded electronically and made available to each player across the global-delivery network (with proper secure-access controls on a need-to-know basis). This is an argument for a networked system accessible to all the multiple players involved in international trade. This ensures that there is a “single version of the truth,” reduces manual labor and re-keying errors, and makes it easier to integrate new partners, giving added flexibility to partner selection.

Packaging and Packing

One potential improvement is more consideration of the end-customer packaging and packing requirements at the offshore source. Trade-offs are lower labor costs and less repacking vs. potentially higher shipping costs. There are also different levels of packaging for different modes (air freight typically requires a stronger container than containerized ocean freight) or the number of transshipments (more requires stronger packaging). These affect insurance costs, as well. Other considerations include the bulkiness of packaging, disposal and ease of handling.

Staying on top of new packaging technologies is key. In certain areas, such as reusable containers for cold chain, there have been many recent advances. The logistics community has recognized these specialized material handling needs, responding by providing a new range of services to manage product that requires special handling and control. These offerings include customized packaging, e.g., temperature-controlled packing containers that retain a constant temperature and monitor deviations in external factors. The 3PL community has taken the lead in this area developing specialized services.

Third-Party Management

Expanding Scope

3PLs play increasingly important roles in running international logistics. As such, the selection and management of 3PL performance has become critical to the success of international operations. 3PLs are no longer just managing carriers, but, in some cases, managing the contract manufacturer or supplier or customer demand and fulfillment, as well as the IT services. Technologies and services exist to create a virtual environment, which enables the involvement of many parties in the end-to-end execution. This allows



for new complex scenarios and trade-offs. For example, you might want to consolidate in Singapore and drop ship from there to your customer. Or you may want to consolidate at a regional DC, where your warehousing and labor costs are lower.

Regional Expertise

It is hard to overstate the importance of regional expertise. You may have a large, global 3PL acting as the lead logistics provider, but in the end, you need someone on the ground who speaks the local language, knows the local politics and knows which palms to grease to cut through the red tape and keep the goods moving. Most global players will use regional players to get the expertise and surge capacity they need. The global players' value comes in the coordination and single point of accountability they should provide.

Performance Management

The involvement of so many parties increases the importance of clear definition of responsibility—setting and enforcing the rules and performance requirements. These agreements should cover all the bases—sending of accurate electronic documentation in a timely manner, on-time delivery, etc.—and clearly lay out the rewards and punishments.

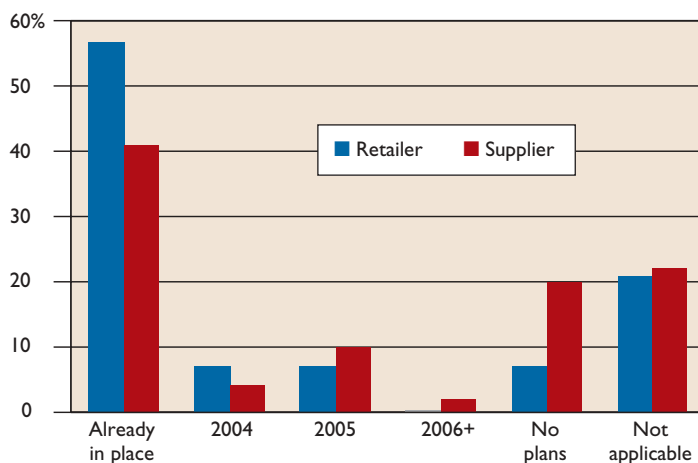
Software technology is valuable in helping define and, more importantly, monitor performance against service-level agreements, and identify exceptions so that performance can be improved. Performance measurement and management discipline improves predictability and performance, and lowers cost.

Customs

Customs rules and procedures are complicated in all industries, but even more so in some such as food, drugs and apparel. Food and drugs in many cases have to be randomly sampled, which can translate into significant delays if sampling rates are high, not to mention needing your “bakers dozen” (extra product) to account for product used in sampling.

Offshore Manufacturing Compliance Guidelines

When will you introduce compliance guidelines for offshore manufacturing?

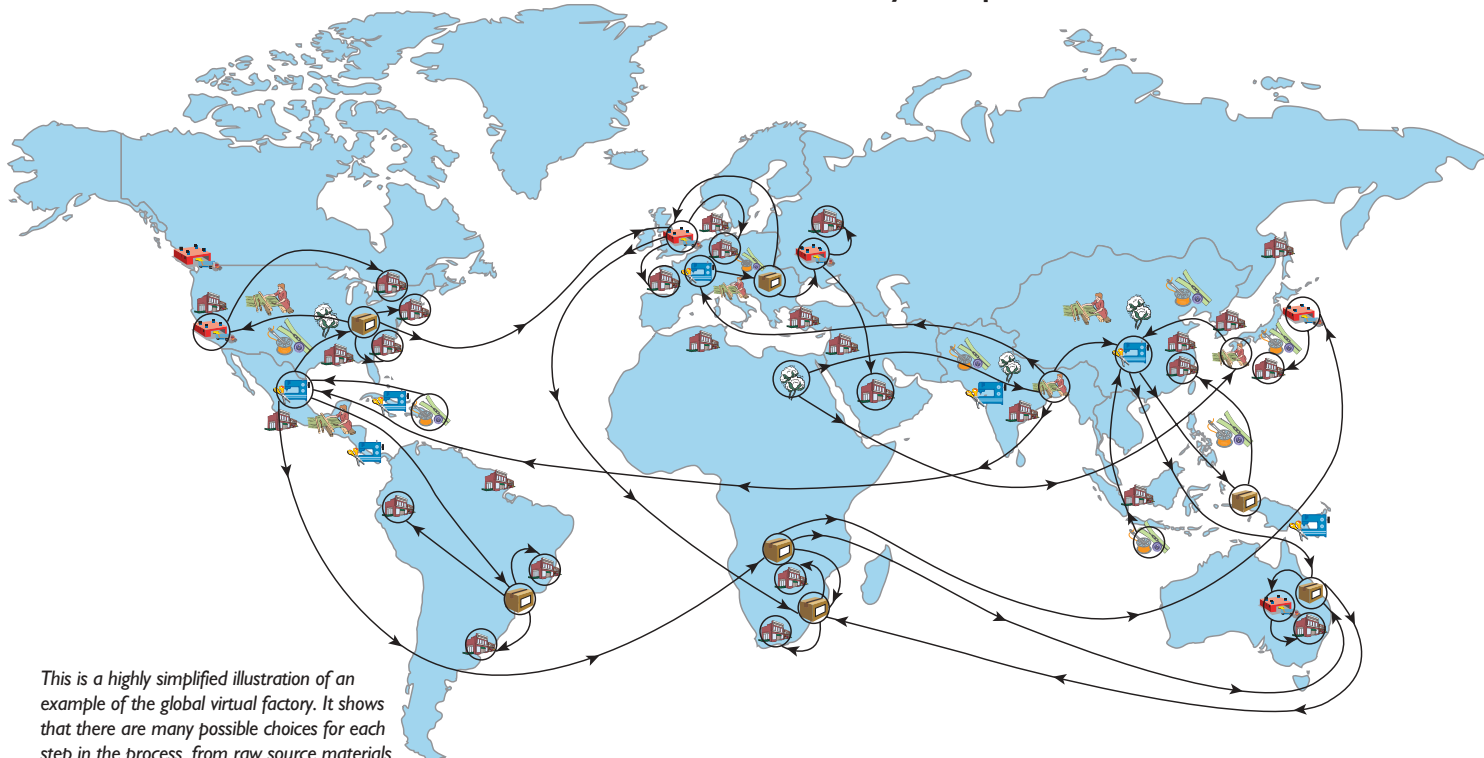


Source: ChainLink Research

Clothing and apparel companies are some of the biggest importers, and customs wants to know the country of origin and transshipments to make sure that the goods don't come from another factory with underage workers. Concern about the source-factory practices means customs can ask for cutting sheets (age of the actual individual who cut and sewed the cloth) as part of the export package. When in doubt, customs can detain containers they believe might come from a source the United States doesn't want to do business with. Frequently, the cheapest source of supply is a high-risk area in this regard—so buyer beware! Sourcing strategies should include an education program where personnel responsible for raw material, component and product sourcing are educated in potential hazards and understand how to avoid this at the time of supplier contract negotiation. At the most basic level, it is important to ensure that the supplier is able to assemble a complete documentation package—in English! This is critical to ensuring that goods move through the process and are not detained or even denied entry.



Global Virtual Factory Example



This is a highly simplified illustration of an example of the global virtual factory. It shows that there are many possible choices for each step in the process, from raw source materials to the retailer's shelf. The "supply chain master" (if there is one) designs the virtual factory, making choices on where, when and how each of the steps takes place. More and more there is flexibility in how and where things are done. For example, postponing the dying of cloth or the packaging and labeling to much later in the chain, to better match supply with demand.



Cotton Farm



Mills



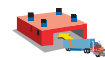
Ancillary Components



Cutting/ Sewing



Packaging & Labeling



Distribution



Retail Store

Source: ChainLink Research

The supply chain master configures the global virtual factory to meet their specific goals, such as minimizing total cost or maximizing flexibility and agility. Many factors go into these decisions such as the location and requirements of the end market(s) being served, location of raw materials, duties, tariffs, quotas, regulations, political stability of regions, labor costs and skills, infrastructure maturity, transportation times/ costs, perishability and/or price-erosion of the product, buying power of various players, etc.

Real supply chains are much more complex than what is shown here. They will have many more steps in the process (for example, from cotton to cloth can involve dozens of steps, instead of the single step illustrated here). Furthermore, they will have many more nodes to choose from than what is illustrated—tens of thousands of mills, factories, packaging operations and distribution facilities to choose from, as well as hundreds of thousands of potential retail outlets to ship to.

Compliance

Slightly more than half of the retailers and about 40% of suppliers already have compliance guidelines in place for offshore manufacturing (see chart on page 9B). Compliance should be addressed during procurement and sourcing by communicating and pinning down all the detailed compliance requirements when certifying suppliers. The lowest-cost supplier may not meet your needs. The cost of inspecting and fixing mistakes can be higher than the difference in material costs. This often requires working closely with the supplier to build the right capabilities and educate their work force.

Conclusion: The Global Virtual Factory

Activities related to the translation of product descriptions to customs classifications, defining transportation and storage requirements—the intricate detail that is part of the fabric of global trade—are performed by a multitude of players. These include customs brokers, primary and secondary carriers, as well as storage and equipment providers. Then there is the critical element of the "first" or "last" mile. This includes the movement of goods from primary point of entry to manufacturing, conversion and storage locations, and the subsequent intricacies related to order fulfillment—to retail stores or,



more recently, direct to consumer. This requires warehouses, delivery fleets and regional operation—in many cases a series of small players that extend the logistics reach of the brand masters. Managed by 3PL providers, and dressed in the colors of the brands that they represent, an extended network of logistics providers, both small and large, create a seamless flow of goods, information and cash, from supply to demand.

This is the new virtual factory where the convergence between manufacturing, assembly, delivery and service creates new and exciting opportunities for those who recognize them as such. New services provided by these members of the extended enterprise go beyond those traditionally related to storage and distribution. Value-added processing activities include those required for retail-customer compliance, to include configuration, assembly, packaging, labeling, palletizing—whatever the market demands. Extending the customer-relationship model beyond the initial product sale, third-party providers offer services in the area of product installation, recall, service and repair.

(Excerpted from “Future Forward Logistics: Creating an Extended Global Enterprise” by Carla Frances Reed, published April 2004, ChainLink Research, Inc.)

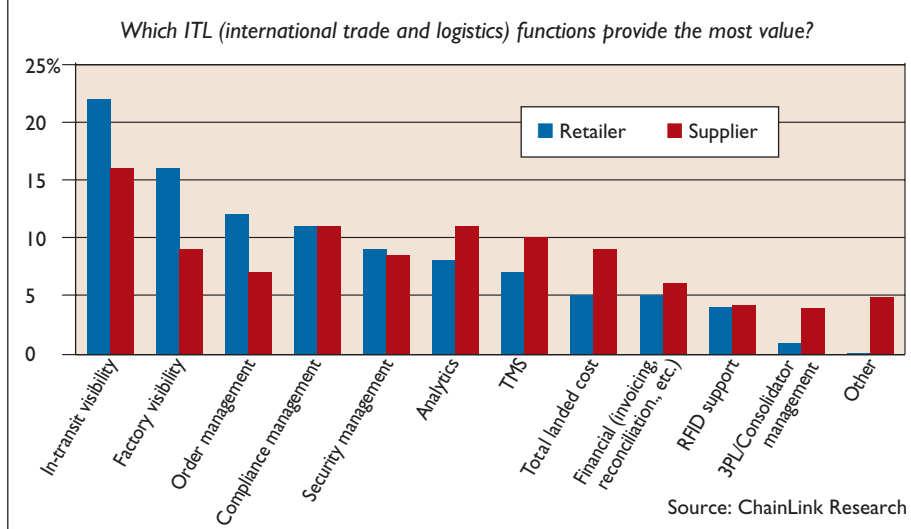
This paints a remarkable vision of the end-to-end network of contract manufacturers, brand owners, retailers and third parties that is instrumented and optimized like a physical factory. For example, the location of inventory could be managed globally across all of the various locations, including the work in progress at various stages in various factories; the goods in motion on the various carriers; and the goods at rest in various factories, DCs, warehouses, consolidation and deconsolidation points, and retail outlets.

Once this global factory is instrumented (i.e., has visibility and measurements at every step), it can be optimized, for example, by moving assembly or packaging downstream to postpone differentiation, or by moving compliance applications upstream to reduce cost. The dream of a global virtual factory is not so far-fetched. For years, Li & Fung and a select

few global trading companies have put components of this vision into practice. Making it a reality requires a deep understanding of the supply chain and connections in the various regions. It also demands the discipline of performance guarantees that are baked into the relationships between the parties in the form of SLAs (Service-Level Agreements), metrics and monitoring systems at every step. The desire to move closer to the ideal of a global virtual factory is highlighted in suppliers’ and retailers’ choices of the ITL (international trade and logistics) functions that provide the most value to them (see chart above).

Creating a successful global virtual factory is not just about ITL technology. It is critically important to understand the international landscape—the politics and culture, as well as the strengths and weaknesses of hugely diverse regions. It is essential to have a presence on the ground that is intimately familiar with the ins and outs of the arenas you play in. Then all of the options can be considered—where you source raw materials, where each step of processing and assembly takes place, when and what to consolidate, what is the optimal postponement strategy and location, etc. Through the right combination of experienced partners, smart use of technology and, of course, deep knowledge, this Gordian Knot of international trade can be unraveled and the advantages of an optimized global virtual factory can be fully realized.

Most Valuable ITL Functions





Acknowledgment



ChainLink Research is a bold new supply chain research organization dedicated to helping executives improve business performance and competitiveness. ChainLink was founded on the premise that supply chains are market driven and that the management of the links between the companies has become the key determinant of the winners and losers. ChainLink's fresh approach to supply chain research, actionable analysis and high-impact decision-making workshops helps manufacturers, retailers and technology firms enter new markets, expand share and achieve peak performance in their markets.

ChainLink focuses solely on supply chain. Our 3PE methodology encompasses the Policies, Processes, Performance and Enablers for realizing supply chain excellence. Our world-class team has created a rich knowledge base of timely, next-generation business innovations, practices and technologies such as supply chain networks and small/smart/fast technologies.

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ChainLink Research bridges the gulf between supply chain managers and the CEO's team. Emerging and leading supply chain executives have recognized ChainLink as the foremost supply chain thought leader and action catalyst for the 21st century.

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