How Tiny Wireless Tech Makes Workers More Productive

By

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The numbers don't look good: Last week the Bureau of Labor Statistics reported that worker productivity dropped 0.5% in the second quarter of 2016—the third quarterly decline in a row. Productivity growth, a key driver of improved living standards, has averaged only 1.3% a year over the past decade, compared with 2.9% from mid-1995 through the end of 2005.
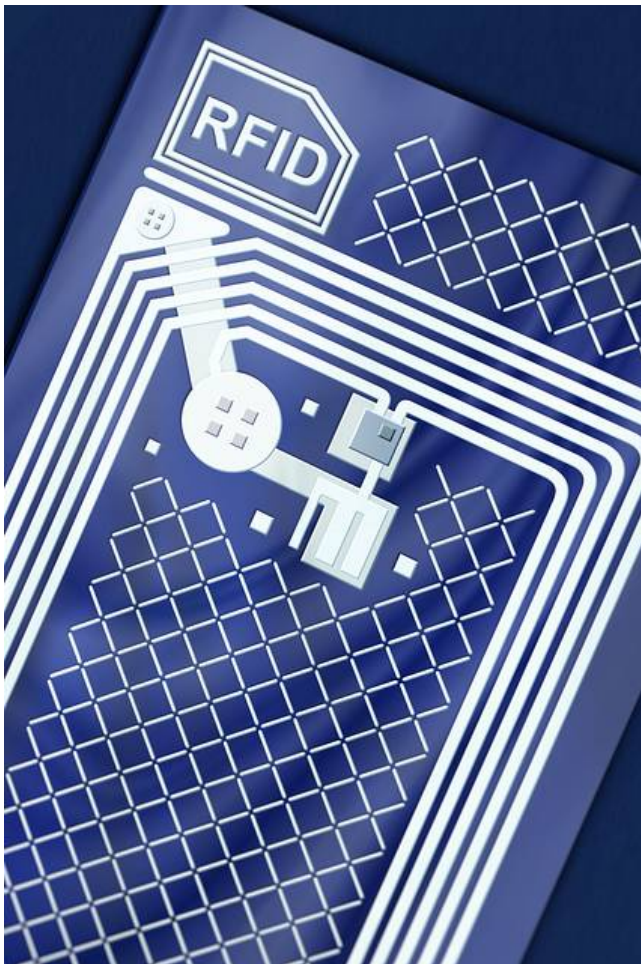
Why the slowdown? One theory is that markets have already wrung the easy efficiencies out of current technology. Federal Reserve Chair Janet Yellen noted in June that some economists "believe that the low-hanging fruit of innovation largely has been picked and that there is simply less scope for further gains."

Count me in the optimistic camp. Low-cost wireless technologies are only beginning to break down the wall between the physical and digital worlds, and early-adopting companies are already achieving astounding productivity gains.

Four years ago Macy's began deploying passive radio-frequency identification (RFID). Suppliers are now asked to place small RFID tags in the packaging of items shipped to Macy's stores. The cost per tag varies by volume, but generally it's under 25 cents. Roughly 30% of items in a typical store now carry tags, according to the company, mostly in men's clothing, shoes, jeans and some fashion aisles.

Employees can take inventory by waving an RFID reader over a shelf or a rack. A 2009 study by the University of Arkansas found scanning 10,000 items took 53 hours using bar codes, but only two hours with RFID. That efficiency allows Macy's to inventory items every month rather than once or twice annually. Pam Sweeney, Macy's senior vice president of logistics systems, tells me that RFID has pushed inventory accuracy in these departments to 95%.

RFID isn't limited to retail. Since 2011, Delta Air Lines has installed more than 240,000 tags on its oxygen generators, life vests and other emergency equipment. These are higher-end tags meant to last the life of the asset, yet each costs "less than the price of a Happy Meal at McDonald's, " says Rick Lewis, a Delta analyst for aircraft maintenance.

It used to take approximately eight man-hours to check the expiration dates on oxygen generators aboard a 757. Now Delta can do it in less than two minutes, Mr. Lewis says. Even greater value, he adds, comes from having "accurate data to do predictive maintenance, and improve your planning and inventory management."

American Woodmark, which manufactures and distributes cabinets and vanities, tracks materials at seven facilities with RFID. The firm uses nine million tags annually, according to David Johnson, the company's materials technology and project manager. He reports that RFID has reduced the labor for cycle counting—a regular inventory process—by 66% and improved accuracy from roughly 80% to near 100%.

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Even the government is taking notice. In May the Transportation Security Administration began a pilot program in Atlanta with RFID. Passengers at multiple stations place carry-on items into a bin containing a transponder. The bin travels on an automated conveyor through security, while passengers go through separately. The agency hopes eliminating bottlenecks—say, when the whole line waits for one person to remove his belt—will increase the speed of screening up to 30%. In July the TSA announced that it intends to add the technology at other airports this fall.

Adoption of low-cost wireless technologies like RFID and ZigBee is still in its infancy but presents an enormous opportunity. Managing physical assets—containers, tools, work-in-progress—is a grossly inefficient and time-consuming business. These technologies revolutionize the job. They also deliver managers a wealth of data to help them forecast, plan and execute more effectively.

As the cost of RFID tags falls to only cents apiece, the applications widen. Imagine checking out at the grocery store one day simply by running your cart through a scanner in a few seconds—no bar codes required. How many hours a year would that save consumers and employees both? If you want a million minuscule reasons to be bullish

about productivity, look no further than tiny RFID tags.

Mr. Roberti is the founder and editor of RFID Journal.