



# Five steps to piloting RFID for unprecedented inventory visibility

Inventory visibility has always been essential, but today it plays an even greater role in shaping the retail experience. A global study of retail shoppers, associates, and decision-makers found that 52% of shoppers left a store without everything they intended to buy, most often because an item was out of stock or couldn't be located.<sup>1</sup>

At the same time, maintaining real-time visibility into out-of-stocks remains a significant challenge—cited by 85% of retail decision-makers and 79% of associates.<sup>2</sup> The disconnect between what's on the shelf and what's in the system continues to hold retailers back, affecting sales, disrupting store execution, and making it harder to deliver a consistent shopper experience.

## Boosting inventory accuracy and efficiency

RFID gives retailers the visibility and control to improve inventory accuracy and elevate execution across the store. By streamlining key processes, RFID helps keep shelves stocked, associates aligned, and operations running smoothly. However, the benefits go further, reinforcing daily routines, reducing uncertainty, and creating a more agile, responsive in-store environment. Whether the goal is stronger replenishment, faster fulfillment, or greater shopper confidence, RFID gives retailers the real-time insight they need to respond with speed and precision.

When it comes to implementing RFID, launching a pilot in select stores or categories helps retailers measure the benefits and ROI before moving into broader deployment. **This guide outlines five essential steps to running an effective RFID pilot and building the foundation for what comes next.**



1



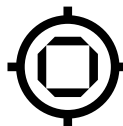
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<sup>1,2</sup>Zebra Technologies, 18th Annual Global Shopper Study, 2025.

# Set business goals and define KPIs



## KEY TAKEAWAY:

**Translate your business goals into measurable KPIs that set direction and keep your pilot on track.**

**Start by identifying the business areas where better inventory visibility could make a measurable difference.** RFID is a powerful tool for improving visibility, accuracy, speed, and more. The most successful pilots are built around clear business goals, like reducing out-of-stocks, minimizing markdowns, or improving shelf availability. Establishing success criteria early helps you stay focused and measure progress effectively.

## Turn priorities into measurable outcomes

Translate your goals into clear Key Performance Indicators (KPIs). Well-chosen metrics keep the pilot focused and ensure it supports your broader business objectives. Examples include increasing shelf availability by 5%, cutting markdowns by 10%, or improving inventory accuracy to 98%.

## Benchmark against proven results

While it's natural to focus on your own approach during pilot planning, stepping back to see how other retailers are using RFID can offer a valuable perspective. The headlines are full of examples ranging from greater inventory accuracy to lower carrying costs. You don't need to match these results, but they can help set informed targets and build support for the pilot.

### SALES IMPACT

- Reduce out-of-stocks by 60% to 80%
- Improve conversion rates by up to 92%
- Boost sales by 4% to 21%
- Increase units per transaction by 19%
- Enhance transaction value by 6%

### OPERATIONAL EFFICIENCY

- Cut receiving time by up to 91%
- Slash inventory cycle counting time by 75% to 92%

### COST SAVINGS

- Reduce inventory carrying costs by 30% to 59%

If replenishment is a key part of your business, reducing out-of-stocks and boosting product availability should be a primary goal. If your product mix includes fast-moving fashion items, improving inventory accuracy earlier in the season can help prevent markdowns and better protect margins.

## Keep goals focused and attainable

It's tempting to solve everything at once, but the most effective pilots stay focused. Limit your pilot to three high-impact business goals—enough to learn something meaningful without stretching teams too thin.

# Align people and partners



## KEY TAKEAWAY:

**Build a cross-functional team, establish ownership and engage the right solution partners.**

### Bring together key internal stakeholders and trusted solution partners to guide your pilot.

RFID touches nearly every part of retail—from merchandising and supply chain to IT, omnichannel fulfillment, and loss prevention. Pilots gain momentum when cross-functional teams are engaged early and aligned on shared goals. When teams understand what RFID enables, they're more likely to support, adopt, and champion the pilot.

### Engage cross-functional teams

Cross-functional collaboration is essential to any successful RFID pilot. Tapping into expertise across merchandising, store operations, fulfillment, IT, and other teams helps ensure the effort reflects real-world complexities. But collaboration needs direction. Appoint a clear owner to guide the work, keep teams aligned, and stay focused on shared goals.

With internal alignment in place, the next step is to unite your teams and technology providers to build the foundation for a high-performing pilot.

### Unite teams and technology

The right technology partners can make or break your pilot. Your software provider plays a vital role in interpreting RFID reads, managing item-level data, and connecting it to the systems teams already use—enabling visibility without disrupting established workflows. Identify that provider early and ensure alignment across your use cases and operational goals.

Selecting the right frontline technology is just as important. From handheld and fixed readers to printers, antennas, and tags, every component plays a role in capturing item-level data and enabling real-time visibility. Because no two store environments are alike, working with a provider who understands retail complexity helps you avoid costly missteps, streamline setup, and reduce surprises, so your pilot runs smoothly and reflects the realities of retail.

#### KEY RETAIL STAKEHOLDERS

Merchandising

Supply Chain

Omnichannel Fulfillment

Information Technology

Loss Prevention

Procurement

Store Operations

Software Partners

Technology Solution Providers

# Target visibility gaps



## KEY TAKEAWAY:

**Focus your pilot on where inventory blind spots create real consequences for shoppers, associates, or store performance.**

### Pinpoint the operational issues where poor inventory accuracy leads to real disruption in stores.

Once your goals are defined and your teams are aligned, the next step is identifying the operational issues where poor inventory accuracy leads to real disruption in stores. Look for friction points that result in missed sales, delayed pickups, or lost confidence on the floor. These are often the clearest opportunities to demonstrate RFID's value. The examples below highlight where breakdowns frequently occur and where RFID can make an immediate difference.

### Strengthen display execution

Messy or understocked displays erode shopper confidence, especially in size-intensive categories like apparel. RFID helps ensure full-size runs, improves visual execution, and reduces the time associates spend checking and restocking tables.

### Streamline click-and-collect fulfillment

In a recent study, more than half of shoppers said they had placed online orders for pickup, either in store or curbside.<sup>3</sup> With pickup now a routine part of shopping, associates often struggle to locate inventory quickly, slowing fulfillment and frustrating shoppers. RFID reduces search time and speeds movement to the pickup area, improving speed and satisfaction.

### Lower fulfillment costs

Store-based fulfillment is often more cost-effective than shipping from a distribution center—but only if inventory is accurate. RFID gives associates confidence to pick from on-hand stock, helping reduce errors, improve speed, and lower cost.

### Deliver real-time availability

Shoppers expect to check product availability before visiting a store, yet 84% of retailers say their inventory tools fall short.<sup>4</sup> RFID provides real-time, item-level visibility, helping you meet shopper expectations and improve store execution.

#### CASE STUDY: FANATICS IMPROVES INVENTORY ACCURACY AND CHECKOUT SPEED



Fanatics, a global leader in licensed sports merchandise, set out to speed up inventory counts, improve checkout and reduce shrinkage. With RFID, counts that once took six to eight hours now take under an hour, enabling more frequent, accurate checks. Fewer associates are needed at the register, freeing others to assist shoppers on the floor. The result: faster service, fewer discrepancies, and a more seamless fan experience.

<sup>3,4</sup> Zebra Technologies, 18th Annual Global Shopper Study, 2025.

# Make strategic tagging decisions



## KEY TAKEAWAY:

**Make tagging decisions that balance visibility, efficiency, and scalability without adding unnecessary complexity.**

**Decide which products to tag—and how those choices will support your pilot goals and day-to-day execution.** Once you've identified where to focus, the next step is deciding what to tag—and how those decisions will influence execution and insight. Tagging affects visibility, labor, cost, and measurement, making it one of the most critical steps in your pilot. A thoughtful strategy helps you capture the right data without adding unnecessary complexity.

## Define what to tag

Start by determining which products will be tagged and where that tagging will occur. Tagging every item in the pilot area is ideal, especially when completed at the source, where it's typically most efficient and scalable. Distribution center or in-store tagging is possible, but it often adds cost, labor, and complexity.

To help guide your decision, consider using store-level recommendations based on total item counts. These can help you scale tagging decisions based on your store size and inventory profile.

FEWER THAN  
50,000 ITEMS

Tag all items in a handful of stores.

MORE THAN  
100,000 ITEMS

Tag select categories in several stores.

BETWEEN  
50,000 AND 100,000 ITEMS

Use a mix of both approaches.

## Select the right tags

Tag performance isn't one-size-fits-all. It's shaped by product materials, packaging, and even environmental factors like shelving or lighting. Items with metal or liquid surfaces may require specialized tags with stronger adhesives or extended read ranges. Tag size, placement, and orientation also affect how reliably the system performs.

Next, confirm that your chosen tags are compatible with your infrastructure. Making the right decisions upfront helps avoid downstream issues and ensures the pilot delivers consistent, reliable results.

## Tag products that reveal RFID's value

Prioritize high-value, high-turn items and products that are easy to confuse, such as shoes or denim with similar SKUs. Avoid categories with simple replenishment patterns or strong existing processes, where RFID may offer limited added value during the pilot.

# Put the plan in motion



## KEY TAKEAWAY:

**Carry out the plan with consistency, measure results and use what you learn to shape next steps.**

**Activate the pilot plan with clear roles, aligned technology, and a shared approach to tracking progress.** After all the planning, decisions, and setup, Step 5 is where everything comes together—in the real world. A strong pilot doesn't just test technology; it tests your teams, workflows, and operational readiness. When executed with discipline and clarity, it builds trust, delivers measurable results and creates a foundation for scale. Done well, it becomes the bridge between early learning and long-term transformation.

## Document the plan

Outline the full scope of your pilot, including participating stores, technology setup, training, and timeline. Wherever possible, use digital planning tools or dashboards to give all stakeholders shared visibility into the process. Keep teams aligned and help ensure accountability with clear documentation and transparency.

## Deploy the right tech

Avoid defaulting to a standard setup. Match your technology configuration to the workflows you're testing. Consider using handheld RFID readers for cycle counting, while fixed readers at entrances or exits may better support loss detection or traffic analysis. Confirm that your setup is aligned with your pilot goals and ready to perform reliably in a live store environment.

## Train store teams

Pilot success depends on consistent daily execution, and that starts with your store teams. Provide clear, role-specific training so associates understand how the tools work, what's changing in their routines, and why it matters. Reinforce how RFID simplifies everyday tasks, like searching for inventory or confirming stock levels and how each action contributes to the pilot's outcome.

## Track results and plan next steps

A clear measurement structure makes it easier to track progress and isolate impact. Establish baseline data, define control stores, and review performance regularly. These insights help you evaluate what's working, what needs refinement, and what's ready to scale. Sharing both successes and gaps builds trust and sets the stage for confident next steps—whether you're expanding the solution, refining workflows, or adjusting priorities.

### EXECUTION CHECKLIST

Execution roles confirmed

Technology installed, tested, and ready

Teams trained on new workflows

Tags applied to in-scope items

Measurement plan in place

Review schedule



# Moving from pilot to deployment

A well-executed pilot sets the stage for rollout, but the goal isn't just to test—it's to prove value in real-world conditions and build the confidence to take the next step.



Plan for a 90–120 day pilot to generate meaningful results.



Review progress every 30 days and make adjustments if needed, such as retraining staff or refining tag placement.



Track impact through key metrics like inventory accuracy, out-of-stocks, sales turns, dwell time, and transaction value.



Compare the cost of deployment with the gains achieved during the pilot.



Expand to more stores, categories, or regions if additional validation is needed.

At the end of the pilot, use what you've learned to refine the implementation plan. Every retail environment is different and what comes next should reflect your business's needs. That might mean scaling across locations, introducing new categories, or adding use cases like loss detection. RFID is a powerful enabler, but lasting success comes from thoughtful integration, practical workflows, and experienced partners who understand the complexities of retail.

For more information about Zebra's RFID portfolio, visit us at [zebra.com/rfid](https://zebra.com/rfid)



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