



TROUBLE WITH TRANSPORTATION: JUST-IN-TIME ORDER FULFILLMENT AND AUTOMATION

White Paper

The Trouble with Transportation: Overcoming the Trucking Crisis with Just-in-Time Order Fulfillment and Warehouse Automation

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With today's fast-paced supply chain and rising consumer demand, it has become a best practice for warehouses to prepare and stage orders prior to the truck's arrival, typically up to 24 hours in advance. While this practice may seem like an effective method of fulfilling orders in a timely and accurate manner, it doesn't take into consideration the possibility that the truck is late, or worse, doesn't show up at all.

So, what happens if a warehouse prepares and stages an order and the truck doesn't arrive until hours after it is due? In such cases, the staged order ends up sitting in the facility, clogging up valuable space and incurring costs. Then, when the truck arrives, most carrier companies require a two-hour turnaround for loading and shipping the order. Should the truck exceed that two-hour window, the warehouse or distribution center will face a detention fee.

Unfortunately, trucking and transportation reliability has suffered over the last few years due to the industry's shortage of drivers and high turnover





rate. In fact, the American Transportation Association (ATA) reports that the driver turnover rate for large truckload companies reached 96 percent at the end of 2014. A repercussion of this shortage is the rise in transportation and logistics costs. This means that organizations must make bigger and better deals with carrier companies in an attempt to ensure more dependable trucking. Add those challenges to the increase in order complexity, and it becomes a never-ending struggle to fulfill orders on time and keep customers happy.

The reliability of trucks is vital to keeping a warehouse flowing and running smoothly. In order to overcome today's trucking and transportation issues and make the entire logistics plan more reliable, warehousing and distribution companies should implement **Just-in-time (JIT) order fulfillment** strategies. The idea behind JIT order fulfillment is to prepare orders right when the truck arrives on site, as efficiently and quickly as possible. Yet, with a manual labor force and a traditional warehouse storage system, JIT order fulfillment is nearly impossible. Instead of spending more money increasing staff or expanding existing real estate, organizations should look to warehouse automation technology.

An **automated storage and retrieval system (AS/RS)** provides a viable solution for meeting JIT order fulfillment requirements. These high-density, robotic systems can store and retrieve layers and cases (with and without a pallet) from inventory, with maximum speed, efficiency and responsiveness. When integrated with a **warehouse execution system (WES)**, AS/RS gives organizations full control over their material flow. But, how does this enable JIT order fulfillment?

With AS/RS, warehouses do not have to prepare their orders far in advance and can keep items in storage within the automated system. When the truck arrives on site, operators release the order via a software interface. Then, the storage/retrieval machine (S/RM) picks and delivers the order to the appropriate area for loading onto the truck. Because of the sheer speed of the system, it is not necessary to stage orders on or near the loading dock, and products are only brought out when needed. This frees up a great deal of warehouse space and keeps everything flowing.

Now, if the truck doesn't show up, it's no longer the warehouse's burden. If the truck shows up four or five hours late, or if the load gets dropped, the warehouse is able to continue operating without a hitch – there are no scheduling disputes and the likelihood of detention fees decreases. And, for food and beverage companies that deal with frozen or refrigerated goods, perishable items are kept fresh and safe in their respective freezers until the truck arrives.

At the crux of automation technology's ability to provide JIT order fulfillment is its intrinsic capability to help warehouses to do more with less. Because of their high-density configuration, AS/RS provides better space utilization through a more efficient warehouse design. Therefore, less square-footage, less dock space and less people are required. As a result, warehouses are getting faster truck turns, as they can load more trucks and ship more product out of a particular facility in a shorter timeframe. Simultaneously, their costs remain fixed with volume. As volume grows, cost doesn't increase. Plus, warehouses have much more flexibility in choosing their carriers and trucking companies because they do not have to vie to offer the best deals in an effort to obtain a reliable fleet.

Looking forward, the challenges of the transportation and trucking industry show no signs of reversing. The ATA even projects that the industry could face a shortage of 240,000 drivers by the year 2022. Companies who invest now in warehouse automation technology will be best prepared to tackle these forthcoming challenges by driving JIT order fulfillment and maximizing overall warehouse efficiency.

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