

Clothing Maker Says RFID Significantly Improves Production

Chinese firm Lawsgroup has deployed an RFID work-in-progress tracking system that is leading to measurable improvements in its operations and a quick return on investment.

By Mary Catherine O'Connor

Aug. 21, 2006—Lawsgroup, a contract manufacturer based in Hong Kong that produces garments for a number of U.S. retailers—including the Gap, Old Navy and J.C. Penney—uses RFID to automate the tracking of raw materials, semifinished components and finished garments throughout most of its 15 production sites, in Asia. In describing the system to attendees at last week's RFID Journal—AAFA Apparel & Footwear Summit, Bosco Law, director of corporate development for Lawsgroup, said it provides significant visibility into the company's operations. Lawsgroup facilities using the technology are now able to produce more garments and react more quickly to changes in product orders than they were under the older, manual system for tracking work-in-progress.

Prior to its efforts to begin developing and prototyping the RFID system in 2000, the company had experienced growing pressures from clothing designers to manufacture more garment styles each year with increasingly shorter lead times. Moreover, retailers requested more timely or fashionable products for each season. This forced Lawsgroup to look for a means of supporting a leaner manufacturing process with greater control over each production step, so that the company would produce only what it needed for each order and could react more quickly to order changes.

Under its manual tracking system, Laws explains, once the raw materials were sent into the production process, they entered a "black hole," where they remained invisible until emerging as a finished product. Cut raw materials, to be used to fulfill each order, were grouped together in component bundles, such as sleeves, cuffs and hoods. A hand-written paper ticket with order information was attached to each bundle by a strip of fabric, and bundles were brought from sewing station to sewing station, where the bundles changed from components to completed garments. The garments were then sent to a quality-inspection station. Throughout the tracking process, pertinent information was written to the tickets accompanying each bundle at each station. Sometimes the information was incorrect or illegible, causing production delays.

Under the new RFID-enabled system, high-frequency (13.56 MHz) smart cards take the place of the paper tickets, and as employees collect the finished goods, they erase and reuse the attached smart cards. The data collected from the cards provides a real-time look at how much each Lawsgroup plant produces throughout each shift.

As the garment components are assembled, workers encode the order information onto the smart cards. They use interrogators located at each workstation to read the smart cards, and they also scan a smart card assigned to each worker as an ID badge. The back-end system uses this data to track how many pieces are completed, as well as how many pieces of each garment order have reached each step in the manufacturing process. This kind of real-time information sharing was not possible with the paper-ticket tracking system.

The back-end system also tracks each worker's output by correlating the badge reads with the bundle tag reads at each workstation. This information is used to help track and reward high-output workers. At the quality-inspection stations, any sewing flaws in garments can be traced back to the workers responsible for them. Law says this information is not used to punish workers, but is taken into consideration as managers relegate tasks in the factories. "We look for each worker's strengths and encourage them," says Laws.

Large electronic displays are hung in all production areas, and employees can reference them to track the plant's cumulative progress toward meeting production goals. Lawgroup's IT department developed the RFID system in-house and has integrated it with its enterprise resource-planning system. The RFID back-end data system is customized to the company's needs. For example, the system can send alerts to plant managers when incoming orders and current production levels point to an imminent bottleneck.

Law says the RFID-enabled production-tracking system has led to important improvements. These include easier performance measurements and better production decision-making. It has also enabled the firm to shorten its production lead time by 27 percent at the RFID-enabled facilities, and to improve production-planning accuracy by 29 percent. These factors enabled Lawgroup to start seeing a return on its investment within one year of deploying the system at two of its knit production sites in 2002. Since first developing the system, says Law, the company has spent a total of US\$5 million on hardware, software, training, maintenance and related infrastructure costs for RFID deployments at 12 plants. Many of the benefits the company has gained from the system are hard to quantify, he says. These include improved quality-control measurement, production visibility and employee management.

"The key to our success is that we had the right mix of processes, systems and people behind the project," says Law, adding that he knows other contract clothing manufacturers that have tested similar RFID systems but were unable to see them through to fruition.

One challenge Lawgroup initially faced in deployment was that some employees were reluctant to change. In addition, it could not reap immediate benefit through the output-tracking system. What helped was a "commitment from management" to see the project through, along with a strong belief in the technology and the use of in-house IT staff to develop the system, rather than relying on an outside vendor.

In the future, Law says, Lawgroup would like to work with its clients to share the real-time information being collected through the RFID systems. The firm is also considering a pilot program to embed RFID tags into finished garments, for use in tracking the finished goods as they travel from Lawgroup plants to its sample showrooms. The company says the tags could be embedded in detachable labels for garments sold to consumers through retail stores.

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