

Emerging Technologies: RFID for the Furniture Industry

Global competition has presented many new challenges to the Mississippi furniture industry, particularly in managing supply chains, logistics, inventories, and warehouses. An emerging technology, Radio Frequency Identification (RFID), can help furniture companies by providing real-time data about product location and workflow/process monitoring. RFID has been used successfully in a number of industries, but researchers at Mississippi State are determining the chances of similar success in the furniture industry.

A research project sponsored by the Franklin Furniture Institute and conducted by faculty from the department of management and information systems in the College of Business and Industry, is seeking to answer this question. The project's research team includes Robert Otondo, Allison Pearson, Rodney Pearson, John Shaw, and J.P. Shim.

"The project has two goals," said Otondo. "First, we want to help the furniture industry become more aware of RFID. To do that, we've just conducted a workshop on RFID, along with a tour of a state-of-the-art RFID-enabled distribution center."

The second goal of the project is to assess the feasibility of using RFID in the furniture industry. To achieve that goal, focus groups were held at the end of the workshop to understand concerns of participants and gather any suggestions.

"We see it as a way to provide outreach on an emerging technology with little, if any, 'sales pressure,' but still conduct

research that is useful to both the furniture and RFID industries," Otondo said.

Assisting with the project is Mark Brown, vice president and senior instructor for RFID4U, an RFID training and consulting firm in Sunnyvale, Calif. Brown, a CompTIA RFID+ Subject Matter Expert with over 13 years experience in the computer industry, gave presentations on RFID and its applicability to the furniture industry.

As part of the workshop, participants toured the RFID-enabled distribution center at Medtronic Inc.'s Spinal and Biologics Unit in Memphis, Tenn. The Spinal and Biologics Unit offers products that treat a variety of disorders of the cranium and spine, including traumatically induced conditions, deformities and tumors. The tour of the distribution center was led by Steve Tethrake, a project manager at Medtronic. Workshop participants learned how Medtronic uses RFID in managing their inventory of spinal implants, surgical tools and biologic products.

"We received many favorable comments from our workshop participants," said Otondo, "so we planned another one for Friday, September 14."

Any member of the furniture industry who is interested in attending the September workshop may contact Amy Garrard at 662.325.8453 or Steve Taylor at 662.325.0283 at the Franklin Furniture Institute to register. Remember registration is limited and based on a first-come, first-served basis.

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RFID Workshop: Friday, September 14, 2007 • No charge for attendees

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director's corner

Outreach Program Making a Difference

G. Stephen Taylor, Interim Director



Because of a grant from the Small Business Administration, the institute's Outreach Program is able to provide technical and business assistance to the industry at little or no cost to the company. I would like to take this opportunity to let you know what we have been able to accomplish since this program started in August 2006.

We have visited almost 80 furniture manufacturers and component suppliers to find out how we could be of assistance. These visits laid the foundation for 32 new projects for specific companies. These projects have ranged from lean manufacturing to plant layout/design to marketing assistance.

In addition to helping with company-specific issues, the SBA funds also have allowed us to investigate problems that plague the entire industry. Currently we are sponsoring formal research programs in the areas of:

- Identifying the factors consumers consider when purchasing furniture
- Using Radio Frequency Identification (RFID) technology to improve warehouse and inventory management
- Assessing the market potential for bariatric furniture
- Determining which components should be outsourced to overseas suppliers and which should be made domestically
- Developing a technique to reduce excess glue usage
- Combining global information systems with traditional supply chain management techniques to improve routing.

In addition, we now are working with the American Home Furnishings Alliance in their efforts to better serve the membership.

Another initiative of the Outreach Program is to help our companies expand their markets by increasing the amount of furniture sold to other countries. To do this, we are working with the Mississippi Development Authority and the Appalachian Regional Commission. A series of one-on-one meetings were held between MDA representatives and furniture manufacturers/component suppliers interested in exporting to Central America. We also are promoting upcoming trade shows in Mexico and China.

While we feel we are off to a good start, there is so much more to be done. Please let us know how we can be of help. That's what we're here for, that's our purpose, and that's what your tax dollars are providing. We hope to hear from you soon.

**Visit us at the Franklin Furniture Institute booth:
Tupelo Furniture Market • Bldg. 4, #4129 • August 22 - 26, 2007**

Explore Trade in China

The Appalachian Regional Commission and the State of North Carolina are offering the opportunity for furniture suppliers and manufacturers to participate in the upcoming trade shows in Shanghai, China, September 12-15. Participation is open to all furniture companies and suppliers, state organizations, furniture market authorities and educational institutions located in the ARC region. The Shanghai show is the premier Asian event for networking with home furnishings retailers and manufacturers in the Pacific Rim countries.

Be one of the U.S. companies to gain exposure to these important markets and have the opportunity to make contacts and sell to new customers. Exhibit costs are estimated to be approximately \$250 - \$300 per square meter for space to display products. Travel costs and merchandise costs for displays will be paid directly by the exhibitor.

For more information, please contact Amy Garrard at the Franklin Furniture Institute: 662.325.8453; amy.garrard@msstate.edu.



MSU Offers Scholarship to Furniture Management Students

Although it's an excellent investment in a young person's future, attending college is very expensive. Students enrolled in Mississippi State University's furniture management program have another way to defray some of the cost of their education.

The Southeastern Home Furnishings Association's Annual Scholarship at Mississippi State University was established in memory of Michael Gilchrist, a home furnishings retailer from Graysville, Ala. Gilchrist served SEHFA and the home furnishings industry for many years through his volunteer leadership. SEHFA is a regional affiliate of the National Home Furnishings Association located in High Point, N.C.

The organization works to provide services and resources that help retailers stay profitable and successful. One of the organization's goals is to promote professionalism in the home furnishings industry through continuing education and scholarships.

In 2003, SEHFA entered into an annual gift agreement with MSU to award \$1,000 to a student in one of the home furnishings degree programs under the College of Business and Industry. This scholarship can be renewed each year with the approval of the SEHFA Executive Committee, according to Mary Ellen Hiatt, executive director of the Southeastern Home Furnishings Association.

To receive the scholarship, the recipient must be a full-time junior or senior in good standing, majoring in an area of furniture management, must maintain a 2.5 grade-point average on a 4.0 scale, be from the Southeastern region of the United States, and plan on starting a career in the furniture industry after completion of a furniture degree program at MSU. For more information on this scholarship, contact Mary Ellen Hiatt, executive director, SEHFA, Phone: 850.233.4870.

Workforce Training at CDF

Today many people immediately think of Toyota when they hear "CDE," but this organization plays a key role in providing workforce training to other existing companies as well. The Community Development Foundation was organized in 1948 by visionary community leaders who understood the need for a unified effort to coordinate economic and community development activities in Lee County. A major part of these activities is CDF's workforce program located in its economic development division.

This workforce program provides a key link to available training opportunities and resources for existing industry and prospective companies. The objective is to identify and address workforce related issues that may inhibit the growth and expansion of local companies. A major strength of the program is the key partnerships it creates among business and industry, K-12 schools, community colleges, and universities.

Todd Beadles, director of workforce development for CDF, manages this program. Beadles assists with the development, implementation, marketing, and enrollment of training programs in cooperation with CDF's consortium partner, Itawamba Community College. More than 6,000 workers have used the program to upgrade their skills at little cost for interested companies. ICC facilitates this training through its staff of qualified, dedicated trainers.

Other key initiatives of the workforce development program are the Mississippi Scholars program, the Drop Out Prevention program, the e-Synchronist Business and

Retention program, and the furniture grant partnership with Mississippi State University and ICC.

Both the Mississippi Scholars program and the Drop Out Prevention program involve local business men and women who give presentations to middle school students. These community leaders stress the importance of education, the monetary gap between skilled and unskilled workers, and the importance of identifying a career interest early in life.

The e-Synchronist program, designed by Blane Canada and sublicensed from the Mississippi Development Authority, is a structured business and industry visitation program. Participating companies complete a questionnaire that identifies problems, challenges, and opportunities they may be experiencing. By inputting this information into the e-Synchronist database, CDF can gauge perceptions of Tupelo/ Lee County as a place to do business.

The Department of Labor grant, of which MSU is the primary investigator, is a new furniture training initiative launched in 2006. The grant will help to ensure future competitiveness for this manufacturing sector. CDF provides outreach, marketing, scheduling, and enrollment for all of its participants. ICC and MSU provide the actual training in such skills as leadership and communication, workplace design, ergonomics, and all Microsoft office software. There is no charge for this training, and it's offered on a first-come, first-served basis to furniture manufacturers and suppliers.



Tupelo Manufacturing Company **industry spotlight**

Tupelo Manufacturing Company is unique in a number of ways. For example, its owners are from the Boston, Mass., area—not the typical background for Mississippi furniture manufacturers. Perhaps even more unique is the fact that the company offers furniture that is truly American. TMC makes all of its furniture from 100-percent, American Oak. Queen Anne legs, the only exception, are imported.

“We are American-owned and operated,” said Mary Werner, vice president and co-owner.

TMC specializes in high quality contract seating and case goods for health care, funeral home, hotel, office, dormitory, school and restaurant use. In the past, the primary market for TMC products has been health care industries. But now, according to Werner, they are looking at options for expanding their hotel offerings, which currently include such well-known companies as the Peabody Hotel in Memphis, Best Western, and Hampton Inn. As part of this effort, a new hospitality line is being designed for the company.

One thing that won’t change is the quality and workmanship that go into each of the 50,000 chairs the company sells each year.

“The work that goes into our frames, upholstery and craftsmanship is unmatched. We want everyone to know that TMC is known for its outstanding quality,” stated Werner. “We are on the cutting edge with technology, and we aim to be more of an engineering company. We would like to eliminate set-up time through computer programs. We also make and customize our own machines.”

Werner emphasized that although TMC can’t produce their products as cheaply as manufacturers in China because of labor rates, they do cater to the individual needs of the client and provide the highest quality available along with great customer service.

TMC has had a varied history. The company began as the Rich Toy Company and was owned by Werner’s father-in-law.

“Eventually the company morphed into making cabinets for Coca-Cola and Singer, and then they started doing residential furniture,” Werner said. “Holiday Inn asked us to do chairs, and have been on contract ever since.”

Werner said she and her husband, Charles, traveled from Chicago to Tupelo to close the factory in 1992 but ended up buying it instead.

“I never wanted to run a furniture factory,” she commented. “I was a high school English teacher and my



husband was a physicist. We just kind of ‘fell’ into the furniture business.”

Besides running the company, Werner stays active in the community. She was the first female chairman of the Community Development Foundation in 2006.

“It’s been exciting,” she added. “I met senators and representatives in Washington, D.C. I went to the China market in Shanghai, and we got Toyota to come to Blue Springs, which will bring 2,000 jobs to Mississippi. I’m proud of that because we combined three counties—Pontotoc, Union and Lee—and we pulled together and made it happen.”

When asked how she feels about being such a powerful woman, Werner said, “Attitude is a huge part of it. You have to have a positive attitude.”

A positive attitude is exactly what Werner carries. She walks her factory floor every day and chats with her employees along the way.

“I know all of their names and something about each one,” she said, “I have one of the best work forces around. ”

Her employees take pride in what they do and when they’re recognized, they feel special and accomplished. Werner also believes in hiring families—they have several families with two or more members employed at the company.

“I try to take care of my employees,” Werner explained, “I try to recognize a job well-done. I give them small gifts at Christmas and Easter, little things to show them that they’re valuable.”

Clearly, the Werners value their employees, and judging from the low turnover rate at TMC, their employees value them as well.

Steve Hunter

Producing more with less—that's the basis for Steve Hunter's work with the Mississippi furniture industry. Hunter, associate professor at Mississippi State University's forest products department, works with furniture manufacturers to help convert their manufacturing systems into lean production systems.

"I work with companies on lean production so they can be competitive, not only domestically, but internationally as well," Hunter said.

"There are 28,000 jobs in Mississippi related to furniture manufacturing, and I help save those jobs so they don't go to workers in other countries like China," Hunter added.

Companies that have adopted lean manufacturing techniques have benefited from improved turnaround times, fewer product defects, increased productivity, and reduced expenses.

With more than twenty-five years experience in design and implementation of lean production systems, Hunter recently co-authored a technical book, *Lean Manufacturing Systems and Cell Design*, published by the Society of Manufacturing Engineers.

A native of Rome, Ga., Hunter earned his master's and doctorate from Auburn University, majoring in manufacturing systems engineering and industrial and systems engineering manufacturing, respectively. He earned a bachelor's degree from Berry College.

His recent research on the ergonomic and physiological ramifications of Manufacturing System Design using 3-D/virtual reality computer simulation attracted the attention of NASA and gained him the honor of being named as a NASA Fellow.

staff profile

Hunter's background includes work in industry as a manufacturing and industrial engineer and as a civilian engineer at several Air Force and naval aviation depots where he held various positions, including senior engineering project manager. While working at the Department of Defense, he won numerous Outstanding Service Awards for his contributions to national defense.



Teaching is also on his list of accomplishments as he has taught various manufacturing science courses, engineering economics, and technical writing at the University of Memphis and at Auburn University. Hunter is the author of many peer-reviewed journal papers and is an active speaker. In fact, he has led numerous lean production seminars and workshops in the U.S., Canada and Europe.

In Mississippi, Hunter has implemented lean production systems in several furniture manufacturing companies, resulting in millions of dollars of annual savings for these companies. He is currently assisting two Mississippi furniture manufacturers with conversions to cellular manufacturing and lean systems.

If you would like to have Hunter provide an overview of lean manufacturing systems at your plant, or have specific questions about this process, please contact him at 662.325.8344 or shunter@cfr.msstate.edu.

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