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STARTING WITH RFID: Items, Cases, Pallets, or Trailers?

Plenty has been written about the benefits of RFID and the goals of RFID projects, but the fact remains that an RFID project, like any other, must provide a financial return in a relatively short timeframe. So, what would an RFID project with a quick financial return look like? Some could be projects consisting of tagging items, which is the most common, tagging cases and/or pallets (the Wal-Mart "initiative"), or the least-discussed option of tagging trailers.

First, what benefits would be achieved from tagging trailers from a business perspective? The short answer is more efficient yard operations, which lead to more efficient warehouse operations. This benefits both the operator and his customers by leading to lower operating costs across the board. A more detailed explanation requires some idea of how yard operations change with a tagged trailer and real-time yard visibility.

Yard truck activities fall into one of three categories: 1) actively moving a trailer, 2) traveling empty and searching for the desired trailer to move, and 3) idle time. The faster a trailer is located by the yard truck, the more productive the yard operation becomes.

One approach to improving efficiencies is implementing an enterprise-class traditional yard management system (YMS) to minimize the search and idle times by directing the yard operations much like a warehouse management system (WMS) directs warehouse operations.

However, traditional YMS and WMS and their implementation overhead can be costly as a starting point, and may not even be necessary in smaller yards. Besides, not all drivers do as the YMS would expect and assume. Just knowing where a trailer is located so that the driver can go directly to it is already a significant change—information that can lower costs.

Real-time location systems (RTLS), which depend upon active RFID technology, were introduced several years ago to automatically report the location of trailers and containers. Because of the installation complexities, the use of battery-dependent tags and their related maintenance needs, and the overall high costs of these systems, active tag-based

RTLS were never widely adopted. On the other hand, locating trailers using inexpensive passive RFID tags provides the benefits and desired return on investment that many operators desire.

In a passive RFID environment, each trailer is assigned a passive RFID tag as it enters a yard. The yard truck contains an RFID reader, global positioning system (GPS), and additional sensors and processors that are packaged into one unit in the cab. The unit inside each yard truck pings and registers each trailer in its vicinity, and the information is combined with the sensor information. As the yard truck drives around the yard performing its regular duties, it is painting a real-time picture of the yard. Because there are only a few RFID readers (one per yard truck), and the passive RFID tags are inexpensive, there are no other infrastructure components required and the system installation cost is very low.

Further, since the system is passive and can be deployed as a stand-alone, hosted solution, its implementation takes days, and not months like traditional WMS or YMS systems. Indeed, the low-cost nature and the simplicity of the solution have already led to many successful RFID yard management projects.

The opportunities for savings from such an automated yard visibility system installation are many:

- improved spotting tractor productivity leading to reduced spotting labor hours and a reduction in the spotting tractor fleet size
- near elimination of manual yard checks
- reduced travel distances driving fuel and maintenance savings
- reduced detention and demurrage charges
- reduced product spoilage
- overall improved customer service

RFID will play a significant role in supply chain management for years to come. Introducing the RFID-based yard visibility technology into your supply chain operations via a project that has an attractive ROI and a high probability of success rate may be just the right RFID entry point for your organization. ■

