

# IT's Impact on RFID

Before your company can capitalize on RFID's benefits, your IT department needs to do a lot of planning and infrastructural upgrades.

Attention, RFID professionals: As you begin planning for RFID applications, pilots and full implementation, one important constituency in your organization may not fully appreciate the coming challenges—the information technology (IT) department. RFID has the potential to enable a new generation of business operations, and to process improvements in the supply chain, as well as safety and security, mobile asset management and other complex operations.

To realize the benefits of RFID, a company's IT department will first need to upgrade its infrastructure on a number of dimensions. Three areas, in particular, will need to be addressed: data management, network and end-user device management, and—a new category for many IT organizations—sensor management. In addition, tying all these together and integrating them with legacy systems will require a new level of systems integration capabilities.

## **Data Management**

The amount of new data generated from RFID will be enormous. Today's systems and supporting data infrastructure often focus on the latest status or end-state of a product, asset or person. For RFID, this data model must be expanded to capture additional information around surrounding events: the state before, during, and after each step, person and asset involved, as well as the conditions at the time and the key measurements. IT will need to decide whether to integrate this additional information into the existing corporate data infrastructure or to develop a separate management structure.

Business rule definition and data analysis capabilities must also be upgraded, as data and events need to be analyzed as closely to real time as possible to provide the intelligence and monitoring necessary to make processes more efficient and to avoid or quickly correct mistakes and problems. Depending on the industry and the operations affected, the IT organization may find itself pushed toward a computing and data management infrastructure that is more decentralized than it is accustomed to. Finally, data security, privacy and storage will pose new challenges due to the data volumes and real-time sensitivities involved, particularly with human track and trace applications.

## **Network and End-User Device Management**

A great variety of data extracts and information views will need to be made available throughout RFID-impacted operations. Often, the end users of this information will not be at a desktop computer; rather, they will be mobile, which will require the deployment of wireless LANs and other remote connections in areas not being addressed today. In addition, information views will need to be constructed—assuming that a BlackBerry, a handheld computer or even a cell phone will be the recipient's platform of choice for receiving information and providing updates.

These compact platforms will require new thinking on how to process a great deal of data in ways that provide end users with key information in a readily useable format but without filtering that data excessively. For location data, geographical information systems (GIS) can play an important role in graphically depicting a

great deal of information in a very concise manner.

### **Sensor Management**

IT organizations will need a new set of skills to manage the proliferation of RFID readers and tags, and to understand the processes within which they operate. To effectively manage sensors, IT organizations need to ensure that standards are set for tags and readers, and how the tags and readers are deployed. Different applications may require different standards on dimensions such as system frequency, read range, passive versus active power, accuracy, reliability, placement, polling frequency and environmental conditions. Identifying, maintaining and quickly repairing readers will become a new required capability. Moreover, certain applications will require multiple readers close to each other, sometimes resulting in conflicts and troubleshooting delays.

In all these cases, it will be important to have a backup or contingency process in place to ensure uninterrupted operations, and the IT department is the logical entity to take the lead in designing and implementing such processes. IT professionals, in turn, will need to become much more proficient in business operations than they have been historically. RFID, in effect, will push IT into many corners of the business, whereas before it may have been involved only peripherally.

### **Systems Integration**

The challenge of tying all the parts of RFID together in a smooth and reliable manner will perhaps be the greatest challenge for IT organizations. In many ways deploying RFID is like deploying a whole new IT infrastructure, with new data sources, processing mechanisms and recipients, plus network capabilities implemented where none were previously needed, and a new category and schema of devices to communicate with and to manage.

That does not mean legacy systems will not be involved. On the contrary many RFID applications will need sophisticated interfaces to enterprise resource planning (ERP) and other operations support systems. Hospital RFID systems, for example, will need to interface with legacy hospital information systems (HIS), picture archiving and communications systems (PACS), electronic medical record (EMR) systems and computerized physician order entry (CPOE) systems. Similar legacy system integration will be required for many companies to fully capitalize on the benefits of RFID.

Perhaps most importantly, a new level of business process understanding will be required and deep operational ties will be needed between the IT department and the business it supports. IT professionals must fully understand RFID *and* the business operations to which the technology will be applied. The IT department will no longer have the luxury of being able to remain at the periphery of how the business operates, nor will the business have the luxury of being able to hold IT at arm's length.

### **Summary**

The impact of RFID on enterprise IT will be enormous. The difficulty is that a tremendous amount of IT strategic planning and infrastructure preparation needs to be done to support RFID. A lack of synchronization between RFID planners and IT planners could be disastrous, as many RFID implementations find IT to be the critical path to successful deployment. Now is the time for IT to begin preparing for RFID.

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