

RFID/Wireless: Race to Utopia

BY BRIDGET MCCREA, CONTRIBUTING EDITOR

Our technology correspondent examines where RFID and wireless communications currently stand as logistics and supply chain management enablers and then defines the remaining barriers to adoption. Just how far are we from real-time visibility?

It's no secret that mobile and wireless devices are handling more and more data and communications for businesses across all sectors.

Within the supply chain, everything from smart phones, to voice-enabled devices, to RFID is changing the way logistics and transportation operations are being managed. And with quick-messaging devices and mobile Internet usage skyrocketing, the supply chain is bound to benefit even more from this largely "untethered" business environment over the coming years.

Over the next few pages we'll look at how far RFID and wireless communications have come in the supply chain, where these technologies currently stand as logistics enablers, and then examine what barriers to adoption still remain. We'll also attempt to show shippers just how close we are to achieving real-time supply chain management and logistics visibility—and just how far we need to go to realize that utopian vision.



RFID: SPENDING TO INCREASE DRAMATICALLY

Radio-frequency identification (RFID) stands as one of the original technologies designed around supply chain processes. Rewind back about eight years, says Simon Ellis, practice director for supply

chain strategies at IDC Manufacturing Insights, and RFID was one of the most hyped technologies in logistics and supply chain management.

"Unfortunately, back in 2002, RFID was incapable of meeting shipper expectations," says Ellis.



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IDC Manufacturing Insights

At issue was the high cost of individual RFID tags that are an essential element of the tracking and identification process. As time progressed and technology improved, Ellis says that shippers learned to view RFID not as a “cure all,” but rather as another weapon in their arsenals. “Companies have come to realize that RFID is right for some things—such as monitoring the shipment of ocean-going containers—while GPS and/or bar codes are appropriate for others,” says Ellis. “The hype and disillusion are gone.”

Despite shippers’ acceptance of RFID’s limitations, challenges surrounding the technology persist. Ellis says RFID usage in the vicinity of metal and water (depending on the frequencies being used) continues to be plagued by problems. There’s also the issue of physical tag damage—something that tag makers have yet to completely resolve.

Then there’s the cost issue. “The cost of RFID doesn’t always make sense,” says Ellis, “nor does it always provide incremental benefit over less costly alternatives.”

A new report from VDC Research on RFID investments estimated the average 2009 investment in the technology at \$1.1 million. Survey respondents expect that number to increase more than 200 percent this year and reach nearly \$7 million next year. According to VDC, respondents currently investing more than \$250,000 say they are expecting to invest more in RFID over the next two years in support of scaling

their deployments and further integrating their solutions.

Like Ellis, Timothy Zimmerman, principal analyst with Gartner, says RFID has made strides over the last eight years. Reliability has improved, he says, as has the technology’s ability to perform to “the expected levels for supply chain data collection.” Whereas eight years ago a company shipping to three different regions would require three tags, says Zimmerman, today a “global tag” would be able to handle the geographic diversity.

“When you can go from three tags down to one, you gain major cost benefits,” says Zimmerman. The number of tags needed has also been reduced at the item level, where shippers can now “service more usage scenarios with a single tag and realize better reliability and programmability.”

Expect to see more improvements in RFID technology in the near future. Dean Frew, CEO at item-level RFID solutions provider Xterprise in Carrollton, Texas, says developers right now are focused on item-level (versus box or container) management and on item-level identification. “There’s a growing set of requirements around managing at the item level, as well as identifying each of those items so that they can be accessed through an RFID reader,” says Frew, who sees RFID as far superior to any previous tracking technologies. “Shippers would never be able to do that with bar codes.”

Frew says up-and-coming RFID uses in the supply chain include the tracking

and management of reusable transport items such as pallets, bins, and racks. “There’s a million of these items running around the world today, and they remain the underworld of the supply chain,” says Frew. “We’re seeing growing interest in helping to manage these products, which tie up hundreds of millions of dollars in shippers’ assets.”

To companies looking to take advantage of RFID’s benefits, Frew says the first step is to establish a strong value proposition and to ensure that the investment in money and resources are supported by a true ROI. Understand, for example, that when you are managing the supply chain at the item level, you are creating entirely new business processes that will require change management in order to succeed.

“RFID is not a replacement for bar codes,” Frew explains. “RFID is a path to innovative business processes that you couldn’t achieve with bar code. That makes the change management component very significant.”

WIRELESS: ENTER THE GOLDEN AGE

People are getting pretty comfortable with wireless technologies, both in their personal and work lives. That alone has helped the technologies along in the supply chain space, where shippers striving to work better, smarter, and faster are increasingly turning to wireless options to help them get there.

“We’re starting to see more adoption of wireless in the supply chain, with new usage scenarios going beyond what

we've traditionally seen," says Zimmerman. Take data collection, for example. Zimmerman points to the increased use of voice and video, and the standardization of the 802.11N wireless networking standard, as some of the key drivers of wireless in the supply chain.

Ellis says wireless is a "big topic" among logistics and supply chain managers right now, and points to its application as a communication and data collection tool in warehouses and on the factory floor as just two of wireless' many benefits.

"As shippers strive to implement more and more automation with fewer employees, being able to network them together wirelessly becomes vital," says Ellis, who sees the link between the shipper and carriers as an area that's ripe for even more wireless usage. "Using wireless, shippers will be able to access carrier information faster, and then provide more real-time delivery estimates and receipts for their customers."

With wireless continuing to proliferate throughout the supply chain, Zimmerman says logistics managers should be aware of new innovations like dual mode, smart phone functionalities that are connected to physical, Wi-Fi hot spots. As a truck pulls into a facility for example, an onboard computer would "dock" with the hot spot and start downloading pertinent data automatically.

"That could mean switching from cellular to a wireless, over-land solution to convey the data," says Zimmerman. "At that point, the vehicle becomes an 'intelligent' truck that can prioritize data, use it more readily, and transfer it as needed."

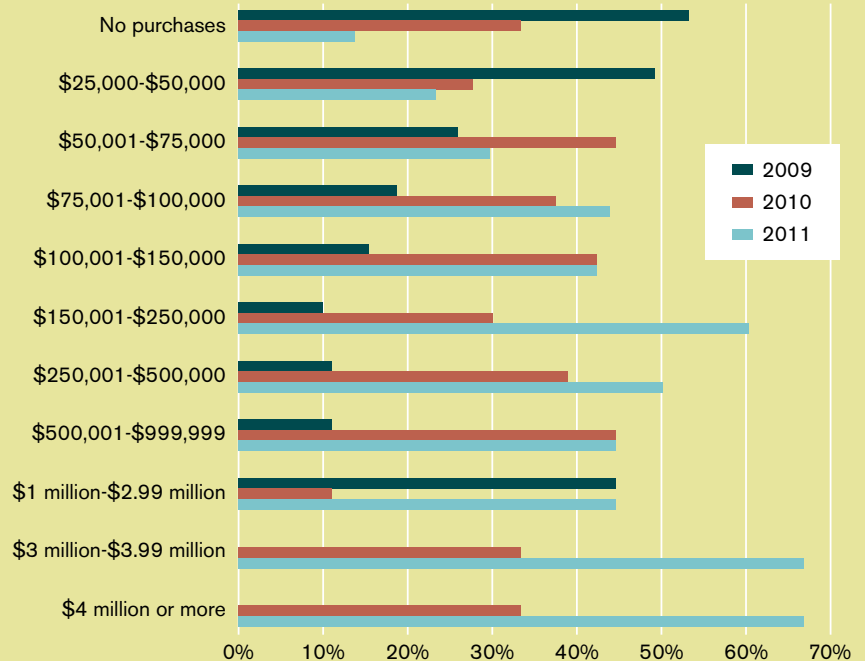
THE COURSE AHEAD

Drew Nathanson, director of research operations for VDC Research, expects wireless and RFID to become even more ubiquitous within the supply chain, thanks to its ability to circumvent the "line of sight" component of bar coding. That today's solutions are more robust and advanced—and able to interact with various legacy systems—also makes the push to wireless enticing for shippers, says Nathanson.

RFID is also driving shippers to work in new ways, according to a recent VDC

RFID investment plans are being funded

Pilot-to-deployment times to decrease; significant scaling to begin Q4 2010 or earlier



Source: VDC Research Group, Inc.

Research report, which highlighted managed services as a new business model for RFID. In the report, VDC outlined the advantages of an RFID managed service model, citing risk and infrastructure being transferred to the service provider; a variety of service cost models (i.e., subscription options versus large investments in purchase-and-install software); and the fact that support and upgrades are included in the service costs as just a few of the advantages.

Nathanson points to the Savi/Lockheed Martin project as a good example of how managed services can work in the RFID space. Last year, the provider of RFID-based supply chain products and solutions was awarded orders totaling \$6.6 million for standards-based active RFID tracking technologies and accompanying services under the U.S. Department of Defense (DoD) RFID III procurement contract.

The RFID tags, which are affixed to cargo containers and other supply chain assets, comply with the ISO 18000-7 standard (also called DASH7), enabling near real-time supply visibility and interoperabil-

ity with allied defense forces and government organizations. "Savi has been able to set up its entire infrastructure on the DoD's dime because of the Lockheed Martin (government contracting) connection," says Nathanson. "Now that the infrastructure is in place, Savi can offer management services to nearly any point in the world."

Shippers should also expect to see more system convergence in the future, according to Nathanson, who cautions companies not to "shut anyone out by doing completely RFID." Instead, consider the existing client and vendor base, and opt for convergent, open systems that anyone can hook into and utilize. "Take into account all of the options that are coming into play right now, and focus on hybrid, convergent solutions that are continually evolving," says Nathanson. "Companies that adopt this strategy will be the ones that most effectively create global value chains." M

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