LEAN THINKING IN WHOLESALE DISTRIBUTION…

The Essential Basics of Warehouse & Distribution Applications

Executive Summary & Overview

Start by Imagining This: An RFID portal at your warehouse/DC dock door reads data on RFID tags ("what or who are you?"), applied at the supplier source, and simultaneously, from cartons, pallets or other types of containers as they are unloaded from the truck. RFID provides immediate verification ("this is who I am") of all the contents of the load and real-time visibility. Data is transferred to your warehouse management system (WMS). The WMS then reconciles the product received against open purchase orders. It identifies those items that can be cross-docked ("tagged" against open customer orders) and those that can be staged for stock put-away.

The entire process occurs without human intervention. No clunky barcode scanners; no scanning of the visible barcodes of individual items where warehouse associates have to be sure to align them with a scanner.

In contrast, RFID tags or labels do not have to be visible (they can be inside the packaging) to be read by an RFID reader. Multiple items can be read by one reader at the same time.

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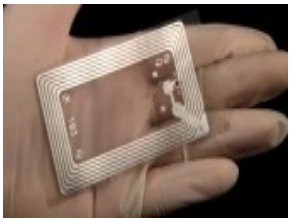
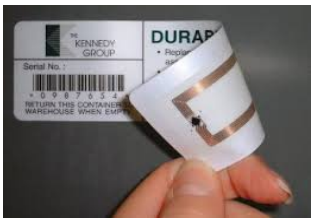

Let's pause for a moment…RFID? Yes…RFID (Radio Frequency Identification). It may be coming to traditional wholesale-distribution sooner than you think! In fact, it may represent the "next wave", the "disruptive technology" that drives new automated processes in wholesale-distribution and impacts all the primary warehouse functions - from put-away and cycle counting to pick/pack/ship/delivery.

If your company already has a data collection system in place and is integrated into WMS or ERP, and you seek efficiencies beyond current levels, then you may be ready for RFID – or at least should become familiar with it – and beginning to think about the potential impact on the various functional applications in your distribution environment.

I happen to believe that RFID, through recent advancements in its technology, now has the potential for penetration into new settings, beyond its already proven applications in consumer products distribution, the fashion industry and retail distribution.

Historically, large supply chain organizations have been the driving force behind RFID adoption. In many cases, RFID deployment has been within a particular company's internal supply chain, not between them and their external suppliers. Wal-Mart, among others, and including the U.S. Department of Defense, has essentially issued compliance mandates to their suppliers. It's been rather slow, but advancing. Regardless, the RFID technology provides enhanced accuracy and security making it an ideal platform for warehousing, logistics, and transportation.

Introduction to the Components of RFID

To some degree you are already familiar with RFID; it's the keys you use to open your car door, the automatic payment system used in toll booths, building access systems, etc.

An RFID system consists of a radio-enabled (radio waves) device (stationary, fixed to a forklift truck or handheld) that communicates with, “interrogates”, an RFID tag or label, just like barcode scanners. The tag itself is an extension of barcode labels, only with more intelligence, as more data can be stored on the tag versus a barcode.

But, it’s more than just a tag or a label. The tag (carrying object-identifying data) is an integrated circuit with an antenna. The addition of a RFID reader, some “middleware” (application software) and the appropriate databases possessed by your host, complete “the system”.

RFID readers communicate with RFID tags through an RF channel to obtain identifying information (some identifier to retrieve other data records). Most common is a reader that itself powers up or “wakes up” what are called “passive tags”, through the RF channel. Other types of tags include “active tags” which have their own small battery power and provide the ability for RFID to operate at greater distances.

RFID is sometimes positioned as next generation bar-coding. However, in many environments it is likely to co-exist with barcode for some time.

How Would RFID Work?

As products leave your supplier source, goods would receive an RFID tag that contains a unique electronic code, either individually or by container. Product is placed on a pallet, which also has an RFID tag. As you receive product from your supplier, the tags (“this is what I am”) are read - and arrival confirmed. Information is sent to your ERP/WMS system.

Imagine This: You’re putting product away or picking and an RFID tag is positioned at each storage location (“smart shelves”) for A and B level items. Your RFID reader

automatically reads and then “writes” the information to your location tag. This is then validated to your WMS.

Imagine This: You’re shipping, and you can “write” to an RFID tag or label data about pallet and/or package contents. The customer order number and line items are verified and added to the pallet or container tag/label at the time of picking or order consolidation. Your computer system tells delivery and inventory systems where and how to route the shipment, and generates manifests.

Imagine this: You are cycle counting and you walk up and down the aisle(s) to be cycle counted. Your RFID reader collects the quantity on-hand data of those items being cycle counted. No need to scan barcodes!

Some RFID Advantages:

RFID has several distinct advantages over the barcode. Examples;

…Human intervention is required to scan a barcode, whereas RFID tags can be detected “hands off”. Lower labor resources required.

…Barcodes must be visible on the outside of product packaging, RFID tags can be placed inside the packaging or even on the product itself.

…You must have line-of-sight to read a barcode. RFID tagged items can be read even if they are behind other items.

…RFID tags are not affected by dirt, moisture, abrasion or packaging contours.

…RFID tags have a longer read range than barcodes.

…RFID tags have read/write memory capability; barcodes don’t.

…More data can be stored in an RFID tag than can be stored on a barcode.

…Improved productivity and cost avoidance.

…Reduced errors.

…Increased visibility – the ability to "see" where product is.

…Enhanced ability to track serialized product and/or warranty information.

Where Should We Go From Here?

It may be time for wholesale-distributors and their supplier partners, their industry associations, their buying and marketing groups, and their software vendors to begin to collaborate and exploit the strategic benefits of RFID; define the value proposition, the strategic dimensions and the critical success factors - as another path to continuous improvement and future cost avoidance.

As knowledge is gained and standards adopted, industry adoption will grow as companies become more familiar with RFID as a way to potential bottom-line benefits and supply chain information sharing possibilities.

In todays competitive and "we want it now" environment, we should remain open to new technologies and the improvements they offer. We should begin to look at RFID, both for current and future distribution system design.

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