Warehouse Mobility: A Foundation for a Leaner Warehouse — And a Leaner, More Profitable Supply Chain

Executive summary

The warehouse is at the center of your business, a key area through which nearly everything in your business must pass — from packages in a parcel post environment to raw materials and finished goods in a manufacturing plant to a wealth of products in a distribution center. When mobility is extended throughout your warehouse, a new level of efficiency, accuracy and visibility is achieved. Paper processes are replaced by real-time computerized forms on mobile computers; bar code scanning enables checks and double checks that the right item is being picked, packed and shipped; RFID provides automatic tracking of materials without human intervention.

With warehouse mobility also comes the collection of a richer data set in real time, providing a real-time view of inventory in the warehouse, order status, and more. And when availability of this information is extended to other areas of your business, the full value of warehouse mobility is realized. The data collected in this key focal point of your business has the power to enable significant cost and operational efficiencies throughout the enterprise — in the yard and on the production line as well as in dispatch, sales and service.

This white paper will examine how warehouse mobility can serve as the foundation of an enterprise-wide mobility, creating a more collaborative information architecture that not only enables a leaner warehouse operation — but a leaner, more profitable enterprise as well.

The Warehouse: The Hub of Enterprise Mobility

Regardless of whether you are a manufacturer or distributor, the warehouse is a critical hub in your business. Through this central depot, everything must pass — from raw materials waiting to be manufactured into finished goods to product waiting for shipment downstream to a distribution center, retailer or end-customer. When movement of these materials are tracked as they move in, through and out of the warehouse, a real time view of your inventory becomes visible — from incoming shipments stored in the yard and at the dock to the product on your shelves and outgoing shipments being readied for delivery to your customer (or channel).

Following is a high level overview of how mobility streamlines individual warehouse functions, as well as how the mobilization of each core warehouse function provides a 'big picture' real-time view of your warehouse.

Receiving

With mobility at the receiving dock, you can remain aware of shipments that have been delivered but are not yet on the shelves, and their location — regardless of whether they are staged in the warehouse for put-away or out in the yard awaiting conveyance to the dock. This visibility allows you to look at stock levels in the warehouse and ensure items with low stock levels are slated for put-away or conveyance first, reducing the opportunity for costly out-of-stocks to impact the order fulfillment process.

Put-Away

Mobility provides granular visibility into the warehouse, enabling you to see the exact location of all inventory on your shelves. With this information, you can automatically send the right storage area as well as the most efficient route to that location right to a worker's mobile handheld or hands-free computer. A quick scan of the shelf tag not only ensures the item is put in the correct place, but also provides a record of the location of that exact shipment. Items reach the shelves in the shortest amount of time, enabling warehouse workers to reach peak productivity — and you know the exact location of all inventory at a highly detailed level.

Picking/Let-Down/Line-Side Replenishment

Since the put-away function ensures that you know what is where on your warehouse shelves, you have the information you need to support LIFO and FIFO picking, let-down and line-side replenishment processes. You also have the information you need to expeditiously locate any product or parts that have been recalled, reducing the liability associated with product leaving your warehouse that contains defective parts — and the high cost of tracking those products once they leave your facility and reach the distribution channel.

Mobility and real-time information also helps improve error-proofing and productivity in the picking process, ensuring that orders are filled quickly. Pickers can also receive electronic picking orders on a mobile device that provides a pick list along with the fastest route to the items. Accuracy in the picking operation also improves, since scanning at the 'point of pick' provides an instant cross-check that the right item was selected. And the ability to instantly deduct items from your inventory as they are picked ensures that stock levels can be tightly monitored to eliminate out-of-stocks.

In addition, mobility can also be utilized to leverage detailed information about the specific items in your warehouse. For example, information on appliances can be leveraged to control clamp trucks, prevent operators from inadvertently applying too much pressure during put-away and picking. This valuable mobility application helps reduce the high cost associated with the delivery of damaged equipment — from the cost of the return and reshipment to the cost of an unsatisfied customer.

Packing

In the packing function, mobility serves as a crucial cross-check to ensure the accuracy of an order prior to packing. In addition, in the event that any items that were back-ordered have now arrived in the warehouse, the packer can receive notification, enabling completion of the shipment prior to leaving your facility.

The knowledgebase that mobility provides can also be used to control your packing material costs. Your business system can automatically determine the right size carton for the shipment, removing guesswork, and eliminating the use of excess amounts of filling materials.

Shipping

In shipping, mobility provides a final cross-check to ensure that the order is correct, properly addressed, and scheduled for the proper type of shipping. And coordination with the dispatch function ensures that the shipment is properly staged for loading on the right truck in the right order.

Beyond the Warehouse Walls: Unlocking the Real Value of Warehouse Mobility

The value of mobility in the warehouse function is easily recognized:

- Processes across the warehouse are streamlined, reducing cycle times
- Worker productivity is increased, reducing the cost of labor in the warehouse
- Orders are fulfilled more accurately, improving customer service and satisfaction levels
- The cost of sales attributed to movement through the warehouse is reduced

While these are significant business benefits, when the data collected through mobility in the warehouse is tightly integrated into the rest of your business systems and functions, the value multiplies dramatically.

The Yard

With warehouse mobility, the exact location of shipments and materials in the yard are noted in your warehouse management system (WMS) upon delivery, expanding inventory visibility beyond the warehouse to include the trailers, containers and other materials in the yard. Even if containers or materials are moved from their original storage spot, they are easily tracked. Armed with this information, shipments in the yard can be prioritized and scheduled for prompt conveyance based on items in the warehouse that are either low or out of stock.

Mobility enables tighter integration between your yard and warehouse workers — and greater efficiencies in both functions. Based on the information already in your system, a dynamic, single information-packed schedule can be created and delivered to your workers' mobile devices. Workers in the yard can be directed to the exact location of the next trailer or container scheduled for conveyance, ensuring delivery to the dock on time. Warehouse workers already know which shipment is slated to arrive at which dock, and are ready to promptly unload. Once containers and trailers have

been unloaded and returned to the yard, the location of these critical assets remains visible in your system.

And the tighter collaboration between the warehouse and yard functions enables the rapid schedule changes that can prevent an out-of-stock situation in the warehouse. Should a shipment arrive containing items that are currently out-of-stock, that information is visible the moment the truck arrives in the yard. In seconds, a dynamic change in schedule can be implemented that ensures that shipment is delivered immediately to the dock, effectively reducing the impact on either the production line or your order fulfillment process.

Shipping and Delivery

When real-time information in the warehouse packing function is integrated tightly into your delivery function, major benefits are realized in your shipping and delivery operations.

Dispatch

When the dispatch function can see shipments in progress in the warehouse in real-time, load plans can be prepared that take into account all shipments that will be ready to load in the morning — not just shipments completed at a specific point in time. The creation of real-time load plans allows the best utilization of your delivery vehicles and your drivers. Load aggregation is easily optimized, and trucks are more fully loaded with shipments that have been aggregated to enable the most efficient delivery route possible. Tight integration with your shipping function in the warehouse makes this possible — based on the real-time load plans, staging information is sent to your shipping function, ensuring that shipments are loaded on the right truck and in the right order.

Route accounting and proof of delivery

The collaboration of data between shipping and dispatch enables major efficiencies in your delivery function. At this point, you have effectively tracked materials from the time they were received; for manufacturers, through the manufacturing process; to the warehouse shelves; through the order fulfillment process to shipping. Shipments have been aggregated into loads that enable delivery of the shipments in the least amount of miles traveled,

reducing fuel costs. And the ability to load the shipments in the order of delivery further improves driver productivity.

When your pool of business data is extended in real time to your drivers, significant additional benefits are again realized — regardless of whether your drivers simply need proof of delivery for parcel post operations, or sophisticated route accounting and direct store delivery functions. With mobility extended to your drivers in the field, electronic signatures can be easily captured and an instant proof of delivery noted in your business systems, enabling expedited billing — and payment.

And in route accounting and direct store delivery functions, when you enable your drivers with real-time mobile computing, they have the information they need to verify shipments against the original customer order, as well as deduct any damaged items and reflect customer additions or changes made at the time of delivery. The result is an accurate on-the-spot invoice. The typical time associated with processing standard paperwork on deliveries at the end of the day as well as exceptions is eliminated. And the results can be dramatic:

- Significant reduction in days sales outstanding (DSO) — which in turn improves your cash-to-cash cycle — and your overall profitability
- Increased driver productivity — The elimination of paperwork enables more stops per day per driver.
- Increased sales — Since drivers can now make more stops, they have more opportunity to sell more product throughout the day.
- Increased accounting staff productivity — The real-time automated interaction between the drivers and your business system eliminates the need for your accounting and administrative staff to process paper and enter information into the computer.
- Cost effective regulatory compliance — Your mobility solution enables the collection of granular information on the products that were delivered to a specific customer — from bar codes and lot numbers to serialized information. And this information can help enable rapid yet cost-efficient product traceability in the event of a product recall.

Manufacturing — the production line

With mobility, granular information about the parts and/or ingredients stored in your warehouse that are slated for later manufacturing into finished products or consumer packaged goods can be collected and compiled automatically, with little or no human intervention. When it comes to your inventory, you already know the supplier, when a specific item was delivered to your warehouse, and even the batch number. Now, as materials are delivered to and move through your production line, you have a very detailed history that begins with the arrival at your facility. The ability to track and trace for consumer safety and to meet regulatory compliance is simpler and less cost-intensive.

Sales

When real-time inventory information from your warehouse is tightly integrated into your outbound sales function, mobility can enable your salesforce to check inventory, obtain pricing and place orders — right from a customer's location. This real-time window into the warehouse from the field delivers major benefits in the sales function:

- Improved productivity — Electronic computer-based forms replace paper-based forms that often also require later data entry into the computer.
- Increased sales — Time previously spent on paperwork can now be spent on sales, enabling salespeople to make more calls per day.
- Improved customer service — Orders, pricing and delivery times can be confirmed on the spot. And if a customer calls requesting the status of a present order, the information is never more than seconds away from the salesperson's fingertips.

Field Service

When your warehouse and field service functions are integrated via real-time mobility solutions, the efficiency and customer service levels in field service operations are improved. Based on the day's schedule and the equipment slated for repair or service, a list of required parts and supplies are identified and sent to the warehouse for fulfillment and loaded onto the truck. Since service personnel have what is required to do the job on hand, repairs can often be completed in a single visit, improving customer service.

Other benefits of mobility in this function include the ability to enable service personnel to access your business systems in real-time from the field including repair history records and product manuals — information that increases the ability to accurately diagnose and correct problems on the first visit. The ability to access real-time warranty information and to simply scan parts as they are utilized on site reduces paperwork and ensures all costs are accurately captured and passed on to the customer, protecting profitability. And information on warranty and service contract expiration can be used to prompt field service personnel to up-sell or cross-sell appropriate services and other after-market products, turning a traditional cost-center into a potential revenue center as well.

Lastly, real-time repair information from all field service personnel can be automatically analyzed on an ongoing basis — and the trends may uncover issues related to specific parts or a specific product lot. The timeliness of this information enables you to take proactive action to control and reduce the business ramifications of the situation — from preventing future stock from being manufactured with the possibly defective parts to preventing existing stock that was already manufactured with the defective part from being shipped to customers, again protecting the customer experience.

Summary

Leveraging real-time warehouse information to create a more collaborative and profitable enterprise

The warehouse is at the very heart of your business operations. The poorly managed warehouse can actually become cost prohibitive, significantly impacting the cost of doing business — and general profitability. Through mobility, real-time warehouse information can be leveraged to enable a new level of information collaboration throughout the

enterprise. The right set of data is available in the right place at the right time to enable the most efficient next action — and the most effective business decisions.

Not only does efficiency in the yard, manufacturing, dispatch, delivery, sales and service functions improve, but the collaboration between functions provides a real-time enterprise wide view of business information that enables key strategic business objectives to be achieved. For example, real-time inventory visibility can lead to tighter inventory management — including a reduction in stocking inventory levels and an increase in inventory turns. And reduced stocking levels can free valuable space for re-allocation to other areas that will better serve business profitability — for example, enabling an expansion of the assembly line to increase capacity, or extend shipping and staging areas to enable more orders to be fulfilled per day.

Leveraging warehouse mobility in the warehouse and beyond can yield highly beneficial results, including reduced costs, improved quality, better customer service, higher margins and greater profitability — delivering real business advantage.

Complete Enterprise Mobility Solutions from Motorola

When it comes to enterprise mobility, Motorola delivers. Our complete array of rugged industrial mobile devices is designed for the rigors of everyday warehouse use, including bar code scanners in addition to handheld, vehicle mount and wearable mobile computers that are capable of voice-directed and text-based applications. Our award-winning next generation wireless LANS are built to manage the unique challenges of mobility, delivering outstanding dependable wireless connectivity as well as high-quality voice — and can meet the needs of the largest enterprise to the small and midsize business. Our solutions also offer cost-efficient manageability by providing a centralized command center that significantly reduces the time and effort required to provision, monitor, troubleshoot and update your
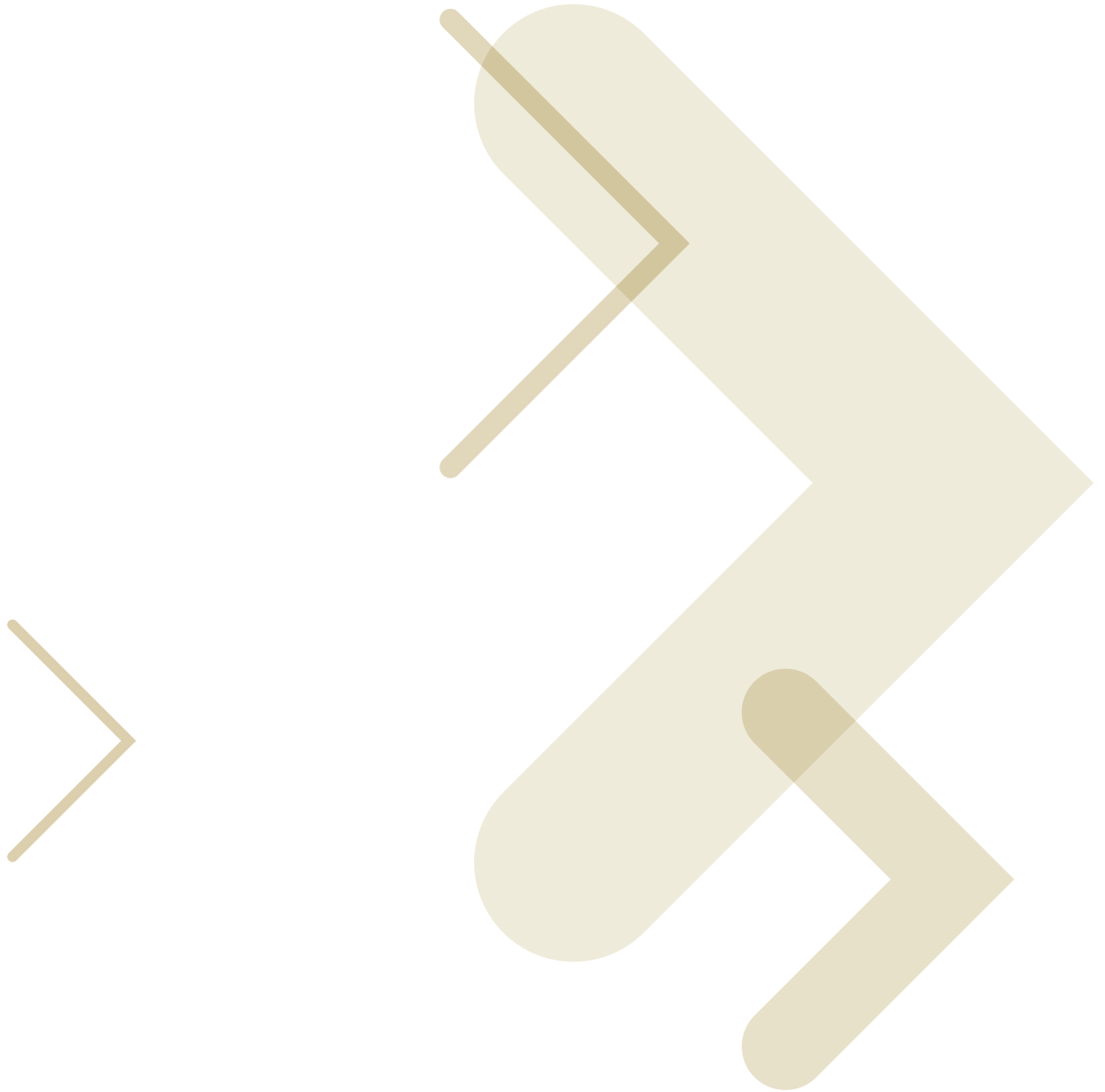
mobile devices and infrastructure — regardless of where in the world they may be. Support for all the latest security protocols and an end-to-end layered strategy enables you to deploy the right level of security for various applications throughout your enterprise. And if you are looking to enable next generation technologies, such as RFID and mesh networking, Motorola is uniquely positioned to transform your enterprise with the broad spectrum of mobile products and technologies to further automate your entire supply chain — and take efficiency and cost-reduction to the next level.

Motorola also offers the right experience, the right partners and the right services. As a manufacturer of wireless infrastructure, bar code scanners, RFID tags and readers and mobile devices, we offer a depth of product knowledge. Through countless enterprise mobility deployments in some of the world's largest enterprises, including our own warehouse and manufacturing operations, we offer a wealth of understanding of the needs in the warehouse — and beyond. And robust global partner channel brings the development and integration services you need right to your door, as well as leading applications and complementary products. For example, together with Zebra, Motorola is able to offer mobile solutions that incorporate industry label printers that deliver reliable on the spot printing of a wide variety of bar code and RFID labels.

And Motorola enterprise mobility solutions make smart business sense. Robust benefits offer a rapid return on investment, and the combination of superior manageability, proven rugged high-performance products and industry leading support services ensures a low total cost of ownership.

For More Information

For more information on how Motorola mobility solutions can help you reap the benefits of mobility in the warehouse and beyond, please visit us on the web at www.symbol.com or access our global contact directory at www.symbol.com/contact.

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