



## **Focus: RFID and Automated Identification and Data Collection (AIDC)**

Feature Article from Our RFID and AIDC Subject Area - [See All](#)

From SCDigest's OnTarget e-Magazine

**July 27, 2011**

### **RFID and AIDC News: The Seven Reasons RFID will Eventually Win in the Supply Chain**

#### **Despite Setbacks, RFID will Dominate Supply Chain Auto ID Landscape - the Question is How Soon**

**SCDigest Editorial Staff**

RFID market adoption continues to move it fits and stops, to the great frustration of RFID-based hardware and solution providers. The latest modest disappointment is a bit of a slowdown in rollout and adoption of item-level apparel tagging in retail, as a number of programs have not progressed as fast as expected. That of course follows a basic collapse of the initiative, led by WalMart, to tag consumer packaged goods going to retail at the pallet and case level, an area where now there is virtually no activity in the US and limited activity in Europe and Asia.

That said, market analysts continue to predict relatively strong overall growth worldwide for RFID spending. This month, ABI Research said that it expects worldwide demand for RFID-based technology to grow at a 14% clip (excluding the automobile immobilization market) and that the item-level apparel tagging portion of that will explode, with an annual growth rate of 37% through 2016 across the US and European markets. This, however, includes a number of non-supply chain areas.

### **SCDigest Says:**



Growing supply chain complexity and virtualization will put pressure on companies, especially as safety or other related issues emerge, to be able to track lineage, chain of custody and inventory status at higher levels than most can do today.



SCDigest believes it is inevitable that RFID will dominate the RFID landscape versus traditional bar codes - the only question is when.

We say the eventual dominance of RFID is coming, despite the earlier missteps, for seven reasons:

- In most applications, RFID simply has a number of advantages over bar codes: the potential for auto versus manual reads/scanning, no line of sight requirements, ability to put more data on the tag, etc. The better capabilities will win out in the end, as users gain a level of comfort, the price comes down, and the performance improves, all of which will happen.
- We are clearly on a path where companies want to track everything at an individual, serialized level; while that will take time, and will require a reduction in RFID tag costs in some applications (e.g., a can of soup), technologies such as printed tags are likely to make that tag cost reduction requirement a reality at some point.
- As companies emphasize continuous improvement, whether through formal Lean programs or otherwise, this will inevitably lead to the opportunity to reduce/eliminate manual scanning in many processes, and point to RFID-based approaches as a result. Bar code scanning can clearly be seen as a "non-value added task" if technology which can eliminate that step is available.
- Companies that adopt these sorts of more automated processes and higher levels of visibility/tracking will gain competitive advantage, causing others to jump on board, after the leaders have driven costs and complexity down for the followers.
- Increased regulatory requirements, especially relative to food and pharmaceuticals, will either actually or largely mandate use of RFID for to support safety and product integrity goals. This will spur further technology development, and ultimately put pressure on other sectors to develop the same levels of visibility and control.
- Relatedly, growing supply chain complexity and virtualization will put pressure on companies, especially as safety or other related issues emerge, to be able to track lineage, chain of custody and inventory status at higher levels than most can do today.
- As RFID finds its way into smart phones, payment systems, etc., which is it clearly on a path to do now, that pervasiveness in the everyday world will make the use of RFID in the supply chain seem more obvious. And the RFID capabilities in these other technologies may actually be used in conjunction with the supply chain (e.g., delivery drivers using smart phones to read/automate store delivery processes.)

Attribute	RFID	Barcode
Line of Site	Not required (in most cases)	Required
Read Range	Passive UHF RFID: - Up to 40 feet (fixed readers) - Up to 20 feet (handheld readers)  Active RFID: - Up to 100's of feet or more	Several inches up to several feet
Read Rate	10's, 100's or 1000's simultaneously	Only one at a time
Identification	Can uniquely identify each item/asset tagged.	Most barcodes only identify the type of item (UPC Code) but not uniquely.
Read/Write	Many RFID tags are Read/Write	Read only
Technology	RF (Radio Frequency)	Optical (Laser)
Interference	Like the TSA (Transportation Security Administration), some RFID frequencies don't like Metal and Liquids. They can interfere with some RF Frequencies.	Obstructed barcodes cannot be read (dirt covering barcode, torn barcode, etc.)
Automation	Most "fixed" readers don't require human involvement to collect data (automated)	Most barcode scanners require a human to operate (labor intensive)

So, these seven trends point to an RFID-dominated supply chain world, and the question becomes when. Our view is that this will be a gradual evolution, not a hockey stick type of technology adoption, which almost never happens in the real world.

There are dependencies. The item-level apparel tagging program at WalMart, if successful, could eventually lead to a return to tagging of other product areas (at the case level) once the learnings and infrastructure is in place. We would guess that is not likely to happen until 2015.

Will there be developments that dramatically reduce tag costs? That isn't clear, but the trend line continues to be down, and each 1 cent drop in tag costs opens up another potential set of applications. Printable tags could dramatically change the game.

So, our advice is this. This disillusionment in the consumer goods to retail sector from the failed WalMart program is receding. Item-level apparel tagging in retail appears to have a real value proposition, and is very likely to succeed, if not always in a straight line.

We would plan with an assumption that an increasing percent of new systems will be RFID-based, and that by the end of 2016, RFID will be the dominant auto technology used in the supply chain, to the diminishment of bar codes.