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An Eye on India: Outsourcing Debate Continues

Laurianne McLaughlin

Anything you can do I can do better, and cheaper."

In this economy, that's a pitch that businesses don't ignore, Indian software-application-developer firms have learned.

US companies increasingly began outsourcing software development work to countries such as India, which touts low personnel costs and plentiful technical expertise, during the dot-com shakeout. Today, the trend shows no sign of stopping. It has changed the landscape for US software professionals, reshaping how companies plan projects and choose employees.

US software developers won't be going the way of the dinosaurs, analysts say. But they will need to cleverly manage their careers and thoroughly understand the new environment. At the same time, businesses are learning more about offshore outsourcing's challenges. And the debate about its merits grows.

Behind the numbers

Just how big a trend is afoot? Forrester Research reports that 27,121 computer and mathematical jobs moved off US shores in 2000. The company predicts that 108,991 of these jobs will leave the US by 2005, rising to 276,954 by 2010 and 472,632 by 2015. That's US$6,549,539,142 in computer-job-related wages moving outside the country by 2005, Forrester predicts.

"For people in the United States who do heads-down, baseline development, the demand is only going down over the next 10 years," says John McCarthy, Forrester's group director for research. "The skills in hot demand in the future are project management and program management."

Industry analysts estimate that hiring programmers outside the US in locales such as India saves about 30 percent in salary costs. That's one reason India's outsourcing leaders, Infosys Technologies and Wipro, based in Bangalore, and Tata Consultancy Services in Bombay, are flourishing. From April to December 2002, software and services exports from India generated revenues of $6.9 billion, up from $5.6 billion in the corresponding 2001 period, according to Indian trade group Nasscom (National Association of Software and Service Companies).

But does this mean most developer jobs are rapidly leaving the US? It's not that simple, claims Stephen Hendrick, group vice president for application development at market research firm International Data Corporation.

IDC estimates that 2.335 million people in the US had software developer jobs in 2000, and that figure dropped slightly to 2.317 million in 2001 before rising back up to 2.429 million in 2002. The firm projects 2.574 million such jobs in 2003.

In North America in 2002, one in every 133 people was a software developer, Hendrick says. "We're reaching a point of saturation. That's one reason (developer job) growth has capped in the United States."

"I'm not entirely convinced there will be a huge loss of jobs. My experience is there's still a lot of complexity in outsourcing," he adds.

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The quality question

No doubt, any outsourcing project can backfire if a business fails to thoroughly examine the pros and cons. What's the biggest pro? Quality—a concern for many industries considering offshore outsourcing—has become a selling point for the Indian software houses, says Jeffrey Tarter, a veteran software industry analyst and editor of the *Softletter* newsletter.

"What offshore forces a company to do is write a very detailed spec for a product," Tarter says. "That form of discipline is incredibly valuable. It forces people to consider every screen, the flow of the product, and which features are necessary. This turns out to be why the Indian firms have been successful."

Indeed, Forrester's clients report higher satisfaction with the quality and the timeliness of work from offshore firms than with US development teams. As for cultural barriers, the thorny problems relate to the US client's ability to manage the project, specify the work, and develop metrics that hold the software developers accountable, Forrester's McCarthy says.

Tarter believes in-house developer groups are used to working in an environment where it's acceptable to change features or delay solving bugs until quite late—a classic development problem. Outsourcers tend to make fewer false steps.

The detailed spec is the key to success. US teams can turn work around fast, given the same project framework, Tarter adds.

Recognizing a bad fit

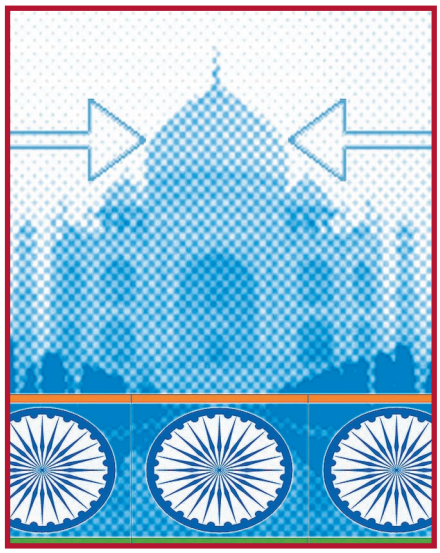
While quality and timeliness won't be huge concerns, plenty of potential problems remain. Software outsourcing works most simply for routine maintenance or upgrade work, and it creates the biggest savings on large projects, analysts claim. Owing to the required management time and costs, outsourcing proves impractical for many small projects.

A company with a fast-moving rival might also find outsourcing an unwise choice. "If you have a product that really has to evolve in response to competitive situations, the complete-spec approach may be overly rigid," Tarter says.

Even with internal corporate applications, a business must carefully consider whether requirements might change, say as a department changes its mission or as new technology standards arrive.

"If you keep rewriting the spec, you're going to increase costs and create delays," Tarter says.

The training necessary to work with particular technologies and with clients can also knock outsourcing out of the running, says Jim Welch, CEO of



MetroWerks, a software development tools and services firm. This Austin, Texas-based Motorola subsidiary with 600 employees worldwide has a team of about 30 developers in India. This lets the company find quality talent, even when the US hiring situation is competitive, and utilize people working in multiple time zones, Welch says. But outsourcing makes sense for his firm only in limited cases, he adds.

"Our product is very technical in nature," Welch says. "We need our developer centers to become experts in our technology. Sometimes when you outsource, you may not get the same people back next time."

Product design and strategy jobs, meanwhile, won't be leaving the US anytime soon, predicts Amy Wohl, president of consulting firm Wohl Associates, which advises technology companies on issues including outsourcing.

"Designing interfaces is a cultural issue," Wohl says. "Doing it offshore is tough."

In the long run, outsourcing of customer support positions might prove more important to US companies, Wohl believes. English speakers in locales from India to Ireland let US companies offer 24/7 support at manageable costs, she says. "Think about the number of people coding, compared to the number of people who support a product over its lifetime."

Cheaper software?

As for consumer reaction to outsourcing's promises, some might hope that increased efficiency could lead to lower software prices, but that looks unlikely. It's more a matter of companies maximizing profit margins and keeping up with competitors.

Remember, research and development costs run only about 15 to 20 percent of a software product's cost, Tarter says, while marketing and sales costs can gobble upwards of 50 percent for enterprise software.

However, the outsourcing trend could increase the variety of software titles available. A company will more likely put out a new version of a not-so-hot seller if the development cost is low.

For example, consider what has happened to the market for Macintosh versions of Windows applications in the past few years, owing partly to one company—Software MacKiev. It made a business out of low-cost Mac ports of Windows products.

With a US headquarters in Cupertino, California, the company employs highly trained programmers in Kiev, Ukraine. "They changed the economics of producing Mac versions dramatically," Tarter says. "It didn't take many sales to make up the development cost. Suddenly there were many more ports on the market."

MacKiev has become the industry leader among development houses doing Mac ports, with big-name clients such as IBM and Electronic Arts.

Will an Indian company similarly help shake up a particular software market? Perhaps. Today's software giants are certainly spending time and money to encourage Indian programmers to use their respective technologies.

Microsoft CEO Bill Gates visited Bangalore in November 2002 to pledge $400 million in investment in the next three years, supporting IT education and a "Partnering with India" program. It's designed to increase developer skills for Microsoft's .NET Web services architecture and to encourage Indian companies to develop and sell .NET products and services. Sun Microsystems similarly promotes its rival SunONE Web services architecture in India.

Job hunters feel a pinch

In the US, software professionals have become keenly aware of this attention on India.

"It's a soft market" for job hunters, says Joe Kumiszcza, executive director of MESDA, Maine's Software & Information Technology Industry Association. "The trend has been a down market for about 18 months here."

Although hiring budgets seem to be loosening now, group members do notice offshore outsourcing's effects, he says. In response, he encourages group members to network more extensively and to expand their skill sets—for example, by taking open source technology classes and learning more about their companies' business and marketing sides.

"While the core coding can happen offshore, America still has skill sets around marketing and project management that aren't duplicated overseas," Kumiszcza says. "Those are our ultimate strengths. Those people who are well rounded in that regard are well protected at times like this."

In the Austin area, long a hot spot for developers, the total number of developer jobs has fallen since 2000, but the future trend looks encouraging. The number of area software companies rose between 2000 and 2002, according to the Texas Workforce Commission.

Companies are trying to leverage the talents of Austin's software veterans, says Carolyn Stark, the executive director of the Austin Technology Council, an industry association for software companies and developers. But to win a developer job now, you must bring more to an interview than technology prowess, Stark cautions. "You can't afford these days to have employees who don't understand the business as a whole," she says.

You should be able to articulate the business hurdles you have helped previous employers leap, says Michael Cation, chairman of the Austin Technology Council Board of Directors and CEO of Austin-based Novus, a security technology firm.

"In my own company, we're trying to hire developers that understand they're trying to solve business problems," Cation says. "If you can distinguish yourself that way, there's a ton of opportunities."

"Offshore, you can't have the tight engagement with a customer necessary to solve a problem," he adds.

Outsourced and offshore teams also create a management opportunity for US technology veterans, claims MetroWerks' Welch. "We're looking for people with solid management skills who can manage geographically dispersed teams," he says.

Politics checks in

Of course, as in any discussion involving US jobs, politics can play a part, and sometimes cool down a trend.

For example, after a company hired by New Jersey for a state contract utilized call center employees in Bombay, state senator Shirley Turner introduced a bill in late 2002 to keep such contracts fulfilled by US employees if possible.

ISO Approves Cosmic-FFP Method

Joan Hong

The International Standards Organization recently approved the Cosmic-FFP (full function points) functional size measurement method as a software engineering standard (ISO/IEC 19761:2003). Organizations can apply Cosmic-FFP to business and MIS software and real-time software (such as that found in telecoms, process control, embedded, and operating systems), but not software characterized by complex mathematics. The Common Software Measurement International Consortium (Cosmic) developed this method in 1999, and it has been extensively used and is becoming more common, especially for real-time software.

Measuring software size is vital to estimating the effort, cost, and schedule of software projects accurately. Source lines of code was the first generally accepted size measure and is still widely used. However, it depends on the technology used to build the software, and you can only really know the software's size after it is developed.

Function point analysis, which IBM's Allan Abrecht developed in 1979, was the first technology-independent sizing method and the first method to quantify software size from the user's perspective. FPA evolved into the Ifpug method (supported by the International Function Point User Group based in the US). The ISO also approved Ifpug and two similar methods, MkII FPA and Nesma. But unlike Cosmic-FFP, these methods were designed mainly for MIS software. Cosmic-FFP's wide applicability makes it a landmark in software project performance measurement and estimating.

Cosmic consists of software experts from Europe, North America, Asia, and the Pacific. Because they developed this method in the last few years, it is compatible with modern specification methods such as UML and with OO techniques. BAE Systems of the UK, Nokia in Finland, and Japan's Nippon Telephone and Telegraph are some major companies using Cosmic-FFP.

Lawmakers in several other states have called for similar measures. In response, the Indian trade group Nasscom has hired a New York public relations firm to promote offshore outsourcing and to lobby against such legislation.

Laid-off technology workers don't share Nasscom's viewpoint on offshore outsourcing. Grassroots lobbying efforts have popped up online. One group, NYSIA (New York Software Industry Association), launched a "Buy NY" campaign to encourage companies to utilize technology workers, products, and services in the New York area before looking overseas. (For details, see www.nysia.org/buyny.)

The political impact is hard to predict. But besides the cost efficiencies of outsourcing, there's one related upside for the US economy, IDC's Hendrick says. The outsourcing market's growth has made India one of the few bright spots for US technology sales—including a PC sales opportunity that IDC estimates will grow to $4.2 billion by 2006.

Where does this leave US software workers today? Hopefully, not chained to their desks, says Jeff Tarter. "A lot of the direct interfacing with clients, product design, upgrade design jobs, will stay here," he predicts. "But the fact is, some programmers hate talking to customers. And the ones that are working in isolation are probably the first ones to get replaced."

Web Developers Continue to Focus on Interoperability

Terry Costlow

As the Internet becomes increasingly important for international business transactions and consumer interactions, there's a growing need to ensure that the various types of Web communications happen without compatibility issues. Standards groups and others are working in several areas to make sure that interoperability does not slow the continuing Internet boom.

The Web has always focused on interoperability because its goal was to link many different computing platforms. But companies are continually trying to do more over the Internet, so the job of finding ways to make these new functions occur easily is also growing. The emerging, loosely defined category of Web services—which includes such functions as business-to-business and application-to-application communications—is a big part of the challenge because it encompasses many different aspects of what can be a large applications program. Without solid standards and definitions, interoperability will not happen as quickly as many expect.

"There is a need for vendors to fully support open standards that encompass four levels within e-business and Web services," says Patrick Gannon, CEO of the Organization for the Advancement of Structured Information Standards (Oasis) in Billerica, Mass.

Those four levels include a common framework for Web services, including messaging and service description. Infrastructure standards for resource management, business processes, and security are in development. Organizations must also agree on common business vocabularies that use common XML schema naming and design rules. The fourth level addresses industry-specific business interactions, which other groups are also addressing.

These industry-specific transactions require using the jargon and meeting various industries' specific demands, making it easier for them to process both simple and complex interactions. "We work with usage scenarios and business-specific use cases, such as supply chain management," says John Kiger, a founding member of the Web Services Interoperability organization (WS-I) and the Web services marketing director at BEA Systems.

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WS-I, which attempts to clear up ambiguities that can hamper full interoperability, is currently in the final stages of editing some business cases for Web services. A number of definitions for Web services still exist, underscoring the need for a group to address the specifics of how programmers should communicate if they want their packages to be interoperable.

This isn't just a problem with a new field such as Web services. In almost all instances, standards have some vague elements that different people can interpret in different ways. It's also common that by the time a standard starts seeing widespread adoption, there's more than one version of it. A prime example is SOAP, the Simple Object Access Protocol standard that's now at version 1.2. Add these factors to the options often scattered throughout standards, and there's a definite need for some focused direction from outside the standards bodies.

"We work with the various standards bodies to provide guidance to users so they will have interoperability," Kiger says. WS-I is also developing profiles, which address broad mar-