

The World's Well Kept Manufacturing Secret

by Stefanie Caraviello

It seems fitting that in a lowcountry office, off International Boulevard, one of South Carolina's well kept secrets is helping formulate the future of the world's manufacturing systems.

His name is Robert Kiggans. His job is head of the United States delegation for the world's Intelligent Manufacturing Systems (IMS) program.

The IMS is an industry-led, global, collaborative research and development program established to develop the next generation of manufacturing and processing technologies. The Japanese initially proposed the program in 1989 with a vision of global, industrial cooperation and technology sharing.

"The whole idea was created to leverage manufacturing research for the future, and there is a lot of things that we are looking at that one nation shouldn't be trying to do by itself," said Kiggans.

Nineteen years later, the IMS is composed of five member regions with the common goal of addressing worldwide issues, such as the need to adapt new skills and values in accordance with energy efficiency and sustainability, the need to enable greater standardization and sophistication in manufacturing operations, and the need to advance the manufacturing profession.

The five member regions of IMS are the United States, Japan, Korea, Switzerland and the European Union, which includes Norway.

Kiggans said because of the IMS, "manufacturing is no longer a national or regional concern. Consumers are demanding a free flow of products and services which requires a global scope."

Through careful consideration and deliberation, the five member regions have developed a new strategy comprised of five manufacturing technology platforms or MTPs. The platforms are sustainability, energy efficiency, key technologies, standards and education. The MTPs are meant to facilitate the exchange of information and generate new ideas and research goals.

Kiggans said "most everything the IMS does will help impact the cost to manufacturers, if we can come up with sustainable manufacturing solutions,

then manufacturers can find cheaper ways to recycle their products. If we can come up with ways for manufacturers to build things with less energy, then it will be cheaper."

Because South Carolina is Kiggans' home, the Palmetto State will benefit first from the implementation of the MTPs.

"Our job here is to ensure that the results from these projects get transferred into the manufacturing fiber in South Carolina," said Kiggans, who is also the COO and president, Federal Sector of the South Carolina Research Authority (SCRA).

Of the five MTPs, sustainability is the highest priority. Sustainable manufacturing is a platform for developing innovative manufacturing technologies which address worldwide resource shortages and environmental concerns. The underlying goal is to get more global companies to manufacture products that are easily recycled. Doing this would have a two-fold result. Manufactured products will have a better life-cycle perspective, and the cost of manufacturing products will be cheaper if they are recyclable.

"Manufacturers need to build products that can be recycled. If not, we're going to be standing on a pile of garbage in 30 years," said Kiggans.

Sustainability has a direct connection to the next MTP, energy efficiency. Energy efficiency is a platform for improving productivity and reducing carbon emissions during the manufacturing and operational process. The IMS believes energy efficient manufacturing can be a cost-effective strategy for better business and can help fight the onset of global warming.

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Both sustainability and energy efficiency will help manufactures learn ways



Robert G. Kiggans

to adapt to the go green trend that has swept the United States and the world. One way to better green-style manufacture is by creating global manufacturing standards.

Kiggans said "In today's environment, hardly anyone does all the manufacturing of a product. They have supply chains...like for automobile makers someone supplies the tires and someone else supplies the seats...so if you can have standards among yourself and your suppliers, then you can easily pass product data back and forth."

The United States Department of Commerce estimates that by using standards, specifically some of the ones the SCRA is working on, manufacturers can save more than \$900 million a year.

According to Kiggans, the reason formal IMS standards have not yet been established is because it's difficult for companies to agree on what the standards should be. Also, some businesses fear the implementation of standards will take away the competitive edge in the global market. The IMS believes otherwise.

"Manufacturers who implement standards have an opportunity to participate as suppliers to those bigger companies...People should know that international collaboration is a very good idea. It will clearly save money," said Kiggans.

From his mahogany decorated office, one mile away from the Charleston International Airport, Bob Kiggans says South Carolina is leading the way on standards. Kiggans firmly believes as the standards develop, and energy sufficiency and sustainability are implemented, that "it's a good idea to collaborate internationally and, we [the IMS delegates] as part of the South Carolina community will make sure that the results show up in the South Carolina business community right away."

From the Lowcountry to the Upstate, another Palmetto State businessman is part of the IMS delegation. Dr. Thomas Kurfess is helping lead the way on the remaining two MTPs, education and key technologies. Kurfess, who is the BMW chair of manufacturing and a Clemson University professor, is one of the main drivers of the education program on the IMS. ❖



Representatives from the different IMS regions. From left: Dr. Ezio Andreta, European Union; Dr. Claudio Boer, Switzerland; Bob Kiggans, USA; Dr. Ji Oh Song, Korea; Dan Nagy, USA; Dr. Byung-Wook Choi, Korea; Dr. Kwan Rim, Korea; Richard Sedden, Australia; Jack Purchase, Canada.

In the next edition of South Carolina Business, learn how Dr. Thomas Kurfess' efforts will eventually enable South Carolina students to attend universities worldwide and obtain a Master's Degree in manufacturing technology. Also, learn how key technologies will save businesses money in the future by using virtual programs in design and development.

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