

Meridian Automotive Systems revs up its IT environment
by introducing handheld devices and a real-time
data-gathering solution to the shop floor

In the Driver's Seat

BY JIM UTSLER

Having grown up near Detroit, my friends and I were all about cars, rebuilding engines, fibreglassing and repainting fenders, and then racing the results down the local drag. We've grown up since, but many of us retain our close ties to the automotive industry, working as mechanical engineers, factory-line workers and freelance writers for industry trade journals. (I once worked in a small auto-parts shop, an experience that, thanks to the afternoon shift I worked and the near-impossible-to-remove rubber that got under my fingernails, encouraged me to return to college.)

If nothing else, my close ties to Detroit taught me that despite having distinct IT requirements, such as high-

performance virtual-vehicle test crashing, the auto industry has much in common with other manufacturing industries. Inventories, for example, must be tracked, managed and shipped, with parts suppliers needing to meet the just-in-time (JIT) delivery needs of their customers, who in this case are automotive original equipment manufacturers (OEMs).

Of course, that's the simple description of a manufacturing environment. Behind the scenes, a delicate balancing act takes place, with people using tightly integrated technology to make sure parts are both manufactured and delivered on time, all of the time. As Meridian Automotive Systems discovered, information technologies such as manufacturing resource

planning (MRP), bar-coding software and the proper servers are key to helping ensure the entire manufacturing process is as seamless as possible, from the original OEM order to the JIT delivery.

On the Floor

Based in Dearborn, Mich., Meridian is a leading supplier of front- and rear-end modules, lighting, exterior composites, console modules, instrument panels and other interior systems to the automotive industry. It has 22 plants in the United States, Canada and Mexico, all of which build and supply the aforementioned parts to OEMs and large tier-one parts suppliers.

Supporting this large North American presence is an IBM* iSeries* 820 running OS/400* V5R2, the MAPICS ERP application, EDI software from Infor Global Solutions and several homegrown applications. All of these IT resources are located at a datacenter in Iona, Mich., formerly the company's headquarters, which, through several acquisitions, has grown from seven facilities in the late 1990s to the current 22.

Although this type of growth through acquisition is desirable, it can create problems with organizations' IT environments, as they try to cobble heterogeneous systems together to create an integrated whole. Meridian experienced similar growing pains, having to deal with "multiple systems, none of

PHOTO BY KEITH MUMIMA

UP CLOSE

CUSTOMER: Meridian Automotive Systems

HEADQUARTERS: Dearborn, Mich.

BUSINESS: Manufacturer of automotive parts

HARDWARE: An IBM [^] iSeries 820

CHALLENGE: The need to better understand inventory and improve shop-floor processes

SOLUTION: Among other efforts, using QuikTrac from Integrated Barcoding Systems to map MAPICS screens to wireless handheld devices

which were doing what we wanted them to do," remarks Bruce Knoll, Meridian's director of IS.

For example, it had four different bar-coding systems that were incompatible with each other and weren't integrated with MAPICS—which handles the organization's inventory transactions—its EDI package or its homegrown applications. In addition, the bar-coding systems supported only shipping and receiving and not the shop floor, where Meridian was attempting to establish new management systems and meet the Materials Management Operations Guidelines, which are best practices established by Ford Motor Company and currently being adopted by other OEMs.

"Our bar-coding system focused on shipping and receiving only. They did nothing in the middle of the shop floor for parts movement and the like," Knoll recalls. "Those were all paper-based transactions."

Because of this, shop-floor transactions were at least 24 hours behind the real-time shipping and receiving data, having to be input into the MAPICS application running on the 820 by Meridian clerical personnel. Furthering the time-delay issue were problems related to information accuracy, with the data-entry clerks often having to clarify "whether a zero was supposed to be an '0' or an '8' was actually a '3,'" Knoll recalls. "If they had any type of questions like that, they would have to have them clarified, which resulted in even less timely information."

Realizing that it had to somehow integrate its many systems and create a real-time solution for the shop floor, Meridian began looking around for a single replacement bar-coding solution that would communicate with its back-office applications. With that and other operational thoughts in

mind, the company established an eight-person steering committee in December 2001. Three of those members were charged with finding a suitable bar-coding solution that would play well with MAPICS and a new EDI package that would replace the company's then-current EDI solution.

Every Child's Dream

Following a six-month review and planning process, which included visits to the company's manufacturing sites, the three-person bar-code group had a better vision of what it required. Most significantly, the organization decided that rather than implement a solution that sat to the side of MAPICS, it wanted to find a portable bar-coding solution that would allow users to display and interact with MAPICS screens in real-time.

"MAPICS did everything we wanted, so we decided to push MAPICS to the handhelds," Knoll says. "That way, we wouldn't have to rewrite anything."

After reviewing several scanning solutions and finding that none of them was up to the task, the company went to MAPICS for suggestions. "They shortly came back to us with a recommendation, which was QuikTrac from Integrated Barcoding Systems (IBS)," Knoll recalls. After participating in an IBS demonstration of the product and visiting an actual site that was already using the system, the company decided that it might have found the solution it had been seeking.

With the help of IBS, which is located in Adrian, Mich., Meridian soon had a working model of the solution, using QuikTrac, which resides on a PC server, to map several MAPICS screens to handheld devices in real-time. It then presented the solution to shop-floor employees.

"Before we got into too much depth, having mapped what we thought were the core transactions, we went into a facility to show the technology to the workers," Knoll recalls. "And they kept saying, 'You know, we also do this on the floor.' " As a result of the positive input from employees, the company added another 40-plus screens to the 10 it had developed with the assistance of IBS.

As the QuikTrac solution works in the Meridian environment, data is collected from the wireless handheld devices and select MAPICS screens (more than 121 at this point) and fields are mapped to the devices. According to Knoll, "There are basically two components to this solution. You have your presentation screen, which might have, for example, four of 20 fields of the actual MAPICS presentation at a workstation. We map those fields to the wireless bar-code gun so users can scan items; MAPICS is then programmed to know where to place the items in the system. Then you have navigation, which allows users to go to, say, the MAPICS inventory module, selecting option five and then option 10, and then going to submenu three and task two. It's as if the

users were actually sitting down at a keyboard to use MAPICS." Users also have access to the EDI package and some homegrown programs.

Now, when parts arrive at Meridian, workers use the wireless scanners to read carton labels and place inventory into MAPICS as having been received. If orders arrive without bar-codes or have unreadable bar-codes, workers can use either wireless or wired printers to create the necessary labels.

"The workers can either batch print or go wireless, depending on their needs," Knoll says. "So they can demand a single label for that one box from the gun, print it off, stick it on the box, scan it and move the item to the next location." Designed with the help of labeling software from T.L. Ashford, the labels meet industry-accepted Automotive Industry Action Group format guidelines.

As product moves through the Meridian manufacturing process, it's continually scanned, with location assignments being entered into MAPICS. As Meridian products are created

"You receive the Play-Doh with a bar-code, scan the bar-code, move the Play-Doh to your receiving stock location and then to the shop floor," Knoll explains. "Then you have a little punch-press type of device that makes the parts, and you measure your Play-Doh to determine how much scrap you're going to have. You also create a production report that details how many items you make. We simulate receipt, storage, shipping—everything. So this model actually follows the flow of the plant, allowing workers to practice and work out the theory." Although this may sound like a child's fantasy come true, it has actually helped Meridian work out the kinks of its new IT solution.

To date, the company has implemented the new bar-code-scanning solution at 11 plants, with each implementation taking four to six months. The company expects to bring the others online within the next two years, following the strict implementation guidelines it developed with previous installations. This adherence to similar implementations has allowed the company to begin stan-

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from the raw materials, they're given new bar-code labels that identify them as having been finished. Following that, a shipping label is created, and the workers, navigating through the mapped screens, generate the necessary EDI transactions. Knoll estimates that some 3,000 to 5,000 and 8,000 to 10,000 wireless transactions are processed every month by its smaller and larger facilities, respectively.

Concurrent with the QuikTrac implementation, Meridian decided to upgrade MAPICS, bringing in newer modules, and replace its existing EDI package with another from Infor Global Solutions. According to Knoll, this was all part of a larger shift in shop-floor philosophy, with the aim of increased productivity and better inventory control across the entire manufacturing process. "We didn't look only at bar-code scanning, although that was a very important part of this new theory," he recalls. "We looked at everything."

Wanting to make sure the implementation would go as smoothly as possible and improve shop-floor production, the company brought in a consulting firm, DBM Systems, to build scale models of each of its manufacturing plants. Interestingly, these models were made of LEGO bricks and Play-Doh, with the LEGO bricks comprising the actual manufacturing space and the Play-Doh the raw materials.

dardizing all of its shop-floor practices, creating a more seamless understanding of its business, including inventories, across all of its manufacturing locations, whether in Canada, Mexico or the United States.

New Philosophies

When my friends and I were stripping and rebuilding our junkers, the type of technology Meridian is currently using to streamline manufacturing processes didn't exist. Now, however, it's out there for companies to implement in large-scale manufacturing environments of all types, helping them get a better handle on both manufacturing processes and inventory control. And given the current automotive OEM philosophy of parts-production outsourcing, this move toward tighter inventory control has become a necessity, especially as the industry strives to realize JIT deliveries and encourage a single, standardized way of doing business. **i**

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