ZEBRA

Barcodes

6 Steps TO FLAWLESS FULFILLMENT

Best practices for integrating mobile, wireless and data capture technologies into warehouse management

OPENING THE DOOR TO FLAWLESS FULFILLMENT

The warehouse is the nucleus of your business. It is the hub through which nearly everything must pass, from raw materials and finished goods to a wealth of other products in a distribution center or retail warehouse.

THE IMPACT OF A FRAGMENTED WAREHOUSE

One of the greatest hindrances to flawless fulfillment in warehouse operations is technical fragmentation—the use of the right technology in only a few operations.

Resulting operational issues include inaccurate information, increased cost, reduced productivity, reduced customer satisfaction, lack of visibility, and longer cash-to-cash cycles.

RESULTING OPERATIONAL ISSUES

- Inaccurate Information
- Increased Cost
- Reduced Productivity
- Reduced Customer Satisfaction
- Lack of Visibility
- Longer Cash-to-Cash Cycles

MOBILITY AS A CATALYST

To combat fragmentation and drive flawless fulfillment, today's forward-looking warehouse and logistics professionals are implementing wireless and mobile technology throughout their operations. In addition to new levels of efficiency, accuracy and visibility, mobility brings:

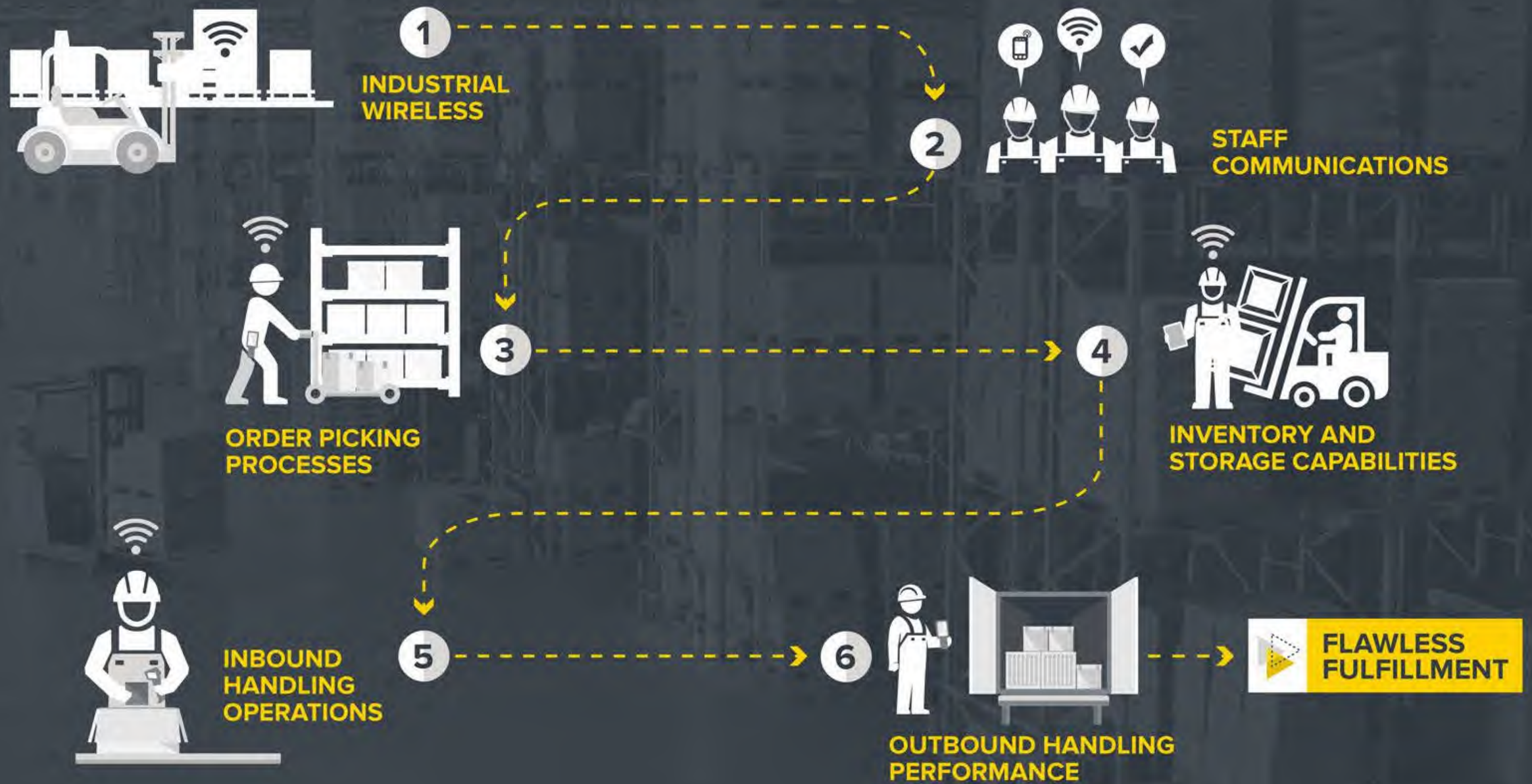
- Massively reduced paper processes
- Improved accuracy in item selection, packing and shipping
- RFID tracking of materials and assets

WITH THE SHIFT TOWARD SMARTER, MORE PRODUCTIVE MOBILE DEVICES, THE GOAL SHOULD BE TO ENSURE EMPLOYEES USE THE RIGHT DEVICES:

- Fixed and Mobile Printers to support tracking of assets and inventory
- Hand-held, vehicle-mounted, wearable and hands-free devices for scanning, tagging, voice picking and more
- Multi-modal technology to allow users to perform multiple tasks on one device

YOUR ROADMAP TO FLAWLESS FULFILLMENT IN 6 STEPS

The path to achieving flawless fulfillment begins by following the six critical steps that will help you create a more collaborative information architecture that not only enables a leaner, more flexible warehouse operation, but a leaner, more profitable enterprise as a whole. Equally important, your enhanced warehouse mobility can serve as the foundation for implementing more efficient enterprise-wide mobility.



Step 1:
DEPLOY INDUSTRIAL WIRELESS SOLUTIONS

Flawless fulfillment starts with connectivity. Warehouse and distribution centers are classic examples of dynamic industrial environments that present much larger communications and technology challenges than those of the carpeted space. Today's warehouses are bigger, taller and more densely packed than ever, putting a premium on fast order fulfillment. To fully leverage real-time communications technology to automate and streamline processes, companies must first lay the foundation—an industrial-strength wireless and mobile network solution.

CHALLENGES TO WIRELESS AND MOBILE ADOPTION

With visibility tools built on peerless Wi-Fi networks and RFID infrastructure, our mobile solutions help workers avoid the obstacles of a connected warehouse including:

Scale of Warehouse Floor

As warehouses increase in size, a lack of seamless communications with workers can cause costly inefficiencies in virtually every function—from receiving to picking to shipping.

Unreliable Technology

Unreliable technology can lead to downtime that can wreak havoc on operations, customer satisfaction and ROI.

Outdated Hardware Creating Bottlenecks and Congestion

Older, outdated warehouse technology is often unable to deliver high bandwidth needed to overcome efficiency-sapping operational bottlenecks.

Device Proliferation

An inability to support today's wide variety of devices—laptops, handheld computers, tablets, barcode scanners, mobile printers, RFID readers and more—leads to unreliable communications and automated processes.

BENEFITS OF INDUSTRIAL WIRELESS SOLUTIONS

Connecting your warehouse with a robust WLAN network can optimize team productivity and workflow with solutions including:

Allows for automation and mechanization of labor-intensive processes such as receiving, put-away, storage, cycle counting, packing, loading and shipping

Delivers real-time access to the WMS so workers can share information and offer end-to-end solutions quickly during peak performance times

Provides a robust and reliable user interface on a wide range of devices to enhance worker productivity

Provides persistent connections for roaming warehouse equipment (forklifts, crawlers, etc.), as well as scanners and handheld devices

Assures efficiency with locationing technology to track workers, assets and vehicles for optimal task management

ZEBRA TECHNOLOGIES

Step 2:
IMPROVE STAFF COMMUNICATIONS AND MANAGEMENT

Flawless fulfillment is impossible unless everyone in the warehouse can work together productively. This requires fast and efficient task management enabled by real-time voice and data communications between supervisors and employees everywhere in the facility. Managers can proactively direct work orders and assign tasks that are not currently driven by the WMS, as well as monitor the efficiency and progress of work as it is being performed.

CHALLENGES TO STAFF COMMUNICATIONS

Getting in Touch

Manager-to-employee-to-shipper communications through an inefficient pager system can be a barrier to efficiency.

Chained and Bound

Without the option of mobile connectivity, warehouse managers may be chained to their desktop computers, preventing them from spotting and resolving issues on the floor in real time.

Delayed Reactions

Too often workers cannot communicate effectively with each other, supervisors, or managers in real-time, making real-time issue resolution and higher productivity all but impossible.

Slower Operations

Without high-speed mobile voice and data access, procedures such as automation, cross-docking and task interleaving are unavailable.

Employee Turnover Rates

When warehouse managers are inaccessible to workers on the floor to support staff and resolve issues, job satisfaction drops and employee turnover rates increase.

MOBILE COMMUNICATIONS SOLUTIONS

Benefits of Mobile Voice and Data Communications

- Empowers managers to get out of the office and onto the floor, maximizing on-the-job efficiency and effectiveness
- Managers can access all business systems and workers with the push of a button
- Employees can communicate directly from their own devices, eliminating time lost walking to phone stations
- Eliminate distracting, nearly unintelligible overhead pages
- Provide for staff identification, access control, and locationing with physical cards

HANDHELD MOBILE COMPUTERS

Give your workers a contemporary, rugged device that's built to meet the demands of any business, increase productivity and boost efficiency.

TABLET MOBILE COMPUTERS

Get the best of both worlds! Combine consumer styling with all the advanced enterprise class features required to meet every business need.

WORKFORCE CONNECT: PTT PRO

Ensure your workers can always reach the right person, in real time via Instant PTT over Wi-Fi and cellular networks. Rich communication and data features in one single device!

CARD PRINTERS

Using the latest Zebra card-printing technology, these printers offer you unparalleled performance with high speeds and low maintenance; ready to meet your business needs now and in the future.

Step 3:
STREAMLINE ORDER PICKING PROCESSES

With the advent of mobility in the warehouse, updating picking processes has become a major concern for many businesses. In Zebra Technologies' recent warehouse survey, more than half of respondents reported plans to increase the number of SKUs (59.5%), the volume of items carried (83.4%) and their annual inventory turnover (64.1%). In the next five years, almost 60% of respondents indicated plans to increase automated processes and 76% plan to equip staff with more technology. These initiatives are especially valuable for pick and fill functions where costs are high and errors can easily snowball into less accurate, less timely shipping and greater numbers of dissatisfied customers.

CHALLENGES TO ORDER PICKING PROCESSES

Walking the Walk

With legacy pick and fill processes, up to 70% of time can be spent walking to locate the right product, wasting time and reducing productivity.

One at a Time

The linear nature of manual order picking means processing must be done one at a time, resulting in costly, ineffective and inaccurate inventory visibility and higher carrying costs.

Unknown Errors

With manual processes and fragmented solutions, products cannot be automatically verified when picked, leading to unrecognized errors and inaccurate staging, packing and shipping.

More Volume, Smaller Orders

The rising volume of orders flowing through the warehouse, especially orders of smaller size and lesser value causes the relative labor expense for filling each order to rise, reducing already thin margins.

Costly Disappointments

Inefficient picking and filling operations cause inventory inaccuracies that all too often lead to costly out-of-stocks, lost orders, disappointed customers and lost revenues.

PICK AND FILL SOLUTIONS

Benefits of Mobility for Picking Operations

- Reduce business costs so workers can process more orders with fewer errors
- Know what products are on your warehouse shelves and the exact location
- Empower workers with hands-free and multi-modal technologies
- Relabel items with missing or damaged barcodes at the point of picking with a mobile printer

Benefits of Real-time Order and Inventory Data

- Conserve time with an automatic pick list along with the fastest route to each item
- Enhance existing pick schemes such as pick-to-tote, pick-to-light and carousels
- Receive instant verification that the right item has been picked
- Eliminate out-of-stocks by instantly deducting items from inventory as they are picked
- Receive granular picking information that enables LIFO/FIFO for improved inventory management
- Instantly store serialized product information with customer orders to allow fast location of recalled products

ULTRA-RUGGED SCANNERS

With a rugged cradle built for durability and superior performance, these easy-to-manage scanners are dust-tight, sprayproof and waterproof.

WEARABLE MOBILE COMPUTERS

Maximize worker productivity, accuracy and task effectiveness in the most demanding environments with hands-free scanning, unparalleled comfort and freedom of movement.

HANDHELD MOBILE COMPUTERS

Built with intuitive applications, dependable wireless connectivity, unprecedented security and a rugged design that looks and feels like a smartphone, you won't have to sacrifice design for functionality.

VEHICLE-MOUNTED COMPUTERS

Give operators in material handling vehicles mobile access to the desktop applications they need to complete tasks faster and more accurately. These computers are built with a compact design and full PC functionality.

RUGGED SCANNERS

Built to withstand heavy use and harsh conditions, these high-performance scanners offer the scanning range, rugged design and speed that will make a difference in your business.

WEARABLE SCANNERS

Enable your workers with our next-generation lightweight ring-style scanners that provide all-day comfort for any size hand. Paired with our wearable mobile computers, you will ensure task speed and accuracy every time, all the time.

MOBILE PRINTERS

Select from our drop-resistant, lightweight and user-friendly mobile printers. The best option to fulfill all your business printing needs with accuracy, speed and efficiency.

Step 4:
ADVANCED INVENTORY AND STORAGE CAPABILITIES

Flawless fulfillment is impossible without properly stocked inventory. When cycle counts are conducted manually, or with older or fragmented technology solutions, they can be extremely time consuming and often fraught with errors. In the Zebra Technologies warehousing survey, respondents noted a dramatic drop in use of manual processes, with pen and paper usage going from 41% today to a predicted 12% in five years. Tellingly, cycle-count motivation is evolving from concern about compliance to WMS optimization. In the survey, respondents reported that the top two cycle-count motivating factors are reduction of out-of-stock conditions and ensuring WMS accuracy.

CHALLENGES OF MANUAL OR LOW-TECH CYCLE COUNTING

Error-Prone

Manual cycle counting is a major reason for a lack of accurate, real-time inventory, availability and control, making it costly, time-consuming and error-prone.

Out-of-Balance Sheets

A lack of real-time visibility into inventory and storage affects inventory valuation, adversely affecting your company's balance sheet.

Days Late, Dollars Short

Manual or low-tech cycle counts may take days or weeks, during which thousands of picks or put-aways may occur, further creating inaccuracies.

Letter of the Law

To meet increasingly stringent regulations, companies must keep accurate inventory. No company wants the major disruption of a shutdown to do a complete physical inventory.

CYCLE COUNTING AND ASSET TRACKING SOLUTIONS

Benefits of Real-time Inventory Data Collection

- Dramatically improve efficiency and accuracy, reducing count time from 3 or 4 weeks to less than half a day
- Ability to take cycle counts more regularly and routinely
- Better trend analysis improves buying practices
- More accurate data within the WMA results in fewer out-of-stock conditions
- Decreased capital expenditure for holding inventory
- Reduced inventory space requirements

Benefits of Automated Asset Tracking Using RFID

- Accurate and cost-effective tracking of assets with virtually no manpower required
- Keeping assets for an extended period of time reduces total cost of ownership (TCO) and improves ROI

HANDHELD MOBILE COMPUTERS

With ultimate scanning performance, fast and dependable wireless connectivity and unmatched processing power, our rugged mobile computer delivers accurate data in any environment.

VEHICLE-MOUNTED COMPUTERS

On-the-go operators can perform cost-effective tracking of assets with virtually no manpower required.

RFID PRINTERS

From on-demand metal tagging, to high volume encoding and printing, our RFID printers offer greater tracking abilities, deeper visibility and faster output.

INDUSTRIAL PRINTERS

Boost productivity in the most demanding conditions with our complete line of rugged, durable and highly reliable label and tag printers.

MATERIAL FLOW/LOCATION SERVICES

Get the real-time data you need to track and manage materials throughout your operation with just-in-time precision, while cutting costs and creating efficiency with Zebra's Visible Value Chain solution.

INDUSTRIAL SCANNERS

Built to withstand heavy use and harsh conditions, these high-performance scanners offer the scanning range, rugged design and speed that will make a difference in your business.

CHALLENGES TO COLD CHAIN STORAGE

Extreme Temperature

Extreme cold temperatures in freezers and coolers can make it difficult for either employees or technology to put away, pick and count inventory with a high degree of accuracy, leading to costly out-of-stocks, lost orders, lost customers and lost profitability.

Cold Hands, Bad Data

Workers sometimes have difficulty entering data accurately while wearing gloves or with freezing fingers.

Out in the Cold

Freezing temperatures and condensation caused by temperature fluctuations can result in unreliable operation in non-ruggedized mobile devices.

Historical Inaccuracies

Stringent safety regulations demand that companies keep accurate historical records. The lack of accurate, real-time data in the cold chain can result in an unreliable food temperature history.

COLD CHAIN SOLUTIONS

Benefits of Real-time Data in Cold Storage

- Improves traceability capabilities
- Enhances order accuracy
- Speeds shipping times
- Accurate monitoring and documentation of perishable food and pharmaceutical temperature history

VH10F VEHICLE-MOUNTED COMPUTER

Get maximum productivity and flawless fulfillment in your most challenging environments with the VH10.

OMNII XT15 SERIES

The OMNII XT15, uniquely adaptive by design—is designed to work in -30°C temperatures.

ULTRA-RUGGED SCANNERS

With a rugged cradle built for durability and superior performance, these easy-to-manage scanners are dust-tight, sprayproof and waterproof.

Step 5:
UPGRADE INBOUND HANDLING OPERATIONS

Receiving and sortation are critical steps in assuring flawless fulfillment. They're critical because issues in receiving all too often morph into other issues throughout the warehouse management process. To streamline inbound operations, today's warehouses must be able to manage two growing trends. First, their systems must be prepared to take advantage of increases in the number of incoming items that have barcodes. In a recent Zebra Technologies study, respondents predicted that the percentage of barcoded items will grow from about 65% today to almost 82% in five years. Second, they need to respond seamlessly to shifting supplier requirements, some of which the survey identified as the increased use of Advance Ship Notices (ASN), RFID systems, GSDN data and GS1 standards.

RECEIVING AND SORTING CHALLENGES

The Paper Chases

Pen-and-paper and other manual and fragmented technology processes result in lost time, reduced accuracy, decreased productivity and lower ROI.

Poor Visibility

Slow and inaccurate receiving and put-away are barriers to real-time inventory visibility and control, as well as to effective cross-docking, task interleaving, traceability and tracking processes.

Slow Dock-to-Stock

Delays caused by pen-and-paper processes and isolated technological solutions reduce inventory control, lead to false out-of-stocks and lost sales.

Many Unhappy Returns

Increasing return rates and inefficient reverse logistics result in slow return of product to inventory, delayed customer credit processing and decreased customer satisfaction.

RECEIVING AND SORTATION SOLUTIONS

Benefits of Mobility at the Receiving Dock

- Overall increase in accuracy and productivity to process more shipments
- Identify incoming shipments in real time with a simple scan of a barcode, RFID tag or RMA label
- Quickly validate and update returns and automatically issue any customer credit
- Streamline handling of any errors in shipment
- Increased visibility allows intelligent put-away for items that are low in stock first
- More efficient cross-docking reduces handling time and costs for incoming shipments
- Items with missing or damaged barcodes can be relabeled, ensuring onward visibility

ULTRA-RUGGED SCANNERS

Equip your team with advanced and extended-range barcode capture, longer battery life, increased visibility and the highest drop and sealing specifications in the industry.

INDUSTRIAL WEARABLE SCANNERS

Give your workers the level of flexibility, comfort, functionality and performance they need to increase productivity in scan intensive applications.

HANDHELD MOBILE COMPUTERS

Now your workers can identify incoming shipments with a simple scan, quickly validate returns, issue customer credits and a lot more.

INDUSTRIAL PRINTERS

Loaded with advanced features and RFID capabilities, these durable printers excel in demanding environments.

MOBILE PRINTERS

Select the best model for your operations to print barcode labels, receipts and more, wherever and whenever needed.

RFID HANDHELD READERS

Rugged, reliable and ergonomic, these high-performance, next-generation readers offer the flexibility and efficiency your business needs.

CHALLENGES TO PUT-AWAY AND REPLENISHMENT

Inventory on Idle

Product sitting on a dock or misplaced in inventory is more than simply idle; it's also unavailable, which can mean lost sales and dissatisfied customers.

False Out-of-Stocks

Put-away errors and delays can create inventory inaccuracies, which can result in erroneous out-of-stock situations, unnecessary product replacement costs and lost sales.

Clogged Aisles

Slow, inaccurate manual processes and the limited throughput of older technology can cause congestion in your aisles, wasting time and decreasing productivity.

Equipment Misuse

Poor visibility and inefficient management of material handling equipment (MHE) like forklifts and crawlers reduces MHE availability and productivity, and increases maintenance costs.

PUT-AWAY AND REPLENISHMENT SOLUTIONS

Benefits of Real-time WMS Access

- Scan a barcode or shelf tag to ensure items are placed correctly
- Ability to consult detailed records of shipment placement, providing visibility to the exact location of all inventory
- Improve the company's profitability analysis and tax liabilities by implementing FIFO or LIFO inventory management
- Quickly respond to changes in inventory, production status and customer requests with automated lean replenishment techniques

VEHICLE-MOUNTED COMPUTERS

Optimize material flows with accurate barcode, RFID and location information at your fingertips.

INDUSTRIAL SCANNERS

Durable, reliable scanning capabilities help increase efficiency and accuracy to ensure flawless fulfillment every time.

MATERIAL FLOW/ LOCATION SERVICES

Real-time visibility with multiple options to signal material moves help you optimize the process, and make intelligent inventory forecasting.

Step 6:
TURNAROUND OUTBOUND PERFORMANCE

Packing, loading, staging and shipping are the 'last mile' in flawless fulfillment, so to speak. The importance of timely, accurate deliveries cannot be overstated. In today's hyper-competitive marketplace, these functionalities are key to turning around warehouse and distribution centers to streamline delivery, enhance competitive advantage and increase customer satisfaction and loyalty.

CHALLENGES TO PACKING, STAGING, LOADING AND SHIPPING

Sluggish Turnaround

In last-mile operations, when cross-checking to confirm that the right items are in the shipment must be done manually, turnaround times are slower and can cause significant shipping delays and lead to carrier detention charges.

Change Resistance

Manual processes often result in an inability to dynamically modify shipping orders to accommodate last-minute changes and emergency orders from customers.

Impacting Packaging

In the packing functionality, the lack of real-time pre-packing information can easily result in orders that are incomplete, inaccurate and packed in the wrong size cartons or containers.

Inefficiency Ripples

Inefficiencies in processing while paperwork and data are manually entered into the system cause delays and errors in manifest creation and shipping that can easily ripple into customer dissatisfaction.

PACKING, LOADING AND SHIPPING SOLUTIONS

Benefits of Real-time Data for Outbound Operations

- Ensure greater accuracy in shipping with a final electronic cross check and on-the-spot printing of necessary paperwork
- Packers can receive notification that items on back order have arrived and complete the shipment prior to departure
- Packing material costs can be controlled, as your business system can determine the right size carton automatically
- Shipping and delivery times are improved, as trucks are fully loaded with the right contents
- Accurate order staging and loading improves driver productivity through reduced dwell time at each stop
- On-time and accurate shipments maximize customer satisfaction and retention

YARD MANAGEMENT SYSTEM (YMS)

Better synchronize your yard operations, loading docks and gate check-in with actionable and optional real-time intelligence. This complete solution also includes visibility server software, RFID sensors and tags for optimized management.

INDUSTRIAL SCANNERS

These high-performance scanners, built for highly demanding environments, provide greater operation accuracy to increase driver productivity and minimize errors.

HANDHELD MOBILE COMPUTERS

Designed with the look and feel of a smartphone, but rugged enough to meet the demands of any business, these easy-to-use mobile computers deliver reliable, accurate and secure data in real time.

VEHICLE-MOUNTED COMPUTERS

Use them anywhere you need to put desktop applications at the fingertips of your vehicle operators with super-rugged design, full Windows support, and fast wireless connections.

RFID HANDHELD READERS

Get instant visibility into your operations. Easily add high-performance, next-generation RFID and 1D/2D barcode scanning to the mobile devices of today and tomorrow.

RFID READER ANTENNAS

Our antennas deliver the high-performance capacity and range you need to track dense product traffic quickly and accurately, even in large application areas.