IMPINJ

Five Ways to Improve Warehouse Operations Using RAIN RFID

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Table of Contents

INTRODUCTION

Real-Time Data for Real-World Challenges

You can't escape globalization. Technology has flattened the globe, creating new operational and competitive challenges unimaginable to the pre-Internet world. These changes, for better or worse, have ignited the fourth phase of the industrial revolution: Industry 4.0.

Industry 4.0 technologies are transforming supply chain and logistics management

Industry 4.0 is built on automation and data exchange in manufacturing technologies and their supporting industries—supply chain and logistics management. Enabling it relies on key technologies, including the Internet of Things (IoT) and big data analytics, whose sensor networks and the data they collect create an unprecedented level of insight for business operations.

But in order to realize the full potential of Industry 4.0 technologies, businesses must first collect data about the most critical things in their operations: their items.

Connecting the items that flow through the supply chain—the products, boxes, pallets, and assets—with digital applications is a critical step in developing Industry 4.0 solutions. It's this real-time data about the products and materials in the warehouses, supporting assets like forklifts and tools, and other items, that will enable informed business decisions for a competitive edge.

Stand on a loading dock of a busy distribution center, for instance, and you'll see dozens of trucks pulling up to dozens of dock doors with thousands of boxes traversing the facility floor.

Even if this facility is running with 98% accuracy the cost of those errors adds up every hour, every day. And the hard cost of each error is only part of the problem. Disappointed customers will easily choose a different supplier they can rely on in this competitive world.

Enabling data collection for Industry 4.0 solutions with RAIN RFID

RAIN RFID is a powerful technology that enables itemized data collection, connects that data with devices and applications, and can dramatically improve the operational capabilities of any organization by ensuring they have the right items, in the right quantities, at the right locations, and at the right time.

The Impinj platform uses RAIN RFID to automate the task of identifying, locating and authenticating any item by using tiny, low-cost and battery-free tags (usually in the form of a sticker) that can be applied to boxes, totes, pallets, and warehouse assets.

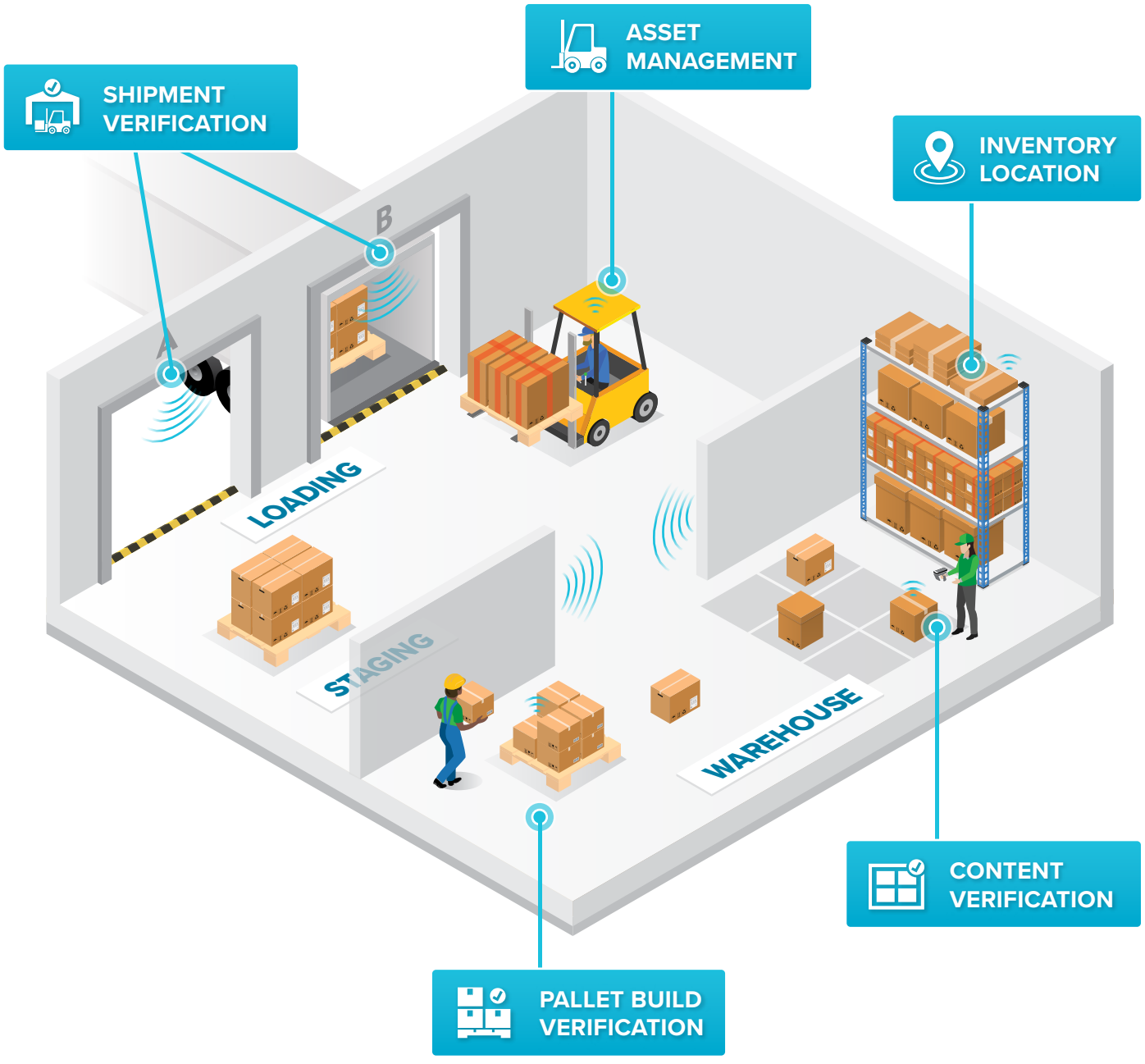
These tags are powered and read by Impinj readers and gateways which can be placed almost anywhere, including above dock doors or in warehouse ceilings. As tagged items move through the facility, data about the items is gathered by readers, analyzed, organized, and passed to business applications operating the facility. These applications now operate with accurate, timely data, enabling real-time decision making and streamlined operations.

While this technology has been available for more than a decade, recent breakthroughs in performance and cost make it the ideal technology to use to improve warehouse operations. So while it's true you can't escape globalization, Industry 4.0 solutions enabled by RAIN RFID will ensure you won't want to.

The Impinj platform provides one infrastructure that supports many solutions.

Five ways to improve logistics operations in the warehouse

The Impinj platform supports many ways to improve warehouse operations with RAIN RFID.



Warehouse operations can be significantly improved using RAIN RFID

1. **Inventory Location:** Identify the quantity and location of pallets, boxes, and totes within your facility

2. **Content Verification:** Match order documentation with actual carton contents and receive alerts when they do not match

3. **Pallet Build Verification:** Receive real-time notifications if a box is loaded onto the wrong pallet during pallet build or during outbound quality control checks

4. **Shipment Verification:** Ensure the right pallets, boxes, and totes of goods are being loaded onto the right trucks and verify the direction of the movement to distinguish loading from unloading

5. **Asset Management:** Locate and monitor the forklifts, pallet jacks, critical tools, and mobile IT assets that keep goods flowing through your operations. Optimize asset utilization and up-time to prevent line-down situations and excessive spares while meeting operational KPIs

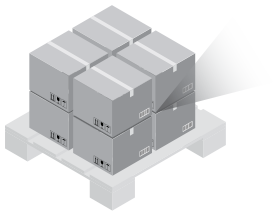
1. Locate Inventory in the Warehouse

Ever misplaced a pallet? At first take, it may seem silly that something as big as a pallet might go missing, but with the largest distribution centers approaching three million square feet (more than 50 football fields) it's actually frustratingly common.

The solution? Low-cost, Impinj-powered RAIN RFID tags placed on pallets allow you to always know where your inventory is located, in real time. By combining Impinj readers and gateways with ERP or WMS systems, you can always see the location of your items and assets.

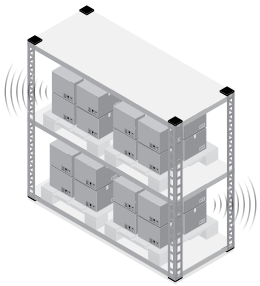
How it Works

1



Attach Impinj-powered RAIN RFID tags to pallets or cartons of items prior to placing in storage. Tags can be read at a distance and without line-of-sight.

2



Use Impinj readers and gateways at warehouse storage points to wirelessly identify and locate inventory at all times.

3

Connect to ERP or WMS systems for real-time cycle counting and be alerted when stock is put away in the wrong location.

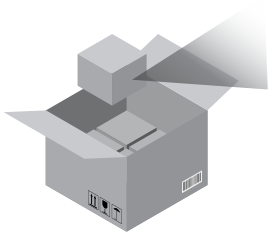
2. Verify Carton Contents

The wrong content in the wrong box is often a costly problem to resolve and can seriously impact customer satisfaction and business performance.

Verification of carton contents can be done while the order is being packed and as part of quality control (QC) processes prior to shipment. With the Impinj platform, individually tagged items can be read during the packing process and, when that data is integrated with logistics applications, can be compared to expected box order contents to catch errors in time for quick correction.

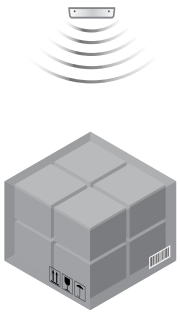
How it Works

1



Attach Impinj-powered RAIN RFID tags to items prior to placing in a box or carton. Tags can be read at a distance and without line-of-sight.

2



Use Impinj readers and gateways at order fullfilment or quality control (QC) stations to wirelessly identify boxed items.

3

Connect to ERP or WMS systems to immediately be alerted to incorrectly packed boxes while also recording data for traceability and efficiency analytics.

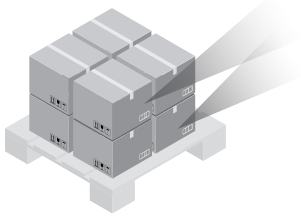
3. Verify Pallet Builds

Even world-class supply chain operations struggle to maintain 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. If you operate globally, incorrect international shipments may result in the rejection of an entire shipment or payment of customs and importation fees on boxes not even destined for that country.

Impinj RAIN RFID gateways are capable of identifying every box being loaded onto a pallet, and you can be alerted the moment a box is incorrectly loaded onto a pallet. You can also automate your outbound quality control operations at the pallet level. This quickly and easily ensures the right box is placed on the right pallet.

How it Works

1



Attach Impinj-powered RAIN RFID tags to each box or carton. Tags can be read at a distance and without line-of-sight.

2

Use Impinj readers and gateways at pallet build stations to wirelessly identify each box or carton being placed on the pallet.

3

Connect to ERP or WMS systems to immediately be alerted when boxes are on the wrong pallet while also recording data for traceability and efficiency analytics.

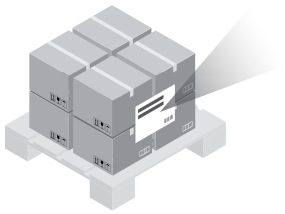
4. Verify Inbound and Outbound Shipments

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.

Item data is collected and passed to logistics applications, making it easy to alert on any erroneous or incomplete loading. Easily validate shipments as they are loaded on or unloaded from trucks. The return on investment (ROI) of this solution can be achieved by catching just a few improperly shipped pallets or totes per month.

How it Works

1



Attach Impinj-powered RAIN RFID tags to pallets of goods. Tags can be read at distance and without line-of-sight.

2

Impinj gateways installed above or on sides of doorways identify shipment contents and the direction of movement.

3

See data about the movement of goods in your existing shipping systems, and get alerts about errors while also recording data for traceability and efficiency analytics.

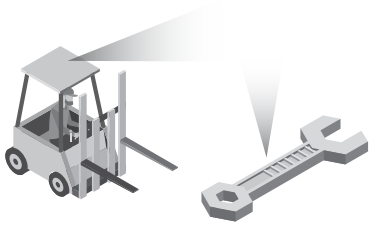
5. Manage Assets

With all the emphasis on tracking product movement, it's easy to let asset management fall to the wayside. However, if these assets aren't available when needed product flow can stop. The same Impinj system used to track product movement can also be used to track assets.

For instance, RAIN RFID can track and monitor assets like forklifts, pallet jacks, tools, returnable transport items, and mobile IT assets. Knowing where these operational necessities are at all times can help you optimize their use, prevent loss or theft, and provide a referenceable log of location and maintenance status should issues or compliance needs arise. And all of this means your supply chain never goes down waiting on an asset.

How it Works

1



Attach Impinj-powered RAIN RFID tags to to production assets like forklifts, RTIs, or tools.

2

Use Impinj readers and gateways installed in doorways, ceilings, or rooms to wirelessly identify and locate items in all company facilities.

3

Connect to asset management systems to manage availability, maintenance, and up-time of assets with real-time location.

Ready to Get Started with Industry 4.0?

Industry 4.0 is creating a technologically engaged, demanding operational environment for many businesses. But with the Impinj platform, you can access the item-level data and visibility you need to compete in a global economy.

Our scalable solutions let you start at the most vulnerable processes in your warehouse operations, like inbound and outbound shipments at dock doors, and then grow to optimize other business needs.

IMPINJ

Impinj enables digital transformation by extending the Internet of Things from the cloud, through edge connectivity devices, all the way to physical items.

www.impinj.com

Barcoding

Barcoding, an Impinj Gold partner, is a supply chain automation and innovation company that helps organizations be more efficient, accurate, and connected. With extensive subject matter expertise in data capture, labeling and printing, and mobile computing, we are trusted to build and manage solutions for some of the best IT and operations teams in the world. Founded in 1998, Barcoding is headquartered in Baltimore, Md., with offices across North America (Chicago, Houston, Seattle, Montreal, Toronto, and Vancouver).

IMPINJ GOLD PARTNER

Contact us to learn more www.barcoding.com