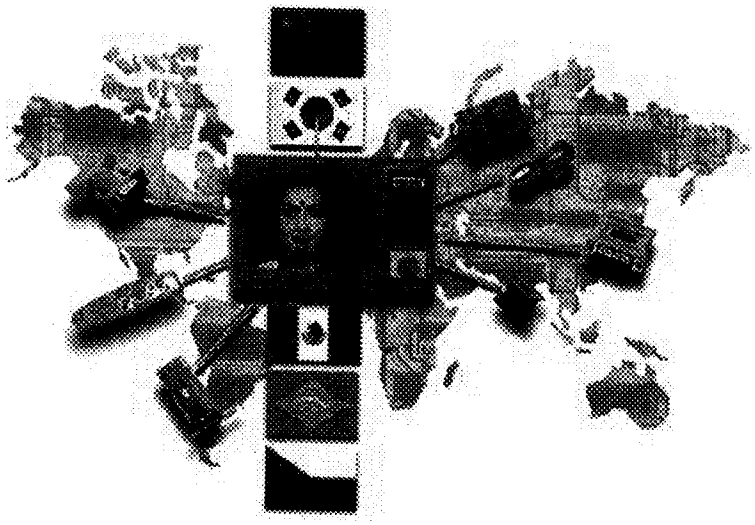
Economist.com PRINT EDITION SURVEY

A world of work

Nov 11th 2004
From The Economist print edition



The global deployment of work has its critics, but it holds huge opportunities for rich and poor countries alike, says Ben Edwards

ON A technology campus off the bustle of the Hosur Road in Electronics City, Bangalore, engineers are fiddling with the innards of a 65-inch television, destined for American shops in 2006. The boffins in the white lab coats work for Wipro, an Indian technology company. Wipro has a research-and-development contract with a firm called Brillian, an American company based half a world away in Tempe, Arizona. Brillian's expertise is in display technology. Wipro's job is to put together the bits that will turn Brillian's technology into a top-end TV.

Wipro is sourcing the television's bits and pieces from companies in America, Japan, Taiwan and South Korea. After design and testing, assembly will pass to a specialist contract manufacturer, such as Flextronics or Solectron. The buyer of the finished television might use a credit card administered from Kuala Lumpur, Malaysia. After-sales service might be provided by a polite young Indian call-centre agent, trained in stress management and taught how to aspirate her Ps the American way.

A few years ago, the combination of technology and management know-how that makes this global network of relationships possible would have been celebrated as a wonder of the new economy. Today, the reaction tends to be less exuberant. The same forces of globalisation that pushed Flextronics into China and its share price into the stratosphere in the 1990s are now blamed for the relentless export of manufacturing jobs from rich to poorer countries. Brillian's use of Indian engineers is no longer seen as a sign of the admirable flexibility of a

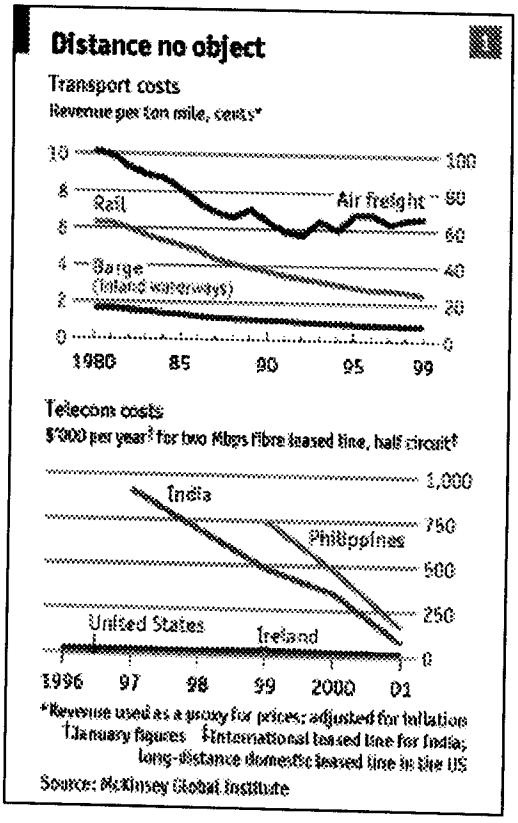
fast-growing tech firm, but as a depressing commentary on the West's declining competitiveness in engineering skills. The fibre-optic cable running between America and India that used to be hailed as futuristic transport for the digital economy is now seen as a giant pipe down which jobs are disappearing as fast as America's greedy and unpatriotic bosses can shovel them.

These anxieties have crystallised into a perceived threat called "outsourcing", a shorthand for the process by which good jobs in America, Britain or Germany become much lower-paying jobs in India, China or Mexico. Politicians decry outsourcing and the bosses they blame forperpetrating it. The same media that greeted the rise of the new economy in the 1990s now mourn the jobs that supposedly migrate from rich countries to less developed ones.

Forrester, an American research firm, has estimated these future casualties down to the last poor soul. By 2015, America is expected to have lost 74,642 legal jobs to poorer countries, and Europe will have 118,712 fewer computer professionals. As Amar Bhide of Columbia University comments drily, "Graphs from a few years ago that used to predict explosive growth in e-commerce have apparently been re-labelled to show hyperbolic increases in the migration of professional jobs."

Amid all this clamour, some of the vocabulary has become mixed up. Properly speaking, outsourcing means that companies hand work they used to perform in-house to outside firms. For example, Brillian is outsourcing the manufacture of its televisions to Flextronics or Solectron. Where that work should be done involves a separate decision. Flextronics might assemble bits of its televisions in Asia but put together the final products close to its customers in America. If it does, it will have moved part of its manufacturing "offshore". Not all offshore production is outsourced, however: Brillian might one day open its own "captive" research-and-development facility in Bangalore, for instance.

What agitates worriers in the West is the movement of work abroad, regardless of whether it is then outsourced or performed in-house. But the reality is more complicated than they acknowledge.



A well-established model

The age of mass mechanisation began with the rise of large, integrated assembly lines, such as the one Henry Ford built in 1913 at Dearborn, Michigan, to make the Model T. Over the course of the 20th century, companies reorganised industrial production into ever more intricate layers of designers, subcontractors, assemblers and logistics specialists, but by and large companies have mostly continued to manufacture close to where their goods are consumed. They have then grown internationally by producing overseas, for new customers, the same goods they produce and sell to their customers at home: 87% of foreign direct investment is made in search of local markets, according to McKinsey, a consultancy. Products and brands have become global, but production has not.

Conversely, white-collar work continues to be produced in the same way that Ford produced the Model T: at

home and in-house. Bruce Harreld, the head of strategy at IBM, reckons that the world's companies between them spend about $19 trillion each year on sales, general and administrative expenses. Only $1.4 trillion-worth of this, says Mr Harreld, has been outsourced to other firms.

Brillian obtains both the goods and the services it needs to put together its televisions from outsiders all over the world, which means each bit of work goes to whatever company or country is best suited to it. This opens up huge opportunities. Diana Farrell, the head of McKinsey's Global Institute, thinks that by reorganising production intelligently, a multinational firm can hope to lower its costs by as much as 50-70%.

Such reorganisation takes two main forms. First, thanks to the spread of the internet, along with cheap and abundant telecommunications bandwidth, businesses are able to hand over more white-collar work to specialist outside suppliers, in the same way as manufacturers are doing already. A growing number of specialists offer, say, corporate human-resources services, credit-card processing, debt collection or information-technology work.

Second, as transport costs fall, globalisation is beginning to separate the geography of production and consumption, with firms producing goods and services in one country and shipping them to their customers in another. Over the past ten years, countries such as Mexico, Brazil, the Czech Republic and, most notably, China have emerged as important manufacturing hubs for televisions, cars, computers and other goods which are then consumed in America, Japan and Europe. Such offshore production is central to the strategies of some of the world's most powerful businesses, including Wal-Mart and Dell.

Over the next ten years, Russia, China and particularly India will emerge as important hubs for producing services such as software engineering, insurance underwriting and market research. These services will be consumed at the other end of a fibre-optic cable in America, Japan and Europe. Just as Dell and Wal-Mart are obtaining manufactured goods from low-cost countries, companies such as Wipro, TCS and Infosys, for instance, are already providing IT services from low-cost India.

As businesses take advantage of declining shipping costs, abundant and cheap telecommunications bandwidth and the open standards of the internet, the reorganisation of work in each of these areas is likely to advance rapidly. IBM's figures suggest that companies have so far outsourced less than 8% of their administrative office work. Privately, some big companies say that they could outsource half or more of all the work they currently do in-house.

Rich-country manufacturers have already invested hundreds of billions of dollars in building factories in China to make clothes, toys, computers and consumer goods. In the next few years, they may invest hundreds of billions more to shift the production of cars, chemicals, plastics, medical equipment and industrial goods. Yet the globalisation of white-collar work has only just begun.

A forthcoming study by McKinsey looks at possible shifts in global employment patterns in various service industries, including software engineering, banking and IT services. Between them, these three industries employ more than 20m workers worldwide. The supply of IT services is the most global. Already, 16% of all the work done by the world's IT-services industry is carried out remotely, away from where these services are consumed, says McKinsey. In the software industry the proportion is 6%. The supply of banking services is the least global, with less than 1% delivered remotely.

McKinsey reckons that in each of these industries, perhaps as much as half of the work could

be moved abroad. But even a much smaller volume would represent a huge shift in the way that work in these industries is organised. There may be just as much potential in insurance, market research, legal services and other industries.

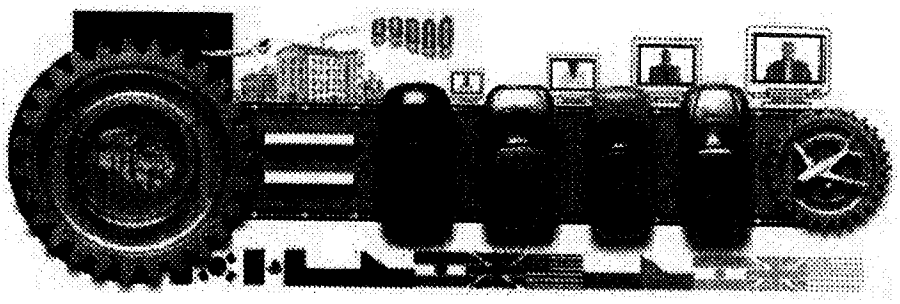
Outsourcing inspires more fear about jobs than hope about growth. But the agents of change are the same as those that brought about the 1990s boom. New-economy communications and computer technologies are combining with globalisation to bring down costs, lift profits and boost growth. This survey will try to restore some of the hope.

Buttonwood | Economist.com's weekly column covering the financial markets

Economist.com PRINT EDITION SURVEY

Men and machines

Nov 11th 2004
From The Economist print edition



Technology and economics have already revolutionised manufacturing. White-collar work will be next

THE industrial complex that Henry Ford built on the banks of the Rouge River in Dearborn, Michigan, was a wonder of the new age of mass production. Into one end of the plant went iron ore, coal, sand and rubber, brought in by railway and on Great Lakes steamships. Out of the other end rolled Model T Fords. By 1927, there had been 15m of them. At that stage, Dearborn was handling every step of the car's production, from rolling steel to making springs, axles and car bodies, and casting engine blocks and cylinder heads. The plant even had its own glass factory.

Ford built the Dearborn plant around the labour-saving properties of machines. Automation lowers production costs, which bolsters profits. Companies spend these profits on improving what they sell, and on building more labour-saving machines. As technology advances, these improvements make products more complex. To the basic design, modern car makers add heated seats, air conditioning, guidance and entertainment systems, computer chips that regulate engine performance, and many other gadgets to please their customers. It took 700 parts to make the Model T. Modern cars pack many more into their radios alone.

As industries advance, manufacturers manage the growing complexity of their products by outsourcing: they share the work of making them with others. This enables each company in the production chain to specialise in part of the complicated task. The car industry, for instance, relies on parts companies that make nothing but electrical systems, brakes or transmissions. These parts companies, in turn, depend on the work of other suppliers to make individual components. At each level of production, outsourcing divides up growing complexity into more manageable pieces.

In the office, the tool used to mechanise work is the computer. Computers automate paperwork and hence the flow of information. Companies that sell information products, such as banks and insurance firms, employ computers to automate production. And all companies use computers to automate the administrative work needed to maintain their organisations:

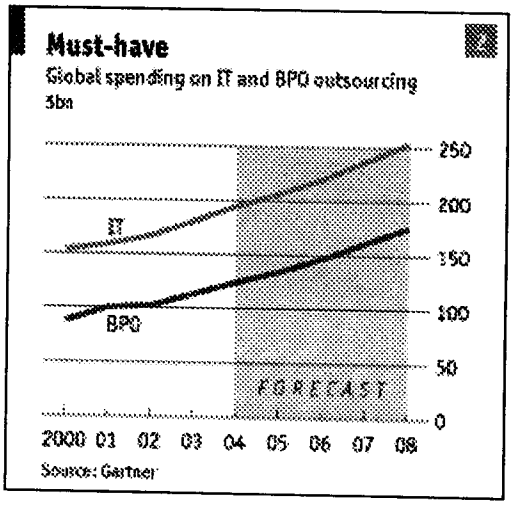
keeping their books in good order, complying with rules and regulations, recruiting, training and looking after their employees, managing offices, dealing with company travel and so on.

Bells and whistles

Like assembly-line machinery, computers save labour, bring down costs and raise profits. Banks and insurance companies have used some of these profits to add bells and whistles to their products, making them more complex. Banks that used to provide basic mortgages now sell fixed loans and floaters, caps, collars, locks and other financial exotica to befuddled home-buyers. Credit-card companies offer loyalty programmes, membership rewards and cash-back deals. Insurance firms tailor car and life insurance to fit their customers' appetite for risk.

Corporate administrative work has also become more complicated. The demands of securities regulators and investors for financial information have expanded with the capacity of firms to supply it. IBM's annual report for 1964 contains a scant half-dozen pages of financial information; its most recent one includes 40 pages of financial statements and accounting notes. The more services that corporate HR departments provide to employees, the more employees expect. Ever-more prescriptive accounting and audit rules proliferate as fast as accounting departments can automate the work of complying with them.

The spread of computers through companies has added a third layer of complexity: the task of managing the information systems themselves. The work of company IT departments is particularly complicated at older and larger firms that have bought different sorts of computer systems at different times. The core processing systems of insurance companies, airlines and banks, for instance, are built on a mainframe-computer technology that celebrated its 40th anniversary this year. Companies have added extra systems as they have sold new products, grown abroad or acquired competitors. Most IT departments at most large companies spend most of their time simply fighting to keep this tangle of systems going.



In all three areas of white-collar work, companies are struggling to manage growing complexity. The chief reason for the recent recession in corporate IT spending is that the IT industry's customers are no longer able to absorb new technologies, thinks IBM's Mr Harreld. Entangled in new products and the computer systems that support them, banks cannot even do something as basic as ensuring that customers who asked one department not to send junk mail do not receive it from another. "If a bank was making cars, every tenth car would come out without a steering wheel," says Myles Wright of Booz Allen Hamilton, a consultancy.

Just as in manufacturing, the solution to the growing complexity of white-collar work is to do less of it in-house. Some companies have outsourced the work of their IT departments, from managing the physical hardware to maintaining and developing business software and managing corporate computer networks. Up to half the world's biggest companies have outsourced some IT work, reckons IBM.

As well as outsourcing their business systems, some companies are doing the same with the workers who operate them. This is called business-process outsourcing (BPO). First Data

Corporation (FDC), for instance, will handle some or all of the administrative work involved in running a credit-card business, from dealing with applications to authorising credit limits, processing transactions, issuing cards and providing customer service. Few bank customers will have heard of the company, yet FDC employs nearly 30,000 people, who administer 417m credit-card accounts for 1,400 card issuers.

Likewise, companies are outsourcing chunks of administrative work and their supporting systems. Accounting departments are farming out tasks such as processing invoices and collecting payments from debtors. HR departments have shed payroll work. ADP, a payroll-outsourcing company, pays one in six private-sector workers in America. Increasingly, big companies are handing over entire HR departments and the systems that support them to outside specialists such as Hewitt, Accenture and Convergys, says Duncan Harwood of PricewaterhouseCoopers.

One way for manufacturers to manage growing complexity is to adopt common standards. Carmakers, for instance, have reworked their manufacturing processes so they can assemble different car models from the same production "platform", with several cars sharing a number of parts. This allows parts companies to specialise more and produce fewer parts in larger numbers.

Eventually the organisation of car manufacturing may begin to resemble production in the consumer-electronics industry, where the adoption of industry-wide standards (along with de facto standards, such as the Intel microprocessor) has enabled suppliers to become highly specialised. Companies such as Flextronics and Selectron now offer outsourced manufacturing platforms for whole categories of consumer electronics. All the branded makers have to do is handle the logistics, badge the goods and send them off to the shops.

A similar platform-production system is emerging in white-collar work. A few popular business-software packages sold by companies such as SAP, a German software firm, and PeopleSoft, an American one, are now offering standard ways of organising and delivering administrative office work. When companies outsource HR departments, specialists such as Hewitt and Accenture add them to their HR-services production platform. Convergys, for instance, claims to be the world's largest operator of SAP's HR software. FDC, for its part, has built a production platform that offers credit-card services.

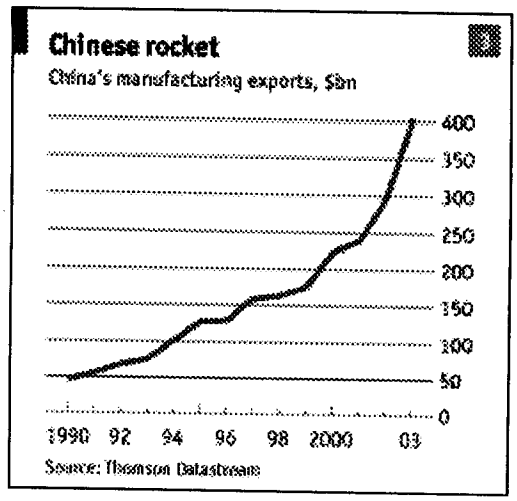
Thanks to the internet's open standards, extreme specialisation is now emerging in outsourced business services, just as it did earlier in consumer electronics. Next door to a Safeway supermarket on the Edgware Road in London, a group of British accountants and tax experts has built a business service called GlobalExpense that handles employees' expenses over the internet. Employees of its customer companies log on to the GlobalExpense website, record their expenses on standard forms and put their receipts in the mail. GlobalExpense checks the receipts, pays the expenses and throws in a few extras such as related tax work and information on whom the company's employees are wining and dining.

This year GlobalExpense will pay out £60m-worth of employee expenses, which probably makes it the biggest expense-payer in Britain. With a large, flexible pool of foreign students in London to draw on, the company says it can handle expense claims and receipts from anywhere in the world.

And so to Bangalore

In the late 1980s and early 1990s, as transport and communications costs fell and logistics technology

improved, rich-country manufacturers began moving production to cheaper nearby countries. American carmakers and consumer-electronics firms started manufacturing in Mexico; European makers went to the Czech Republic, Slovakia and Poland; and Japanese, Taiwanese and Korean firms moved to China. By the late 1990s, European manufacturers such as Philips, Siemens and Nokia, and American ones such as GE and Motorola, were moving further afield, to China. American imports from China rose from $66 billion in 1997 to $163 billion last year. By one estimate, foreign companies opened 60,000 factories in China between 2000 and 2003. The country's exports rocketed (see chart 3).



In the same way, with the cost of telecommunications bandwidth falling, some firms in rich countries, mostly in America and Britain, began moving some of their business services abroad, so far mostly to India. IT-service companies such as IBM, EDS and Accenture have hired thousands of Indian software engineers to carry out work previously done near their customers in rich countries. An Indian GE subsidiary called GECIS handles administrative processing work for the firm's financial businesses. NASSCOM, the Indian IT-industry lobby, has high hopes for these young export industries. By 2008, it thinks, they will employ over 4m Indians, generating up to $80 billion-worth of sales.

Firms may choose to outsource work when they move it abroad, and they may not. But actually moving particular operations abroad is more akin to introducing labour-saving machinery than to outsourcing in the sense of improving the management of complexity. It brings down the cost of production, mostly by making use of cheaper employees.

Sometimes companies even change their technology when they move abroad, making their production less automated so they capture more benefits from lower labour costs. For example, some big carmakers are reconfiguring their production to use more manual work in their Chinese factories than they do elsewhere, says Hal Sirkin of the Boston Consulting Group. Wipro Spectramind, an Indian firm, recently moved work for an American company to India. This work involved 100 people, each of whom cost the firm $6,000 in software-licence fees. The American company had been trying to write software to automate some of this work and reduce its licence-fee payments. Wipro scrapped the software project, hired 110 Indians and still did the work more cheaply.

Once work has moved abroad, however, it joins the same cycle of automation and innovation that pushes technology forward everywhere. Optical-character-recognition software is automating the work of Indian data-entry workers. Electronic airline tickets are eliminating some of the ticket-reconciliation work airlines carry out in India. Eventually, natural-language speech recognition is likely to automate some of the call-centre work that is currently going to India, says Steve Rolls, the heir apparent at Convergys, the world's largest call-centre operator.

All this helps to promote outsourcing and the building of production platforms in India. GE is selling GECIS, its Indian financial-services administrator, and Citibank, Deutsche Bank and others have disposed of some of their Indian IT operations. Thanks to the growth of these newly independent firms, along with the rapid development of domestic Indian competitors, such as Wipro and Infosys, companies will increasingly be able to outsource work when they move it.

Dashing white collars

Manufacturing has already gone a long way down the road of outsourcing and globalisation, but there are now fears that white-collar work will be reorganised much more quickly and disruptively, thanks to the spread of the internet, plummeting telecommunications costs and the realisation that the machines used by millions of expensive white-collar workers in the West could be plugged in anywhere.

Manufacturers' shipping costs have declined more slowly than the telecommunications costs of providers of remote services. The logistics of shipping goods over long distances remain complicated and inexact. For example, the V6 car engines that Toyota sends from Nagoya in Japan to Chicago take anywhere between 25 and 37 days to arrive, forcing the car company to hold costly stocks. The movement of white-collar work, on the other hand, is subject to no physical constraints. Communications are instant and their cost is declining rapidly towards becoming free.

Yet powerful barriers to moving white-collar work remain. When work moves out of a company, the firm negotiates a commercial agreement to buy it from a supplier. For manufacturers, this is straightforward: they take delivery, inspect the goods and pay their suppliers. Supplying a service, by contrast, is a continuous process. The outsourcing industry has evolved legal contracts in which suppliers bind themselves to deliver promised levels of service. There has been much legal innovation around these contracts, not all of which has been satisfactory (see article). The upshot is that it still takes trust and cross-cultural understanding to achieve a good working relationship. Moving a company's IT department to India is likely to put such understanding to the test.

The other big barrier is that, despite the spread of business machines, white-collar work still tends to be much less structured and rule-bound than work done on the shop floor. Unstructured work is hard to perform over long distances: without guidance, workers are apt to lose their way. The most likely outcome is that would-be outsourcers will proceed in two steps. First they will hand IT services, administrative tasks and other white-collar work to trusted specialist suppliers close to home. But once those suppliers have added structure, rules and standards, the outsourcers will move the work abroad.

Economist.com PRINT EDITION SURVEY

A desperate embrace

Nov 11th 2004
From The Economist print edition

Companies do not always outsource for the best of reasons

IN 2001 and 2002, KPN, a Dutch telecoms carrier, signed several long-term deals to outsource 80% of the work done by its IT department to Atos Origin, a European provider of IT services. Three years later, both parties are still putting a lot of effort into reworking these contracts. It shows that not all decisions to outsource are straightforward and problem-free.

In 2001, KPN, like most telecoms firms, was in desperate trouble: having run up huge debts as it expanded during the telecoms bubble, it was close to bankruptcy. Atos Origin said it could help, and not just with the IT. In return for a guarantee from KPN to buy about *euro*300m-worth of IT from it every year for the next six years, Atos Origin paid KPN *euro*206m up front for the IT assets that the telecoms firm had handed over.

But as the spread of mobile phones and digital fixed-line technology ate into KPN's sales, the firm had to make drastic cuts. Within two years its headcount had shrunk from 28,000 to 18,000. It was now less than two-thirds its size when it signed its IT deal, yet it was still bound by contract to buy the same *euro*300m-worth of IT services a year.

Both parties admit that relations over the past year have not been easy. Neither party, however, can easily walk away. The solution they are groping towards is that in the next two years Atos Origin will work to transform KPN's IT systems. KPN's fixed-line division, for instance, runs 779 different applications, which the company itself thinks it can shrink to 80. That should keep its IT purchases up for a while, and so avoid any immediate damage to Atos Origin's revenues. After that, hopes Atos Origin, it will have earned the right to more transformation work from its customer, thus maintaining the value of its original contract.

Whether such "transformational" agreements are the best way forward is the subject of much debate in the industry. Supporters argue that they help to align the interests of outsourcing firms with those of their customers. Critics say they are a way of landing the industry's customers with the risk that something may go wrong: the criteria for a successful transformation are sufficiently nebulous for clever lawyers to claim that they have been met, whatever the outcome.

The larger issue, however, is the way IT firms sell financial engineering along with their systems and software. Governments, for instance, are avid advocates of long-term contracts because they can spread the cost of a large IT investment over many years, making it look more manageable. So long as the industry continues to offer this sort of balance-sheet support along with the technological variety, its customers may sometimes be tempted to make the wrong decision.

Economist.com PRINT EDITION SURVEY

The place to be

Nov 11th 2004
From The Economist print edition

In the global market for white-collar work, India rules supreme. But others are lining up

MOST Americans or Britons would be hard pressed to name their national call-centre champions or top providers of IT services. In India they are like rock stars, endlessly featured in the media. All of them claim to be hiring by the thousands every month. New business models come and go. Hero bosses such as Raman Roy, chief executive of Wipro Spectramind and "father of Indian business-process outsourcing" (an industry all of six years old), have developed the same preposterous swagger adopted by erstwhile leaders of America's dotcom boom. Is India heading for a fall, too?

India's IT industry is growing at a vertiginous rate. A dozen years ago, the entire country boasted just four or five IBM mainframe computers, says Lakshmi Narayanan, the boss of Cognizant, a big Indian IT-service company. Last year the industry notched up sales of $16 billion, three-quarters of which went abroad, according to NASSCOM, the lobby group. By 2008, says NASSCOM, annual sales are likely to surpass $50 billion. The big firms are hiring about 1,000 graduates a month straight from Indian technical colleges.

The sales of Infosys alone, one of the top providers of IT services, have grown more than eightfold in five years, to over $1 billion in the year ending in March 2004. The firm claims to run the biggest corporate training facility in the world, with 4,000 students at a time and three courses a year. The company's chairman, Narayana Murthy, says Infosys is going to expand further.

India's BPO industry is younger and smaller, but growing even faster. Last year its sales were $3.6 billion; by 2008 they are expected to reach $21 billion-24 billion, says NASSCOM. About 70% of the BPO industry's revenue comes from call-centres; 20% from high-volume, low-value data work, such as transcribing health-insurance claims; and the remaining 10% from higher-value information work, such as dealing with insurance claims. But the BPO industry is more fragmented than the IT business, and could change shape rapidly.

The roots of India's competitiveness in IT reach back to the late 1980s, when American firms such as Texas Instruments and Motorola came to Bangalore for the local talent. Other American firms, such as Hewlett-Packard, American Express, Citibank and Dun & Bradstreet, followed these pioneers, setting up their own "captive" Indian IT organisations in the 1990s.

The Indian companies got their first big boost with the so-called "Y2K crisis" at the turn of the millennium. IT experts feared that because elderly software code allowed only two digits to record the year, some computer systems would read the year 2000 as 1900, causing mayhem as systems crashed. Big western IT-services companies such as IBM, Accenture and EDS ran out of engineers to check old code and subcontracted some of the work to Indian firms instead.

Once the Indians had saved the world, they set out to conquer it. Wipro, TCS, Infosys and their peers grabbed a growing share of the global giants' business. They made most inroads in the routine but costly business of maintaining business-software applications from vendors such as PeopleSoft and SAP.

As the Indian firms grew, the captive operations of foreign firms became less competitive, and most of them have now sold out. Dun & Bradstreet led the field, with its captive transforming itself into Cognizant in 1994. More recently, Citibank sold some of its Indian IT operation to an Indian financial-software specialist called Polaris. Deutsche Bank sold its captive to HCL, another Indian firm. The big western IT specialists, meanwhile, have squared up to the new, low-cost competition by hiring in India themselves. Accenture's Indian payroll has shot up from 150 in 2001 to about 10,000 now.

India's BPO industry also started with foreign captives. The pioneers were GE, American Express and British Airways, who all arrived in the late 1990s. These companies were joined by home-grown call-centre operators such as 24x7, vCustomer, Spectramind and Daksh. Spectramind has since been bought by Wipro, and Daksh by IBM.

Sustainable?

IT and BPO employment in India, '000

	2002	2003	2006*	2009*	2012*
IT	106	150	479	1,004	2,117
BPO	170	205	285	479	972

Source: NASSCOM *forecast

These Indian firms also face competition from specialist American call-centre companies which, like the global IT firms, have been adjusting to the cheap Indian competition by taking themselves to India. By far the most successful of these foreign firms has been America's Convergys, which with a total of around 60,000 employees is the biggest call-centre operator in the world. By the end of next year, says the company's local boss, Jaswinder Ghumman, Convergys hopes to employ 20,000 people in India. Recently a fourth wave of BPO start-ups, many of them funded by American venture capitalists, has been experimenting with the remote delivery from India of all sorts of work, from hedge-fund administration to pre-press digital publishing.

In both the IT and the BPO industries, the leading companies in India are fighting hard to win a broader variety of work, particularly higher-value activities. EXL Service carries out a broad range of insurance work for British and American firms, from finding customers to underwriting policies, administering claims, changing policies and providing customer

services. The company is a licensed insurance underwriter in 45 American states, with applications for the remaining states pending. "These are very high-end jobs," says EXL Service's boss, Vikram Talwar.

The fancy stuff

In September, ICICI OneSource, an Indian BPO company which has so far concentrated on call-centre work, took a 51% stake in Pipal Research, a firm set up by former McKinsey employees to provide research services for consultants, investment bankers and company strategy departments. Mr Roy of Wipro Spectramind says that his firm is moving from basic call-centre work—helping people with forgotten passwords, for instance—to better-quality work in telesales, telemarketing and technical support. Wipro Spectramind is also spreading into accounting, insurance, procurement and product liability. "We take the raw material and convert it," says Mr Roy, his eyes gleaming. "That is our skill—to cut and polish the raw diamonds."

The top end of the market is more interesting still. Viteos, an Indian start-up, pays new MBA graduates in Bangalore $10,000 a year to administer American hedge funds, work that involves reconciling trades and valuing investments for a demanding set of customers. Shailen Gupta, who runs an offshore advisory consultancy called Renodis, has been helping one of his American customers to hire Indian PhDs to model demand planning.

The best Indian IT and BPO companies are aiming not only to lower the cost of western white-collar work, from software programming to insurance underwriting, but to improve its quality as well. Firms such as Wipro, EXL Service and WNS, a former British Airways BPO captive that won its independence in 2002, are applying the same management disciplines to the way they provide services that GE applies to its industrial businesses. Tasks are broken into modules, examined and reworked to reduce errors, improve consistency and speed things up.

In both industries, the influence in India of GE, which has applied the "six sigma" method of quality improvements to its industrial businesses for years, is pervasive. Mr Roy of Wipro Spectramind used to run GECIS, which was then GE's BPO captive but is now being sold. It had become "too fat and happy", according to one Indian competitor. One of the founding investors in Mr Talwar's company is Gary Wendt, the former head of GE's financial businesses. Wipro's chairman, Azim Premji, has introduced so many of GE's techniques to his company that the firm is known as India's "baby GE".

Certainly, "Wiproites" seem to share the intensity of GE's employees. Six-sigma "black belts" hurtle about Wipro's 100-acre technology campus in Bangalore, improving everything from software coding to the way the company cleans its toilets. (Among other things, this involves analysing liquid-soap availability, tissue supply and waste management, explains a serious-looking Wipro official.)

The claims of India's marketing men tend to be a little ahead of reality. Amar Bhide of Columbia University, who has spent most of the past 18 months in Bangalore, is sceptical. The Y2K crisis pushed "the grungiest IT work on to India's best software engineers," says Mr Bhide. "It was like asking Oxford graduates to dig ditches. It created the impression that Indians were fantastic at programming."

Still, the outline of a distinct brand of Indian competitiveness—in performing carefully defined, rules-bound, repetitive white-collar business work—appears to be taking shape. Already, the Indian IT firms, along with some of the foreign captives in India, boast the

world's most impressive set of international quality certifications for software engineering.

In the longer term, India's success at winning global white-collar work will depend on two things: the supply of high-quality technical and business graduates; and, more distantly, an improvement in India's awful infrastructure.

India's most often-cited advantage is its large English-speaking population, which has helped to fuel the call-centre boom. Yet already the market for call-centre workers is tightening. Pay and staff turnover are shooting up as operators poach staff who have already undergone costly "accent neutralisation" training at rival firms. Even the best call-centre operators in India lose about half their employees each year (but then turnover in British call-centres is about 70%). One Convergys job advertisement in the *Times of India* promises to make prospective call-centre employees "a prime target of all the dons of the industry. You will be hunted down, with almost a king's ransom on your head."

No dream job

Part of the problem is that call-centre work tends not to be much fun—although Indians enjoy much better pay, relative to other local jobs, than British or American call-centre employees. At Wipro Spectramind, two "fun day" employees try to jolly the place up as rows of cubicle-farm workers use a piece of software called "retention buddy 1.3" to dissuade Americans from cancelling their internet subscriptions. Sanjay Kumar, the boss of vCustomer, one of the few remaining independent Indian call-centre companies, says the industry's growth potential may be limited. He thinks the total pool of call-centre workers is only about 2m, and awkwardly scattered across India—although that still leaves a lot of room for expansion from the current 300,000 or so.

According to official figures, India produces about 300,000 IT engineering graduates every year, against America's 50,000. But the quality is mixed. The best Indian IT firms fight over the top 30,000-40,000 graduates, a pool in which foreign companies such as IBM and Accenture also fish. Wage inflation at Wipro and Infosys is running at 15-17% a year, and is likely to worsen. Assuming a supply of 40,000 decent IT engineers a year, McKinsey's Diana Farrell thinks that India will "not even come close" to meeting the demand for 1m offshore IT and software workers her company forecasts for 2008.

The supply of top-quality Indian MBAs is also thinner than it might look at first sight. Indian business schools produce about 90,000 graduates a year, but everybody fights over the top 5,000 from the six state-run Indian Institutes of Management. "I'm afraid to say that for some of the private business schools it is two classrooms, 25 desktops, four faculty members, 600 books and you're away," sniffs one state-sector professor.

The biggest supply may be of BPO workers who do not need to use the telephone much: claims processors, credit-card administrators, health-insurance workers and so on. Indian universities churn out 2.5m graduates a year. Perhaps a quarter to half of these have the right skills to do this sort of BPO work, says NASSCOM's president, Kiran Karnik. To improve that ratio, he is working with India's University Grants Commission to have three-year degree courses supplemented by one-year technical certificates in IT or American accounting standards.

Mr Karnik thinks that the market itself will exact higher standards. The inferior private technical institutes and management schools that have sprung up since the government deregulated higher education in the 1990s charge about three times the fees of the elite state institutions, says Mr Karnik. No doubt the private schools will try to do better, but it will take

time. Meanwhile, growing demand for offshore IT and call-centre workers is already directing companies to other parts of the world.

Where to look next

The call-centre business in the Philippines is booming. China is attracting a healthy share of manufacturing-related R&D work: GE, Siemens and Nokia all do research there. Although China's IT industry is patchy and much less well organised than India's, this is likely to change in the next five years: China already churns out more IT engineers than India. Atos Origin, a big European IT-services firm, says it is more interested in China than in India because there is less competition for engineers.

The IT industry in eastern Europe and Russia is also scattered and poorly organised, but the talent is there if you look for it, says Arkadiy Dobkin. He is the head of Epam, an IT firm that claims to be the largest provider of offshore IT services in that part of the world, with over 1,000 engineers in Budapest, St Petersburg, Minsk and Moscow. "The engineers that Russia produces are comparable to India's," says Mr Dobkin. "The educational machine is still working." He reckons that a Russian or Hungarian IT engineer costs "about the same, or a little bit more" than an Indian engineer. American multinationals are already scouring the region for talent.

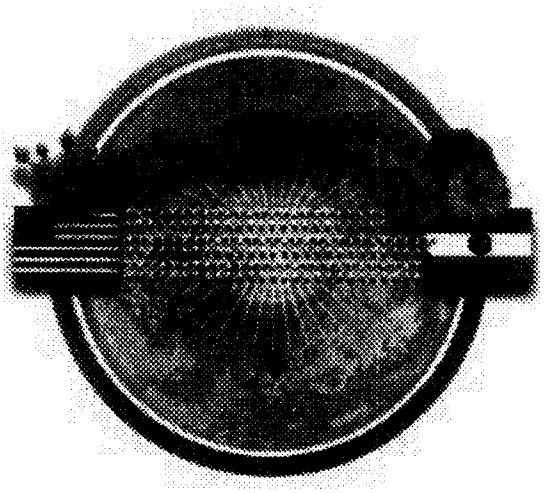
For the moment, India accounts for about 80% of the low-cost offshore market, and is probably exerting a stronger pull than ever. In the long run, however, it is sure to face hotter competition, especially from China and Russia. When it does, the abysmal quality of its infrastructure will become crucial. The most important thing to improve is India's airports, says Mr Murthy of Infosys: "The moment of truth comes when foreigners land in India. They need to feel comfortable." After airports, Mr Murthy lists better hotels, roads, schools and power supply, in that order.

The headquarters of Infosys in Bangalore sit on 70 acres of pristine lawns and paths. The facilities include open-air restaurants, an amphitheatre, basketball courts, a swimming pool and even a one-hole golf course. "When we created this campus, we wanted everything to work as well as it does in America, to be as clean as America is," says Mr Murthy. But outside the perimeter walls, the place remains unmistakably India.

Economist.com PRINT EDITION SURVEY

Faster, cheaper, better

Nov 11th 2004
From The Economist print edition



India's emerging IT firms are trying to beat their western rivals on their home turf

CAN India's IT industry do to the West's IT giants what Wal-Mart has done to rival retail firms, or Dell to computer makers? The Indians talk a good game. "The productivity growth of Indian IT services is the highest in the world," says Mr Narayanan at Cognizant. He should know: one-third of his firm's employees are in America and two-thirds in India. Nandan Nilekani, the chief executive of Infosys, goes further. "Almost everything that is done can be done by us faster, cheaper and better," he says.

The argument for an Indian takeover of the world goes something like this. Like Dell and Wal-Mart, companies such as Infosys, TCS, Wipro and Cognizant source their offerings from poor, cheap countries. Wal-Mart has grown by adding Chinese-made toys, clothing and household appliances. Dell has added printers, hand-held devices and televisions to its line of made-in-Asia computers. In the same way, predict the Indian firms breezily, they will grow by adding new lines of IT services, offering global standards or better but produced at Indian costs. Investors understand this, say the Indians. Accenture's revenue is 14 times that of Infosys, but the American firm's market value is only one-third higher than that of its Indian competitor.

IBM and Accenture have been recruiting in India to lower their costs in areas where the Indian firms have grown fastest, such as maintaining popular business-software packages. But these global firms are so large (IBM employs 340,000 people; Accenture 100,000) that hiring even 10,000 extra staff in India has made little difference to their overall costs, most of which are still incurred in rich, expensive economies, the Indian firms point out gleefully.

"The multinationals will never be able to restructure their costs fast enough to shift their centres of gravity," says Arindam Bhattacharya of the Boston Consulting Group in New Delhi.

Moreover, because the Indian firms know India better than their American and European rivals do, they can grow (and are indeed growing) more quickly and more cheaply in India than anyone else. This will lower their costs even further. "We're adding close to 5,000 people in India this year," says Mr Narayanan. "No American company can do that." However, Accenture may recently have grown far more quickly in India than it can easily manage—though it bristles at the suggestion that it is finding India unusually difficult.

Wal-Mart sells commodities, such at microwave ovens at $28. In commodity businesses, the firm with the lowest price, which is often achieved by selling at the highest volume, wins the most customers. But not everything the IT industry sells is a commodity.

Layer cake

Broadly, the industry has three layers. The bottom one consists of businesses that have clearly become commodities. These are ruled by common standards, as in IT hardware manufacturing (where high-volume, low-cost Dell operates). A lot of this has moved to Asia.

The top layer is made up of tailored, bespoke technology services. Accenture, for instance, advertises work it has done for a large Australian casino to introduce a tracking technology, called Radio Frequency Identification, to improve the way the casino handles the 80,000 bits of staff clothing it has dry-cleaned every year. IBM is working with an American limousine-fleet company to introduce the same mathematical models the airline industry uses to route aircraft. Atos Origin, the European IT-services firm, is working with a British government agency, the Vehicle and Operator Services Agency, to equip its inspectors with hand-held computers to help them decide which passing vehicles to check. Because these services are tailored to meet the needs of individual customers, they are likely to continue to be provided close to the IT industry's biggest customers in America, Europe and Japan.

That leaves a large block of services sandwiched in the middle. These services are on their way to becoming commodities as shared standards spread. The ready adoption of a small number of business-software packages sold by firms such as SAP and PeopleSoft, for instance, is making the maintenance and even the installation of such software increasingly routine as these popular packages are becoming de facto standards. It is this large middle layer of services that is currently feeding the rapid growth of Indian firms such as TCS and Infosys.

Champions of the Indian firms look at the industry's employees and see a large bulge of people offering this middle layer of IT services, with a thinner sliver of business consultants doing the bespoke work on top. This makes them think that it should be far easier for the Indian firms to move up to that top layer by hiring consultants in America and Europe than for western IT firms to shift most of their employees (and their costs) from rich countries to poor ones. "About 20% of our value is added near our customers in America and Europe and 80% here in India," says Infosys's Mr Murthy. "If IBM wants to replicate this, it needs 80% of its employment in less developed countries as well."

This analysis neglects several important points. Perhaps the most crucial of these is that patterns of demand in the IT industry have shifted in the past, and may well do so again. Ten years ago customers spent a much bigger chunk of their IT budgets on computer hardware than they do now. Between 1993 and 2001, calculates Catherine Mann of the Institute for International Economics, spending on software and services grew by 12.5% a year, nearly

twice as fast as hardware spending, pushing the share of software and services in overall expenditure from 58% to 69%.

As Ms Mann points out, the movement of IT hardware manufacturing to low-cost Asia helped to finance this shift in demand, because falling hardware prices freed up money to spend on software and services. Likewise, thinks Ms Mann, the migration of commodity IT services to low-cost places such as India will leave companies with more money to spend on the top-end bespoke services, which will help to expand this category of work.

If the world's IT giants want to remain big, they will have to change to meet changing demand. IBM has already performed this trick once. At the beginning of the 1990s, the company was mainly a hardware manufacturer. By the end of that decade, it had shifted much of its weight into IT services. Now, says IBM's Mr Harreld, the firm needs to move its high-cost employees into tailored services as commodity services migrate offshore.

Tomorrow's giants?

India's top IT-services firms, 2004*

	Total revenue $bn	Market capitalisation Oct 29th, $bn	Employees '000
TCS	1.62	12.17	40.9
Wipro	1.34	10.13	32.0
Infosys	1.08	11.26	32.9
HCL Tech†	0.57	2.38	16.4
Satyam	0.57	2.62	15.6

*Financial years ending March
†Financial years ending June

Sources: Company annual reports; Thomson Datastream

The end of the beginning

Mr Harreld predicts that demand for such bespoke services will grow strongly, and that it will be many years before everything the IT industry sells becomes a commodity. To support his argument, he turns to Carlota Perez, an economic historian. In her book, "Technological Revolutions and Financial Capital", Ms Perez traces five boom-and-bust cycles of technological innovation: the industrial revolution; steam and railways; steel, electricity and heavy engineering; oil, cars and mass production; and information technology and telecommunications.

In each age, argues Ms Perez, a phase of innovation, fuelled by hot money, has been followed by a financial bust, and then by an extended period in which the technology is deployed properly. Having just emerged from its bust, the information age is only at the beginning of this long deployment period, says Mr Harreld. Proper deployment, he argues, will require a large number of people working close to the industry's customers, in the way that IBM is doing for its limousine-fleet customer, or that Atos Origin is doing for Britain's vehicle-safety agency.

Two questions remain. The first is how long it will take for the large middle layer of services to become a commodity. If this happens too quickly, companies such as IBM, EDS and Accenture may find themselves overwhelmed by the pace of change, just as IBM nearly found itself ruined by the shift of IT manufacturing overseas in the early 1990s.

Of the three giants, EDS is in the weakest position. Having struggled with financial troubles and management turmoil at home, it has done little so far to counter the threat from Indian competitors, who are eating into large chunks of its business. Other smaller IT-services companies, such as BearingPoint and Capgemini, may also struggle with the shift of services abroad.

Most services in the middle layer, however, are likely to move offshore at a fairly manageable speed. That is because the IT organisations of most large companies tend to be a tangled mess of overlapping systems which go wrong so often that, as a practical matter, it will be hard to move IT work anywhere without fixing the systems first. To illustrate this point, Mr Harreld produces a diagram showing the different systems of one of IBM's customers, along with their interconnections. It is so intricate that it might pass for the design of a

semiconductor chip. IBM itself runs 17,000 software applications, a figure that Mr Harreld thinks can comfortably shrink to 10,000 in due course.

The other big question is how easily companies such as Wipro, TCS and Infosys can expand into that upper crust of bespoke services that Mr Harreld predicts will flourish close to the industry's customers in rich countries. The Indian firms have lots of cash to spend: the cost of an Indian programmer is so much lower than an American one that Wipro and Infosys are earning fat profits on lines of business that may be only just profitable for big western companies. So far, the Indians have spent their money cautiously, making small acquisitions and hiring the odd western consultant from rival firms.

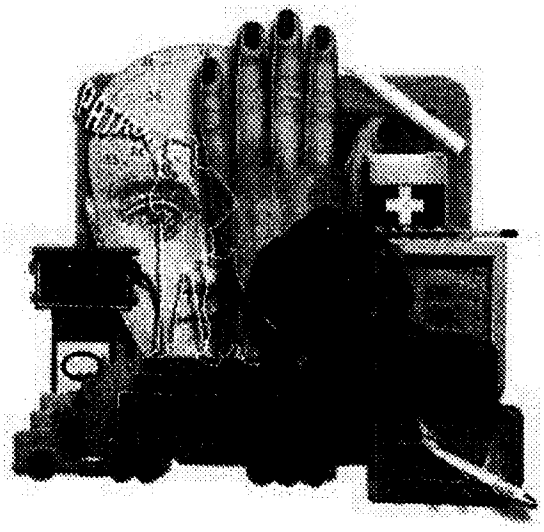
If they are serious about taking on companies such as IBM and Accenture, the Indian firms will have to act more boldly. Yet buying or building people businesses of this kind is notoriously difficult. Time and again, and in all sorts of industries, from banking to telecommunications, America's and Europe's best managers have tried and failed miserably. Moreover, the competition is well entrenched. IBM, for example, has built up good relations with its customers over decades. The Indian companies may yet find that the only thing they can do faster and better on their rivals' home turf is to lose their shirts.

Buttonwood | Economist.com's weekly column covering the financial markets

Economist.com PRINT EDITION SURVEY

Into the unknown

Nov 11th 2004
From The Economist print edition



Where will the jobs of the future come from?

"HAS the machine in its last furious manifestation begun to eliminate workers faster than new tasks can be found for them?" wonders Stuart Chase, an American writer. "Mechanical devices are already ousting skilled clerical workers and replacing them with operators...Opportunity in the white-collar services is being steadily undermined." The anxiety sounds thoroughly contemporary. But Mr Chase's publisher, MacMillan, "set up and electrotyped" his book, "Men and Machines", in 1929.

The worry about "exporting" jobs that currently grips America, Germany and Japan is essentially the same as Mr Chase's worry about mechanisation 75 years ago. When companies move manufacturing plants from Japan to China, or call-centre workers from America to India, they are changing the way they produce things. This change in production technology has the same effect as automation: some workers in America, Germany and Japan lose their jobs as machines or foreign workers take over. This fans fears of rising unemployment.

What the worriers always forget is that the same changes in production technology that destroy jobs also create new ones. Because machines and foreign workers can perform the same work more cheaply, the cost of production falls. That means higher profits and lower prices, lifting demand for new goods and services. Entrepreneurs set up new businesses to meet demand for these new necessities of life, creating new jobs.

As Alan Greenspan, chairman of America's Federal Reserve Bank, has pointed out, there is

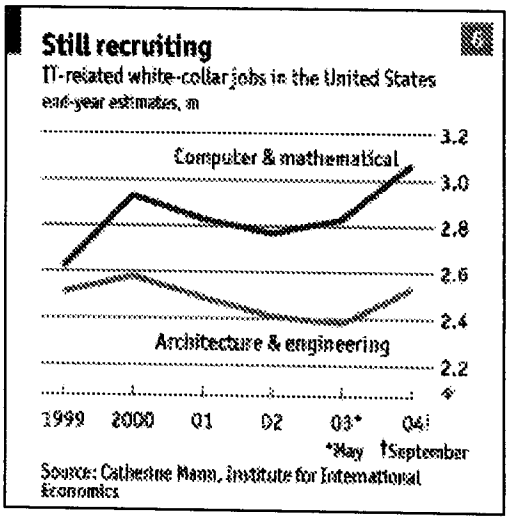
always likely to be anxiety about the jobs of the future, because in the long run most of them will involve producing goods and services that have not yet been invented. William Nordhaus, an economist at Yale University, has calculated that under 30% of the goods and services consumed at the end of the 20th century were variants of the goods and services produced 100 years earlier. "We travel in vehicles that were not yet invented that are powered by fuels not yet produced, communicate through devices not yet manufactured, enjoy cool air on the hottest days, are entertained by electronic wizardry that was not dreamed of and receive medical treatments that were unheard of," writes Mr Nordhaus. What hardy late 19th-century American pioneer would have guessed that, barely more than a century later, his country would find employment for (by the government's latest count) 139,000 psychologists, 104,000 floral designers and 51,000 manicurists and pedicurists?

Even relatively short-term labour-market predictions can be hazardous. In 1988, government experts at the Bureau of Labour Statistics confidently predicted strong demand in America over the next 12 years for, among others, travel agents and petrol-station attendants. But by 2000, the number of travel agents had fallen by 6% because more travellers booked online, and the number of pump attendants was down to little more than half because drivers were filling up their cars themselves. Of the 20 occupations that the government predicted would suffer the most job losses between 1988 and 2000, half actually gained jobs. Travel agents have now joined the government's list of endangered occupations for 2012. Maybe they are due for a modest revival.

You never know

The bureau's statisticians are now forecasting a large rise in the number of nurses, teachers, salespeople, "combined food preparation and serving workers, including fast food" (a fancy way of saying burger flippers), waiters, truck drivers and security guards over the next eight years. If that list fails to strike a chord with recent Stanford graduates, the bureau also expects America to create an extra 179,000 software-engineering jobs and 185,000 more places for computer-systems analysts over the same period.

Has the bureau forgotten about Bangalore? Probably not. Catherine Mann of the Institute for International Economics points out that the widely quoted number of half a million for IT jobs "lost" to India in the past couple of years takes as its starting point the year 2001, the top of the industry's cycle. Most of the subsequent job losses were due to the recession in the industry rather than to an exodus to India. Measured from 1999 to 2003, the number of IT-related white-collar jobs in America has risen (see chart 6).



Ms Mann thinks that demand will continue to grow as falling prices help to spread IT more widely through the economy, and as American companies demand more tailored software and services. Azim Premji, the boss of Wipro, is currently trying to expand his business in America. "IT professionals are in short supply in America," says Mr Premji. "Within the next few months, we will have a labour shortage."

If that seems surprising, it illustrates a larger confusion about jobs and work. Those who worry about the migration of white-collar work abroad like to talk about "lost jobs" or "jobs at risk". Ashok Bardhan, an economist at the University of California at Berkeley, thinks that

14m Americans, a whopping 11% of the workforce, are in jobs "at risk to outsourcing". The list includes computer operators, computer professionals, paralegals and legal assistants. But what Mr Bardhan is really saying is that some of this work can now also be done elsewhere.

What effect this has on jobs and pay will depend on supply and demand in the labour market and on the opportunity, willingness and ability of workers to retrain. American computer professionals, for instance, have been finding recently that certain skills, such as maintaining standard business-software packages, are no longer in such demand in America, because there are plenty of Indian programmers willing to do this work more cheaply. On the other hand, IT firms in America face a shortage of skills in areas such as tailored business software and services. There is a limited supply of fresh IT graduates to recruit and train in America, so companies such as IBM and Accenture are having to retrain their employees in these sought-after skills.

Moreover, Mr Bardhan's list of 14m jobs at risk features many that face automation anyway, regardless of whether the work is first shipped abroad. Medical transcriptionists, data-entry clerks and a large category of 8.6m miscellaneous "office support" workers may face the chop as companies find new ways of mechanising paperwork and capturing information.

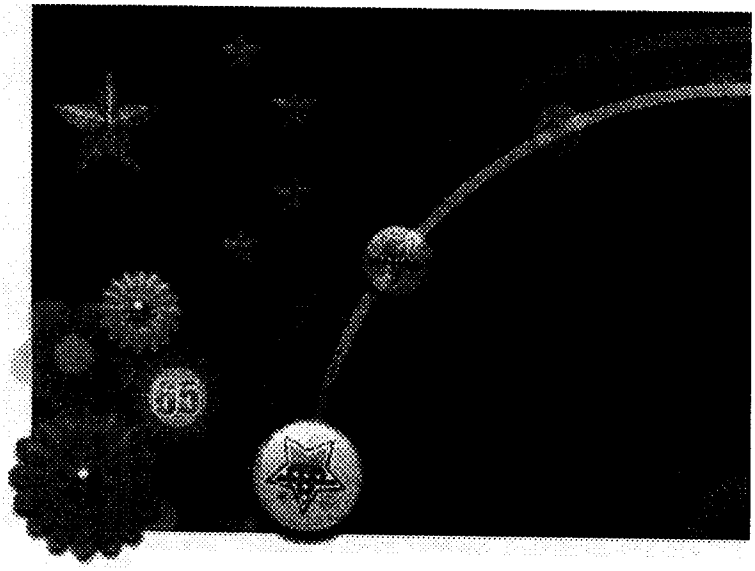
Indeed, the definition of the sort of work that Indian outsourcing firms are good at doing remotely—repetitive and bound tightly by rules—sounds just like the sort of work that could also be delegated to machines. If offshoring is to be blamed for this "lost" work, then mechanical diggers should be blamed for usurping the work of men with shovels. In reality, shedding such lower-value tasks enables economies to redeploy the workers concerned to jobs that create more value.

Stuart Chase understood the virtuous economics of technological change, but he still could not stop himself from fretting. "An uneasy suspicion has gathered that the saturation point has at last been reached," he reflected darkly. Could it be that, with the invention of the automobile, central heating, the phonograph and the electric refrigerator, entrepreneurs had at long last emptied the reservoir of human desires? He need not have worried. Today's list of human desires includes instant messaging, online role-playing games and internet dating services, all unknown in the 1920s. And there will be many more tomorrow.

Economist.com PRINT EDITION SURVEY

Sink or Schwinn

Nov 11th 2004
From The Economist print edition



Sourcing from low-cost countries works only in open and flexible labour markets. Europe's are neither

WHEN Hal Sirkin was growing up in 1960s America, the bicycle that every regular American child wanted was a Schwinn. In 1993, Schwinn filed for bankruptcy. The firm had been overtaken by imported Chinese bicycles. In 2001, a company called Pacific Cycle bought the Schwinn brand out of bankruptcy. Pacific Cycle, now owned by a Canadian consumer-goods firm called Dorel Industries, says the secret of its success is "combining its powerful brand portfolio with low-cost Far East sourcing." Schwinn bicycles now line the aisles at Wal-Mart.

Mr Sirkin is a consultant with the Boston Consulting Group who helps his customers do what Pacific Cycle has done to Schwinn: move production to East Asia, especially to China. Wal-Mart buys $15 billion-worth of Chinese-made goods every year. Obtaining goods and services from low-cost countries helps to build strong, growing companies, such as Dorel Industries, and healthy economies. But the Schwinn story also contains the opposite lesson: failing to buy in this way can seriously damage a company's health.

Sourcing from low-cost countries brings many economic benefits. Cheaper labour brings down production costs. This keeps companies competitive, raises profits and reduces prices as firms pass their lower costs on to their customers. Higher profits and lower prices lift demand and keep inflation in check. Companies spend their profits on improving existing products or introducing new ones. Customers buy more of the things they already consume, or spend the money on new goods and services. This stimulates innovation and creates new

jobs to replace those that have gone abroad.

Moving work abroad may also help to speed up innovation directly, as American, European and Japanese companies get some of their R&D done by Chinese, Russian or Indian engineers. Randy Battat, the boss of Airvana, a telecoms-equipment start-up, has spent the past 18 months setting up an R&D centre for his company in Bangalore. This will complement the work of Mr Battat's engineers in Chelmsford, Massachusetts. The ones working in America will develop the next generation of the company's technology. The Bangalore centre will elaborate Airvana's existing technology. "They are adding bells and whistles that could not be added otherwise because it would not be cost-effective," says Mr Battat.

By making IT more affordable, sourcing from cheaper countries also spreads the productivity-enhancing effects of such technology more widely through the economy. Ms Mann of the Institute for International Economics calculates that globalised production and international trade has made IT hardware 10-30% cheaper than it would otherwise have been. She reckons that this price reduction created a cumulative $230 billion-worth of additional GDP in America between 1995 and 2002 as more widespread adoption of IT raised productivity growth. Sourcing IT services (which account for 70% of overall corporate spending on IT) from countries such as India will create a "second wave of productivity growth", predicts Ms Mann, as cheaper IT spreads to parts of the economy that have so far bought less of it, such as the health-care industry and smaller companies.

McKinsey calculates that for every dollar American firms spend on service work from India, the American economy receives $1.14 in return. This calculation depends in large part on the ability of America's economy to create new jobs for displaced workers. America's labour market is a miracle of flexibility: it creates and destroys nearly 30m jobs a year.

However, in countries such as Germany, France and Japan a combination of social legislation, stronger trade unions, regulations and corporate-governance arrangements make employment practices more rigid and sometimes keep wages higher than they would otherwise be. This reduces demand for labour and pushes unemployment higher. According to McKinsey, in Germany, the re-employment rate for IT and service workers displaced by sourcing from low-cost countries may be only 40%. As unemployment at home rises, that process could actually make Germans poorer (see chart 7).

Reluctant Europeans

Udo Jung of the Boston Consulting Group says that, by and large, Germans accept that manufacturing companies such as Hella, Bosch and Siemens must get supplies from China. Degussa, a chemicals manufacturer, recently invited its workers' council on a trip to China. The idea was to take emotion out of the debate, says Mr Jung. Nor do continental Europeans seem bothered about white-collar work being done in low-cost countries. But that may be because they are doing so little of it.

At present, perhaps 80-90% of the service work being done remotely in India comes from either America or Britain, with which the country has linguistic and cultural links. Such links are absent from its relationship with Germany or France. Germany, like America, introduced a special visa programme for Indian IT workers in the 1990s as its domestic supply of engineers ran dry. But most Indians that went to work in Germany failed to learn the language and came back again, says Infosys's Mr Murthy. The opposite is true of Indians in America. Those who have gone there to work or study are often reluctant to return home to their families.

Cultural ties appear to be important in forming business relationships in remote-service work, says Rajendra Bandri of the Indian Institute of Management in Bangalore. Mr Bandri has studied five examples of European firms outsourcing white-collar work to Sri Lanka. In each case, they chose that country because a well-placed Sri Lankan worked for the European firm, says Mr Bandri.

Eastern Europe and Russia, which brim over with skilled, underemployed engineers, present fewer cultural barriers for European companies. French is spoken in Russia, German in Hungary and elsewhere. Yet neither German nor French firms have yet shown much appetite for buying services work from their neighbours, either. Arkadiy Dobkin, the boss of Epam, which claims to be the largest supplier of IT services from eastern Europe and Russia, is based in Princeton, New Jersey, rather than in Paris or Berlin.

Beyond economics

A survey of 500 European firms last summer by IDC, a research firm, found that only 11% of its sample were sourcing IT work from low-cost countries, and that nearly 80% would not even consider doing so. Attitudes were hardest in Italy, where 90% of firms were against the idea, followed by France and Germany. An American study released at the same time by Edward Perlin Associates, a consulting firm, found that around 60% of the companies it surveyed had some of their IT work done in low-cost countries.

In continental Europe, companies may outsource for reasons that have little to do with favourable economics, says Francis Delacourt, the head of outsourcing at Atos Origin. In what he describes as "social outsourcing", firms such as Atos Origin may take on surplus IT employees from companies that no longer need them. Europe-wide social legislation requires the new employer to provide the same wages and benefits as the old one. The alternative is costly redundancy. Mr Delacourt says this works for his company, up to a point, because demand for IT workers in Europe is growing, and Atos Origin has found ways to re-employ such people profitably. But he concedes that his company needs to be careful not to take on too many.

How well this system stands up to competition from India is anybody's guess. A manager at one firm in Europe privately muses that Germany, France and other countries might introduce barriers to IT imports to counter the threat to their domestic employment. If McKinsey is right and sourcing from abroad does make unemployment in Germany and elsewhere worse, protectionist sentiment will grow.

In the end, Europe's big service firms are likely to get round to sourcing production from abroad, as its manufacturing companies have already done. But by that time, says Andrew Parker of Forrester, British and American companies will already have developed much stronger ties with India and other cheap countries, and costs will have risen. This will especially hurt Europe's big financial firms: the biggest banks spend billions of dollars a year on IT. Mr Parker speculates that some European financial firms could be so badly damaged by this loss of competitiveness that they may fall into the arms of fitter American and British rivals. Schwinn could tell them all about it.

Economist.com PRINT EDITION SURVEY

A world of opportunity

Nov 11th 2004
From The Economist print edition

Why the protectionists are wrong

EARLIER this year, a group of politicians from Britain's left-of-centre Labour Party made a field trip to EXL Service, an Indian outsourcing firm in Delhi. Its charming boss, Vikram Talwar, must have worked wonders. On their return, the politicians chided Britain's trade unions for being negative about sourcing work from poor countries, and praised EXL Service's facilities for its workers. These included a health clinic, a gym and a good staff canteen. Laura Moffat, one of the politicians, approvingly told the *Financial Times*: "The benefits EXL offered its employees would be a wish-list for us in Britain."

More often than not in the past two years, public champions of outsourcing have found themselves bullied into silence. The chairman of President George Bush's Council of Economic Advisers, Gregory Mankiw, got howled off the stage earlier this year when he dared to defend the practice. Lou Dobbs, a TV news anchorman who names and shames unpatriotic American firms that hire workers abroad, is hawking around a new book, "Exporting America: Why Corporate Greed is Shipping American Jobs Overseas".

Such attacks have instilled caution in some of the big technology firms: IBM, for instance, no longer likes to talk publicly about the growth of its business in India. Yet the backlash against outsourcing has been less violent than people like Mr Dobbs might have hoped; indeed, as the reaction of Mr Talwar's British visitors show, outsourcing is beginning to win support in unexpected quarters.

Protectionists are finding it hard to argue that "corporate greed" is draining jobs from Britain and America when those two economies are close to full employment. More awkwardly still,

the very industries said to be badly hurt by the migration of jobs overseas report a shortage of workers at home. Most of the jobs created in India are either in call-centres or at IT firms. But call-centre companies in both Britain and America suffer from rising staff turnover and struggle to recruit more people. Britain's Call-Centre Association, a trade lobby, thinks that employment in the industry in Britain will rise in the next few years; in the United States, call-centre employment is expected to decline slightly.

As IT spending recovers from recession, labour markets in America and Europe are becoming tighter in this industry too. Not many students in rich countries choose to study engineering at college. Even a modest rise in the demand for IT workers in rich countries will create shortages—and therefore openings for Indian, Chinese and Russian engineers.

In the longer run, ageing populations in rich countries will mean labour shortages in many industries. Sourcing some of the work from abroad will ease the problem. It will also help to lift productivity among rich-country workers who will have to support larger numbers of older people. Moreover, it could help to lower some of the costs of ageing populations, especially in health care. America's health-care spending is rising at 12% a year, far faster than GDP. Farming out the huge job of administering this system to lower-cost countries would restrain such spending. Trade has the same sort of effect, and Americans think nothing of shopping online for cheaper drugs from Canadian pharmacies. Yet, as McKinsey's Diana Farrell points out, it is precisely the supporters of drug imports (and haters of big business) who complain most about jobs going to India.

Anti-globalisers claim that multinational firms that obtain goods and services in low-cost countries exploit the poor by putting them to work in sweatshops. Trade unions and industrial lobbies use such arguments to make their demands for protection look less self-interested, and guilt-wracked American and European *bien pensants* swallow them whole.

The spread of global sourcing may help to unpick these politics. The smartly dressed, brand-conscious young men and women who stroll around the lush technology parks of Bangalore are patently not some new underclass. New wealth in the East will help to expose old protectionist politics in the West. That might provide globalisation with a new legitimacy and moral strength.

This survey has argued that, although the opportunity to source large amounts of white-collar work from low-cost countries has arisen quite suddenly, the work will in fact move over gradually. This will give rich economies time to adjust to new patterns of work, and should keep the politics of change manageable. But from time to time, ugly protectionism is sure to flare up again.

Take it gently

A sudden increase in global competition could force faster and deeper restructuring in rich countries. Big IT-services firms such as IBM and Accenture have scrambled to hire tens of thousands of new employees in India to compete with Indian IT firms such as Wipro and TCS. This could happen in other industries, too, as India becomes expert at providing outsourced banking, insurance and business services.

Office workers everywhere are likely to be discomfited by the rise of Indian firms that promise to do white-collar work cheaper, faster and better. Just as the Japanese car makers licked Detroit into shape, India is going to change life on the cubicle farm forever. So far only American and British firms have sourced much work from low-cost countries, but other rich economies such as France, Germany, Italy and Japan will eventually have to follow as British

and American firms reduce their costs and make their rivals look vulnerable. In Japan, France and Germany, this could lift high levels of unemployment (disguised in Japan; explicit in France and Germany) higher still if rigid, unreformed labour markets continue to deny displaced workers new jobs. This is likely to fuel protectionism and cause a backlash.

That may be all the more reason to reassert both the economic and the moral case for free trade. Buying goods and services from poor countries is not only hugely beneficial to rich countries' economies, it can also provide opportunities for millions of people in poor countries to lift themselves up and improve their lives. It is a game in which everybody can win.