Halifax Linen: Reinventing Linen Supply with RF Technology

This company's adoption of RF chips has transformed its operations both internally and externally

By Jack Morgan

Daring to do something big and different takes a combination of courage, faith and self-confidence. A sense of humor and a willingness to experiment and learn from mistakes are other key skills that Preston McElheney and his team at Halifax Linen Service have in abundance.

McElheney, president of Halifax Linen in Roanoke Rapids, NC, saw the potential of radio frequency identification (RFID) technology nearly a decade ago after he read about it in a trade magazine article. He decided to move forward with a pilot effort despite skepticism from managers at this family-owned company, including his father, Charles McElheney, who is now semi-retired and goes by the whimsical title, "Chief Grass Cutter (CGO)."

"One person I absolutely have to give credit to is my father," Preston says. "He and I own the company, and at first he had many reservations about this whole idea. My father had the faith and the trust in me to allow me to go down this path. It would have never happened without his support. I knew he'd finally come around when he said, 'You've got to be crazy enough to do it, I guess.'"

Senior managers at Halifax, which Charles joined as a partner in 1974 when it was mainly involved in dry-cleaning services, also were skeptical of the move to RF chips, Preston says. But like his father, they were willing to give innovation a try in the hope that it would pay off in the future. This backing also was critical to the process of implementing the RFID system. "I don't think you can have innovation without the plant (leadership)," Preston says. "I think that the management team that we had in place just had a progressive, aggressive mentality. … It just fell together. The plant story led to the innovation. I believe that." We asked if it took all the players "rowing in the same boat," so to speak to make RF a success. Preston answers with a trademark wisecrack that, "You might be smacking the one in front of you with the paddle, but we're all rowing together."

Is the investment in chipping paying off? McElheney answers, emphatically, yes.

BLUE APRON PILOT

Major innovations sometimes grow from tiny seeds. In Halifax's case, the impetus for a $5 million-plus investment was a malfunctioning printer. "It started with a burned up printer for printing out man-readable labels," McElheney says. "We'd heard about RFID." In July of 2005, the company began chipping work pants. Shirts followed in October of that year. Now, nearly a decade later, "The plant is 100% chipped, except for napkins and bar towels." Halifax's product mix includes 50% linen rental, 20% uniform rental (including some healthcare garments); 12% mats, mops and other dust control items; and about 8% facility services, e.g., restroom supplies, cleaning chemicals, etc.

The chips for tagging Halifax uniforms were first supplied by Positek RFID, and still are today. Alliant Systems is the other partner, linking RF technology to customers through its route-accounting software. Once its uniforms were

chipped, the Halifax team saw opportunities to extend the use of this technology to other products where there was a need for better inventory control. In 2007, Halifax managers settled on restaurant aprons as a candidate for a pilot RF project because inventory control for that item posed significant challenges for the company.

"We were having huge issues with bib aprons," McElheney says. "We were putting in thousands of new bib aprons monthly over and above what we believed was reasonable. We picked a royal blue bib apron, we chipped it, and we put it on a coat hanger to send through semi-automated garment sorting. This experiment really showed us we were doing it all wrong." In essence, Halifax's apron business was going awry because the company was buying too many aprons and not keeping track of them.

Still there was resistance to extending RF to aprons. "He was totally against that bib apron," McElheney says of his father, adding that several managers opposed the idea as well. He notes with a laugh that, "He had the skepticism, but he had the faith to say, 'OK, you're on a short leash right here, but go ahead.'" And Halifax did just that. After the blue aprons were chipped, other colors, including white, the most popular apron, were added. Managers quickly realized they were buying far more stock than they needed. "When we chipped white bib aprons, that was our largest quantity at that time," McElheney says. "We did not purchase a white bib apron for two years because we had so much excess stock, over and above what the customers needed." With chipping, the company could record all outgoing items and reconcile them with incoming items. Even with losses, the company had far more aprons than it needed because the old system was so imprecise. As the pilot proved successful, Halifax continued through 2012 chipping patient gowns, fender covers and round table cloths.

100%

The plant is 100% chipped except for napkins and bar towels.

Then came the chipping of one style of fitted sheet. This move was critical, "Because it proved that we could chip linen," McElheney says.

Is the investment in chipping paying off? McElheney answers, emphatically, yes. "The benefits were two-fold," he says. "It was a benefit to the laundry and the customer. From the laundry side we had full accountability of our investment." By that he means that there's no more arguing with clients over missing goods. Customers, in turn,

Thinking About RFID? Halifax Has Tips …

For nearly a decade, Halifax Linen Services has engaged in a process of implementing radio frequency identification (RFID) technology to track its linens. Below, company executives offer their insights on how the effort has gone and what's required to move the program from drawing board to reality. Specifically, if your company is embarking on an RFID conversion, you should:

Brace for a major investment, both monetary and operational.

If you don't already have dedicated RFID staff, you may need to staff up or expand staffing in this area. It's likely that you'll need to upgrade servers as well, as Halifax Linen found out. "One thing I think we didn't anticipate was the load on our server of all the scanning that was going on," says IT Manager Chris Sass. "We needed a huge upgrade." Halifax President Preston McElheney adds that once you begin making the shift to RFID, you've got to be prepared. "You have to have instantaneous scan, or your production floor's going to shut you down."

Start with a test item.

Halifax launched a major expansion of its RFID program with blue aprons. The volume and accompanying risk was small. It allowed staff to get used to the idea of RFID without making a major investment. "We served 200 of them a week," McElheney says. "That was a very small item. It was a low-turn item for us. That provided a huge return on such a small amount of money."

Work with qualified vendors.

There are plenty of companies out there. Conduct due diligence. Find ones with proven track records. As for Halifax, staff are sold on Alliant Systems and Positek RFID LP. "What I like about Alliant is that they were so genuine in their approach to make this work," McElheney says. "Jeff Belcher had every level of his organization involved. Jeff Markman had every level of his organization involved at Positek."

Expect changes in customer attitudes toward linen use.

Once staff buys in, and customers get used to the idea, they often come to prefer the RF system over other unique identification programs. "As we've gone to this technology the customer's confidence had to shift a little bit," says Ernest Addington, Halifax's vice president of external operations. "The reason you had hoarding and people piling the linen up was because they were accustomed to having all this access. They didn't want to run out. So as the technology grew with our business and these people had more confidence that they were going to get (back) what they were turning in, there was a lot less hoarding."

Contact Halifax Linen if you have questions.

Halifax Linen is open to sharing information with other operators on its experience with RF technology. "If you really can't get your arms wrapped around it," McElheney says. "Call us. We'd be happy to talk to you."

benefitted from improved consistency in both the quality and quantity of the textile products they received. "It was guaranteed delivery," he says. "If you give it to us, we're going to give it back to you."

By 2011, Halifax was moving 15,000-20,000 chipped items daily to customers. The system had proven successful. But the company had effectively maxed out productivity with the technology available at that time. The time had come to consider how Halifax could move its RF system to the next level.

RF-related equipment is visible in nearly every corner of this plant, which totals nearly 100,000 square feet. Built in 1988, the plant began at 24,000 feet… The plant processes roughly 290,000-350,000 lbs. per week for roughly 2,000 customers across North and South Carolina and Virginia.

'HOME RUN' COLLABORATION

When Halifax needed to improve the reach of its RF system, it called on Positek and Alliant to partner with them on the solution. When the two companies put their minds to the task, they put together a system for reading bundles that gave Halifax what it needed to enhance its service.

"In October of 2011, we flew to Texas and met for two days with Alliant and Positek," McElheney says. "We explained to them the opportunity—but also the dilemma we had created. The fact that everything routed through a sorting system was inefficient. But we had proven that from a merchandise-consumption and

accountability-to-the-customer standpoint that it worked.

"So for two days we met, outlining how we wanted this software to function. The basic functionality was in the original process in a garment sort, where we're scanning one piece at a time. We wanted functionality to scan bundles. The vendors said it would take a year to write new software that would work both in the plant and on the route."

In other words, Alliant would have to enable its systems to exchange information with Positek's readers. In October 2012, tech experts from both companies came to Halifax to finalize installation of a new program that would meet the company's goals.

"Basically in 2012, we brought Alliant and Positek in here for two weeks and they hit a home run," McElheney says.

Halifax managers such as Ernest Addington, vice president of external operations, appreciate the upgraded software because it provides more information to customers, while making it easier to adjust the flow of deliveries.

"Inventory control has been fantastic," Addington says. "I love it. It really changed the inventory control discussion with customers.

"The good thing about it is if customers have an issue with inventory, or if they're complaining about shortages, or have a concern, it's all traceable and trackable through their history. It's easier now to adjust par levels up or down," he says, "and give that customer the result they need, without guessing."

Addington commended other vendors as well, including United Textiles, Medline Industries and Baltic Linen Co. Inc., which helped out as the company ramped up its RFID program.

"These companies really stepped to the plate," he said. "Because what we realized when we went into flat-goods chipping is that the big savings that we saw in aprons—there wasn't a savings. We spent a tremendous amount of money. I'll give you an example. When we made the decision to chip our single white flat sheet. This is your core healthcare sheet. We partnered with Baltic, and they shipped us a container. It was 12,000 single sheets in a one-slug purchase, and they gave us

(Clockwise from top/left) An employee sews ultra-high-frequency (UHF) radio frequency identification chips into barrier gowns; An employee rolls a cart loaded with finished goods into a portal that automatically counts the chipped items. The numbers recorded are displayed on the screen at right. A piece of linen is shown with a UHF RF chip sewn into the fabric.

very favorable terms—understanding what we were going through. Because we did not save money in 2010-2013. It was a bell curve up (in costs)—dramatically, in merchandise purchases, as we ramped up our inventories to have this 'supermarket' concept flow down.

"When we decided to chip an item, the flat stock, what you couldn't count on was what was turned in today. You had to have that new, ready to go. Because you couldn't put that customer in a situation where they could run short. As we went through the first week of chipping that item, you almost had to do the first week with new product."

Grey Parnell, RFID systems manager, explains that chipping flatwork, as opposed to mats, was by far a more complex challenge due the large number of items used, the rapid turnover, etc. Demand was too great to simply chip existing inventory. "There's too much volume," he said. "Not only too much volume, but if you take a mat, that mat is going to last exponentially longer than a sheet. So as soon as we chip a sheet, next week we could be cutting a chip out of it. And reusing that chip. But we know who stained it!" he jokes.

IN THE PLANT

Speaking of reusing chips, during our walk-through of the plant we pass a group of six employees who work full-time sewing RF chips into various textile items. This includes new inventory, as well as unchipped older inventory that was held at customer sites.

We also saw the supermarket concept alluded to above at work for chipped linen storage. Clean goods are scanned in bulk in carts. Then a barcode label is placed on the carts to direct the drivers of the plant's 22 routes where to deliver them.

RF-related equipment is visible in nearly every corner of this plant, which totals nearly 100,000 square feet. Built in 1988, the plant began at 24,000 feet. Growth necessitated a series of additions. Even now, McElheney, who joined his father's company as a partner in 2004, is considering yet another 20,000-square-foot add-on to the facility.

The plant processes roughly 290,000-350,000 lbs. per week for roughly 2,000 customers across North and South Carolina and Virginia, McElheney says. At the time of *Textile Services*' visit earlier this year, Halifax had recently installed several upgrades, including new RF scanning tunnels from Positek and a new soil sorting system from E-Tech Inc.

Positek RFID's UHF solutions deliver the consistent results garment and linen companies need to control and grow their business.

15 ~~5~~,000,000 UHF tags delivered

Take advantage of proven technology and the opportunities it creates.

POSITEK RFID

1210 Stanbridge Street • Norristown, PA 19401
Phone: 610-275-2905 • Fax: 610-275-9703
www.positekrfid.com

Standing in the soil area, we see the nerve center of the RF scanning system. Here carts are weighed and goods scanned in bulk before sorting.

Employees then move the soiled goods to cart dumpers that automatically drop them onto a conveyor and move them up to an E-Tech sorting area equipped with 66 unique soil classifications feeding to 32 rails. Unchipped bulk items, such as bar mops, move on a conveyor to a Colmac vacuum system that transports them to a sling for movement to the wash aisle. We watch as employees guide these goods to the vacuum. A separate trash vacuum tube collects paper or other waste items that are mixed in with the linens. Halifax's 75 production employees have an overall pounds per operator hour of 82 lbs. with all items counted.

When sorted goods in the slings reach 150 lbs., they move via an E-Tech overhead rail system to the wash aisle. Equipment there includes two Pellerin Milnor Corp. tunnel washers. One has 12, 150 lb. modules; the other has 8, 130 lb. modules. The plant also has five, 450 lb., G.A. Braun Inc. washer/extractors. A Milnor shuttle system moves clean wet goods automatically to one of six 250 lb. Milnor dryers or one of five 150 lb. Milnor dryers.

Hiring a qualified RFID systems manager to oversee the project was critical to making the system work, McElheney says. Parnell joined Halifax four years ago. He brought the technical know-how necessary to manage the system and bring other staff up to speed on RFID.

FINISHING SIDE FINESSE

On the finishing side, we see aprons on hangers (chipped of course) moving through a Colmac tunnel finisher. McElheney says this item shows how RF chips have evolved. Most aprons are still fitted with older-style high-frequency (HF) chips, which are designed for single-read items. These were the standard when Halifax first began chipping its goods. Today, Positek has provided ultra-high-frequency (UHF) chips for all of Halifax's bulk items. They are scanned by the cartload in a few seconds in barrel-shaped chambers called "portals."

Nearby, the Juki sewing machines noted above are in operation for two full shifts, McElheney says. Part of the challenge of implementing RFID is adjusting various processes to meet changing needs. "Sewing machines are a great example," he says. "They have moved throughout the plant as we have ramped up certain departments with radio frequency. We would have those sewing machines literally stacked in those departments, chipping existing product as fast as we could chip it. We'd spin it right back to the belts with a chip in it. So it would come to the machine without a chip; we'd chip it, and put it right back on the same belt and bundle it to the supermarket."

Employees sew roughly 15,000-20,000 chips per week into various textile items. Operators sew UHF chips using four of these machines; two are used to sew HF chips.

For flatwork goods, finishing is done using the plant's four ironer lines. These include a mix of equipment with Braun, JENSEN and American Laundry Machinery (Hypro and a Super Sylon) ironers, plus feeding and folding/stacking equipment from JENSEN and Braun. Using the RF system, tablecloths get 20 washes and then are hand inspected for quality. If they are still serviceable, the system will give them another 20 washes before the next inspection. This tracking method is a great help with color consistency and quality, McElheney says.

Halifax has a similar system for barrier gowns. McElheney shows us the label

Mystery of the Missing Mops

The greater accountability that RF chipping brings to textile service customers helps focus their attention on loss prevention. In one case cited by Halifax Line Service President Preston McElheney, a hospital customer reported 1,200 missing mops. The prospect of having to pay to replace these goods inspired a joint search with hospital and Halifax staff who poked in every nook and cranny of the hospital looking for the goods. Before long, they were discovered. "Where were they?" McElheney asked. "Locked in a cart. Padlocked in a cart. In a storeroom."

The recovery of the mops meant the hospital was off the hook for payment, and the mops were returned to service. "The system credited them back for the mops and we rolled on," McElheney says. "It's a great example of not only holding the customer accountable, but also that's space that customer should have had available for something else."

Customers welcome this kind of assistance in managing their textiles, he adds, noting, "It's as much of a consulting service as anything."

(From top) Halifax management team (l/r): Chris Sass, IT mgr.; Dusty Rose, VP internal ops.; Lindsey and Preston McElheney, finance mgr., president; Ernest Addington, VP external ops.; Janet Pilgreen, office mgr.; and Grey Parnell, RFID systems mgr.; The item marked in red signals to employees that this particular textile doesn't belong in that group. A group of chipped hospital gowns are counted and then marked with a barcode prior to delivery to a customer.

with a high-frequency RF chip sewn in near a grid marker that's no longer needed. "It's all automated," he says. "We don't hand mark the grid." As with other items, the RF software records the stock keeping unit (sku) number and keeps track of the number of washes. "At wash #76, our system will not let the operator scan this to a bundle," McElheney says.

An employee demonstrates one of the company's recently purchased portals to confirm that they'll automatically reject a bundle if it has a sku that shouldn't be included. She puts an odd item in a finished cart to test the system. Sure enough, a screen monitor lights up in red to show that one item in a cartload of goods doesn't belong with that group.

Once goods are recounted and approved on the finishing side, a packing list with a barcode is issued. The goods are placed in a central area, aka the supermarket, with other textiles that are ready for shipment to customers. Smaller accounts are tracked by barcode using a "cow" or computer on wheels that's moved around the plant. All large bulk accounts are filled via the portal discussed earlier. "Our system constantly reconciles itself," McElheney says. "If it says you have 100 sheets, you have the report." Once it's approved, managers can access the data regarding the goods in a given cart via a central database. Halifax usually is two days ahead on its delivery needs. Standing amid scores of carts in the supermarket, McElheney says the plant needs additional space to keep pace with growth.

Hiring a qualified RFID systems manager to oversee the project was critical, making the system work, McElheney says. Parnell joined Halifax four years ago. He brought the technical know-how necessary to manage the system and bring other staff up to speed on RFID. "He was a home run of a hire," McElheney says. "His goal was to coordinate the transition to chips." Seeing the plant today, Halifax appears to have achieved its objective of embracing the new technology. But that doesn't mean the plant's RFID guru isn't above a practical joke. Posted in a window high above the plant floor is a life-size cut-out photo of Parnell. He's clad in a dog suit, holding what looks like a pink Christmas tree. Keeping a sense of levity helps Halifax staff deal with the various challenges associated with reinventing their approach to linen supply.

GAUGING THE IMPACT

The positive changes that RFID implementation has brought to Halifax extend both internally and externally. While the upfront investment of chipping textiles and installing the hardware, software and technical expertise to manage the system was significant, the payback Halifax is now experiencing is also large. "You know what the ROI is?" McElheney asks.

"We invested a helluva lot of money. We put everything into this physically, emotionally and financially that this company had available to it, to chip all this product. I can speak specifically to 2014. Twenty-fourteen will be a record year for this company in every measurement. Whether it be labor, merchandise, or profitability. We will set a record in all categories." A key benefit is that linen losses have declined dramatically, thus saving on purchases and improving customer satisfaction. Large bulk accounts, especially hospitals, are pleased with the improved accountability that RF tracking provides.

Addington adds that customers benefit from greater precision and transparency than before." We can give them red aprons," he says, selecting one item as an example. "Let's just say they've got several departments that need red aprons. Or several departments that need a separate par level or an inventory. There's all types of things that you can do now to establish mini-accounts within an account."

McElheney explains that while customers may have multiple drop-off points for clean goods, there's often only one area for soil pickup. "There's no way a laundry would ever be able to keep that straight," he says. "But with radio frequency we know exactly how we loaded it out, which department it went to. So as they turn it in, that department is accountable for that product." Addington notes that some accounts, particularly on the healthcare side, have 17-20 drop off points in one building. The next step in Halifax's transition to RF technology is to install RF readers in its customers' locations to provide additional accountability for linens.

Smaller accounts typically have a more difficult time with losses related to abuse, pilfering or carelessness, McElheney says. In response, Halifax has lightened up a bit on charges. "We allow a certain amount of damage," McElheney says. "We're trying not to charge for every piece of stained linen that comes in. Don't bill the customer every single time it shows up. If something got cut in half with a pair of scissors or there's a sterno burn in the middle of a tablecloth. OK. But if it's a concrete stain or just a stain in general, just replace it and be done and don't bill the customer."

Meanwhile the growth that Halifax has experienced due to increased accountability and reduced losses has enabled the company to boost pay and benefits for its staff of 150 employees. McElheney says he's concerned about the extra costs associated with healthcare reform, but the company can handle them. "The impact on employee benefits, and with regards to what we can do as a company because of the dramatic savings that we're seeing through the utilization of the technology is significant," he says. "And specifically in our case right now, we've continually had over the last three years aggressive pay increases for plant employees. And we'll continue that for three more years. It's directly correlated to the savings that we're accomplishing with RFID. We're able to provide a very nice benefit far exceeding the requirements of the Affordable Care Act."

The pay and benefit hikes related to RFID savings/growth help keep morale up and turnover down, McElheney says. This fuels a perpetual circle of sustainable growth managed by people empowered through technology. In fact, the improved efficiencies that RFID has provided to Halifax has changed the way this company (and its customers) look at linen supply. For its part, Halifax's foray into RFID technology is now earning healthy dividends, thus confirming the value of investing in innovation. A willingness to accept the risks associated with a high-tech learning curve—while sharing a few laughs along the way—has given this company a competitive edge. Finally, the staff's faith—and especially that of Charles McElheney—in his son's vision of the future has helped set the stage for long-term growth. **TS**

Jack Morgan is senior editor of Textile Services. Contact him at 877.770.9274 or jmorgan@trsa.org.

RF Technology—A 'Disruptive Innovation'

Mike Jensen, a veteran developer of new products for Procter & Gamble, would likely classify the use of radio frequency (RF) technology to track linens as a "disruptive innovation." That's because it requires the reconfiguring of various systems, but it also holds out significant potential for growth. In an article Jensen wrote for the March issue of *Textile Services*, he noted that, "Disruptive innovation reinvents existing products and categories. Swiffer changed how consumers cleaned their floors. It disrupted mops and pails—they were retired to the closet. However, it required new technologies, new manufacturing and a new company perspective on what the business included." One might apply a similar description to what Halifax Linen Service and other companies have experienced in adopting RFID technology.