

RFID Versus Bar Codes On the Shop Floor – Who's Ready for a "Smackdown?"

SCDigest and Wright State University Looking for Job Shop Manufacturer to Test Benefits of Bar Code Versus RFID

SCDigest Editorial Staff

While use of RFID in manufacturing continues to see strong growth, for many practitioners the real benefits of RFID versus bar coding remain unclear. There also seems to be little good research to provide a framework for manufacturers to use in analyzing where RFID provides the greatest incremental benefits over bar coding.

Supply Chain Digest is partnering with **Dr. Vikram Sethi**, professor and chair of the Information Systems & Operations Management department at Wright State University near Dayton, OH, to look at the use of RFID versus bar coding on the manufacturing floor, especially for "job shop" type operations (i.e., a production process with a plant layout by machine type and jumbled process flows across work centers relatively far apart, as opposed to a "flow shop" or assembly line). Wright State has a growing focus on RFID in its research and education programs.

We are looking for a manufacturer, especially in the Midwest, that would like to have the application of RFID versus bar coding analyzed for its operation. The company will receive a written report that details the pros, cons and benefits of the two alternatives. The company can be using bar code on the shop floor currently or not.

"There are many variables that can impact the relative merits of RFID versus bar coding on the shop floor," said SCDigest editor Dan Gilmore. "Those include the type of data being captured, how much floor associates need to scan individual bar codes, the level of process discipline, and the underlying capabilities of the manufacturing software. We'd like to develop a more detailed framework for this analysis."

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"The use of radio frequency identification (RFID) versus bar coding has been debated with little quantitative research about how to best use RFID's capabilities and when RFID is more advantageous," **Dr. Kurt Hozak** of Indiana State University notes in a soon to be published paper on RFID in manufacturing.

Some of the variables to be explored include:

- How many bar codes do operators have to scan for each batch or step in the process?
- Work processes: How much actual time is lost due to bar code scanning?
- Physical environment: Do bar code labels become damaged and unreadable? Do the line-of-site requirements for bar coding mean more time is spent by operators to complete a scan?
- Does the process and technology permit a missed scan and therefore data errors? RFID can potentially automate the reads, leading to error prevention.
- Timing issues - Use of bar coding can mean that when a lot is taken to a subsequent stage in the process awaiting manual scans, isn't im-

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mediately visible. With RFID, that visibility can be instantaneous.

- Data requirement: Would the process potentially benefit from the larger data capacity of RFID, or read-write capabilities?
- Software environment: Is there a potential unique benefit for using RFID to enable operations to continue even if the shop floor software goes down?
- Hardware and media costs for each alternative – in some cases, re-usable RFID tags may actually be less expensive over time than on-time use bar code labels.

If you are interested in discussing this research effort and/or having your operation participate in the study, please email us at feedback@scdigest.com.

