IDENTITIES ON PARADE

RFID tagging provides laundries with control over their processes and tracking, as well as a wealth of data that businesses can use to look at where efficiencies and improvements can be made. Adam Bernstein takes a look at the latest developments in RFID tagging and technology

SoCom's TIKOS system enables a high degree of automation and supports the increasing interlinking of IT and machinery

With the volume of items that laundries must process and keep tabs on, a well-functioning tagging system is an absolute necessity. What used to be done with safety pins and hand written notes can now benefit from the advent of technology, in this case, Radio Frequency Identification (RFID) tags. Inexpensive and unobtrusive, RFID tags offer so much more control and information to volume laundries.

Set against the cost of lost laundry, the cost of an RFID system can be very appealing. So how can RFID tags and systems maximise fast and accurate workflow? What can they do for a laundry?
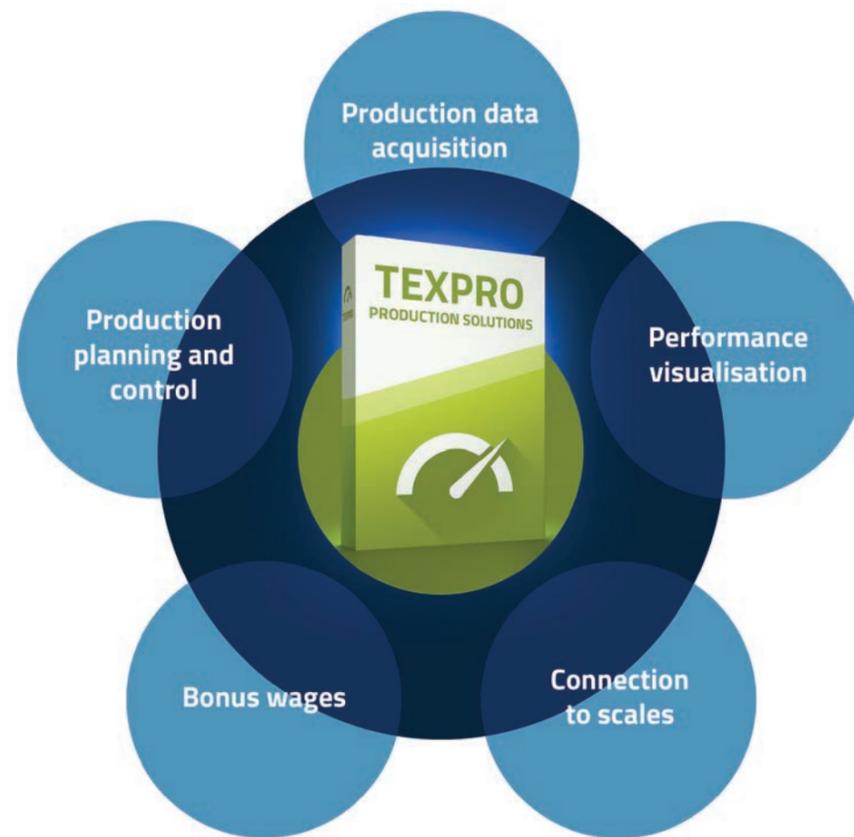
Tex ID

Tabish Aiman, managing director of Tex ID, sees that as RFID technology moves from early adoption to a more mainstream technology, the practical issues encountered by laundries are being better addressed.

One specific example of this that he points out is the correct weight loading of washers:

"Machine manufacturers have long touted optimum weight loads and based the energy usage calculations, optimal extraction and other factors based on the correct weight being loaded in the first place. Detergent dosing levels are set for these optimal levels. As any experienced laundry manager knows, these weight load factors, in real world conditions, are difficult to adhere to. This is especially difficult when it comes to towelling work." Aiman says the specific issues come from two factors, namely, dry weight versus wet weight and loss of weight through repeated washing.

Aiman continues: "Dry weight versus wet weight is an inherent issue as the use of the towelling is to absorb and retain water. When loads are weighed, they will give a false higher reading due to this retained water. Experienced staff have learned to overcome this by assessing volume and not weight." Counting individual items and then multiplying by weight per item is another way of getting more accurate results, though this is impractical with larger washers/tunnel washers. "The counting method is hindered by the fact that the towelling will lose fibres in wash processes so effectively, gets lighter after washing. Mixed loads of newer and older stock cause difficulty in predicting the net weight of the load."

Previous use of Laundry Management Software (LMS) to create more accurate weight loading was very limited before RFID as specific items could not be tracked says Aiman, "but when RFID was introduced, it was touted as a very effective way of reducing losses and recording damages."

Next came a process that required an RFID transponder (chip) to be attached to an item during first use and scanned at various stages of collection, processing and delivery. Aiman expands on this: "The LMS was able to keep track of the last place the item had been. To the early adopters of RFID, this tracking ability more than justified the cost of installing the system. Now with the introduction of ultra-high frequency (UHF) RFID a few years ago, the bulk scanning is very quick (typically 50 items per second) and further aided in making a positive decision to go with RFID."

Clearly traditional mechanical scales or counting methods are a known weakness in the process because of the margin for error. As Aiman points out, by introducing RFID and adjusting the attributes assigned in the load, a very accurate 'virtual weight' can be calculated for any set of items. This eliminates the adjustments required for wet versus dry weight of towelling. When the attributes are first assigned in the LMS for an item against its RFID chip, the weight is added.

The real bonus of the technology comes when countering the loss of weight after repeated wash processes - the LMS can calculate this loss based on previously carried out wash tests. "Each time the item is processed the LMS assigns the new virtual weight to the item. At first use the item would weigh 100 per cent and scale down to possibly 80 per cent after 10 washes. After this the weight would remain constant until end of usable life," says Aiman.

The upshot of the use of RFID? A mixed load of older and newer stock would be within very tight tolerances saving on detergent and energy cost because of the resulting weight accuracy. And as Aiman notes, there are side benefits including a reduction in the number of dedicated weighing stations, a more streamlined production, the ability to mix loads of different weight towelling, and less 'human' calculations/interventions.

"Tex ID have a couple of new RFID products – the ThermoTex Mobile UHF RFID Sorting Station and ThermoTex UHF RFID Bulk Read Cabinet," says Aiman.

He says the sorting station allows for quick and accurate scanning of both folded linen and garments from a single compact mobile unit: "It comes with four UHF SAT antennae, integrated decoder with multiple connection options, three zones storage and four castors, the

ThermoTex's Cabin, a bulk read UHF RFID cabinet that is claimed to be 99.6 per cent accurate

ThermoTex's Pick, a mobile UHF RFID sorting station. Operators swipe items across the table surface and are then guided by the Laundry Management Software

SoCom says that the use of RFID accelerates order-picking and order development and reduces the fault rate

SoCom has a smartphone app that allows scanning to be carried out onsite at the customers' premises

station can be used for sort scanning and rolled to a storage location when not in use. Operators simply swipe items across the table surface and are then guided by the LMS on where to put them on the assembly racking."

The second product, a read cabinet, "is a fully enclosed unit with a pair of doors, allowing for an entire trolley of linen to be loaded, and can read 500 items of soiled or clean items within 10 seconds with a claimed accuracy rate of 99.6 per cent." A simple traffic light system alerts the operator of completion of a read cycle after rolling the trolley into the cabin. Further advancements include a fully shielded carcass so any chipped items outside the unit are never inadvertently read.

SoCom Informationssysteme GmbH

Michael Wieser, international sales manager for SoCom Informationssysteme GmbH, can see that the textile care sector in recent years has become more competitive. He adds that the general view that it is enough for suppliers to offer either cheaper or better products and services than the competitors is outdated: "The laundry industry is increasingly moving towards 'digital companies' and in doing so is focusing on superior production, communication and logistics concepts. Modern technologies such as RFID provide support for this."

As we know, individual features and important information for the respective textile items are linked to an RFID chip as soon as they are delivered, if they have been furnished with a chip by the manufacturer. "Each individual item of laundry thus receives a 'digital memory'", says Wieser, "and can be immediately identified." The collected data can be passed on with the help of a comprehensive IT system and a corresponding network infrastructure – "a great deal of information can be derived from this data with the objective of control and flexibility throughout the chain – beyond company boundaries."

Wieser explains: "The use of TIKOS – his company's laundry software - in conjunction with RFID enables the checking of goods received with an automatic comparison of orders and goods actually delivered… automatic feedback to the supplier accelerates any replacements that may be expected in the circumstances." The process also leads to a reduction in long retention times and loss of laundry items because of the control granted through RFID data. He adds that losses are controlled too as information becomes available through the automated recording of all individual laundry items that have been equipped with a chip – "this reduces the laundry requirements for the customer and equally the pool laundry inventory at the laundering company."

One tangible benefit of RFID, as Wieser sees it, is that laundries can generate an automated order when the laundry items are submitted. "Data can be precisely recorded and evaluated via TIKOS and customer-specific, average consumption numbers determined. These figures can be displayed by departments or by articles, so that an exact laundry requirement planning can be implemented by each cost centre." He says that benchmarks can also be created by means of company comparisons and these can be passed on to the customer as a consumption recommendation as part of an enhanced service proposal – "the customer can then measure their own consumption with this and correct it if necessary. The potential for savings is enormous."

Of course, RFID goes beyond the laundry process itself, it can also accelerate order-picking and order development while reducing errors. Shipments can be easily tracked, and stocks in the system are automatically updated. But the technology can do more says Wieser: "New technologies enable scanning to be carried out via smartphone too, onsite at the

customer's premises – even at locations without permanently installed antennae." Here a smartphone automatically establishes a reliable connection to the RFID scanner via Bluetooth and delivers the required information quickly and without interruption.

Furthermore, the comprehensive enterprise resource planning (ERP) software enables continuous stock monitoring in the warehouse. If stocks drop below the minimum quantity an order proposal is automatically generated. This enables the pool store to be actively accessed during running operations and a follow-up order of the particular laundry items to be quickly initiated. Automatic calculation rental fee functionality is an additional advantage. The error-prone, paper-slip based business is rendered obsolete. Damaged containers can be clearly traced to customers and invoiced for accordingly – a not insignificant cost factor.

Wieser says that with a comprehensive enterprise resource planning (ERP) system, such as TIKOS, "stock management can be controlled based on the demand for each individual customer delivery point. Further, the history of each individual article with regard to washing cycles, service life and origin is thus transparent." It's this traceability that is the key outcome of RFID as it "enables customers to be precisely and individually serviced."

More automation and flexible production enables efficient production whilst allowing laundries to offer a wide range of products and services. And with numerous open computing standards Wieser says TIKOS can support communication between various machines and systems – all because of the data saved in an RFID tag.

Wieser sums up: "An increasing degree of cross-linking between software and machines as well as the use of RFID are important tools for

realising the concept of customised mass production efficiently, whilst simultaneously cutting costs and generating new competitive advantages."

UBI Solutions

Renaud Munier, UBI Solutions international business development director, considers tracking textiles with RFID in ultra-high frequency (UHF) to be one of the top developments for the sector and he says that providers of RFID solutions are excited about the technology. However, he says that although potential users are aware of the advantages, their enthusiasm has not yet developed as much – "some are put off by the

UBI's scanning cabinet can read the tags of many items held within a cage

UBI's handheld RFID paddle scanner

RFID systems

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investment costs, others argue their customers aren't comfortable with RFID while another group raises concerns about the reliability of the reading stations and tags."

Munier says that RFID is not only a tool for tracking linen – it is also the basis of other technological developments such as automation. "The trend of automating processes as well as using robots is not only reducing high costs of labour; automated processes lower the costs of a laundry and elevate quality, which provides a competitive advantage." He says that a fundamental requirement for an intelligent automated laundry is the exchange of information between all involved items: machines, textiles and IT systems.

For linen to be able to communicate they need to be equipped with RFID tags which, once applied, automates processes such as counting of linen before and after washing.

Despite what the layman thinks, the collected data is not saved on the tag itself but in a database. The information is linked to its specific tag with a unique ID number. As the processes of a laundry produce enormous amounts of data, it is a logical solution to manage this data in a separate application, which communicates with the ERP system or certain machines to exchange information via an interface.

But Munier says that as much as RFID tracking and automation complement each other, there are two different approaches. "In contrast to tracking, automation requires every single item to be tagged.

This represents a big investment and great effort as textile already in circulation needs to be chipped as well. Hence many laundries are avoiding this expensive step. As a compromise a lot of laundries start tagging 100 per cent of a new customer's laundry. What first sounds like a sensible, soft introduction of RFID in reality bares little merit." This is because although the laundry knows exactly where the articles of that one customer are located, it does not provide any insights into the processes at the laundry itself. Consequentially they cannot profit from the savings and advantages RFID tracking promises.

Another approach Munier outlines is to tag only the newly bought linen. "To start off, only a small percentage of linen is equipped with RFID tags across customers. With every purchase the percentage rises and the complete 100 per cent are automatically reached after two to five years." Software becomes solely responsible for the tracking and therefore capable to deliver meaningful statistics. As a result, all the advantages of RFID tracking can be used even when only a small percentage is equipped.

Munier suggests that UHF RFID comes with the opportunity of fundamentally restructuring the relationships with customers: "It brings a new and comprehensive knowledge about the location and the history of each laundry article. It is essential for customers to have access to the data to improve transparency and therefore trust in the technology. Data can be accessed easily via the cloud application enabling customers to change their view on the technology as a

supervising tool to a value adding support tool."

There is another benefit of RFID – it allows laundries a complete overview over all data of every item in real time. The application knows exactly when any item was washed, which customer it is attributed to and where it is currently located. "Transparency created by the cloud can be transferred to customers as well," says Munier, "they receive their own access to the application and can see, for example, how often their laundry is used before it is worn out, how much laundry they have in stock and if they are complying to their hygiene regulations."

And through mobile readers, additional data can be collected at customer sites, which assist for example hospitals or hotels in the management of their laundry. Munier's final comment? "With transparency customers and laundries can engage in better informed and more trusting conversations. Together they can enhance service and quality further while improving their relationship and customer loyalty."

LM Computers

Andrew Davis, managing director of LM Computers, launched LinenTrack RFID into the market in 2014, and says, "it has been building in its popularity, and has become our biggest selling suite of products."

Initially LinenTrack RFID consisted of archways, a combination of aerials and readers and separate PCs, and were largely implemented into big commercial laundry environments, where up to 200,000 pieces of laundry are handled daily. However, in the past 18 months Davis says LinenTrack RFID has continued to be developed, both in terms of technology and breadth of customer base, offering bespoke cabinets, garment boxes and hand-held readers "to ensure that the data gathered by the system is highly accurate, portable and easy for all parties involved to track and trace their items."

So, who is benefiting from this technology? Well, in Davis' opinion it's everyone: "To give a simple example, and a common issue that can create bad feeling, and a large bill, at year end, is when linen has been lost and is unaccounted for. Traditionally, there has been no way to trace items, whether that be a top end duvet cover or a bath gown and, as a result of this, there has been much finger pointing, and issues arising around who is responsible for footing the bill. However, with the implementation of LinenTrack RFID, it makes this whole business of traceability - transparent." He says that both the laundry and hotel now have access to data that will give them information such as when was the last time the piece was seen, by whom and in what location. Davis says LinenTrack RFID gives much more information than this, however, such as the number of times each piece has been washed, at what point it then needs to be ragged (these sorts of quality measures are parameterised) and this information gives both the hotel and the laundry the data to start to understand the quality of the linen, and whether the linen lifecycle is what it's supposed to be, which ultimately results in cost savings.

Apparently his system is now being widely used in hotel operations, from five star hotels

(who own their linen), to low cost hotel chains (who only use pool linen), who are benefitting from being able to better manage the flow of linen between hotel and laundry, whilst also saving considerable time and effort in terms of linen counting and stock taking activities. As Davis describes, a stock take using a hand-held portable reader takes minutes, as opposed to the number of hours that this activity traditionally takes.

"Our hotel customers, are also benefitting however, from further functionality of LinenTrack RFID, namely its use for uniform management. LM Computers has designed its own garment box for uniform tracking, with many hotels now chipping all of their staff uniforms which is proving to be a really efficient way of tracking and tracing it," says Davis. "All items are, once again chipped, with a unique tag, which is then assigned to the staff member. When this needs laundering, the items are placed in a bag, into the garment box, which then reads all of the tags inside. In turn, once these have been cleaned, they are then automatically re-assembled using the assembly rail, and returned to the rightful owner." Davis reckons that using this system prevents incorrect items being worn by the wrong staff members, and ultimately decreases losses of this expensive commodity. Uniforms have permanent tags on them and will belong to the staff member until they leave, or the item is no longer fit for purpose, but Davis says that there is also an RFID solution that is used for guest work.

Unlike uniforms, guest work is temporarily tagged with a chip (traditionally this is done using a paper ticket) which is attached to the item. These items are tagged and processed, and when they are cleaned and pressed, they are scanned and the assisted assembly rail advises the operator where to place the item and indicate when the ticket is complete. According to Davis "the system is such that it is both user friendly and very easy to see at a glance, what items are

Temporary tags to apply to hotel guest work supplied by Tex ID

LM Computers' handheld reader makes the scanning process simple

missing from a ticket or a batch. If this is the case, then the item can be easily located within the laundry using the LinenTrack RFID hand-held device." From his perspective, the cost savings are untold in this area, as compensation payments for lost

or indeed delayed item can be, and are, significant.

Davis says that following a successful pilot scheme, LinenTrack RFID guest work will be up and running. He believes that it will be a real growth area in 2017.

LinenTrack RFID cabinet installed near hotel linen chute from LM Computers

UBI's RFID scanners in situ ready to process laundry