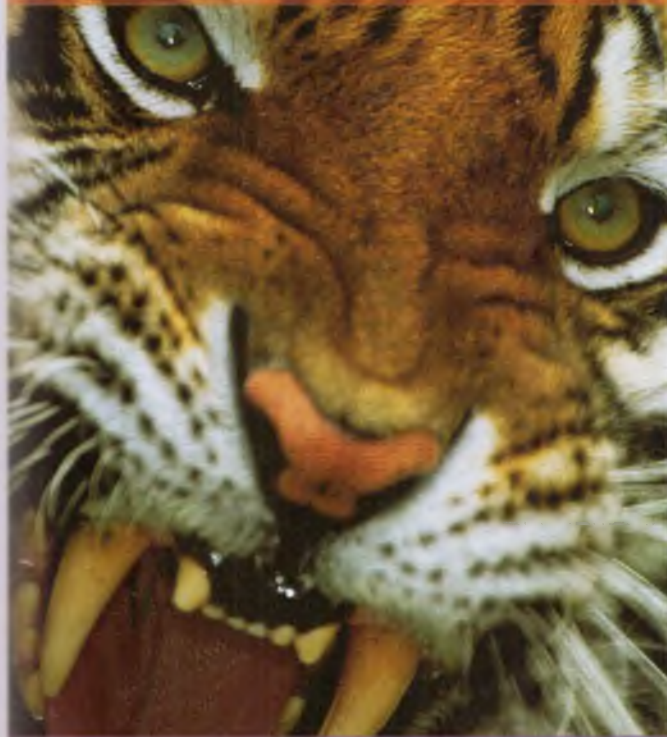# THE Indian Machine

Computers threatened our jobs, but ultimately made us stronger. So will outsourcing.

by Chris Anderson

WORRIED about India's practically infinite pool of smart, educated, English-speaking people eager to work for the equivalent of your latte budget? Get used to it. Today's Indian call centers, programming shops, and help desks are just the beginning. Tomorrow it will be financial analysis, research, design, graphics – potentially any job that does not require physical proximity. The American cubicle farm is the new textile mill, just another sunset industry.

The emergence of India is the inevitable result of the migration of work from atoms to bits: bits can easily reach people and places that atoms cannot. India's geography is no longer a barrier to development: cheap optical fiber and satellite links have liberated an army of knowledge workers. Never before have we seen such a powerful labor force rise so quickly.

There is some solace in history. Agricultural jobs turned into even more manufacturing jobs, which decades later turned into even more service jobs. The cycle of work turns and turns again. Neat. Of course, there's another part of the cycle: anxiety. It used to be that factory workers worried, but office jobs were safe. Now, it's not clear where the safety zone lies. It's not a matter of blue collar versus white collar; the collar to wear is Nehru.

For US workers, the path beyond services seems uncertain. But again, history provides a guide. Thirty years ago, another form of outsourcing hit the US service sector: the computer. That led to a swarm of soulless processing machines, promoted by management consultants and embraced by profit-obsessed executives gobbling jobs in a push for efficiency. If today's cry of the displaced is 'They sent my job to India!' yesterday's was 'I was replaced by a computer!' Then, as now, the potential for disruption seemed infinite. Data crunching was just the start. Soon electronic brains would replace most of the accounting department, the typing pool, and the switchboard. After that, the thinking went, the modern corporation would apply the same technology to middle management, business analysis, and, ultimately, decision-making.

Computers have, of course, reshaped the workplace. But they have also proved remarkably effective at creating jobs. Bookkeepers of old, adding columns in ledgers, are today's financial analysts, wielding Excel and PowerPoint in boardroom strategy sessions. Secretaries have morphed into executive assistants, more aides-de-camp than stenographers. Typesetters have become designers. True, in many cases different people filled the new jobs, leaving millions painfully displaced, but over time the net effect was positive – for workers and employers alike.

At the same time, we learned the limits of computers – especially their inability to replace us – and our fear of a silicon invasion diminished. The growing détente was reflected in 40 years of Hollywood films. *Desk Set*, from 1957, was about a research department head who keeps her job only after a battle of wits with a computer (the machine blows up). By 1988, the computer had moved from threat to weapon: In *Working Girl*, Melanie Griffith has both a stock market terminal and a PC on her desk and uses her skills and knowledge to move from secretary to private office. By the time Mike Judge made *Office Space* in 1999, the PC had faded into just another bit of cubicle furniture.

We are now in the Desk Set period with India. The outsourcing wave looks awesome and unstoppable. Like the mystical glass house of the 1970s data processing center, India's outsourcing industry thrums with potential and power, as if it were itself a machine. Today, the outsourcing phenomenon is still mostly in the batch-processing stage: send instruction electronically, receive results the same way the next morning. But the speed at which the Indian tech industry is learning new skills is breathtaking. Some US firms now outsource their PowerPoint presentations to India, a blow to the pride of managers everywhere. From this perspective, India looks like an artificial intelligence, the superbrain that never arrived in silico. No wonder workers tremble.

But the Melanie Griffith phase is coming, as is the Mike Judge. It's not hard to see how outsourcing to India could lead to the next great era in American enterprise. Today, even innovative firms spend too much money maintaining products: fixing bugs and rolling out nearly identical 2.0 versions. Less than 30% of R&D spending at mature software firms goes to true innovation, according to the consulting firm Tech Strategy Partners. Send the maintenance to India and, even after costs, 20% of the budget is freed up to come up with the next breakthrough app. The result: more workers focused on real innovation. What comes after services? Creativity.