

Distribution Management Optimization

Increase Sales – Decrease Costs – Mitigate Risk



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“Current WMS applications have left significant room for improvement.”

James Tompkins and John Traendly,
page 17, Supply Chain and Best Practices Consortium,
Rila Logistics 2006, February 20, 2006
(Tompkins Associates)

In 2004, John Traendly released the results of the Soleus Group’s annual Retail Supply Chain Best Practices Review¹. The study included these findings in the area of vendor performance:

- On-time availability at shipment origin – 81.7% versus a goal of 97.5%,
- In stock at stores – 94.3% versus a goal of 96.8%,
- Fill rate on closed orders – 93.7% versus a goal of 97.2%,
- Timely and accurate Advance Shipment Notifications – 93.7% versus a goal of 90.0%

In 2006, James Tompkins and John Traendly presented updated data from the Soleus Group at the RILA Logistics 2006 conference²:

- On-time availability at shipment origin – 84.5% versus a goal of 97.4%,
- In stock at stores – 94.7% versus a goal of 97.3%,
- Fill rate on closed orders – 91.8% versus a goal of 97.7%,
- Timely and accurate Advance Shipment Notifications – 75.6% versus a goal of 90.3%

The latest study included an additional metric for Perfect Order performance, defined by the Supply Chain Council as:

The performance of the supply chain in delivering: the correct product, to the correct place at the correct time, in the correct condition and packaging, in the correct quantity, with the correct documentation, to the correct customer.

According to the study, vendors delivered perfect orders 92.3% of the time versus a retailer expectation of 99.4%.

¹ *Retail Supply Chain Best Practices Review* (Soleus Group, 2004) The initial research, which took place in 2004 and focused on inbound supply chain practices, included retailers with over \$500 billion in sales, 87,000 retail outlets and 3.8 million associates. The first phase of this ongoing retail review included 3,000 questions across 37 different functional topics. The Soleus Group was since acquired by Tompkins Associates.

² Supply Chain and Best Practices Consortium, James Tompkins and John Traendly, page 17, Rila Logistics 2006 (Tompkins Associates, February 2006)

In the area of retail distribution performance, Tompkins and Traendly identified the following:

- There are several key opportunities to upgrade receiving operations including expanded use of ASN's for unload planning and automated product receipts.
- Automated slot management tools can result in significant productivity improvements, but they are not used in many D.C.'s.
- Expanded use of crossdock and flow through operations is the ultimate key to improved performance.
- Current WMS applications have left significant room for improvement.

Regarding crossdock and flow through operations, Tompkins and Traendly found that:

- Costs, transit times and damage increase the more times a product is handled in moving from vendors to stores or customers.
 - Flow through at distribution centers required 3.0 touches, and
 - Cross dock at distribution centers required 2.0 touches, while
 - Pick from stock at distribution centers required 5.3 touches.
- The mix of crossdocked, flow-through and stored product can significantly impact average gate-to-gate times through distribution centers.
 - Receipt processing and crossdock to shipment staging (for crossdock products) averaged 1.0 hours, and
 - Receipt processing and flow through to shipment staging (for flow through products) averaged 1.7 hours, while
 - Time in storage (all storage types, including reserve storage and picking locations) averaged 503 hours, plus the
 - Pick from stock to completion of packing and move to shipping time of 2.8 hours.

Yet, in spite of the clear advantages offered by flow-through and cross dock processing, Tompkins and Traendly found that:

While crossdock and flow through are the most significant opportunities to reduce inbound order cost and transit times, they are a relatively small percent of the order flow.

Finally, Tompkins and Traendly offer the following statistics on the average retail DC mix of flow-through, crossdock, and pick-from-stock orders:

- Crossdock 16%
- Flow through 9%
- Pick-from-stock 75%

Bringing a knife to a gunfight

Most warehouse management systems are not well-suited to support the needs of modern retailers, particularly retailers' needs to leverage advance shipment notification, flow through and cross-dock processing, and improved store in-stock performance. They are designed to support traditional distribution activities within the four walls of the distribution center, but lack the capacity to capture and process the data necessary to effectively enable the distribution center to optimize the velocity and continuity of freight flow from the vendor through the D.C. and to the store.

- Current, accurate and complete visibility into supply chain activity - Most warehouse management systems do not facilitate visibility into comprehensive and accurate supply chain activity. With adequate supply chain performance history retailers can enter into more effective and productive collaboration with vendors and other stakeholders in the extended supply chain. A robust supply chain data warehouse component of a warehouse management system will inform merchandising, logistics, and supply chain planning and execution. Effective analysis of supply chain data enables adjustments to planning and execution that provide continuous incremental improvement in extended supply chain performance.
- Preservation of supply chain source data – Effective analysis of supply chain events is only possible if original, source data is maintained. Best-in-class distribution management solutions must preserve the integrity of source documents (PO, ASN, and receipts), as opposed to most receiving systems that require changes to source documents in order to receive merchandise. This includes, for example, the requirement that many receiving systems impose that demand that a PO be changed to enable the receipt of a substitution against the PO.
- Proactive identification of trouble shipments – Because they lack visibility into inbound shipments, distribution centers are often unaware that an inbound shipment is a trouble shipment, because analysis of the shipment was not possible, due to lack of information, or is cumbersome, due to a lack of automated tools to conduct an analysis. Because a trouble shipment is not identified until it arrives at the receiving dock, it is likely to linger on a trailer, on a receiving dock, or in storage, until it can be resolved.

- Rapid resolution of trouble shipments - Compounding the problem is the lack of distribution solutions that facilitate communication, research, resolution, and execution of the resolution of trouble shipments. Shipments that arrive at distribution centers early or late, do not match their corresponding PO or advance shipment notification, do not include necessary value-added services, or are damaged create bottlenecks throughout distribution center processes that slow merchandise flow, and waste human, equipment, and storage resources. Distribution management optimization depends on proactive trouble identification and tools to facilitate and expedite trouble resolution and communication.
- Flow through, cross-dock, pick-from-stock, and future best practices – Warehouse management solutions based on traditional manufacturing distribution may provide adequate support for pick-from-stock practices, but often lack support for flow through and cross-dock practices that offer retailers the most gains in distribution optimization. Many WMS offerings also lack the configurability necessary to adapt to future best practices and distribution technologies.

Without the availability of effective distribution solutions, retailers are forced to implement expensive warehouse management solutions and spend additional money to design and implement middleware solutions internally, or with the help of a third-party, or to pay for modifications to the warehouse management solutions themselves. In-house, middleware solutions, or modifications to existing software are not likely to benefit from best practices input to future design enhancements. They are also likely to lack the flexibility necessary for retailers to enhance or change distribution or MHE systems to maintain competitive supply chain and enterprise performance.

Data

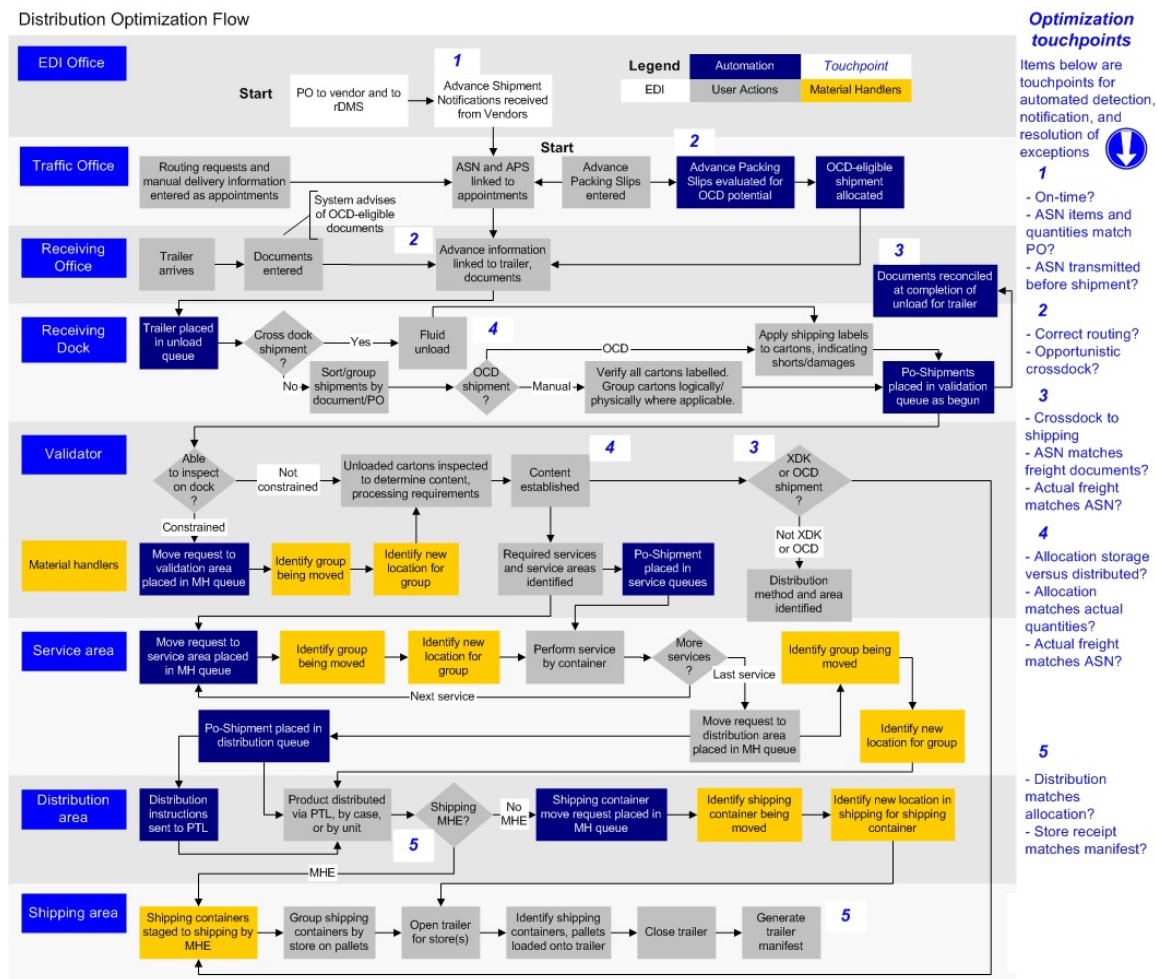
In order to provide merchants, vendors, and distribution centers the greatest possible opportunity to resolve a discrepant shipment before it becomes a trouble shipment at the receiving dock, distribution management solutions must capture all the data relevant to the PO life cycle. This data is also necessary for complete, accurate visibility into supply chain activity. Necessary data includes the complete PO record, and:

- ASNs • Order types (cross-dock, flow-through, pick-from-stock)
- Advance freight documents • Allocations
- Receiving documents • Storage and retrieval activity
- Receiving activity • Inventory activity
- Shipment validation • Distributions (manual or automated)
- Vendor non-compliance • Outbound shipping
- Trouble shipment activity • Store receiving
- Value-added services
- Order types (cross-dock, flow-through, pick-from-stock)
- Allocations
- Storage and retrieval activity
- Inventory Activity
- Distributions (manual or automated)
- Outbound shipping
- Store receiving

Distribution Management Optimization Flow

The flow graphic below (Graphic 1) represents an optimized PO life cycle, starting with the retailer passing the PO to the vendor and ending with the store confirming receipt of the merchandise. The light blue boxes represent opportunities to automate distribution activity and the blue numbers represent opportunities for automated comparison of data for the purpose of detecting exceptions that require resolution and for optimizing the path through which the shipment or part of a shipment will flow.

An important intent is to detect and resolve exceptions as early as possible in the life cycle, to eliminate or minimize delays. Another important intent is to detect opportunities to redirect the flow of merchandise in order to shorten the cycle time to delivery to the store. Opportunistic crossdocking is a good example of redirecting the flow: if a shipment can be allocated prior to arrival at the dock, the distribution management solution can determine if it is configured to enable all or some of the shipment to be treated as crossdock upon arrival. Opportunistic cross dock merchandise may be routed from the receiving dock directly to the shipping dock, without being subject to non-crossdock processing requirements.



If you can't see it, you probably can't manage it

Ultimately, the primary objective of the supply chain is to execute the merchandising plan. A well-executed merchandising plan implies delivering the right product to the right destination, on-time, undamaged, in the correct quantities and configurations. It also implies that this is accomplished as cost-effectively as possible. Visibility into supply chain activity directly supports the execution of the merchandising plan and of the continuous improvement of that execution. It also enables merchants to have an accurate view of the effectiveness of the merchandising plan, which enables continuous improvement of that plan. When supply chain failures occur without adequate visibility, planners are required to make assumptions. Forecasting is challenging enough without unnecessary guesswork.

Effective supply chain visibility includes, but is not limited to:

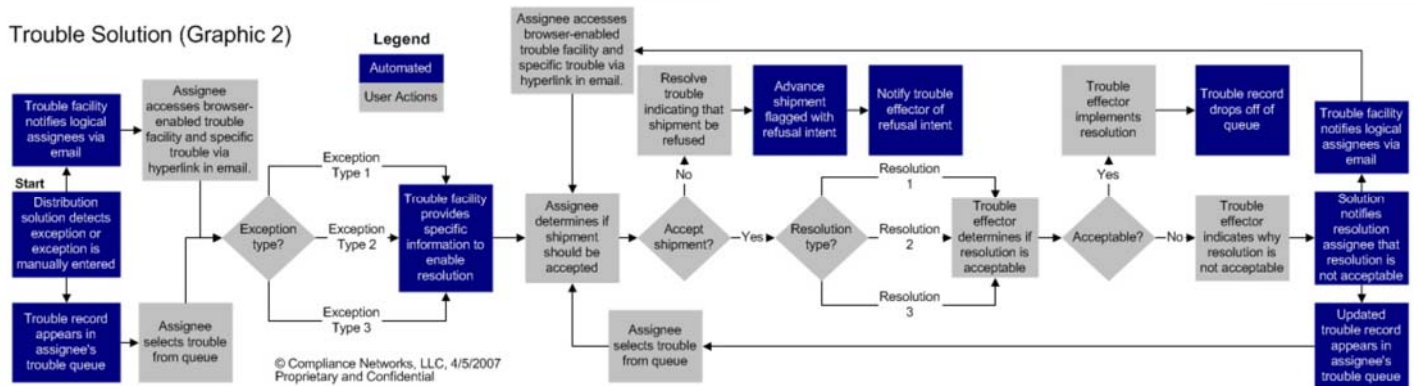
- A facility for requesting allocations and managing pending allocations
- A facility for notifying responsible parties of exceptions, for enabling resolutions, and for executing resolutions
- Real-time information:
 - Where a shipment is: inbound, internal, outbound, or completed
 - What has been done to the shipment and what needs to be done to the shipment
 - Who has performed processing on the shipment and who will perform additional processing on the shipment
 - When can the shipment expect to move on to the next activity
- Historical information to inform tactical decisions and strategic supply chain planning.

We got troubles, troubles, troubles

A best-in-class distribution management solution will not only leverage supply chain data to pro-actively detect exceptions (or allow them to be manually entered into the application), it will also provide a facility that communicates the exception to appropriate parties for managing exceptions, resolving exceptions, and implementing the resolution. In some cases, timely trouble detection could enable a shipment to be corrected before it leaves the vendor's shipping dock.

For the purposes of this paper, we will define a trouble shipment as a shipment with an exception that must be resolved for the shipment to proceed further in the fulfillment process. The Trouble Solution graphic (Graphic 2, below) illustrates how a trouble facility could notify users, provide visibility into unresolved trouble shipments, provide the data necessary to resolve a trouble, and enable communication between parties involved with resolving a specific trouble.

Trouble Solution (Graphic 2)



Profiting from Distribution Management Optimization in the Retail Supply Chain

A competent distribution management solution will enable continuous improvement of the extended supply chain's execution of the merchandising plan. It will also provide information to support continuous improvement of the merchandising plan itself. The benefits to the enterprise include reduced supply chain costs, increased sales due to fewer stock-outs and better merchandise planning, and mitigated risk due to supply chain visibility that informs planning and execution.

About Compliance Networks, LLC

Compliance Networks is a leading provider of solutions that enable retail enterprises to optimize flow within their supply chain and make informed supply chain decisions that ultimately increase shareholder value. Compliance Networks's suite of retail-centric vendor compliance and distribution management solutions optimize supply chain efficiencies to accelerate retail profits by increasing sales, decreasing costs and mitigating risk throughout the extended supply chain. Since 1999, Compliance Networks has offered best-in-class vendor compliance optimization and supplier performance management solutions that enable retail enterprises to make informed supply chain decisions. Compliance Networks is proud to serve leading retailers such as Kohls, Burlington Coat Factory, Pep Boys, The Sports Authority, Bon-Ton Stores Corporation, Oshmans and Gottschalks Stores. Additional information can be found at www.compliancenetWORKS.com