



# Distribution Center MANAGEMENT

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Managing people, materials and costs in the warehouse or DC

## From the Golden Zone

### Open systems will simplify use of data collection technology

By John Hill

The objective of the world-class warehouse is to marry a well-designed physical infrastructure with optimized processes and tools to enable a company to provide customers with secure, error-free order fulfillment, shipment, and visibility.

On visibility, every time a product moves — be it in receiving, storage, during picking, at the shipping dock, or on the road — the information associated with its identity, characteristics, and location should be updated. I call it material and data flow synchronization. Over the last thirty years, a wide range of data capture tools has evolved to tackle this task. In fact, there are so many that today's prospective user is faced with the challenge of selecting from what seems like an infinite menu of alternative technologies that best meets requirements; and then, figuring out how to integrate and cost-effectively deploy it without having to develop special interfaces or customized software.

And therein lies the rub! Properly deployed, barcode, RFID (radio frequency identification), and voice data entry can do an excellent job of capturing, validating, and transmitting accurate

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data in real time. For years, however, suppliers of warehouse control and warehouse management systems have been faced with the challenge of developing special drivers or software to accommodate variations in interface requirements not only for different types of data capture technology, but also for different suppliers.

And once they developed a set of drivers that worked, they have been reluctant to change to new data capture hardware or new suppliers — thereby restricting the choices available to their users.

To eliminate this constraint, wouldn't it be nice for the data capture technology community to agree upon the use of standard communications protocols and interfaces — in other words, open systems?

#### There's no silver bullet for data capture

While we're building a wish list, another issue associated with selecting the right technology for warehouse requirements should be addressed. Which one do you choose?

A few years ago, I attempted to craft a matrix to facilitate identification of the best data capture technology for various warehouse functional areas. As you can see from the chart, the exercise was

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futile — there is no silver bullet for a given function. Further, it is entirely possible that, depending upon the nature of requirements, barcode may be entirely suitable for one set of functions, while voice, RFID, or even manual data entry may really be the better choice for others.

In other words, a hybrid or multi-modal solution that permits the use of multiple data capture technologies in a single warehouse could make a significant contribution to improved performance — particularly if the technologies could be seamlessly integrated and interfaced without proprietary software.

What suppliers are saying about 2007 plans for the introduction of layered, multi-modal data capture solutions with “open system” interfacing promises dramatic changes in the way we use the technology to assure accurate, real-time material and data flow synchronization and visibility as products move from source to consumption. Be sure to look them over!

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## Automatic identification and data collection matrix

Functional area	Applications	Technology				
		Barcode	Voice	RFID	RFDC*	RTLS**
Receiving	Inbound material check-in	X	X	X	X	X
	Damage reporting	X	X	X	X	
	Untagged material labeling	X	X	X	X	
	Returns processing	X	X	X	X	
	Crossdock staging	X	X	X	X	X
Putaway	Quality assurance alert	X	X	X	X	
	Load identification	X	X	X	X	X
	Location confirmation	X	X	X	X	
	Exception notification	X	X	X	X	
	Returns processing move	X	X	X	X	X
	Crossdock move	X	X	X	X	X
Inventory control	Quality assurance move	X	X	X	X	X
	Exception-based cycle count	X	X	X	X	
	Scheduled cycle count	X	X	X	X	
	Full physical	X	X	X	X	
	Lot & Serial # tracking	X	X	X	X	X
	Shelf life monitoring	X	X	X	X	X
Picking	Stock rotation	X	X	X	X	X
	Pick planning					
	Inventory allocation					
	Wave building					
	Order pick	X	X	X	X	
	Batch pick	X	X	X	X	
Value-added Processing	Cluster pick	X	X	X	X	
	Workload planning					
	Bills of material					
	Job instruction delivery		X			
	Component picking & delivery	X	X	X	X	X
	Task completion monitoring	X	X	X	X	X
Staging	FGI putaway/staging	X	X	X	X	X
	Load identification	X	X	X	X	X
	Location confirmation	X	X	X	X	X
	Exception notification	X	X	X	X	X
	Load consolidation	X	X	X	X	
	Special handling/tagging	X	X	X	X	X
Shipping	Compliance labeling	X	X	X	X	
	Dock confirmation	X	X	X	X	
	Trailer confirmation	X	X	X	X	X
	Load sequencing	X	X	X	X	X
	Seal identification	X	X	X	X	
	Documentation					
	Trailer departure confirmation	X	X	X	X	X

\* RFDC — Radio frequency data communications

\*\* RTLS — Real-time locating system

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