The IT Labor Shortage, Which Never Really Existed, Is Finally Over, Right?

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During a small study of software product management conducted with our students at Stanford in 1995-96, we noticed a little blip from one year to the next in how long it took software publishers to replace software team members. After investigating the causes of our little blip, we predicted, early in 1997, a long-term, global shortage of software talent. We were immediately drawn into a bizarre and unpleasant politico-academic debate. Economists were involved!

For Washington policy makers, this is a frustrating situation. While they debate hot political issues like immigration quotas and training of technicians by religious institutions, the underlying global forces creating the situation continue to build momentum. As the worldwide picture changes, both the economists and the Washington policy makers are less and less relevant. Recent pronouncements of the demise of the tech sector and, therefore, the end of the labor shortage will be similarly irrelevant.

Here's our framework for understanding the phenomena we're seeing here and in other countries:

- There are many shortages in the IT labor market. Some, like Microsoft Certified Engineers or telephone line technicians, can be filled with skilled laborers with a year's training, and are not long-term problems.

- The critical shortage involves the members of software teams – the software developers. There are millions of programmers and software managers around the world. Although there is a range of aptitude, experience, skills and general intelligence among these people, there is also an element of native cognitive talent, e.g., the ability to understand and keep in one's mind a complicated, abstract, evolving software system so that when one changes it, one doesn't break it.

- This talent is in short supply, globally. It cannot be taught, not even by Microsoft. Like musical talent, you've either got it or you don't. (Everyone can learn to play an instrument, but few can make music.) As the software systems we build become more complex, more rapidly changing, more interoperating, and more important to our lives, people with high degrees of this talent are increasingly in demand. They are paid well, but their jobs often involve long hours, unrealistic deadlines, and some degree of isolation – these are solitary jobs and many talented young people are turned off by this career before they reach high school. There is also a high attrition rate among software developers as their careers develop.

- There is no technological breakthrough on the horizon that will make programming easier, so that less talented people can do the bulk of the work. In fact, prior improvements in software development technology have just "raised the bar" on what's expected from our software, made the tools more complicated and hard to learn, and increased the skill level required to contribute.

- Demand for talented software people is increasing. Every new idea of how to use computers to cut business costs, to build a better mousetrap (or cell phone), or to offer a new game title or on-line service requires programmers, including some good programmers. In fact, for an increasing number of software projects, if you don't have enough "A" programmers, it doesn't matter how many "B" programmers you hire – your project is going fail at some point: design, development, deployment or maintenance. Transportation system failures, medical device failures, and even company failures can be caused by inadequate software talent.

- The Y2K debacle, the dot-com collapse, even a general slowdown of the US economy, will only temporarily displace some of these talented workers. Increased demand for software in Europe, China and even India are already changing the market focus of many software companies. It would take a global recession (or power outage) to slow the ever-increasing demand for software talent.