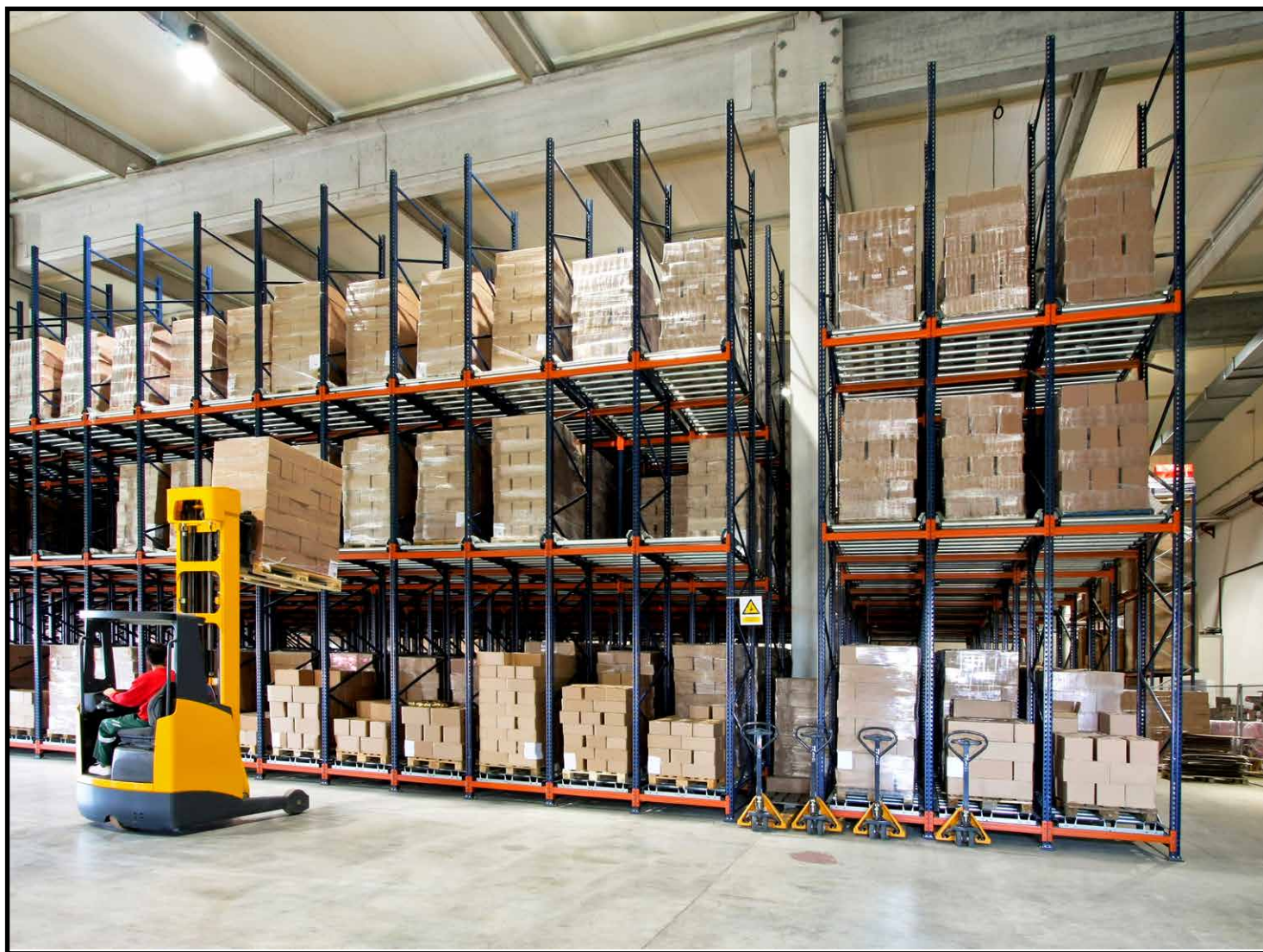


# CREATING A LEAN, REAL-TIME WAREHOUSE WITH WIRELESS TECHNOLOGY



Systems, Inc.

# The Challenge: Meeting Changing Demands in Warehousing and Logistics

The role of the warehouse is changing. No longer just a big space to store inventory, today's warehouse operation is fast-paced and often decentralized. Inventory turns faster than ever as retailers and manufacturers try to keep up with consumer and business customer expectations in a 'need it now' culture. Operating across multiple channels—retail, catalog, and Internet—creates a new set of logistical challenges. Customers expect to be able to place an order through any one of those channels and either receive overnight or prompt delivery to their home or business, or pick the order up at their local store or the warehousing facility as early as the next day. Even with freight and material shipments with longer lead times, the demand for order accuracy, faster delivery, traceability, and real-time tracking is pushing warehousing and logistics operations to improve productivity and processes. Warehouse operations are under increasing pressure to be incredibly agile and efficient to ensure customer satisfaction and grow their business.

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Wholesalers and third party logistics (3PLs) are also impacted by increases in volumes and customer expectations. In order to maintain the contractual requirements defined in their Service Level Agreements (SLAs), they must find ways to improve efficiency while maintaining margins. As increased demand ripples up the supply chain, supporting just-in-time practices presents new challenges for suppliers.

To compete in this dynamic environment, today's warehouse must be proactive and responsive. Regardless of how many distribution centers you have, and whether products are in the warehouse, in transit, or in a factory anywhere in the world, warehousing and materials management operations need visibility into the entire supply chain. Accuracy is more critical than ever: in a hyper-competitive market, anything less than perfection in order fulfillment can result in a lost customer.

To add to these challenging dynamics, new track and trace regulations have been instituted in a wide variety of industries, further complicating warehousing and distribution by requiring:

- "Farm to fork" traceability in the food and beverage industry
- A complete genealogy in pharmaceuticals to protect against the introduction of counterfeit product that could compromise patient safety
- Constant visibility into the whereabouts of the millions of parts used to build cars, trucks, planes and other vehicles to enable fast location, recall and replacement of defective parts

Newer standards have also arrived in recent years, such as the GS1 bar code, which embeds more information about products to help with traceability and provides consistent product identifiers as products travel from stop to stop, helping further streamline and error-proof entire supply chains. To meet today's challenges in warehousing and logistics, you need to build a lean, real-time, nimble warehouse that is ready for anything. You need an efficient operation where the same staff moves more goods through the warehouse faster and more accurately. You also need the ability to capture more information about those goods without slowing down critical warehouse processes.

*To help warehousing and logistics operations meet today's demands and create lean, real-time processes that maximize productivity, accuracy, and customer satisfaction while minimizing errors, costs, and inefficiencies, our experts at MSA Systems, Inc. have been recommending wireless mobility and automation solutions from our partners at Zebra Technologies.*



## **The Solution: Wireless Mobility and Automation**

To help warehousing and logistics operations meet today's demands and create lean, real-time processes that maximize productivity, accuracy, and customer satisfaction while minimizing errors, costs, and inefficiencies, our experts at MSA Systems, Inc. have been recommending wireless mobility and automation solutions from our partners at Zebra Technologies.

Zebra is a global leader in wireless technology and has developed a complete portfolio of warehousing and logistics products and solutions that are designed to provide real-time supply chain visibility, inventory, and warehousing and material management. Combined with our strategic expertise in designing, installing, and maintaining systems and software, Zebra provides the technology to transform your warehousing and logistics operations with end-to-end wireless solutions.

Wireless mobility and automation increases throughput and employee productivity, enables accurate, real-time tracking and management of inventory and shipments, reduces errors, and empowers your business to exceed customer expectations and drive new opportunities.

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### **Key Benefits of MSA & Zebra Warehousing and Logistics Solutions**

- Real-time supply chain visibility, inventory, warehousing, and material management
  - Accurate material tracking with barcoding and/or radio frequency identification (RFID)
  - Improved inventory accuracy up to 99.7% and picking accuracy up to 99.9%+
  - Increased warehouse throughput and productivity
  - Reductions in stocking requirements and associated warehouse space
  - Lower relative labor costs per order through process automation
  - Real-time customer visibility for order/shipment status
  - Accurate information to support traceability and compliance requirements
  - Reduced overage, shortage and damage (OS&D) due to better packing
  - Greater efficiency in trailer-to-dock management
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*Zebra's Warehouse and Logistics Portfolio provides the real-time information and advanced data capture features needed to automate many processes and drive time, errors and operational costs out of your warehouse.*

Zebra's Warehouse and Logistics Portfolio provides the real-time information and advanced data capture features needed to automate many processes and drive time, errors and operational costs out of your warehouse. This ultimately means more profitability for your business. You can easily extend the information in your Warehouse Management System (WMS) and Enterprise Resource Planning (ERP) systems to every corner of the warehouse—from the loading dock to the aisles, staging area, freezers or out in the yard. Electronic work orders are delivered to workers and completed in real time. Bar code and RFID scanning provides valuable error proofing for task accuracy and automatic collection of the information about each item—from expiration date to batch number. You can even provide workers with the most efficient path through the warehouse for every task.

The result? Your existing staff can handle a major increase in volume, yet still meet order and picking accuracy requirements. Without impacting throughput, you can collect all the information you need to achieve regulatory compliance, along with the visibility to better manage your inventory.

## **The World's Most Complete Warehouse Portfolio: Industrial Wireless and the Right Device for Every Type of Worker and Application**

Since Zebra Technologies offers the industry's broadest product portfolio, our seasoned professionals at MSA Systems can deliver the right device for the different types of workers and environments in your warehouse and logistics operations. Rugged industrial handheld and gun-style mobile computers are built to stand up to the harshest environments, including the freezer and out on the loading dock in the worst weather conditions. Vehicle mount solutions put mobile technology right at the hands of your forklift and clamp truck operators. Zebra's wearable hands-free and voice directed products give workers unparalleled freedom of movement so they can multitask and accomplish more in a shorter period of time. Integrated voice solutions are unique in the industry, helping improve collaboration throughout your warehouse operations by enabling instant push-to-talk communications between Zebra Technologies mobile computers, 2-way radios, and even third-party devices including smartphones. A shared hardware and software architecture enables applications to be ported across devices, reducing software development and training requirements. It is all powered by Zebra WiNG Wireless Networking, the next generation of WiFi technology that delivers unmatched reliability and high-speed performance so your operations never suffer from network bottlenecks, slowdowns, and service outages.

### **Everything You Need to Go Mobile**

When it comes to creating a real-time warehouse, only Zebra Technologies brings you true end-to-end solutions—from the mobile devices in the hands of your workforce to the wireless WiFi networks and RFID infrastructure that enable workers to access your business data in every inch of the warehouse, plus services that help you get and keep your mobile warehousing and logistics solutions up and running at peak performance. The result? Increased productivity increased accuracy, and the ability to exceed your customers' expectations.



## Case Study Snapshot

Zebra Technologies' wearable mobile computers drive picking errors down and productivity up for major distributor, Ben E. Keith.

### THE COMPANY

- Distributor of food service and Anheuser-Busch products for over 100 years
- Food service division: eighth largest major full-service institutional distributor in the U.S.
- Beverage division is the third largest beer wholesaler in the U.S.
- Ships hundreds of thousands of perishable and non-perishable items daily

### BEFORE: THE CHALLENGE

- Customer service quality—the company's #1 mission—was threatened by the errors in their paper-based picking process.
- To better serve customers, the company wanted a solution that would not only eliminate those errors, but also enable faster processing of orders.

### THE SOLUTION

- Hands-free wearable computers
- Ring scanners

### AFTER: THE NEW BUSINESS PROCESS

- Electronic pick orders replace paper
- The item to be picked and directions to the pick location are delivered to a wrist-mounted, wearable mobile computer
- A scan of the bar code on the item with a ring scanner verifies that the right item is about to be picked and prints the right label to place on the item
- The workers are directed to the proper pallet for staging

### THE BENEFITS

- Picking accuracy improved—the error rate of 1 in 1,500 was reduced to 1 in 16,000
- Easy capture of traceability data to:
  - Cost effectively meet government regulations
  - Enable cost-efficient recalls
  - Eliminate waste associated with discarding perishable items past their due date through better visibility into inventory and expiration dates
- Return on investment in six months



## The New Mobile and Wireless Warehouse

Zebra Technologies' warehousing and logistics solutions streamline the workday and improve the productivity of all your warehouse workers. You can choose from voice-directed solutions to improve picking speed with hands-free voice-picking, screen directed data solutions for handheld scanning and mobile computing, or voice-guided solutions that give you the best of both worlds—the speed of voice, the accuracy of scanning, and the ability to handle exceptions on the fly with data input.

### RECEIVING

Real-time wireless connectivity at the dock door increases the velocity and the accuracy of the receiving function.

#### PROCESS IMPROVEMENT

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- Instantly process and reconcile shipments with a scan of the bar code or RFID tag on incoming shipments.
- Automatically deliver electronic processing directions for incoming shipments —such as stage for put-away, cross-dock, or return if shipment contains the wrong materials.
- Print labels on the spot to replace damaged or missing labels.
- Snap a photo to document indisputable proof of condition for incoming goods.

#### BENEFITS

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- Streamlines and error-proofs the receiving process
- Enables instant inventory visibility and availability
- Eliminates congestion at the dock door
- Improves worker productivity
- Reduces cycle times
- Helps speed the put-away process for faster inventory availability

## RETURNS

With on the spot bar code scanning, returns can be processed in an instant. Items are immediately re-entered into inventory, available to fulfill new orders. Customers receive credit faster. Items under warranty are replaced faster.

### PROCESS IMPROVEMENT

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- A quick scan of an item bar code or RMA label instantly validates the return and re-enters returned items into your inventory database.
- Imaging allows workers to snap a photo of the returned merchandise for proof of return and proof of condition.

### BENEFITS

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- Increase productivity—the same staff can now process more returns per day
- Speed up the processing of customer credit or the re-shipping of items covered under warranty, boosting customer satisfaction
- Eliminate potential customer disputes over the condition of returned items with photographic proof of condition

## CROSS-DOCKING

With real-time access to the order database, workers can process incoming shipments in real time. Cross-docking becomes a reality—improving warehouse efficiency by ensuring that each shipment is handled once instead of multiple times.

### PROCESS IMPROVEMENT

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- A quick scan of the bar code on an incoming shipment enables instant identification of orders that should be cross-docked, along with the dock number.
- Shipments bound for the same dock can be aggregated, minimizing steps and usage of materials handling equipment.

### BENEFITS

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- Increases productivity—the same staff can now cross dock and ship more orders per day
- Improves shipping times for higher customer satisfaction
- Improves utilization of material handling equipment
- Improves vehicle utilization—trucks are fully loaded with the right shipments and shipments are aggregated to minimize mileage

## **PUT-AWAY**

With mobility, the put-away process is virtually error-free—materials are always in the right location and ready to fill orders or replenish the production line, protecting customer satisfaction, production uptime and yield.

### **PROCESS IMPROVEMENT**

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- Scan of the bar code on items displays the right storage destination and the fastest route to the put-away location.
- Crosscheck put-away accuracy with a scan of the shelf tag.

### **BENEFITS**

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- Reduces dock-to-stock cycle times
- Optimizes inventory availability and accuracy—incoming shipments are promptly stored in the right location, every time
- Improves worker productivity—the same staff can put away more goods in less time
- Protects customer service and satisfaction—inventory is accurate and always in the right location, ready to fulfill orders promptly

## **REPLENISHMENT**

With Zebra's warehousing and logistics portfolio, workers have all the tools needed to rapidly respond to line-side calls (eKanBan) for product replenishment—so production lines stay up and running.

### **PROCESS IMPROVEMENT**

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- Paper work orders are replaced by electronic work orders, which are sent to handheld mobile computers or vehicle mounted mobile computers on forklifts, pallet jacks and more.
- Replenishment orders also include the fastest route through the warehouse to the items.
- A quick scan verifies the product prior to and after selection from your warehouse shelves, ensuring that the right items are being delivered to the production line.
- In manufacturing plants that utilize raw materials sequencing to build different or custom products on the same production line, workers can be directed to pick items so that they can be delivered in the proper sequence.

### **BENEFITS**

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- Increases the speed and accuracy of the replenishment cycle
- Prevents costly unplanned production line shutdowns
- Protects customer service by preventing delays in production
- Prevents the manufacture of products with the wrong parts—and the costly re-work and delays in delivery times
- Enables First In, First Out (FIFO) inventory management, ensuring that oldest stock is always used first.



## PICKING

Whether your workers are picking individual items of any size or cases, Zebra's hands-free mobile solutions dramatically streamline and error-proof the picking process for fast and accurate fulfillment. Zebra's unique wearable mobile computers support both text and voice-directed applications, and any of its voice-enabled mobile computers can be combined with a hip holster and a headset to easily enable rich voice-directed picking.

## PROCESS IMPROVEMENT

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- Paper pick orders are replaced with electronic text or voicedirected pick orders that are delivered directly to the mobile device, easily enabling batch, wave and dynamic picking.
- Utilize voice-direction to keep users in constant motion.
- Mobile devices display the location of each item and the optimal route to that location for every item on the electronic pick order, minimizing the number of steps required per order.
- Scanning the bar code or RFID tag on an item or case verifies that the right item has been picked.
- Items picked are instantly deducted from inventory, providing real-time inventory accuracy.
- Automatically capture lot numbers, serial numbers, catch weights, and other item-specific information.

## BENEFITS

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- Increases productivity—the same staff can now fulfill more orders per day
- Meet customer expectations for same day shipping with voice direction and hands-free devices that increase pick speed
- Achieves 99.9 percent picking accuracy
- Improves customer service—customers receive the right order every time
- Eliminates costly returns—eliminates return shipping fees when the wrong item is shipped
- Utilizes more granular picking instructions to support first in, first out (FIFO)/last in, first out (LIFO) for better inventory management
- Reduces out of stocks—with real-time inventory visibility, and you know instantly when stock is low, ensuring prompt re-ordering and protecting against lost sales
- Improves information accuracy through automated data capture
- Enables cost-effective regulatory compliance

## **SORTING**

When you give your workers a wearable mobile computer that can be worn on the wrist and a wireless scanner that can be worn on a finger like a ring, workers can sort items faster than ever.

### **PROCESS IMPROVEMENT**

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- Hands-free sorting allows workers to keep their hands on packages at all times—no need to set items down to pick up and interact with a handheld device.
- A quick scan of the bar code on the package displays the exact location where the package should be placed, eliminating errors and providing an audit trail for traceability.

### **BENEFITS**

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- Increases productivity—the same staff can now handle more goods per day
- Ensures sorting accuracy
- Ensures promised delivery times are met
- Protects customer service and satisfaction
- Cost-efficient compliance with traceability regulations

## **PACKING**

When you equip packers with bar code scanning capabilities and wireless connectivity to your business systems, quality control is simple, fast and very accurate.

### **PROCESS IMPROVEMENT**

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- A scan of the bar codes on all of the items in an order provides an automatic and error-free validation that the order contains the right items.
- Packing materials can be automatically calculated based on the items in the order, including carton size—educing the amount of filler needed.
- A scan of the shipping materials as they are used provides real-time inventory visibility, enabling prompt re-ordering and ensuring that the proper packing materials are always available.

### **BENEFITS**

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- Increases productivity—the same staff can pack more orders per day
- Increases shipping accuracy
- Eliminates the costs associated with re-ships
- Protects customer satisfaction by ensuring orders are always accurate before packing is complete
- Reduces packing material costs, helping both the environment and your bottom line
- Reduces out-of-stocks in packing materials inventory

## SHIPPING

Zebra mobile warehouse solutions streamline and error-proof the shipping function, so you can deliver more shipments in less time.

### PROCESS IMPROVEMENT

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- A quick scan of the bar code on an outgoing shipment helps ensure that the right items are being shipped to the right address and staged for the right truck—in the right order.
- Required paperwork can be instantly printed on either a printer connected to the wireless LAN or via a direct connection to a portable Bluetooth-enabled printer.
- Parcel shipments can be pre-sorted for direct shipment to a carrier hub to reduce shipping charges.

### BENEFITS

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- Increases productivity—the same staff can now ship more orders per day
- Improves shipping accuracy—orders are always sent to the right customer
- Improves customer service and satisfaction—customers receive orders with the right products, on time, boosting your customer retention levels
- Improves vehicle utilization—trucks are fully loaded with the right shipments and shipments are aggregated to minimize mileage
- Increases driver productivity—drivers spend less time at each spot when shipments are staged in the correct order

## MANAGER DASHBOARD

With mobility, your managers can remain where they are most effective—out on the warehouse floor where they can best protect productivity and throughput. Away from their desktop computer and desk phone they can access the constant stream of information required to keep your warehouse operating at peak efficiency—now, it is in their hands wherever they are.

### PROCESS IMPROVEMENT

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- Monitor and make real-time changes in schedules to address bottlenecks that could impact delivery times.
- Receive instant notification anywhere and anytime when low inventory thresholds are reached to ensure timely re-ordering.
- Instantly receive real-time messaging and alerts.

### BENEFITS

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- Improve manager efficiency and effectiveness
- Improve inventory control
- Better management and utilization of the workforce
- Eliminate out of stocks, preventing lost sales and unplanned production line downtime
- Protect and improve customer service and satisfaction

*The value from time savings and error-proofing that mobility provides in the warehouse extends far beyond the loading docks, warehouse aisles and shelves.*



## Benefits in the Warehouse and Beyond

The value from time savings and error-proofing that mobility provides in the warehouse extends far beyond the loading docks, warehouse aisles and shelves. The benefits of real-time inventory visibility ripple throughout the enterprise, improving efficiency in the yard, on the production line and in dispatch, delivery, sales and service functions. Now, the same information that improves warehouse efficiency can also help you achieve key strategic business objectives, including:

- A reduction in inventory stocking levels—as well as the associated capital and space requirements
- A reduction in out-of-stocks—delivering a potential increase of 15 percent or greater in sales
- Ability to utilize warehouse space that is no longer required in the business area where it will provide the most value—for example, to expand the production line to add a new product line or increase capacity
- A reduction in transportation costs through tighter scheduling and management of shipments
- The ability to support new manufacturing applications that improve profitability and customer service, such as vendor managed inventory (VMI) and raw materials sequencing
- A faster invoicing and payment cycle, made possible with real-time visibility in shipping
- Ability to provide customers with real-time order status, improving customer satisfaction and retention
- Reduces field sales cycle times by enabling nearly immediate picks for faster order fulfillment





## A Return on Investment in Just Months

- When you invest in a Zebra Technologies warehouse mobility solutions, the benefits combine to provide a return on investment that can often be measured in months instead of years:
- The cost of operating the warehouse is reduced
- The overall cost of doing business is reduced
- Customer service quality is increased
- Uptime is maximized—with rugged and field-proven mobile devices and a ‘no questions asked you’re covered’ support plan
- The lifecycle of your warehouse mobility solution is maximized through:
  - Support for future standards and devices
  - Easy integration with your existing technology systems—from your telephony infrastructure to backend applications
  - Support for Zebra Technologies’ RhoMobile Suite, an HTML5 operating-system agnostic application development platform that enables the creation of a single version of an application that can run on Zebra Technologies and third-party mobile devices with a wide range of operating systems—including enterprise operating systems, such as Windows® Embedded Handheld, Windows® CE, Google Android™, BlackBerry® OS, Apple® iOS, and Windows® Phone 7. As a result, enterprises have the freedom to choose the right device for each type of worker, as well as support Bring Your Own Device (BYOD) initiatives.

Drive the efficiency of your warehouse operations and the productivity of your entire warehouse staff to a new high with Zebra Technologies’ Warehousing and Logistics Portfolio.

To find out how, contact MSA Systems, Inc. at (408) 252-9000 or email us at [kim.wilson@msasys.com](mailto:kim.wilson@msasys.com) to set up a call or appointment for a FREE consultation.

# The Zebra Technologies Mobile Warehouse Portfolio

When you choose Zebra, you get the peace of mind that comes with choosing an industry leader with well-tested and well-proven solutions as your technology partner. Every day, Zebra's Mobile Warehouse Solutions help organizations of every size proactively respond to customer demand, increase supply chain efficiency and successfully compete in today's fast-paced environment.

## A RUGGED DESIGN AND INDUSTRY LEADING ERGONOMICS

While Zebra devices are built to handle the demands of your toughest warehouse environments, they are also built for user comfort. You get reliable operation, even if the devices are dropped on concrete or used in rain, snow, summer heat, extreme winter cold, an industrial freezer or dusty warehouse.

## INDUSTRY-LEADING ERGONOMICS FROM ZEBRA'S AWARD-WINNING INDUSTRIAL DESIGN TEAM

Zebra's rugged devices never compromise on comfort. Every device is built with the user in mind, with features that make it easy for your workers to hold and use your devices all day long—Zebra devices are well-balanced and easy to securely hold without fatiguing, with keys that are sized and placed for easy one-handed operation and the intelligence to automatically adjust display lighting and sound to match environmental conditions.\*

## ANYWHERE, ANYTIME CAPTURE OF VIRTUALLY ANY TYPE OF DATA

With the ability to capture 1D and 2D bar codes (including GS1), direct part marks (DPM), photos, videos, signatures, documents, even RFID, Zebra mobile computers can capture whatever type of data is in use in your environment today—and tomorrow.

## ZEBRA'S UNRIVALED BAR CODE SCANNING TECHNOLOGY

The warehouse can be a tough place for bar codes; they get dirty, scuffed and hard to read. As the inventor of the entire bar code industry, we offer high performance 'scan and go' simplicity, able to capture even damaged and poorly printed bar codes without aligning bar code and scanner window.

Easy centralized remote management of your Zebra and non-Zebra mobile devices and their peripherals

Get your devices up and running, update applications, monitor the health of all devices and troubleshoot and resolve device issues—all without ever touching your mobile devices.

## **INDUSTRY LEADING SERVICE PLANS THAT COVER EVERYTHING—PERIOD.**

With our optional Service from the Start with Comprehensive Coverage support plan, you get a unique all-inclusive program that sets the standard for post-deployment support. Not only does it cover normal wear and tear, it also covers internal and external components damaged through accidental breakage, as well as accessories that are included in the box. The result? No more unforeseen repair expenses to unexpectedly hit your budget—or increase the total cost of ownership (TCO).

## **SECURITY YOU CAN COUNT ON**

Our Mobile Security Suite allows you to add the same security features that protect your wired and wireless network to your mobile devices—from a firewall to intrusion prevention, enforced authentication, data encryption, mobile VPNs for government grade security and more.

## **EXTRAORDINARY CONTROL OVER THE MOBILE DEVICE FEATURE SET**

With Zebra Technologies' AppCenter, you choose which device features your workers can access, preventing personal use of devices—and protecting worker productivity.

## **EASY AND COST-EFFECTIVE APPLICATION DEVELOPMENT AND DEPLOYMENT**

Our team at MSA Systems offers off-the-shelf and custom, best-in-class applications to streamline virtually any business process in your warehouse operations. In addition, with Zebra Technologies' RhoMobile Suite, you can create one version of an application that can run on any device in your warehouse—regardless of operating system or screen size. Applications look, feel and act the same on all devices and can take advantage of whatever feature set is on each device. The result is a pure application simplicity that dramatically reduces application development and management time and cost. With Zebra's Terminal Emulation application, your users can access your mainframe applications right out of the box.

*\* Available ergonomic features vary by device and device type.*

## About MSA Systems, Inc.

At MSA Systems, Inc., we help our clients achieve greater operational productivity, efficiency, and cost-effectiveness by providing turnkey mobility solutions that include warehouse management hardware, software, barcoding, RFID, and wireless infrastructure. Since 1996, we have been a trusted partner for clients throughout the western United States and around the world, including Safeway, Airtech, Beckman Coulter, Pacific Coast Fruit, and Meyer Distribution. By leveraging mobile computing and data capture technologies, we help businesses grow and improve profitability in their warehousing and logistics, inventory management, mobile sales force and field operations, and asset tracking and management.

## Contact Us to Start Transforming Your Operations Today!

In partnership with Zebra Technologies, the global leader in wireless mobility and automation for warehousing and logistics, we are offering free consultation to bring the benefits of wireless mobility and greater automation to your company. We can help you streamline your operations, automate critical processes, and transform your operations with the latest wireless technologies and solutions. Contact us today to schedule an appointment or arrange a call to get started. We would love to help your business!



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