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Taking RFID From Concept To Production

Key steps to moving a pilot project off the ground and into production

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Several weeks ago, we explored the typical steps involved in taking RFID from concept through to pilot and actual production use. Now it's time to delve deeper into the details of a pilot project.

Many companies are holding back on product testing and pilot project initiation with Class 0 and Class 1 EPC tags to prevent having to re-test Gen2 tags. As Gen2 (RFID generation 2 standards) equipment becomes available in volumes in the third quarter, you can expect a significant up tick in pilot project initiation.

As an example, let's look at a manufacturer that is shipping to Wal-Mart and debating whether to apply RFID tags in the distribution center just before shipment or apply them in the packaging process at the end of the manufacturing line. This company is trying to understand the volume of shipments that will be affected and whether it is more cost effective to simply apply tags on outbound shipments to Wal-Mart or apply them to all products in packaging. This manufacturer already uses integrated bar codes with its manufacturing execution system to track raw materials and work in process throughout the facility. The example company knows it has a compliance deadline looming and is going to initiate a pilot project; it is trying to determine the most cost-effective approach to ensure it invests its money wisely.

The process shown below will explore how that determination is made.

The key steps to developing a pilot project are:

1. **Determine the project goal** -- Obviously, being compliant with Wal-Mart requirements is the overall goal, but this company wants to determine the most cost-effective way to deploy RFID to become compliant while at the same time leveraging the software and hardware investment for the compliance project for use in the future. From this goal, there are some major points that need to be evaluated -- determining which products will be tagged for Wal-Mart, developing the cost comparisons of RFID in distribution versus manufacturing, and determining the future uses for RFID at the site.
2. **Ensure executive ownership** -- Senior leadership must understand the strategic value of RFID and may need to attend some educational seminars prior to asking

their organization to undertake such a technically challenging project. It is critical to have an executive sponsor who sets short- and long-term project goals and communicates to the organization that RFID will be deployed as a market differentiator, cost reduction initiative, supply chain collaboration, or customer compliance solution. The media highlights this commitment every week with the announcement of various companies expanding their internal RFID test labs; these executives obviously understand and support harnessing the power of RFID.

3. **Assign a project leader** -- A recent market survey by CompTIA indicates that over 80% of companies feel there is a shortage of RFID talent available in the marketplace. They are working with a consortium of standards organizations, software, and hardware vendors to create a vendor-neutral certification process for individuals. As you look to find a project leader, the best choice is often an operations leader who has a good grasp of technical projects. But at other times, an IT resource with experience supporting manufacturing operations can be a good choice. A key skill is negotiation. After all, this person will be interfacing with internal stakeholders, as well as your customers, and needs to develop consensus on technical and timeline project deliverables quickly and without conflict.

4. **Conduct an operations and technology assessment** -- Typically, this step is done in conjunction with an RFID systems integrator. The assessment consists of detailed process mapping in affected areas, staff profiles (to identify training needs), facility layout, material flow shown on the facility layout, product profile (which items are in pilot), internal systems that will be impacted, and key performance indicators in use. Additionally, compliance requirements as well as short- and long-term project goals are defined and understood to ensure that all options considered are in keeping with future goals. For this example, you should capture process steps and costs for applying RFID in the warehouse for discrete orders, along with steps and costs for applying it automatically in manufacturing. This step typically results in several options and high level costs for each. During this assessment, you will need to know if you plan on using both active tags internally as well as passive tags for customer compliance. You should also expect to know software, product and site testing, and integration costs from this effort. Whether you hire an RFID expert or contract the service, be sure that you have a solid plan to phase in your use of RFID in keeping with project goals.

5. **Develop the business case** -- Most companies require that a capital appropriation request be completed with a detailed business case for the pilot project. I covered the business case development in "[RFID Strategy -- I'm Glad You Asked](#)" (March 22, 2005) so I won't repeat that here.

6. **Product, site and technology testing** -- We spent an entire issue on testing ("[RFID Strategy -- In Search Of An RFID Testing Lab](#)", March 8, 2005); suffice it to say this is another critical step.

7. **Production pilot** -- The detailed project schedule is the first requirement and will consist of major phases such as:
- Project Kick-off -- Executive communication of project commencement, management support, and why the project is of strategic importance to the company.
 - Detailed Design -- Developing system performance requirements; software and interface specifications; hardware and tag specifications, and many other details.
 - Sourcing -- Developing and sending out Request for Proposals, selecting vendors, contract negotiation and execution.
 - Integration -- Actual hardware installation and configuration; network wiring; software and interface development, testing and de-bugging; software validation (in regulated facilities); and a conference room pilot with all technology partners.
 - Testing and Deployment -- Production pilot integration testing; volume testing; mock go-live; written procedure development; end user training; and go-live and support.

There are numerous issues that can, and typically do, arise during each of these steps that have to be resolved in bringing a pilot project on-line. As I have mentioned before, RFID is still somewhat art and science combined. The more you use it, the better your team will understand and be able to develop innovative solutions for your business.

***Chris York's RFID column appears twice monthly in IndustryWeek's RFID Strategy newsletter and on IndustryWeek.com. Click [here](#) to register for the newsletter.**