Four Steps to Improve Logistics Operations Using RAIN RFID

IMPINJ™

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Inform Critical Business Decisions with Real-time Data

You can't escape globalization. Today's digital economy has flattened the globe and created new operational and competitive challenges never imagined in the pre-Internet economic world. Having sped through the first three stages of the industrial revolution, the fourth phase has come. This fourth stage, commonly referred to as Industry 4.0, is the current trend in automation and data exchange in manufacturing technologies. Big data analytics and Internet of Things (IoT) sensor networks will bring unprecedented amounts of data to business operations. Using this data to inform business decisions is critical to competing in this environment. Good is no longer good enough, manufacturing, logistics and shipping companies will have to stretch their operational efficiencies to the limits to compete in an economy empowered with Industry 4.0 technologies.

Imagine standing in the loading dock at your busy distribution center with dozens of trucks pulling up to dozens of dock doors. Think about the hundreds or thousands of boxes traversing the facility hourly. How many of these boxes contain the exact contents that should be in the box? 98%? More? Less? Now visualize your pallet loading stations. Do the right boxes get loaded onto the right pallets 100% of the time? What about the pallets themselves, do they ever go missing in your warehouse?
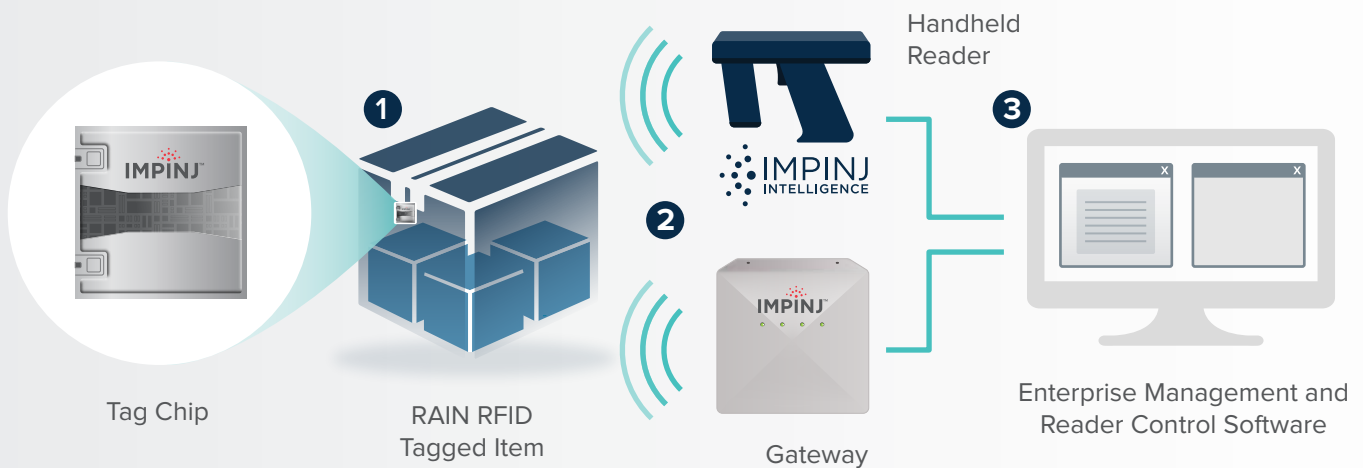
What happens if the wrong pallet is loaded onto the wrong truck and is now heading to the wrong city? Have you calculated the cost, both the hard costs as well as the cost of disappointing your customers?

RAIN RFID is a powerful tool that can dramatically improve the operational capabilities of any organization seeking to ensure they have the right items in the right quantities in the right locations. Delight customers by doing one simple thing extremely well: automating the task of identifying, locating and authenticating any item.

A RAIN RFID system uses tiny, low-cost tags (usually in the form of a sticker) that can be applied to items, boxes, totes or pallets. These tags are powered and read by RAIN RFID readers and gateways that can be placed almost anywhere such as above a dock door or in the ceiling of a warehouse. While the technology has been available for more than a decade, recent breakthroughs in performance and cost make it the ideal technology to use to improve logistics operations.

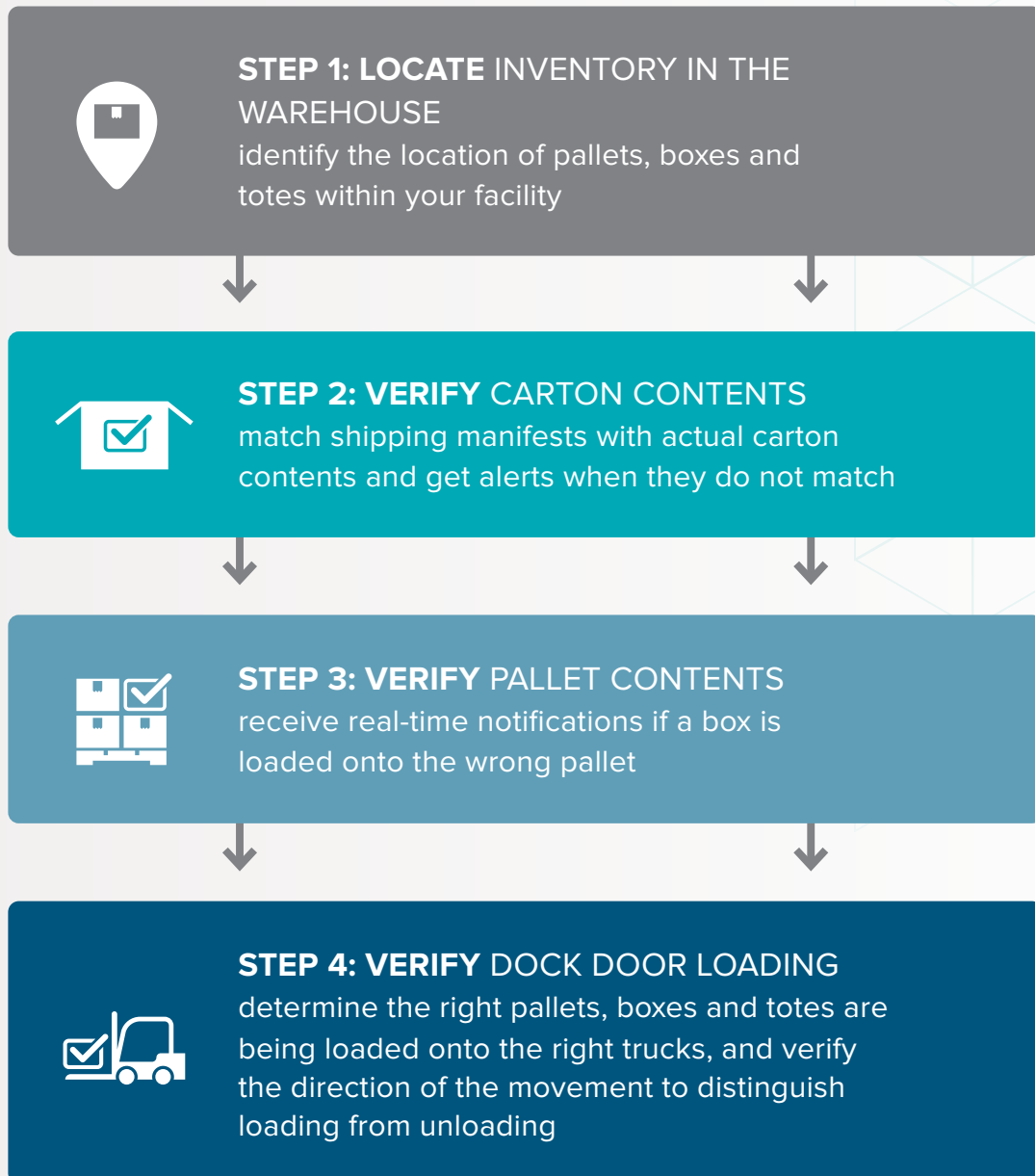The Impinj platform provides one infrastructure that supports many solutions

Tag Chip

RAIN RFID Tagged Item

Handheld Reader

Gateway

Enterprise Management and Reader Control Software

| Endpoints | Connectivity | Software |

Logistics operations can be significantly improved using RAIN RFID by utilizing four steps:

STEP 1: LOCATE INVENTORY IN THE WAREHOUSE
identify the location of pallets, boxes and totes within your facility

STEP 2: VERIFY CARTON CONTENTS
match shipping manifests with actual carton contents and get alerts when they do not match

STEP 3: VERIFY PALLET CONTENTS
receive real-time notifications if a box is loaded onto the wrong pallet

STEP 4: VERIFY DOCK DOOR LOADING
determine the right pallets, boxes and totes are being loaded onto the right trucks, and verify the direction of the movement to distinguish loading from unloading
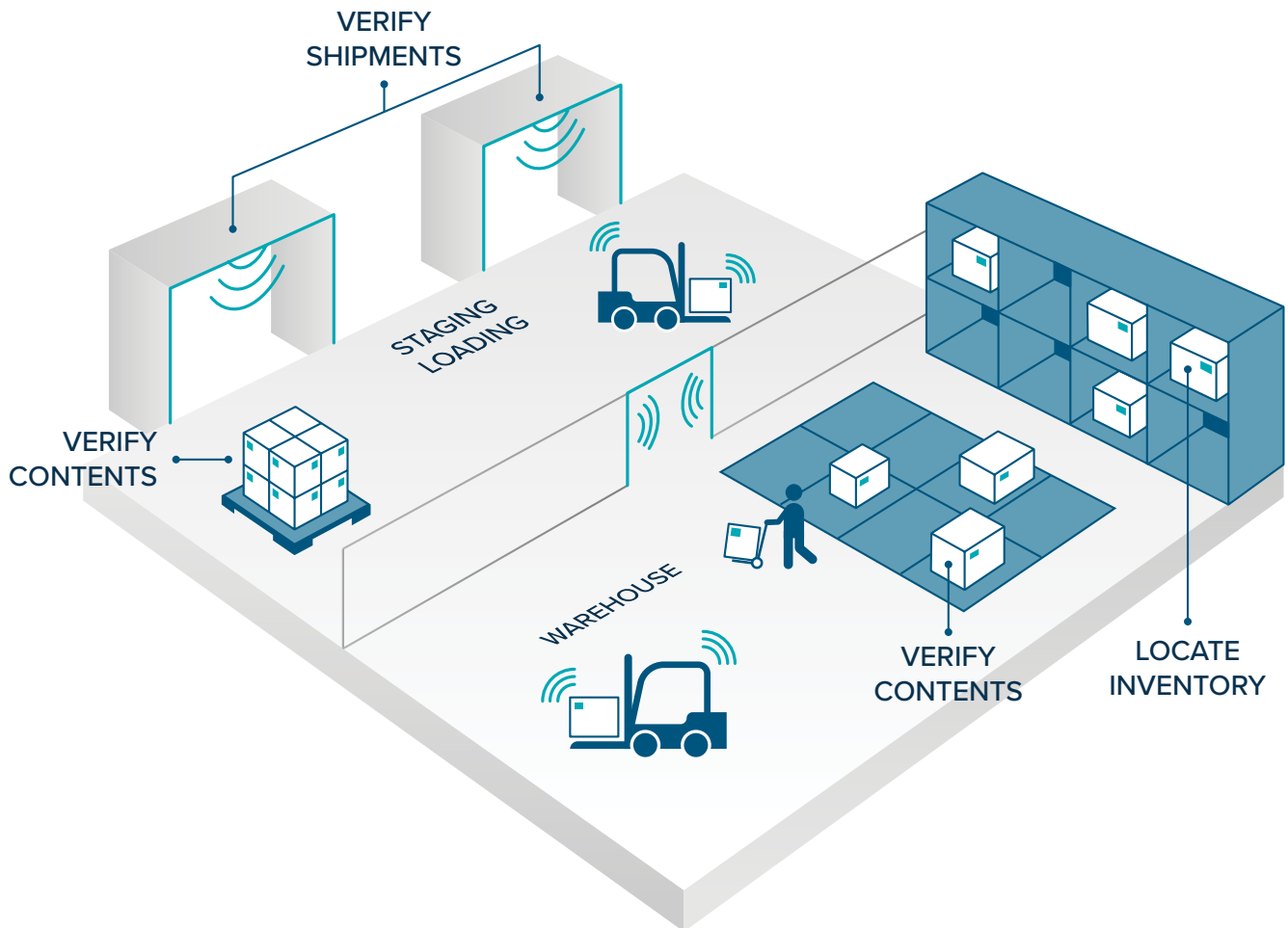
Step 1

Locate Inventory in the Warehouse

How can something as big as a pallet get misplaced? With the largest distribution centers approaching three million square feet (more than 50 football fields) it is actually easy and common to lose pallets.

Low-cost RAIN RFID tags placed on pallets allow you to always know where your inventory is located. By combining Impinj readers and gateways with location data from Impinj ItemSense software, you can always know the location of your pallets to within 1 to 1.5 meters (about five feet).
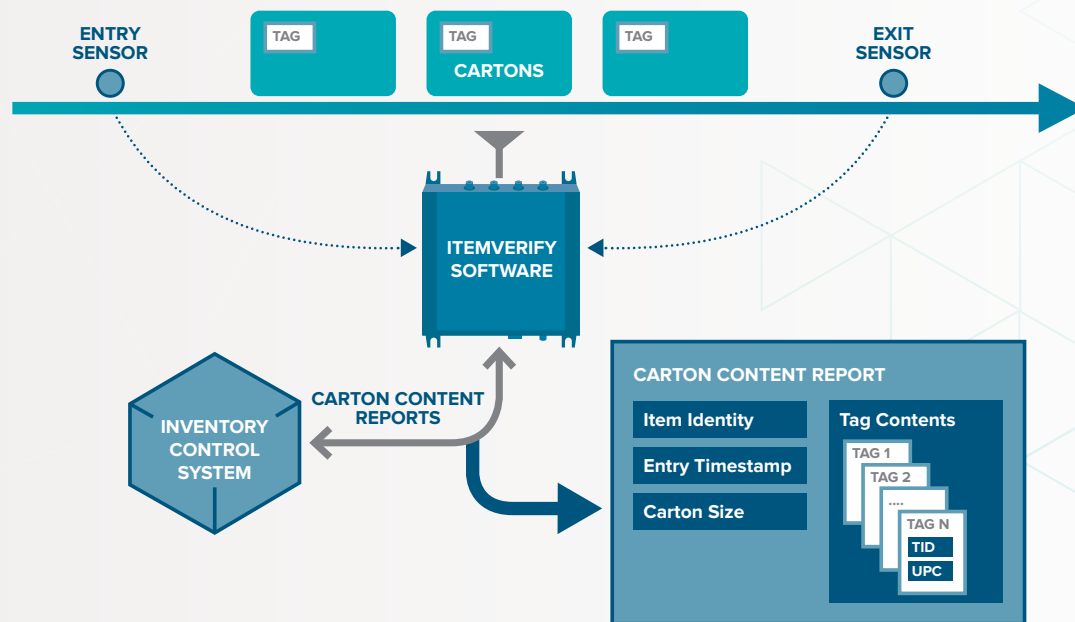
Step 2

Verify Carton Contents

It would be great if locating your pallets and making sure they are loaded onto the right truck was enough, but what if your boxes have the wrong merchandise? The wrong content in the wrong box is often a costly problem to resolve.

Shipment and carton content verification solutions from Impinj can confirm that items in the box match your ordering systems and shipping manifests. Impinj ItemVerify software provides the ability to accurately verify the RAIN RFID tagged contents in cartons moving at line speed, identifying what contents are in which carton. ItemVerify uses entry and exit sensors to identify the ingress and egress of cartons to the system, and to confirm both the size and velocity of each carton.

Verify Carton Contents Match Ordering Systems and Shipping Manifests

Step 3

Verify Pallet Contents

Even world-class supply chain operations struggle to approach Six Sigma operations when it comes to loading pallets. Boxes end up on the wrong pallet and are shipped to the wrong destination everyday throughout the world.

Incorrect international shipments may result in rejecting an entire shipment or paying customs and importation fees on boxes not even destined for that country. Techniques aimed at resolving these issues are often costly and prone to human error. Impinj RAIN RFID gateways are capable of identifying every box being loaded onto a pallet, and Impinj ItemSense software can alert the moment a box is incorrectly loaded onto a pallet. This quickly and easily enables the errant box to be removed and loaded onto the proper pallet.
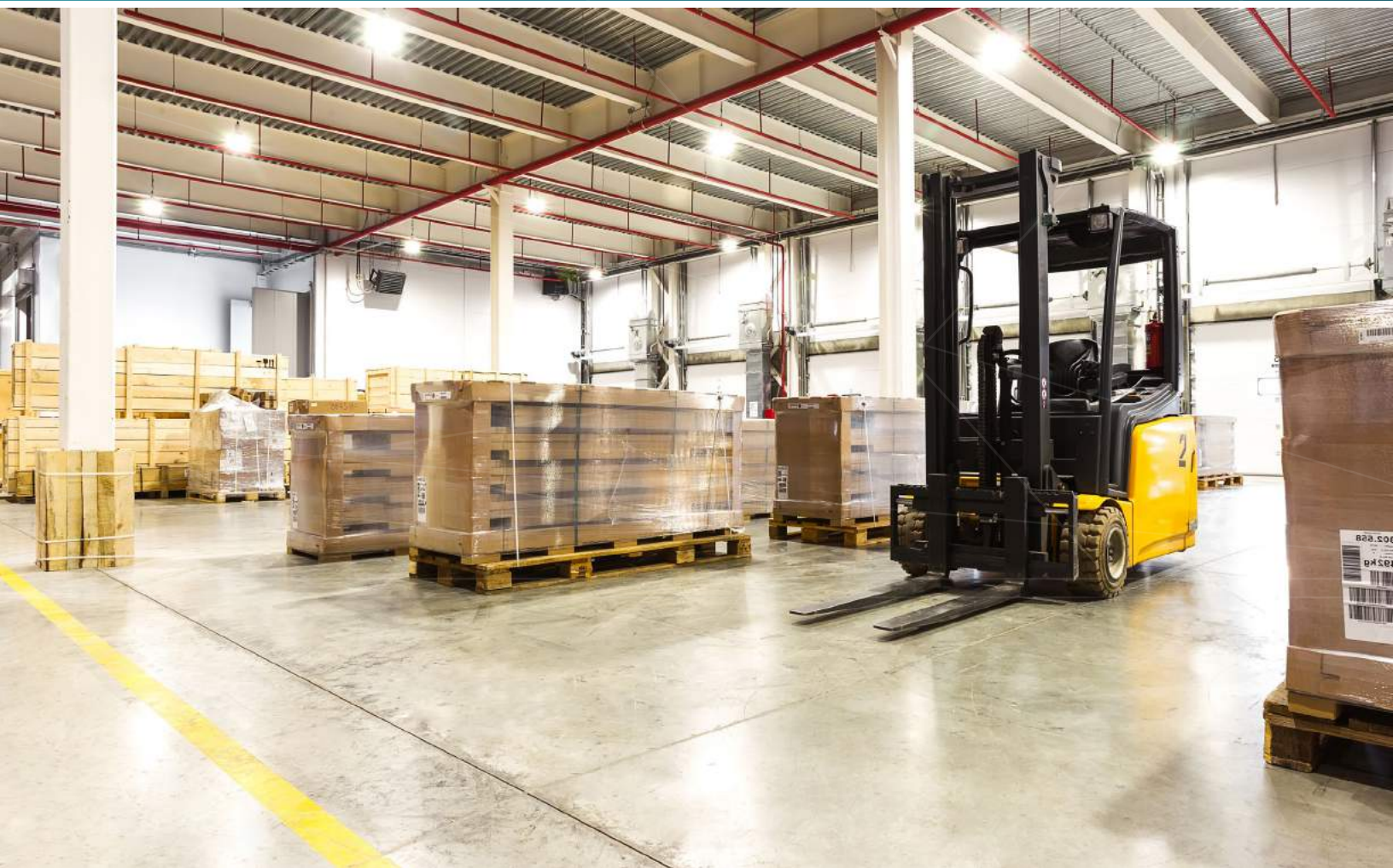
Step 4

Verify Dock Door Loading

Whether you choose to track at the box, tote or pallet level, Impinj readers and gateways can monitor merchandise passing through dock doors alerting you anytime items are being loaded onto the wrong truck.

Impinj ItemSense software collects the item data and passes it to logistics applications making it easy to alert on any erroneous loading. ItemSense can also identify the direction the merchandise is traveling allowing you to distinguish truck loading vs. unloading. The return on investment (ROI) of this solution can be achieved by catching just a few improperly shipped pallets or totes per month.

Ready to get started?

To compete in an Industry 4.0 digital economy you need operational tools and techniques that will set you apart from your competition. Good is no longer good enough. RAIN RFID supply chain inventory management solutions from Impinj can help deliver unparalleled levels of inventory visibility and accuracy that will boost your top line and lower your operational costs. Tagging costs have come down dramatically and performance of the technology has improved significantly. There has never been a better time to invest.

For assistance with RAIN RFID transport and logistics solutions please contact Impinj.

Our team of experts can help.

> **REQUEST A CONSULTATION**

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