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# Insights into Deploying RFID Systems in Retail

## Research Article No. 15

October 2017

# About



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Platt Retail Institute (PRI) is an international consulting and research firm that focuses on the use of technology to impact the customer experience. PRI develops marketing and technology deployment strategies, supported by analytics, to build brands and increase sales. PRI clients include retailers, media companies, financial institutions, hardware and software companies, educational institutions, and other businesses. In addition to its global consulting expertise, PRI also publishes the quarterly *Journal of Retail Analytics* and other pioneering industry research.

To learn more about Platt Retail Institute, please visit [www.plattretailinstitute.org](http://www.plattretailinstitute.org).



The Retail Analytics Council (RAC) is the leading organization focused on the study of consumer shopping behavior across retail platforms to provide an understanding of how these impact retailers, particularly as new technologies are introduced. Established in August 2014, RAC is an initiative between Medill's Integrated Marketing Communications department, Northwestern University, and the Platt Retail Institute. The RAC unites industry, faculty, students, and its Advisory Board members for the study and exchange of ideas.

To learn more about the Retail Analytics Council, please visit [rac.medill.northwestern.edu](http://rac.medill.northwestern.edu).

# Roundtable: Insights into Deploying RFID Systems in Retail

**M**any retailers have rolled out RFID technology in their stores, while others are just now testing its ability to improve operational efficiencies and ensure a more accurate inventory count. This roundtable discussion focused on how several retailers approached their RFID system deployments. The panelists also offer their advice to retailers who are considering a test of RFID technology: detail the objectives, the business strategies, and what you are trying to accomplish with RFID before testing it in your stores.

Four panelists responded to a series of questions posed by moderator Steven Keith Platt, Director and Research Fellow, Platt Retail Institute, and Director of Research, Retail Analytics Council.

The roundtable participants included:



Karl Bracken  
Senior Vice President,  
Supply Chain  
Transformation  
Target



Rene Saroukhanoff  
Senior Director, Global  
Merchandise Planning,  
Reporting & Analytics  
Levi Strauss



Marshall Kay  
Partner  
RFID Sherpas



Allan Smith  
Former Senior Vice President  
and CIO  
Lululemon Athletica

**Platt:** This our fourth retail research roundtable. The first addressed big data, analytics, and the omni-channel customer. Our second focused on RFID challenges and opportunities. The third considered the role of emerging technologies in retail. All three are available on the [PRI](#) and [RAC](#) websites. I am grateful for the outstanding feedback that we have received on these research panels, and for the participation of our panelists.

Today's topic is: "Insights into Deploying RFID Systems in Retail." We are going to talk about the experiences various retailers have had with their RFID deployments, as well as benefit from the insights of a leading industry consultant. Our goal is to gain some insights from our panelists that may be valuable to retailers considering the use of RFID systems.

**Steven Keith Platt:** What I would like to do first is go around and ask everyone to introduce themselves and then we'll jump into it. So Allan, if you'd be kind enough to start out.

**Allan Smith:** I am the former CIO at Lululemon. Before that, I was in architecture engineering for many years at Gap Inc. So, I've had quite a run in retail. Right now, I'm doing some strategy consulting for a variety of companies. I have a lot of experience with RFID strategy formation ever since the GAP days and culminated with an implementation while I was at Lululemon across the fleet.

**Platt:** Karl, please introduce yourself.

**Karl Bracken:** I'm the Senior Vice President for supply chain transformation at Target Corporation. In my current role and in my past role, we implemented RFID across the home and apparel categories at Target. Prior to that, years ago when I first came to Target after business school at Northwestern, I was involved in research we were doing on the application of RFID in our prescription pharmacy business as well as in some of our distribution nodes. I can talk about our experiences 14 years ago versus what we've seen in the past couple years when we moved forward with implementation.

**Platt:** Marshall.

**Marshall Kay:** I've been working with RFID in the retail space since 2003. That's when I was bitten by the bug. I'm the founder of a retail consulting firm called RFID Sherpas, which I formed in 2007, that helps clients evaluate and utilize RFID and IoT solutions. We don't resell any of the solutions, which gives us the opportunity to offer vendor-neutral advice. We then help our clients get the most from their investments.

One other thing I should point out is that for about 11 years now, I've been authoring Apparel magazine's annual report on RFID and IoT. It's been interesting to watch the evolution of the technologies in this space.

**Platt:** Rene, please introduce yourself.

**Rene Saroukhanoff:** I'm Senior Director of Data and Analytics at Levi's. I have been here for almost three years and before that, I too was at Gap, Inc., where I spent time in inventory allocation, which is where, obviously, the interest in RFID and related technologies started. We have done a pilot here at Levi's and I have tried to keep up with it as much I can, but the pilot was managed through another group so I was kind of an interested spectator in it.

**Platt:** Karl, why don't we start with you if I could just generally ask, what's your interest in RFID technology?

**Bracken:** Our interest in RFID initially was in ensuring that we could have more accurate count integrity of our inventory throughout our network. You can imagine that in a big box retail store with 85,000 items in each store, count integrity can be quite challenging, particularly when you're turning inventory quickly. That's especially true in categories where you have product that gets misplaced, broken, or stolen.

That was one of the major use cases for us. As we got into it and did our research, and then rolled it out, we found that it also has greatly enhanced our ability to pick product quickly for ship-from-store and pick up-in-store offerings. In our store, on our sales floor, it has been very useful to use the Geiger counter functionality on the RFID readers to find apparel, for instance, to speed up the pick, pack, and then shipping that product directly to consumers. Largely, it is about count integrity and shrink avoidance, but we've gotten other sorts of labor efficiencies from our rollout.

**Platt:** Allan, my understanding is that you have, in the past, successfully deployed RFID across an entire chain – you went systemwide. Is that correct?

**Smith:** Yes, that's correct. That project was initially targeted at improving in-store efficiency through improved in-store operations. The target always was to move that model throughout the entire fleet – all categories, all stores. For all intents and purposes, it's fully rolled out with the exception of a few international stores, which was the smaller part of the footprint, but it was intended to be a full rollout. After we had implemented it and gotten the benefits of the in-store operational improvement back to front, the whole omni-channel business case came front and center. We were able to start to move on a strategy of driving ship-from-store and pick up-in-store, and really get to a position where we had systemic visibility across all our stores and e-commerce to know exactly what was in-store and online. To achieve the omni-channel fulfillment rates we were looking for, and to drive a best in class customer experience, very high inventory accuracy was required across all our stores and e-commerce.

**Platt:** A lot of the top-line benefits, such as accuracy and omni-channel fulfillment, have been documented and discussed. But, when it comes to implementation, particularly, you look at a store like a Target, or we've worked with Macy's, where the technology has to be very pervasive from the vendor to the floor. I believe



that a lot of retailers are struggling with this monumental task. Marshall, when you work with your clients, how do you ensure that they maximize their return on investment?

**Key:** Well, Steven, this is really about people first. These are people initiatives, not only technology initiatives. We advise our clients to always look at things through the eyes of the store associate because if it doesn't work for them, then it's not going to work.

That goes right to questions including: What will the reports that the associates are going to be working with look like? On what devices? How intuitive are they? What does the training look like? It also requires working with other parts of the organization on the data that they are going to be getting and how they will be able to make the most use out of it.

**Platt:** Allan, when you were implementing, or in your experience subsequently, what do you see as some of the major impediments to adoption from a retail perspective?

**Smith:** One of the things that will qualify everything, at least from my perspective on RFID implementations, is that in a vertical, it does eliminate a lot of challenges. Meaning, both a Gap as well as a Lululemon have primarily vertical supply chains, and that gives a lot more control.

That said, there are still a lot of hurdles to implementation. I think the first thing is getting the proper sponsorship and buy-in from the functional groups across the different organizations, starting with stores and the supply chain. I feel that selling RFID to a Board of Directors and the senior executive team is more straightforward than keeping the next layer down of operational functional leaders enrolled and aligned. So, I think it's critical to have the business functional leaders with IT as strong enablers to push through technical roadblocks or other types of solutions that you need to maintain.

That's first and foremost. Then, I agree 100 percent that having the in-store operational aspects of it very well understood and communicated and then having associates trained to the point where they view it as a benefit to what they do day to day, closes the circle in terms of sponsorship and buy-in for a successful rollout.

**Platt:** Karl, you have some different issues. You obviously have your own private label, but certainly Target has a lot of other brands, and a fairly large footprint, lots of SKUs. What are some of the hurdles you encountered and how have you gotten around them?

**Bracken:** A large percentage of our apparel and soft home categories is our own brand product, so from that standpoint, it was where and how to adhere the RFID tags to the items – both from a labor standpoint and getting the tags adhered, but then also ensuring that they are in a place where we would get the best possible read. That means the highest accuracy of count integrity as we're scanning the floor. That was something that we had to work through.

We had originally planned on wanting to scale this more broadly across other categories throughout our store. That's still our goal – to extend it further – but one of the hurdles we've been working through is determining where it makes sense on a category-by-category basis to use RFID. Where do you run into physical limitations with the tags not working? For instance, if you were to put it on bottles of water, reading an RFID tag through water doesn't work very well. Or items that contain metal and sit directly on a metal shelf; it doesn't work very well there either.

So, the use cases have proven, for us, to be different across product categories. That's a key learning and a challenge for us as a discount mass merchant that carries a lot of different product categories. It has required a business-by-business look at where we can get the benefit from it. The third thing that we've been monitoring for years is when do you get to the point where the tag cost has come down enough and the reader technology is advanced enough and cost-effective enough that mass implementation will lead to a positive ROI. We feel like we're there now, but initially we had been looking at readers in the ceilings of stores and things like that, which are going to be far more expensive and not as effective. Getting to handheld scanners and lower tag costs has definitely helped to make that financial analysis a lot more advantageous.

But we still are challenged with things like making sure we are not counting backroom inventory and inventory on the sales floor at the same time. How do you avoid that happening? Which product categories

**“ ... having the in-store operational aspects of it very well understood and communicated and then having associates trained to the point where they view it as a benefit to what they do day to day, closes the circle in terms of sponsorship and buy-in for a successful rollout.”**



can effectively utilize RFID and which ones are much harder technically to solve? Those are some of the things we've been working through.



**Platt:** Please expand on that a bit, in terms of categories, just because that's an interesting point. For example, in toys, you had great results and accuracy and then, in sporting goods, you didn't. Were there any surprises or trends or reasons behind some categories working and others that didn't?

**Bracken:** A couple of the categories where count integrity in the store inherently is the worst, but where RFID tags have proven to not be effectively able to be implemented for us, are things like cosmetics. The cosmetics department has this issue across retail regardless of the retailer. This tends to be an area with higher counting integrity problems. But, using RFID tags in that category is a challenge because of the physical nature of the product, and figuring out how to get the tags onto the product in a way that makes sense.

And then, how do you scan effectively and count everything, with so many small items, in our case, in a 24-foot planogram. That can prove to be a challenge. So, the cosmetics department is one example where there were challenges. I already mentioned that big, bulky products that have liquid in them are a challenge for us. Think detergent, bottles of water, things like that.

Another category that has been a challenge for us is electronics, where there is a lot of metal in the item to begin with. Where do you adhere a tag so that you can actually get a clear read if you're scanning with a wand scanner? That proves to be a challenge because, if it's on the bottom, for instance, and it's adjacent to or flat on the shelf, that can impede the effectiveness of the reading during the count.

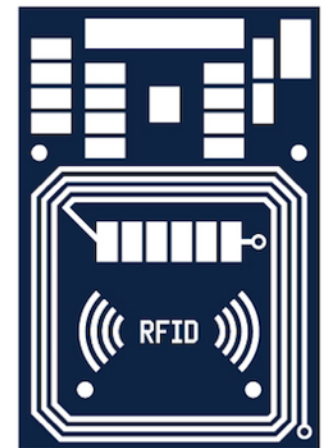
We found in hanging apparel and in our soft home category – think pillows and things like that – the count accuracy has been really quite solid. We haven't run into any major issues there. Again, the only real issue you have to watch out for there is making sure that we're not actually accidentally counting product in the backroom as well, if we're trying to just count the product on the sales floor. Having a barrier that blocks the reading of the backroom inventory versus the sales floor inventory is something we've been working through over time as well. I hope that gives you a little example across categories.

**Platt:** Marshall, when you work with retailers, and you have been in the area a long time, what have you bumped into in terms of major impediments to adoption and deployment?

**Kay:** First, I'd like to expand on what Karl was just saying. There really should not be a problem preventing stock room inventory from being read by employees counting the sales floor (and vice versa). Applying inexpensive shielding to stockroom walls is part of the normal set-up process when a store gets up and running with RFID. Whenever you expand the number of RFID-enabled product categories in your store, you need to check to see if additional shielding is needed.

Now let's return to your question, Steven. One of the challenges is kind of a good news challenge. But it's a challenge nevertheless, which is that there is always something newer and better in the works that seems to be just around the corner. So, Karl spoke about the overhead solutions – something that we often call Hands-Free RFID. There are some great solutions being developed. Some of them have been in the marketplace for several years, but are just now starting to get traction, and there are others that aren't well known yet, but are very promising too. Whether it's an innovation like that or it's an innovation like robots being used to count in the store, these ideas also get attention. It's natural for retailers to be wondering: should I wait just a little bit longer and proceed with a different form of solution, or should I just go with the tried and true methods and tools?

**Platt:** Rene, I'll pose the same question to you, which is, what are the impediments to adoption and deployment. I believe you said that you are not systemwide on the retail side. Is that correct?



**Saroukhanoff:** That's correct. We're piloting it right now in our stores, a few of them. One of the things is, how do you translate something that you're doing in a proof of concept in a store and scale that out on a larger level? There are impacts to business process. There's employee training. Anytime you're touching store operations, it becomes a bit of a big deal. It's a little easier to manage now because we have one of our pilot stores that is on the bottom floor of our headquarters building.

It's easy to pop down there and check in and see what's going on. As you try to scale that out to greater and greater numbers, you start running into different challenges. That has been the number one challenge, just trying to understand how you scale this. The other thing is, you find this obviously any time you're counting inventory, while RFID does help improve that accuracy, you are still getting into issues of, how do I know what I just counted was right?

All kinds of things can go wrong, like a tag falling off of the product, so I'm not going to count it even though it's there. I'm going to adjust my inventory one way, but then if I do a physical count, I'm going to adjust it back the other way. There are all these nuances that pop up as we try to understand how we are going to scale this out to more and more stores.

**Platt:** Allan, when any business is looking at making a major investment in technology, the old ROI equation pops up. What are some of your thoughts on what that model should look like?

**Smith:** That's a great question. I think with this technology, it comes under a prioritization scheme. In most organizations, there are limited dollars to apply to a bunch of different needs. I think everybody probably has that same issue. But, I think the two that are the most telling are this technology's operational improvements and how you really drive the top line with omni-channel. I think the operational excellence just depends on the maturity of the existing store and the complexity.

**“ ... the two that are the most telling are this technology's operational improvements and how you really drive top-line with omni-channel.”**

For some people who have had the ability to invest in improving operations without RFID, it may not be the big ROI but certainly getting that foundation. Omni-channel really puts it in a different category given where digital is going within a lot of organizations. Those are two elements. The third, at least in my experience,

that's probably harder to work with, is the upstream accuracy that you get from just reducing the inaccuracies in systems and the flow of data back to your allocation and replenishment.

If you can get the right product in the right place at the right time – which is the Holy Grail – based on inventory accuracy, that clearly is a huge upside for most organizations. But, creating that business case and justifying it is probably the hardest challenge of those three. Certainly, with the advent of omni-channel, that's the one that probably is right in the center of being able to execute against ROI and something that is part of an organization's transition from brick and mortar to this whole digital landscape that's so prevalent.

**Platt:** Inventory visibility becomes huge. Karl, how about you? How have you thought about the ROI on this?

**Bracken:** I think very similarly to what you've heard before from the others. The sales upside is very difficult to calculate. Obviously, a big part of it is the right product in the right place at the right time, and ensuring that products are in stock when they need to be in stock. We were looking at better count integrity. You should be able to streamline how much inventory you are carrying and where you are carrying it, to get the same or better level of in-stocks. For us, that was a big component of it.

The other piece was the advent of omni-channel and for us, the ability to find product that you otherwise couldn't find for pick up-in-store and ship-from-store. Execution and being able to do that much more quickly was a big component of it for us. We could find the product that our guest had ordered online more effectively in stores and then get it shipped out more quickly.

Those were the two big components for us on why we felt that RFID was necessary, and frankly, why we went after apparel as our first use case. Not only was it easier technically than some other categories, but also it was one of the harder categories to be able to find the product in-store to be able to then use it for ship-from-store or pick-up in-store.

**Kay:** I'd like to expand on the omni-channel topic a little bit. The convergence between digital and physical has been cited as the reason why certain large retailers have elected to accelerate their programs. H&M, for example, in Europe, the second largest specialty apparel retailer in the world, recently said on an earnings call that 2018 is going to be a big rollout year in terms of what they have planned for RFID.

They have spoken specifically about the desire to have much better inventory visibility. This relates to new promise windows and shipping windows that they are looking to move into to get products in the hands of their customers quicker – whether it's through in-store pickup or getting it to them at home. That's really a big development for the industry. H&M joins Zara, which has essentially completed its rollout, according to the CEO on a recent earnings call. And, the chairman of the world's third largest specialty apparel retailer, Fast Retailing, which owns UNIQLO, gave a presentation this year – which can be found on the company's website – where he spoke about his desire to operate with all of their merchandise being tagged. It's omni-channel that is really driving this.

**Platt:** Oftentimes retailers have some private label items, but not necessarily all of it and my query is: I'm not seeing a lot of those retailers seek to integrate to the Distribution Center (DC), integrate to the vendor, the third-party vendor. Rene, you are more integrated than most and Allan's probably in a similar position. I'm just curious what you think are some of the benefits of extending beyond the four walls.

**Saroukhanoff:** Right now, the pilots have been primarily focused on really getting it right within the store and obviously, selling it to our customers. In terms of integration, we haven't explored that a lot but there are obvious use cases for being able to track your inventory through the entire chain, from the factory down through the pipeline into our warehouse.

We may be cross-docking it into our customer's warehouse and then they send it off to their stores. Just knowing where the inventory is along the chain is going to help improve visibility. It's going to help improve the ability to inform a consumer of when and where they will be able to purchase that product and help us get it to them on time. Having better visibility relates to all those points down the line. Once more and more points are being integrated across the entire supply chain, it gives you that improved visibility of where the hang-ups are in the inventory, where it's getting stuck, where it's getting dropped off and lost.

**Platt:** Allan, I'd like to ask you to answer the same question, because you were with a more vertically integrated firm. Maybe you can address some of the attributes of moving RFID technology beyond the four walls.

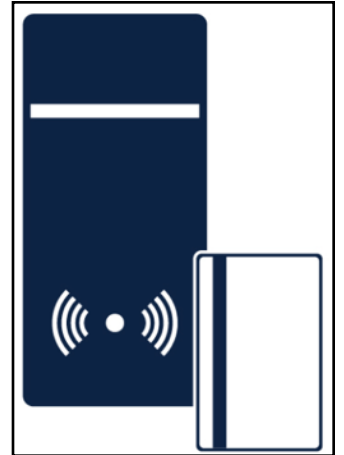
**Smith:** Similarly, the priority was really to focus on what's within the four walls. Moving out, the next opportunity was for the DCs to be able to start looking at how RFID could be leveraged. When we started establishing priorities, we found that what really causes the inaccuracy at the end of the day is the human touch points with product. In the store is where that happens the most. As you move up the supply chain, there are fewer touches to your individual products. It's more case and pallet level. That's part of the exploration – there are opportunities, but probably not the same as there are in just getting your store lined up to improve accuracy.

**Platt:** Karl, your thoughts on eventually ending up totally back end-integrated into your vendor supplier base?

**Bracken:** Longer term, I think that's something that we would like to do. The more you can get visibility further up the supply chain, the better. We started with product that was private label because we could control that all the way back. There are some categories in our stores where the vendors already are adhering the tags and we can benefit from that.

Doing a full-scale move toward RFID tagging with our vendor base is going to take awhile. Directionally, it's the ability for us to see inventory further upstream and have a sense of where it is would be beneficial over time.

**Platt:** Marshall, from your experience, what do you find typically are things that retailers expect, don't expect, are surprised by, or should be better prepared for?





**Kay:** In terms of surprises, I think that retailers get surprised by the ideas their store associates have regarding new ways to use RFID in the stores. Also, a big thing that's coming down the pike, that has received attention on and off over the years, but I think in the next 18 months is going to get a lot more, is the issue of loss prevention. I know your previous question focused on the DC and the supply chain, but based on the conversations we have with many of our retail clients, there's a tremendous appetite to start retiring some of the older Electronic Article Surveillance (EAS) technology being used for loss prevention and leveraging RFID for that too. It's not just to replicate what EAS does at the exit door, but it's also to be able to do additional things with RFID that EAS technology just isn't capable of doing.



**Platt:** Karl, what is some advice you might offer to retailers when considering RFID?

**Bracken:** I would say that the business case is a little bit of art and science. You have to make some assumptions about what you will think as far as sales lift and the benefits to the top line by implementing RFID. But, I would say the widely reported-on count integrity benefits of RFID are legitimate, based on what we've seen. The halo effect of those benefits beyond just the kind of direct business case in driving out-of-

stock improvement to things like better omni-channel execution and what it unlocks for further count accuracy upstream are well worth it.

A lot of retailers have tested it and have been nervous about broader rollouts. We have been pleasantly surprised with the benefits we've garnered by rolling it out. In some cases, there were benefits above and beyond what you can just naturally find in an assumption-laden ROI analysis. Generally speaking, we've been very pleased.

**Platt:** Allan, how about you? What is some of the advice you'd offer retailers concerning implementation of the technology?

**Smith:** One, RFID technology itself is very well proven in terms of the ability to read a tag and encode a tag. There's still some innovation going on, as was mentioned earlier, with the readers and handhelds, but I find that in pilots, there is a lot of focus on "Does it work?" from an RFID technology perspective.

While that's important, what is more important is how you can get the business process around the technology to work effectively. Unlike other kinds of technology pilots within a retailer's landscape of systems, everything in the store is truly operational. It's really all about how you can execute the process to see that the associates don't get confused and that they are able to do things, day in and day out under sometimes very peak loads. Treating RFID pilots as production level simulations of process is the key. The message is actually about process more than just the tech itself.

**Platt:** Rene, what is some advice you might offer to some retailers considering the technology?

**Saroukhanoff:** I consider RFID to be an analytical exercise as well. One of the things that I always try to encourage on any type of analytical exercise is to list out the objectives, the business strategies, and what you are trying to accomplish with it first. That's just general advice on every new technology deployment. All of these technology and process improvements need to have an end strategic business goal that they are trying to achieve.

Even if it's something that doesn't have benefits that are easily tangible, so you struggle to put a dollar amount against it, as long as it fits into some kind of a strategic goal, that's where to start. From there, you start listing out the questions or the things you're trying to achieve, and that becomes the guiding light. Otherwise, it become an exercise of, "Hey, there's this really cool technology; let's see what we can do with it."

I don't think that's a really effective way to approach any type of new technology to say, "We have this solution; let's go find the problem." It's better to start with a problem statement and then use that to decide if the technology is a good fit, because then you'll find all the other haloing benefits, but you really need to be focused on a business strategy first.

**Platt:** Good advice. Marshall, what kind of general advice would you give to retailers considering an implementation?

**Kay:** I agree with that comment about the halo effect. We often say that inventory accuracy is the gift that keeps on giving. My advice would be to avoid calling this an RFID initiative. Instead, call it your inventory accuracy initiative. RFID is just what gets you there, but inventory accuracy is the real destination.

**Platt:** My thanks to all of you for your time today.

**Editor's Note:** Please see the following resources for additional information on RFID:

PRI [Research Article](#): RFID Challenges and Opportunities.

[Working Paper](#): Quantifiable Benefits and Analytical Application of RFID Data.

[STORES magazine](#): RFID is Ready to Revolutionize the Retail Industry.