Return On Investment with RFID

Successful companies understand that being efficient with inventory, labor costs and supply costs are all necessary functions to continued growth and long-term business success. Building and using a proven asset tracking process like RFID is a popular method for companies to improve their operational functionality. There are so many advantages in areas like efficiency, accuracy, and time savings that most companies intuitively know that it's a good idea before seeing the data. However, it is always best to show decision-makers that the cost of a new process or software will save time and money. You have to show a Return on Investment, or ROI. To calculate the most accurate ROI, you will have to consider all aspects of your operation like process, automation, existing resources, returnable assets, and system integration. There are some key factors to consider when digging into the data and cost and time savings.

Examine Existing Processes & Improving Them

Many companies believe they are starting with nothing. Whether you realize it or not, you do have tools providing this service today. It may be a spreadsheet, a pen and a legal pad, or an administrative assistant's photographic memory. Whatever the reality, you need a full set of tools that meet your needs from the field data collection effort all the way to the back office. You may have a back office tool that you like. Your RFID integrator has to be able to make the tools work together so that you don't have to implement anything that isn't absolutely necessary. If you are just using a spreadsheet today, you will need something more robust. It isn't necessary to spend a lot of money on a back office tool that will need to be integrated with RFID front-end and middleware. The RFID integrator will already have all of the data that an expensive back office tool will track, but the integrator will bring it in at a much lower price. You will have a smaller investment using one end-to-end tool. It is always more complex making two tools talk to each other. We saved a warehouse client a significant amount by providing a web interface to the data that the RFID tool already had to track. With minimal additions and report requirements, we were able to provide all of the features of the back office tools they were planning to purchase as well as eliminate the effort and expense of integrating our service with another tool. Keep it simple. If you already have a tool, integrate it. Don't let the RFID service sell you a back office view that you don't need. If however you don't have that tool today, don't increase the complexity and therefore the expense by adding another tool to the mix.

Continuous Asset Validation Analysis

During your process analysis, identify areas where you can capitalize on the movements of people doing their daily job. We assisted a large company that provided tech services to a global corporation. Our

client was responsible for maintaining the global inventory accuracy. After one too many seven figure inventory efforts to correct discrepancies, they decided to use a Continuous Asset Validation (CAV) model. If a tech had to go to a room to service a machine, he would take the extra five minutes per device in the room to write down the data and enter location updates in the back office system when he went back to his desk. It looked great on paper and they were taking advantage the daily movements of staff. Five minutes per device is still an hour for every twelve devices. It took another hour to enter that data in the Asset Management system and another hour for the Asset Management team to standardize the updates and prevent duplicates in the database. Three hours for every twelve assets was almost as bad as doing it in one single effort. All they were really preventing was extra travel expenses. With RFID in place, they were able to scan a room in seconds and update the location data. No input was necessary because it was already in the database at the time of the scan. The Asset Management team didn't have to cleanse the data because it was collected electronically and therefore the same every time. They were able to reduce three man hours to literally seconds and eliminated the need to do an end to end inventory efforts.

Returnable Items

One of the loss areas most businesses resign themselves to is in terms of returnable items. They are so expendable that many people don't even know the definition of a returnable. These heavy loss items are anything that is supposed to come back to your company at some point. Examples include wooden pallets, chemical containers, leased or loaned items, or even library inventory. It is historically difficult to determine chain of custody in a way that would stand up in court if you tried to go after someone for not returning your property. It becomes an issue of one person's word against another. Mistakes can be made on paper and theft isn't theft if there is reasonable doubt. We like to believe that the people we work with are careful with our property, but people are people. They may be consciously stealing or sometimes just careless if there is little chance of direct ramifications. A chemical company in Texas was able to dramatically reduce this assumed loss budget by tagging chemical vats and tracking them along the chain of custody so that they could prove beyond doubt the last person responsible for it. There is no way to eliminate all loss, but just knowing that the chain of custody could be proven prevented many clients and drivers from turning large chemical vats into deer feeders. Think about your daily business - you may have returnable items today. You may have items you consider disposable as a cost of doing business that could be returnable if you had a way to enforce it.

Cost Matrix

This matrix provides an example of what it costs to do an inventory of 1,000/5,000/10,000 items in a single building. The matrix compares the cost of doing an inventory utilizing a manual system, a bar code system, and an RFID system.

The matrix itself reflects only the cost of doing inventory. It does not address loss of productivity when items cannot be found. It does not address the cost of loss of productivity during the inventory process or intangible factors such as staff morale. It does not address the concept that you can immediately identify if an item is under warranty. This also assumes a single building and does not include walk times between items.

Cost of Inventory Process

	Manual Data Collection	Barcode Data Collection	RFID Data Collection
Data Collection	5 minutes	2 minutes	6 seconds
Data Entry	5 Minutes	1 minutes	0
Format Validation	5 minutes	0	0
Total	15 minutes	3 minutes	6 seconds

Cost to Inventory 1000 items in a single building	**Manual Data Collection**	**Barcode Data Collection**	**RFID Data Collection**
Data Collection	83 hours 15 minutes	33 hours 15 minutes	1 hour 45 minutes
Data Entry	83 hours 15 minutes	16 hours 45 minutes	0
Format Validation	83 hours 15 minutes	0	0
Total	249 hours 45 minutes	50 hours	1 hour 45 minutes
Cost*	$4,995.00	$1,000	$35.00

Cost to Inventory 5000 items in a single building			
Data Collection	416 hours 15 minutes	166 hours 15 minutes	8 hours 45 minutes
Data Entry	416 hours 15 minutes	83 hours 45 minutes	0
Format Validation	416 hours 15 minutes	0	0
Total	1248 hours 45 minutes	250 hours	8 hours 45 minutes
Cost*	$24,975	$5,000	$175

Cost to Inventory 10,000 items in a single building			
Data Collection	832 hours 30 minutes	332 hours 30 minutes	17 hours 30 minutes
Data Entry	832 hours 30 minutes	167 hours 30 minutes	0
Format Validation	832 hour 30 minutes	0	0
Total	2497 hours 30 minutes	500 hours	17 hours 30 minutes
Cost*	$49,950.00	$10,000.00	$350.00

*($20.00 per hour) based on Salary of $30,000 with benefits – Data Collection Details Included at the end of the paper.

Data Collection Methods
Manual Data Collection:
In a manual method, the technician must write down all of the tracking data for each device. To collect all of the data, devices must be removed from cabinets for full inspection. Once the technician has access to a computer the data must be uploaded into a database. Once uploaded, a third party must cleanse the data to ensure that it is in the correct format to prevent database duplicates.

Barcode Data Collection:
The data is in a database for each device already. Once the barcode is scanned, the location can be pushed straight to the database without the need for a third party cleansing. The devices must still be removed from cabinets to provide a line of sight to the barcode tag. If the device is in the open, the person doing the inventory must still find the barcode to scan it.

RFID Data Collection:
With RFID the data can be collected with a quick pass through the room. No line of sight is required. The data will go straight into the database without the need for a third party cleansing.

Examples of Inventory Issues

Lost computers costing money
A few years ago there was a company that had 53 missing computers. They were there but couldn't be identified positively. They were leased machines for which the company was paying a monthly charge. The lease had expired and the company had to send them back to stop the charges. They were old machines and the monthly charge was more that the machines were worth. Having poor control over inventory was very expensive for this company.

Inventory warranty deadlines
Recently a school district had a room of damaged furniture they were about to discard. By happenstance the furniture representative saw the furniture and upon research found that the furniture was still under warranty. The cost of replacing the furniture would have been in excess of $20,000. As a result of this experience the district is implementing RFID to track furniture including warranty information.

Finding things you know you have and need now.
A major airline needed to replace a landing gear assembly (not a small part). The airline had an "aircraft on ground" or AOG which costs an airline thousands of dollars an hour. Their computer system indicated they had the part in the local parts warehouse. After hours of searching by multiple employees the airline determined it would be more cost effective to fly the part in from another location. The part was located the following week in the local parts warehouse on a shelf behind a box.

An RFID asset management system would have solved or identified the issues in all these example. Cost savings would have been seen in supply costs, reduced unnecessary spending and labor savings.

Conclusion

Implementing RFID is not a magic wand that you can lay on top of your current environment and expect to see an easy ROI. New ways of doing business must be planned and implemented carefully. Done correctly, an RFID solution represents a revolutionary way to run your company. Done incorrectly it is just another tool that adds to the steps your employees have to perform. They won't support it and it won't succeed. It has to make their life easier. If they see the value, they will embrace it. If you have the technology skill set in house to build the middleware and do the integration, you will likely still need an RFID consultant to provide a fresh perspective while you try to streamline your operation. If you require the services of an integrator, make sure you get one that can provide that consultation and full an end to end solution if required.

Contact us to schedule a full demo of our solutions.
Steve Young, COO
Steve.young@ipm-inc.com
281-844-1259