

Globalization: Technology, Jobs and Trade

Globalization is mind-boggling; the more the subject is examined, the more its complexity and intricacies are revealed. This reminds me of F. Scott Fitzgerald's statement, "The test of a first-class mind is the ability to hold opposing views at the same time, and still retain the ability to function." Opposing views about globalization and how it relates to technology, jobs and trade are abundant, as reflected through manifold data, survey and debate. Punch lines with various spins include "exports equal jobs," "imports kill jobs," "imports are good for consumers," "offshore R&D is not good," "outsourcing is an integral part of a global trading system," and more. But one thing is clear: We are indeed facing a new world, characterized by changes, choices, flexibility and opportunities.

Our industry is being affected broadly and specifically by globalization. Outsourcing and offshoring particularly have become the center of debate. The intertwined relationship between technology, jobs and trade is of ultimate concern.

To produce more with less people and lower cost is every operation's goal. This goal stimulates profound changes in the shift of the job market in nature, geography and number on the global scale. For a given function, the productivity level has risen sharply, and fewer employees are required to perform an equivalent function than 10 years ago. J. Carson, All-

iance Capital Management LP estimates that between 1995 and 2003, 18 million jobs in the manufacturing sector were eliminated around the globe. China alone lost 13 million, largely due to its revamping of state-owned operations. Regardless of the real number, the net job loss is real. The desire for the government to form policies to minimize job loss is natural and spontaneous. Bob Davis' article, "Finding Lessons of Outsourcing in Four Historical Tales," published in the *Wall Street Journal* on March 29, 2004, is informative and revealing, including historical facts, causes and results.

Against the backdrop of this productivity and competitiveness-driven environment, outsourcing and offshoring have been evolving for many years. To some, the effects on jobs have become obvious only recently. With multiple potential benefits, outsourcing and offshoring will continue to grow. Taking advantage of outsourcing's benefits without losing fundamental knowledge is always a strategic decision.¹ With outsourcing and offshoring, development, protection and ownership of intellectual property certainly are ongoing issues. Nonetheless, the benefits of the ability to use global resources, including talent and workforce, outweigh the risks.

On the front of engineering and the pipeline of talent, undergraduate degrees in engineering granted annually in Japan, China, India and Russia are rounded up to 103,000, 195,000, 129,000 and 82,000, respectively, according to the U.S. Census Bureau. Yet the U.S. graduates about 60,900 engineering students per year, with less than 10 percent of U.S. college students pursuing science and engineering degrees. In comparison, more than 60 percent of college students in China are enrolled in a science and engineering curriculum. This is a stunning contrast. What are the revelations and ramifications to this technology-driven economy? Job loss is painful, and the pipeline of new engineers coming from colleges and universities is a legitimate concern. How to reconcile these two fronts?

The U.S. is the largest exporter as well as the largest consumer in the world. As foreign incomes grow and lower prices on U.S.-produced goods and services become more

prevalent, demand for U.S. exports expands. In this politically sensitive time, should free trade be hidden? History tells us that an open market and free trade are prerequisites for global competitiveness. The challenge to the private sector and to government policy-making is how to formulate a virtuous circle to feed the dynamic economy.

Going forward, "all-sourcing" (both outsourcing and in-sourcing), as well as "all-shoring" (off-shoring and on-shoring), will become plausible strategies. In the long run, innovation and competitiveness are key to a constantly rejuvenating economy. Only a strong economy creates and retains jobs. **SMT**

REFERENCE

¹ Jennie Hwang, "Outsourcing Manufacturing or Not, and to What Extent?" *SMT Magazine*, March 2003.

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