



# India's IT Guy

As director of Tata Consultancy Services, F.C. Kohli, SM '50, launched the Indian IT outsourcing industry.

By Vijaysree Venkatraman

*Illustration by Lara Tomlin*

In 1969, F.C. Kohli had just computerized control of the power grid serving the city of Mumbai (then known as Bombay). It had been an impressive feat for him as general manager of Tata Electric, a sign he was well on his way to leading the company. But the Tata Group, India's largest family-owned conglomerate, had other plans for Kohli. He was asked to help get Tata Consultancy Services, its fledgling information technology services company, off the ground as its general manager.

The task ahead of him was daunting: he would have to computerize operations for any of Tata's 50-plus companies that were interested and then drum up business from outside clients, even though the domestic market was far from ripe for computerization.

At the time, there were only a handful of computers in all of India. The social-

ist government imposed severe restrictions—and steep tariffs—on the import of new mainframes, which were seen as pointless luxuries that threatened to displace human workers. No private company had even attempted such a purchase. Who would the new company write software for, using what? “TCS was up, but it wasn't running,” quips Kohli. It took up management consulting projects to stay afloat. But in 1974, when the director of TCS died, Kohli succeeded him and went on to shape it into a \$400 million venture over the next two decades.

In 2012, the Institute of Electrical and Electronics Engineers (IEEE) awarded Kohli the Founders Medal in recognition of his contributions to the development of the IT industry in India. In a video shown at the award ceremony, Ratan Tata, CEO of the Tata Group, called him the “father of Indian outsourcing.” When he started his career, India was unknown as a source

of software. Today, its IT industry employs close to 2.8 million people and is expected to have surpassed \$100 billion in revenue in 2012.



**B**orn and raised in Peshawar (in present-day Pakistan), Kohli, a physics graduate of Punjab University, wanted to join the Indian navy, but he also applied for a scholarship to study abroad. World War II had just ended, and because most seaworthy ships were still commandeered by the troops, his scholarship came through before his navy berth. So he went to Canada in 1946, earned a bachelor's in electrical engineering from Queen's University, and worked for a year at the Canadian General Electric Company. Next he headed to MIT, where he got a master's in electrical engineering, and then he trained briefly as a power engineer in the United States.

In 1951, he returned to the newly independent India to join Tata Electric and participate in the process of nation-building. With P.K. Kelkar, head of the electrical-engineering department at Victoria Jubilee Technical Institute, he established a master's program in control engineering—the first of its kind in India. “But he is no academic and I mean this in the nicest sense possible,” says Arvind, an MIT professor of electrical engineering and computer science who goes by only his first name. “His strong point is that he really understands the connection between academia and industry.”

In 1959, Kelkar became the founding director of the Indian Institute of Technology, Kanpur, and he encouraged Kohli to join the faculty recruitment committee. Four years later, a nine-member U.S. university consortium informally led by MIT arranged for the institute to receive an IBM 1620 computer. Prominent figures in U.S. computing arrived to give a select group of students a crash course. “This was Mr. Kohli's practical introduction to computers as well,” says Ross Bassett, a historian of technology at North Carolina State University. The students stayed up long into the night, programming enthusiastically.

Kohli got caught up in the excitement. After experimenting on a large computer at the Tata Institute of Fundamental Research, the conglomerate's academic arm, he wanted a dedicated mainframe to control Mumbai's power grid. The pioneering purchase had to be cleared as a research project (a fact that rankles him still). In going digital in 1968, he was ahead of all but a handful of U.S. utilities.

At TCS, Kohli cultivated a ready source of resourceful programmers: computer science graduates from IIT Kanpur. TCS's first mainframe, a never-used ICL 1903, came from a government-owned

insurance company that happily offloaded the machine for a fraction of its original price after a labor union blocked installation of the “job-eating monster.” Using this and two leased IBM machines, his programmers set about computerizing in-house operations, interbranch reconciliation for a large nationalized bank, and Mumbai's telephone directory.

In 1973, Kohli became the first Indian to be elected to the board of directors of IEEE. Congratulatory mail poured in, including a letter from MIT professor Karl Wildes. Kohli had been the only one to earn the top grade in his class, his old teacher recalled. “MIT was the place where I learned to keep on learning,” says Kohli.

At the helm of TCS in 1974, he used his IEEE connections to build professional contacts in the United States. That year, TCS got a contract from Burroughs, the Detroit-based computer manufacturer. The company wanted a health-care software package to sell along with its new line of computers. “But we didn't have a

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Burroughs machine in India,” says Kohli. So his team coded on the available ICL and wrote a filter program that would do the conversion for the Burroughs computer. Impressed, Burroughs quickly found more projects for TCS and became its first major steady overseas client.

To deliver quality work, TCS needed a new Burroughs mainframe. The government consented to the import, but Kohli had to commit to exporting twice the value of the machine over a five-year period. The machine cost \$340,000. With tariffs, TCS ended up paying over twice that. Still, TCS came through on

the export revenue promise. Its success led the Indian government to rethink its position on computers; other Indian companies entered the fray, and the Indian IT consulting boom was under way.

Kohli says it is time for the government to encourage domestic software development—especially software that can “speak” Indian languages. “Only then can we develop India-unique application systems to improve efficiencies within the country,” he says. “Then the computer can become a real instrument for national growth.”

Since retiring in 2000, Kohli has been working in an honorary capacity with the Tata Group to find ways of using computers as tools for India's development. A voracious reader who devours thrillers and statistical reports alike, he was appalled by estimates in 2000 that India had close to 150 million illiterate adults, spread across 500,000 villages. With a linguist's help, he determined that adults would need to recognize 500 words, on average, to start reading the newspaper. His programmers

then created software that uses images to teach adults complete words before teaching them the alphabet. In a 10-week pilot program, 25 adults in Beeramguda, a village near Hyderabad, began to read newspapers in their native tongue, Telugu.

This experiment, on hand-me-down computers, was repeated in different regions and languages. By 2009, the software had helped more than 120,000 people become functionally literate. Today, the Indian government is using that software as a large-scale intervention to help eradicate adult illiteracy.

Kohli, who turns 89 in February, continues to take on some of the vexing problems that his country faces. IT happens to be part of the solution in many cases, he says. “And besides,” he adds, laughing impishly, “what else would I do with my time?” ■