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Emerging Markets

India's Role in the Globalization of IT

Tracing the exponential growth of the Indian IT industry.

INDIA'S INFORMATION TECHNOLOGY (IT) industry is a product of serendipity—it happened mainly by accident and partly by design. In the 1960s and 1970s, there was no separate IT industry in India. Multinational companies such as U.S.-based IBM and U.K.-based ICL were the largest providers of hardware, which was bundled with operating systems and few software packages that were generally written in FORTRAN and COBOL. Furthermore, Indian import duties on hardware were extremely high (almost 300%), and even IBM used to sell old, refurbished, and antiquated machines (because that is all most Indian companies could afford). Hence, large enterprises (including the Indian defense department and other public organizations) that needed customized applications usually employed in-house teams that did everything from installing systems to writing software.

The first software company in India was Tata Consulting Services (TCS), which began operations in 1968. Fortunately, after executing a few local or-

ders, TCS obtained its first big export assignment in 1973–1974, when it was asked to build an inventory control software solution for an electricity generation unit in Iran. During this period, TCS also developed a hospital information system in the U.K. in cooperation with Burroughs Corporation (at that time the second-largest hardware company in the world). Through its software exports and collaborations, TCS became a role model for other Indian IT companies later. Also, during the late 1970s, the Indian government lowered import duties on all IT equip-

ment. But there was a catch. Importers had to recover in exports twice the value of the foreign exchange they spent on importing computers. Partly as a result, by the early 1980s, India was the only developing nation to have any significant software exports with 30 companies that were beginning to export IT services. If we now look back at the 1970–1980 era, it is clear that the following four unrelated incidents contributed heavily in shaping the Indian IT industry:

- In late 1970s, the Indian government passed a controversial law (only repealed in 1992) that forced all multinational companies to reduce their equity share in their Indian subsidiaries to less than 50%. Since IBM did not want to comply, it decided to leave India. This opened the market for local IT competitors and made Indian companies generally less reliant on mainframe computers.

- The advent of personal computers in the 1980s reduced the cost of importing hardware substantially, thereby, spawning an industry that has more than 3,100 companies today.

Annual revenue and number of IT professionals employed by Indian IT services industry.

	2001-02	2003-04	2005-06	2007-08*	2009-10*	2011-12*	2013-14*	2015-16 *
IT Services								
Exports	4.5; 150	7.3; 220	13.2; 345	23.1; 510	36.7; 720	54.5; 975	76.9; 1,225	101.7; 1,490
Domestic	2.1; 160	2.7; 190	3.9; 250	7.9; 400	14.3; 615	24.0; 870	37.5; 1,155	54.0; 1,485
Engineering Services, R&D, Software Products								
Exports	1.6; 55	2.5; 75	3.9; 105	6.3; 145	10.0; 205	15.1; 280	21.0; 365	27.8; 430
Domestic	0.5; 40	0.8; 60	1.3; 85	2.2; 115	3.2; 135	5.1; 165	6.7; 200	9.6; 240
Total IT Industry (excluding Hardware and BPO sectors)	8.7; 405	13.3; 545	22.3; 785	39.5; 1,170	64.2; 1,675	98.7; 2,290	142.1; 2,945	193.1; 3,645

USD (Billion); Number of IT Professionals ('000) *Expected

► Realizing the Indian college system was unable to provide much IT training, three Indian entrepreneurs took it upon themselves in 1982 to provide IT tutorials and training classes. Their early days were often marked with one of them driving a motorcycle and the other riding behind with a PC in his lap so that they could impart this training in some rented school space (in evenings and on weekends). Today, their institute (NIIT) is a multinational company that has helped build a substantial base of IT skills in India.

► In 1985, Texas Instruments set up an office in Bangalore with a direct satellite link to the U.S. By 1989, the government had also commissioned a direct 64Kbps satellite link to the U.S.,

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which offered software exporters a new way to transfer data and services and set the foundation for offshore business models that could compete with the onsite “body shopping.”

In 1993, the U.S. Immigration and Naturalization Service made changes that made it difficult to get B-1 visas. Furthermore, the U. S. Department of Labor required that companies applying for new H-1 visas needed to certify that prevailing market wages were being paid to immigrant workers. Also, Indian software professionals who were brought under the umbrella of the Immigration Act, had to pay Social Security and related taxes to the U.S. government, creating an additional burden on the employees as well as their employers. These factors led a few IT companies in India to adopt a mixed model, which satellite links had already enabled, and in which some software programmers would work at the client’s premises (in the U.S.) whereas others would continue to work in their offices in India. Nevertheless, the move to this new business model was gradual because cost savings for the onsite model were still quite large, and there were clearly advantages of being in close proximity to the client. Even today, some IT companies continue to follow the old model and send 15%–25% of their programmers to the U.S. and other developed countries.

By 1998, the IT industry in the U.S. and other developed countries was consumed by the Y2K problem, and two industries—telecommunications and

the Internet (with its associated dot-com start-ups)—were booming. This resulted in U.S. companies hiring increased numbers of computer programmers, and since the Y2K problem was mainly related to legacy software written in old languages like COBOL, India was one of the few countries that could still provide a sufficient number of such programmers. Consequently, the U.S. government was forced to increase its H-1 quota from 65,000 in 1998 to 130,000 in 1999 and then to 195,000 soon thereafter, and many Indian IT professionals moved temporarily or permanently to the U.S. However, in spite of the large influx of IT professionals, the U.S. industry still could not fulfill its programming needs and started outsourcing large amounts of programming and maintenance work to India.

By early 2000, the Y2K problem had been solved, and both the telecommunications and dot-com booms had suffered downturns. In 2001, the U.S. went into a recession and the U.S. government reduced its H-1 quota back to 65,000. Far from harming India, though, these events showed that offshore outsourcing grows in both good times and bad times. Economic hardships forced U.S. companies to reduce costs. As a result, they transferred even more IT work to India, thereby fueling the growth of an industry that was already growing exponentially.

The table here lists the revenue earned and the number of professionals employed by the Indian IT services industry during alternate years spanning 2001–2002 and projects numbers

for future years up to 2015–2016. These figures do not include professionals who are getting trained by their employers and also do not include revenues or the number of professionals related to other business process services or hardware products. The revenue numbers given in the first four columns have been sourced from the National Association of Software and Services Companies (NASSCOM; www.nasscom.org); all other figures have been taken from Evalueserve (www.evalueserve.com), a global research and analytics firm.

Since India's GDP is expected to be \$1,100 billion in 2007–2008 and since this GDP is growing annually at an average of 8.5% in real terms and 14% in nominal terms, this GDP is likely to be \$2,400 billion in 2015–2016. Consequently, if the forecasts provided by Evalueserve regarding the Indian IT industry turn out to be true, then by 2015–2016, the number of professionals working in the IT industry would have grown tenfold (from 2001–2002 to 2015–2016), and, in nominal terms, the total revenue would have grown by 22 times, which would end up being approximately 8% of India's GDP.

To assess what may be ahead, consider the current and future status of three key elements of the Indian IT industry:

Export of IT Services: IT export services provided from India include custom application development, application management, information systems outsourcing, software and hardware development and support, training, education and helpdesks, IT consulting, systems integration, software testing, network consulting, and network integration. During the last 10 years, exports of these services have been growing at an annual rate of 32%. However, Evalueserve expects this growth rate to slow to approximately 19% in the next five to six years because of a lack of availability of enough talent, rising wages, and increased attrition. The U.S. and U.K. remain the largest export markets, accounting for approximately 61% and 18% of exports respectively in 2007–2008. However, IT exports have also been steadily increasing to other countries. In particular, IT exports to continental Europe have witnessed notable gains, growing at an annual rate of more than 55% during the period 2004–2007.

Domestic Use of IT Services: India

The U.S. and U.K. remain the largest export markets, accounting for approximately 61% and 18% of exports respectively in 2007–2008. However, IT exports have also been steadily increasing to other countries.

was a closed economy until 1991 and the Indian government owned many banks and companies that had little or no use for IT. However, in 1991, its government started opening up and most Indian companies had to compete with both domestic and multinational companies that wanted to sell in India. Consequently, many such companies—including domestic banks, airlines, railways, telecommunications companies, and other government-owned companies—have become or are in the process of becoming avid users of IT. Hence, the domestic IT services industry has been growing at an annual rate of 41% during the last two years and is expected to continue growing at 5%–6% per year more than export services for the next seven to eight years. This implies that by 2015–2016, the number of IT professionals employed in the domestic IT industry would be comparable to that employed in the IT exports industry. The domestic IT industry, which contributed only 0.8% to India's GDP in 2006–2007, is likely to contribute 2.7% by 2015–2016. At present, internal company departments provide more than 90% of all domestic IT services. That provides a large opportunity market for third-party vendors, particularly as liberalization and globalization mean the types of domestic IT services provided within India are

similar to those found in the industrialized world.

Import of IT Products and Services into India: In India, the number of mobile phones has been increasing at approximately nine million per month, and the total number is likely to exceed 340 million by the end of 2008, thereby making India the second-largest mobile phone market after China. Interestingly, IBM is already servicing approximately 50% of the mobile phone subscriber base in India after signing three 10-year contracts with Bharti Airtel in 2004, Idea Cellular in 2006, and Vodafone Essar in 2007. Most of these agreements require IBM to consolidate, transform, and manage comprehensive infrastructure and applications, as well as to jointly develop marketing IT and telecommunications solutions and services. Clearly, such a move frees up these clients to do aggressive marketing, sales, and business development. Although IBM may not have been the least-expensive provider, it probably won these contracts because it was able to bring its intellectual property, products, and services from other parts of the world where it has already helped other very large telecommunications companies. Since Indian financial services (such as banks and insurance companies) and transportation (especially airlines) are also expanding and globalizing at a phenomenal pace, these sectors are likely to follow suit.

Across all parts of Indian IT, then, we see the synergistic impact of globalization. Globalization helps Indian IT companies to grow, while Indian IT is becoming a digital foundation for many globalizing firms. As the Indian economy becomes more integrated into the global economy, there is another two-way effect—more opportunity for global IT firms to sell to Indian clients. And, of course, more opportunity for Indian IT firms to sell globally. ■

This is the first of the "Emerging Markets" columns. Subsequent columns will address the roles of other emerging countries in the globalization of IT, including China, several Eastern European countries, the Middle East, and Latin America.

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