

# Adding Value To RFID

## How to Create a Solid Foundation for Your RFID Implementation

**M**anufacturers, logistics providers, and retailers everywhere are struggling to make wise business decisions about radio frequency identification (RFID) technology. For some, the decision is whether or not to use the technology at all.

Many companies have made this decision for them, because they must comply with customer RFID tagging requirements. But other decisions remain. Companies planning RFID implementations must decide how tightly to integrate RFID with their legacy operations, how extensively business processes will be changed, what information to include on the RFID tag, how to physically apply tags to objects, and much more.

These decisions will have a tremendous impact on the value and return-on-investment a system provides regardless of the industry, RFID knowledge or application plans. The following guidance can be applied to most RFID projects and will help to create a solid system foundation that efficiently meets current and future needs.

### Technology planning

Fundamental to planning is deciding which frequency to use — usually a fairly easy decision, based on the range and performance needed from the system. More difficult choices involve determining which products and protocols to use within the frequency. Standardized technology should be used whenever possible because it offers more product choices, an open environment and doesn't make the user overly dependent on a single vendor to support proprietary technology.

Choosing the optimal frequency and protocols became much easier when the EPCglobal Class 1 Generation 2 (a.k.a. Gen 2) technology became a standard earlier this year. Gen 2 is a



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UHF (860-930MHz) technology with features specifically developed to satisfy common supply chain requirements. Most compliance tagging programs require the use of EPC Gen 2 technology. Companies who are implementing RFID voluntarily should give strong consideration to using Gen 2, because it is poised to become the dominant commercial RFID technology in the consumer packaged goods, retail, logistics, and other industries, and will be well supported with interoperable products from highly competitive manufacturers. Gen 2 has been submitted to ISO for recognition as an international standard. Many manufacturers also produce products that conform to other ISO standards, which support different application needs.

### Connectivity counts

It's a given that standard-compliant printer/encoders will be able to produce tags and labels, and that compliant readers will process them. Differentiation and value in these products comes from how easily they integrate with a company's business processes and IT systems. Smart label printers are available with Ethernet, USB, wireless, parallel, RS-232 and other interfaces, so users should be able to choose a model that fits into their IT architecture. Wireless printing is a convenient and efficient option for many smart labeling applications. Shipments that need to be marked with smart labels can be labeled in a dedicated area to keep them from being mixed with non-tagged materials. An 802.11b wireless, network-compatible, smart label printer provides the option of producing smart labels anywhere, without having to run network cable for the printer to receive print jobs and variable data from enterprise systems. Printing and encoding labels where they are needed improves productivity by eliminating repetitive and time-consuming trips to and from a central print station.

When planning a system, it is important to consider what sources will

provide the data for output on the RFID smart label. Printers that support common protocols like XML, or offer direct connectivity to the enterprise software and computer platforms, save time and money during implementation and for ongoing support. RFID labeling systems may be tightly integrated with enterprise applications, or set up as isolated silos.

### Data double-checking

A Wal-Mart supplier wanted its system to integrate closely with its existing bar code shipment labeling applications. Wal-Mart smart labels are printed on demand with Zebra printers. Orders are passed through a reading portal to make sure labels are readable before they are shipped out. The customer captures the data and uses it to double check that all items required for the order are included on the pallet.

The reading portals provide an extra quality check, because the printer/encoders automatically verify each smart label and reject RFID inlays that do not respond properly to reading and encoding commands. Automatic verification is a must-have feature that protects label integrity and helps prevent non-compliant shipments.

There are many option and feature differences among RFID products — even among products that conform to the same standards. Product features should be evaluated because they play a large part in how the system must be supported and the value it will provide.

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*For information on the benefits of bar coding and RFID technology, download any of Zebra Technologies' RFID white papers at [www.rfid.zebra.com](http://www.rfid.zebra.com)*

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