

THE RISKS OF

BY JAMES RAPPOLD

RFID

RFID, LIKE OTHER TECHNOLOGIES, HAS THE POTENTIAL to affect business process efficiency and effectiveness as well as product and service value. But depending on what part of an organization or supply chain leads the effort and the operating condition of the firm, this potential may never be realized.

The risk that many firms face is simple: Are they prepared to take advantage of the faster acquisition and transmittal of data that RFID promises? Suppose your local GM dealer just received a shipment of three red Corvettes. You visit the dealer because you are in the market for a black Corvette. The dealer's sole purpose in life when you step onto the lot and say you are in the market for a black Corvette is to sell you one of her *red* Corvettes. Suppose after a few rounds of negotiations, she knocks \$5,000 off the sticker price and you drive off in your new red car. Back in Detroit, thanks to RFID technology, manufacturing sees that a red Corvette was sold and thus a red Corvette must be built. But was that really what the customer wanted?

Risk 1: An RFID system may actually trigger the fast and efficient replenishment of products that customers don't actually want at full price. Firms may also confuse customer demand with customer sales, which are two different things. Gillette's effort to bring RFID into the home is an effort at comprehending true customer consumption, which is laudable. RFID

systems will most likely be used in environments where the value density — the value of the product relative to its physical size and weight — is high.

Risk 2: RFID may facilitate only the local optimization of a system. It is impossible to optimize a supply chain through locally optimized solutions.

Consider an automotive assembly plant. As the plant schedules its vehicle production, the required components and sub-assemblies from suppliers are sequenced and brought to the line just in time to meet the assembly requirements. RFID can provide real-time inventory and consumption information back to the Tier 1 supplier to reduce the amount of uncertainty and allow the supplier to smooth the load on its facilities and allocate its productive capacity to avoid the build up of excess inventories. However, this is unlikely to provide much value in this environment because of how just-in-time replenishment has been implemented in many U.S. automotive assembly plants.

A few Tier 1 suppliers ship subassemblies so frequently that the total amount of inventory between the supplier's production facility to the assembly plant is on the order of days. But this is the exception rather than the rule. Most Tier 1 supplier components and subassemblies are brought just-in-time to the assembly line from a third-party warehouse usually

the wal-mart factor

within a mile or two of the assembly plant. These warehouses can hold materials totaling weeks or months of supply. If RFID were used to track material between the warehouse and the assembly line, it is unlikely to provide any value whatsoever (except perhaps to the accountants). Unless a systemwide perspective is taken when considering the opportunity and implementation of an RFID system, only a small portion of the supply chain may be optimized – perhaps to the detriment of the rest of the system.

Order, please

Before contemplating an RFID strategy:

1. Make sure you comprehend what customers truly want, how they buy and use the product, and the lead-time they expect for product delivery.
2. The firm must have the physical capability to take advantage of the additional information. Firms with unpredictable equipment, unreliable manufacturing processes, long supplier lead-times, and facilities with long and variable flow times have little to gain from RFID without first getting their house in order. No software will ever fix fundamentally flawed physical processes.
3. RFID systems will create mountains of data quickly. The firm must have the requisite information infrastructure to store, transmit, and process the data across the organization and to its suppliers.
4. If RFID data is used only in existing business processes, the

firm has not thought carefully about how to change its business processes within the firm and with its supply chain partners to leverage the additional information.

5. Depending on how the firm is organized, decision makers in different functional areas can take advantage of the RFID data. But if the logistics department is still measured only on lowest unit transportation cost, then it will have the RFID information and ship material by rail or barge anyway.

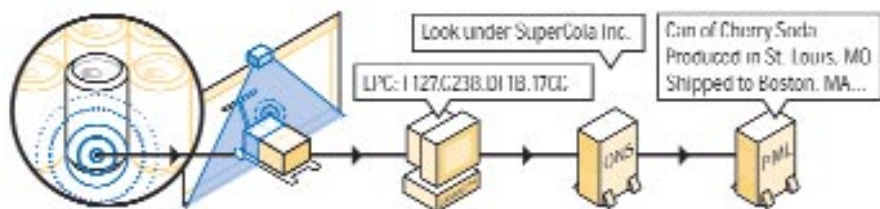
There are two important components to effective decision making that can leverage RFID: tools and metrics. Decision makers need the right tools to process the volume of data and to consider the systemwide impact of their decisions. Given the unique nature of many firm's operations, these tools are often not available off the shelf; they need to be designed carefully to fit the firm's specific operational trade-offs.

Like most technologies, RFID is surrounded by a certain level of unjustified hype. The key issues are whether a firm is ready to take advantage of the technology and what exactly they will do with the data acquired.

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THE EPC NETWORK: HOW DOES IT WORK?

With the new EPC network, manufacturers, distributors, and retailers will be able to track and trace items automatically throughout the supply chain. Here's how it works:



1. An electronic product code (EPC) is embedded into microscopic "smart tags," and attached to an item. At 400 microns square, the tags are smaller than a grain of sand. These tags allow the items to be tracked in a completely automated, cost-effective fashion.
2. Radio frequency identification (RFID) readers can scan each smart tag and send the item's EPC to a computer running Savant.
3. Savant, middleware that connects the auto ID architecture, queries an object name service (ONS) database.
4. The ONS maps the EPC to a URL where all of the item's information is stored using physical markup language (PML).
5. The PML server contains information about the item itself, its manufacturing, shipping and other related data.

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