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Philip Shapira

// This year China is expected to produce nearly 100 million mobile phones and three million laptops, more than Korea and India combined. //

Philip Shapira,
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Another twist is a new cast of players. In the 1980s, competition came from high-skilled, high-wage countries like Japan and Germany. Today, emerging Asian countries are displaying surprising clout in technology. For example, India is winning recognition in software development, and South Korea is showing strength in electronics and computer storage and display technologies.

Yet China is sparking some of the greatest concern as it evolves from being merely a low-cost competitor to one

with growing technology capabilities. From 1989 to 2001, China's high-tech industry output — which includes aerospace, computers, communications equipment, pharmaceuticals and medical instruments — jumped eightfold from \$30 billion to \$257 billion. In comparison, the United States' output slightly more than doubled from \$423 billion to \$940 billion.

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R & D Outsourcing

U.S. companies taking R & D overseas.

BY T.J. BECKER

In the 1990s, corporate America began contracting information-technology services out to other countries. Now there's a new outsourcing trend as U.S. firms take their research and development (R&D) activities overseas.

“Innovation itself is being outsourced,” says John McIntyre, executive director of Georgia Tech's Center for International Business Education and Research. Instead of doing R&D in-house, a number of companies like Motorola and Dell are buying complete digital and electronic designs from Asian developers, he says.

Less about cost-saving, this trend reflects the increasing number of skilled researchers in other countries and the rise of technology clusters (geographic areas with a heavy concentration of R&D infrastructure, such as companies, talented workers, train-

ing facilities and distribution centers). “We're moving away from a world of command-and-control to collect-and-collaborate,” McIntyre says. “Firms are looking for talent and opportunity, regardless of where it is.”

Is this globalization of R&D a progressive strategy or are U.S. companies merely asking for trouble?

“R&D is viewed as the furnace of competitiveness,” McIntyre says. “So it may seem like we're giving away the crown jewels. Yet companies aren't outsourcing R&D to grow smaller. They're doing it to grow larger.”

The result should be more jobs everywhere, he says: “Granted, not all those jobs may be in the United States, but that doesn't mean it's a zero-sum game. Just because a job is created in Malaysia doesn't mean one is lost in the United States.”

McIntyre believes that R&D outsourcing is only a threat if the United States drops the ball on the high level of innovation. “Our challenge is to focus on next-generation products that are more knowledge-intensive and require more creativity,” he says.

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// If you had a choice 35 years ago...to be a B+ student in Los Angeles or a genius in Bangalore, India, you would choose to be a B+ student in Los Angeles. Your life choices and opportunities would be so much better. Today, you do not want to be a B+ student in Los Angeles, because that genius in Bangalore, in a flat world, can plug-and-play, compete and collaborate more directly with you or your kids than ever before. //

— Thomas Friedman,
New York Times columnist