

## Different strokes

**China and India are emerging as technology titans, but in different ways**

THE Dow Jones Industrial Average may have reached levels unseen since 2000 this week, but the technology industry has changed dramatically since the bursting of the internet bubble. The nature of the transformation is apparent in a new report on the state of the industry, released this week by the Organisation for Economic Co-operation and Development (OECD), the club of rich countries. Its league table of the world's 250 largest technology firms, measured by revenue, shows two big shifts. The first is that it includes far fewer hardware and manufacturing firms than it did five years ago, and far more software and service companies. The second is that Asian firms are pushing aside American ones.

Companies from China, Hong Kong and India appear in this year's ranking for the first time and the number from Taiwan more than trebled (see chart on next page). China is actually under-represented in the figures: many of the Hong Kong and Taiwanese firms do the bulk of their business on the mainland and many of the big Western technology firms have substantial operations in China. Indeed, China is now the world's largest exporter of technology goods (although much of the work is on behalf of foreign firms). Domestically, China is now the sixth-biggest buyer of high-tech goods and services in the

dering detected an unusually large influx of money, which alerted the authorities to Mr Alexander's presence in the country, where he had been living openly with his wife and children. The entrepreneur, a pioneer of Israel's booming technology industry, was arrested on September 27th while lunching with his wife at home. On October 3rd he was freed on bail, pending a court hearing on America's efforts to extradite him. Namibia does not have an extradition treaty with America.

Mr Alexander and his former colleagues are accused of backdating share options to value them at low points in Comverse's share price. They benefited personally from this and also used such options to reward employees. They are also accused of running a secret slush fund of options allocated to fictitious employees, which could later be transferred to real ones. (If that sounds odd, Cablevision, another firm caught up in the scandal, reportedly gave options retrospectively to an executive after his death.) These options were not counted

world; by 2010 it will be in third place, behind America and Japan. Meanwhile, revenue from software and services has increased by around 50% between 2000 and 2005. So it is no surprise to see India's software stalwarts—Tata Consulting Services, Wipro and Infosys—on the list.

For anyone who has choked on the exhaust in Shenzhen or crawled through Bangalore's notorious traffic, all this confirms what has been apparent for years. Yet although China and India are often lumped together as tomorrow's technology titans, there are marked contrasts in their technological development. They



**Someone interrupted their lunch**

as a cost when calculating profits, as they should have been—hence the fraud allegations. This week Apple said its boss, Steve Jobs, had known about backdating at his firm but had been unaware of the accounting implications.

As firms struggle to restate their accounts, hedge funds are buying their bonds. The funds are speculating that by failing to file in time they would violate covenants, thereby requiring repayment of the bonds at full face value. Which raises the question of whether the punishment will be worse than the crime for backdating's main victims: shareholders. Holders of Comverse shares, for example, now hold paper worth around one-quarter less than it was in March.

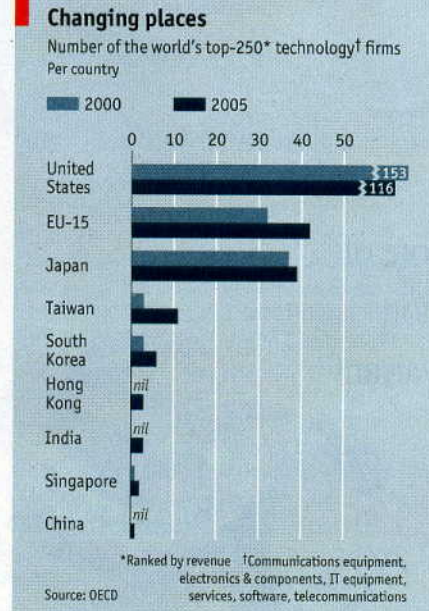
have roughly the same population, but China spends 2.5 times as much on technology as India does. It is already the world's largest mobile-phone market, and the second-largest market for PCs. Moreover, at the end of 2005, China had around 110m internet users, compared with 51m in India; and today China has 430m mobile-phone users, versus 120m in India. The two countries are adopting technology at different paces and in different ways.

China's lead is partly the result of co-ordinated government action. Centralised economies can pour resources into projects and direct the development of entire

► industries, something that is much harder in India's sprawling, bureaucratic democracy. For mobile phones, China established a second state-owned operator to challenge the incumbent, while India's operators remained tangled up for years in legal fights over a botched regulatory framework. China has also tried to develop its own technical standards so that it can avoid paying royalties to foreign firms for using intellectual property.

A further difference is that China's manufacturing strength means high-tech gear is available locally at low cost, whereas India must import it, explains Sacha Wunsch-Vincent of the OECD, who helped write the report. India has focused more on software and services, which can be delivered via networks without bureaucratic interference, unlike physical goods. But both Chinese and Indian firms are now setting up shop in central and eastern Europe, as a low-cost stepping-stone towards European Union countries, notes Mr Wunsch-Vincent.

Another striking finding is that although revenues and R&D spending are around 20% higher than in 2000 among the top 250 global technology firms, the level of employment is lower. Does that mean more automation is putting people, even in the most advanced industries, out of a job? Probably not. Instead of implying that the human-capital intensity of the technology industry has declined, the op-



posite is more likely: companies are increasingly outsourcing their operations to smaller, specialist firms—many of them in China, India and Taiwan, as well as in the West—that do not appear in the top 250. As a result, the rise of Asia is best characterised as the welding of the region into the global technology supply chain, in a way that benefits firms in other parts of the world as well. ■