

## China's looming **talent shortage**

To make the move from manufacturing to services, China must raise the quality of its university graduates.

Diana Farrell and Andrew J. Grant

2005 Number 4

 **Download and listen** to this article on your portable audio player.

**With a huge supply** of low-cost workers, mainland China has fast become the world's manufacturing workshop, supplying everything from textiles to toys to computer chips. Given the country's millions of university graduates, is it set to become a giant in offshore IT and business process services as well?

New research from the McKinsey Global Institute (MGI) suggests that this outcome is unlikely. (The full report, *The Emerging Global Labor Market*, is available free of charge online.) The reason: few of China's vast number of university graduates are capable of working successfully in the services export sector, and the fast-growing domestic economy absorbs most of those who could. Indeed, far from presaging a thriving offshore services sector, our research points to a looming shortage of homegrown talent, with serious implications for the multinationals now in China and for the growing number of Chinese companies with global ambitions.

If China is to avoid this talent crunch and to sustain its economic ascent, it must produce more graduates fit for employment in world-class companies, whether local or foreign. Raising the graduates' quality will allow the economy to evolve from its present domination by manufacturing and toward a future in which services play the leading role—as they eventually must when any economy develops and matures. The conditions for a flourishing offshore services sector will then surely follow.

### **The supply paradox**

China's pool of potential talent is enormous. In 2003 China had roughly 8.5 million young professional graduates with up to seven years' work experience and an additional 97 million people that would qualify for support-staff positions.

Despite this apparently vast supply, multinational companies are finding that few graduates have the necessary skills for service occupations. According to interviews with 83 human-resources professionals involved with hiring local graduates in low-wage countries, fewer than 10 percent of Chinese job candidates, on average, would be suitable for work in a foreign company in the nine occupations we studied: engineers, finance workers, accountants, quantitative analysts, generalists, life science researchers, doctors, nurses, and support staff.

Consider engineers. China has 1.6 million young ones, more than any other country we examined.<sup>1</sup> Indeed, 33 percent of the university students in China study engineering,<sup>2</sup> compared with 20 percent in Germany and just 4 percent in India. But the main drawback of Chinese applicants for engineering jobs, our interviewees said, is the educational system's bias toward theory. Compared with engineering graduates in Europe and North America, who work in teams to achieve practical solutions, Chinese students get little practical experience in projects or teamwork. The result of these differences is that China's pool of young engineers considered suitable for work in multinationals is just 160,000—no larger than the United Kingdom's. Hence the paradox of shortages amid

plenty.

For jobs in the eight other occupations we studied, poor English was the main reason our interviewees gave for rejecting Chinese applicants. Only 3 percent of them can be considered for generalist service positions (those that don't require a degree in any particular subject). Overall communication style and cultural fit are also difficult hurdles. One Chinese HR professional points out, for example, that Chinese software engineers would find it hard to draw up an information flowchart for an international five-star hotel, not because they don't understand flowcharts, but because state-run hotels in China—the only ones they know—are so very different.<sup>3</sup> Some people argue that a willingness to work long hours will compensate for any deficiencies in the suitability of China's talent. Although this may hold true to some extent in manufacturing, it is likely to make only a marginal difference in services because of the specific skill deficiencies that come into play.

#### EXHIBIT 1

##### Scattered scholars

Geographical distribution of China's universities and colleges,<sup>1</sup> 2003

100% = 1,561



Number of universities, colleges<sup>1</sup>

Beijing	76
Shanghai	57
Wuhan	50
Guangzhou	49
Xian	43
Tianjin	41
Changsha	38
Nanjing	37
Zhengzhou	36
Chongqing	35

<sup>1</sup> Excludes 2-year colleges.

Source: China's Ministry of Education; McKinsey analysis

On top of the generally low suitability of Chinese graduates, they are widely dispersed. Well over 1,500 colleges and universities produced the 1.7 million students who graduated in 2003, and likely less than one-third of them had studied in any of the top ten university cities (Exhibit 1). Just one-quarter of all Chinese graduates live in a city or region close to a major international airport—a requirement of most multinationals setting up offshore facilities. Compounding that problem is a lack of mobility: only one-third of all Chinese graduates move to other provinces for work. (By contrast, almost half of all Indian students graduate close to a major international hub, such as Bangalore, Delhi, Hyderabad, and Mumbai, and most are quite willing to move.)

As a result of these two factors, world-class companies that want to hire service labor in China have difficulty reaching as much as half of the total pool of graduates.

Finally, companies that wish to set up services offshoring operations in China face more competition for talent than they would in other low-wage locations. In India and the Philippines, for example, the local economy is growing less briskly, and working for a company that provides offshore services is therefore a good option. In China, domestic and multinational companies serving the fast-growing domestic market already provide attractive opportunities for suitable graduates, and there are many more jobs in the manufacturing export sector. As a result, it's wrong to assume, as many companies do, that every suitable young professional in China is available for hire in the services offshoring sector.

### The looming war for talent

More crucially, companies that are already in China and serve its fast-growing domestic market will also, our research shows, have difficulty finding enough suitable employees in key service and managerial occupations.

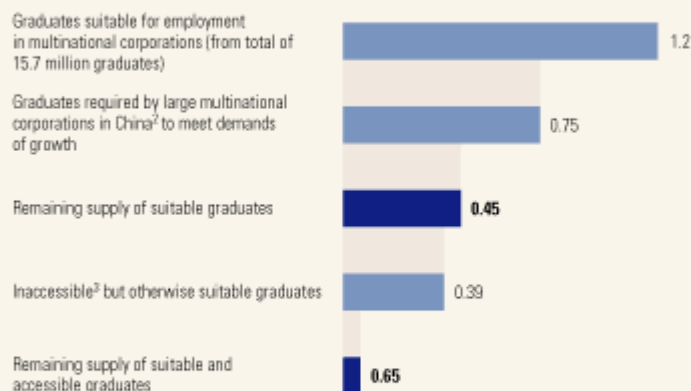
The demand for labor from just the large foreign-owned companies and joint ventures that now do business in China highlights the problem.<sup>4</sup> From 1998 to

2002, employment in these two categories rose by 12 and 23 percent a year, respectively, to about 2,700,000 workers. Assuming that 30 percent of these workers must have at least a college degree<sup>5</sup> and that the labor demands of such companies continue to grow at the same rates, they will have to employ an additional 750,000 graduates from 2003 through 2008. China, we estimate, will produce 1,200,000 graduates suitable for employment in world-class service companies during that period. So large foreign multinationals and joint ventures alone will take up to 60 percent of China's suitable graduates before demand from smaller multinationals or Chinese companies even enters the picture (Exhibit 2).

#### EXHIBIT 2

##### A shortage of suitable candidates

Projected supply of Chinese university graduates,<sup>1</sup> 2003–08, millions



<sup>1</sup> Includes all university degrees except MDs; figures do not sum to total, because of rounding.

<sup>2</sup> Enterprises with revenue over \$604,000 in 2002 and workforce of >1,000 full-time equivalents (FTEs); excludes employment in those companies whose parents are based in Hong Kong, Macao, and Taiwan.

<sup>3</sup> Because of geographic dispersion and lack of mobility; assumes strong growth in accessibility, from 51% in 2005 to 83% in 2008 (India's 2005 level).

Source: McKinsey Global Institute labor supply database

If these numbers suggest fierce competition for China's best graduates, unemployment statistics confirm that impression. In 2003 just 1 percent of the country's university graduates were unemployed—an almost negligible rate. Unemployment among the graduates of China's colleges is a bit higher, at about 6 percent.

Effective managers are in short supply as well. We estimate that given the global aspirations of many Chinese companies, over the next 10 to 15 years they will need 75,000 leaders who can work effectively in global environments; today they have only 3,000 to 5,000.<sup>6</sup> Management talent generally comes from several sources—offshoring enterprises that train lower-level workers, industries that produce managers with relevant skills, and expatriates who have worked or studied in countries with developed economies. But people from all of these sources are scarce in China. Although multinational companies there do currently train and promote managers from entry-level positions, the process is time consuming and costly. Moreover, with levels of foreign direct investment so high, multinationals often resort to poaching from each other. The problem is all the worse because not many middle managers can be hired from Chinese companies; only people employed by very high-performing ones (such as the consumer electronics company TCL) have the skills and cultural attributes needed to work for the multinationals. A more plentiful source of middle-management talent is the large number of ethnic Chinese who fill management roles for companies in Hong Kong, Singapore, and Taiwan. These people can be recruited to mainland China but often require "local-plus" packages: wages and benefits above what the locals receive, though less than the full expatriate package.

#### Why fix the problem?

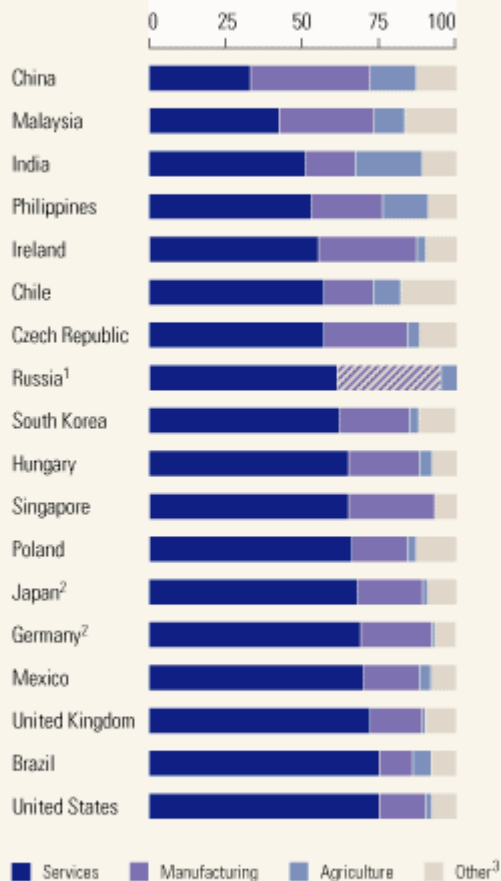
A shortage of world-class university graduates in key occupations such as finance, accounting, engineering, and business represents a major problem for multinationals in China, for Chinese companies, and for the country's policy makers. Companies need these graduates to improve their marketing and product-development efforts, to understand consumer tastes, to develop customer service and after-sales-service operations, and to raise their local financial and accounting standards. In the longer term, China's economy as a whole needs more such graduates if it is to compete in the world beyond the simpler, labor-intensive manufacturing areas in which it is now the global leader.

As economies develop, they shift from labor-intensive manufacturing to higher-value areas, notably marketing, product design, and the manufacture of sophisticated intermediate inputs. Northern Italy's textile and apparel industry, for example, has moved most garment production to lower-cost locations, but employment remains stable because companies have put more resources into tasks such as designing clothes and coordinating global production networks. Similarly, in the US automotive industry, imports of finished cars from Mexico increased rapidly after the North American Free Trade Agreement took effect, but at the same time exports of US auto parts to Mexico have quadrupled, allowing much of the more capital-intensive work—and many of the higher-paid jobs—to remain in the United States.<sup>7</sup>

EXHIBIT 3

### China's underdeveloped services sector

% of GDP, 2003



<sup>1</sup> Breakout of manufacturing and other not available.

<sup>2</sup> Figures do not sum to 100%, because of rounding.

<sup>3</sup> Mining, construction, electricity, water, and gas.

Source: 2005 World Development Indicators, World Bank; McKinsey analysis

With an estimated 150 million surplus unskilled rural workers,<sup>8</sup> who can be hired mainly by manufacturers, China is decades away from developing a consumer-oriented service economy. But policy makers must make that their ultimate aspiration. No nation will remain the world's low-cost manufacturer forever, and if it were to try to do so, its living standards would stagnate at today's levels—or even decline. Today China's economy is greatly tilted toward manufacturing, and the services sector is notably underdeveloped (Exhibit 3). But in China, as in all economies, services will be the future engine of job growth. According to Alliance Capital Management, the country's manufacturing sector shed 15 million jobs from 1995 to 2002, when large state-owned factories restructured their operations. As manufacturing productivity rises, still more jobs will be lost.

Creating the conditions that attract offshore services operations will help China move up the ladder. The country does have some strong advantages in this arena,

notably low labor costs, an enormous domestic market, and a relatively high-quality infrastructure. Offshore services activities are often developed from existing operations, so China's services offshoring sector is most likely to arise as

an offshoot of the activities of companies that are already there.

China is not the only country facing an impending talent shortage. See "[Ensuring India's offshoring future](#)."

Pharmaceutical and software companies will probably take the lead, for in these industries some multinationals have already set up Chinese R&D operations to customize products for local needs. Several

players now use incremental capacity in their Chinese R&D facilities to serve overseas markets too. Pharma companies can also run bigger, and therefore faster, clinical trials in China more cheaply, thereby cutting overall product-development costs as well as approval and release times. In addition, mainland China could emerge as a base for business process offshoring by multinationals that serve Chinese-speaking populations elsewhere—such as Hong Kong, Singapore, and Taiwan—if the country solves its looming shortage of qualified labor.

### Addressing the shortage

Raising the quality of China's graduates will be a long-term effort, but even modest improvements would make a huge difference. If the proportion of Chinese engineering graduates who could work at global companies increased to 25 percent (as it is in India), from today's 10 percent, China's pool of qualified young engineers would be among the world's largest by 2008.


How can the country raise the quality of its graduates? First, it must change the way it finances its universities. Expenditures for tertiary education are growing quite rapidly—from 2000 to 2002, by more than 50 percent. The number of students increased even more, however, so expenditures per student fell by 5 percent. Funding is also spread unevenly throughout the country: in Beijing average spending per student is more than 30 percent higher than it is in second-place Shanghai and more than twice the level in 25 of the 31 provinces. More money should be focused on raising quality than quantity, and funds for institutions in places other than Beijing and Shanghai should rise dramatically.

In addition, China must continue to improve its English-language instruction. Since 2001, the Ministry of Education has required all students to start learning English in third grade. This is a step in the right direction and will pay dividends in the long run, but English classes are still very large, even at universities, because teachers are in short supply.<sup>9</sup> Furthermore, conversational skills receive too little attention. To resolve both of these issues, China must train many more English teachers and do more to recruit them from abroad.

For the foreseeable future, companies themselves will have to invest more in training and developing the talent they need. When Microsoft, for instance, outsourced part of its Web-based technical support to Shanghai Wicresoft, a 400-employee joint venture with the Shanghai municipal government, it hired ten native US English speakers to teach their Chinese coworkers about US e-mail protocol and writing style. These instructors hold language classes and meet one-on-one with Chinese employees to assess their progress, an effort that raises the joint venture's personnel costs by about 15 percent<sup>10</sup> but brings the language skills of Chinese workers up to speed. Other foreign companies are developing management-training courses, sometimes in collaboration with local business schools, to upgrade the skills of existing middle and top managers.<sup>11</sup>

Companies can also work with policy makers and university leaders to bring curriculums—not only at the top universities but also throughout the university system—more in line with the needs of industry. Software projects are team efforts that require less theoretical knowledge than application skills, which Chinese graduates lack, according to managers at multinational companies. In response, Microsoft has formed partnerships with four universities in China to establish software labs where student interns learn practical software-development skills. Other companies should adopt similar policies. Such public-private education programs make students more suitable for good jobs with world-class companies and ease the transition to middle-management roles later on.

Finally, China's policy makers must ensure that its many students who study abroad return home, since a relatively high proportion of them have the skills needed to work for multinationals. In 2003, some 120,000 Chinese students were studying abroad—the highest number of any of the 28 countries whose supply of graduates MGI has investigated. Moreover, half of these Chinese students were living in the United States, the largest overseas market linked to China. India's diaspora, including people who have returned to their homeland, has played an important role in the growth of the Indian IT and business process services sector while helping to alleviate the country's management shortage. China too needs its expats.

China faces a looming labor shortage that could stall not only its economic growth but also its migration up the value chain. Reforms in the educational system—including a greater emphasis on practical and language skills—will help the country fill its skilled-labor gap. 

### **About the Authors**

**Diana Farrell** is director of the McKinsey Global Institute, and **Andrew Grant** is a director in McKinsey's Shanghai office.

The authors would like to acknowledge the contributions of Martha Laboissière, Jaeson Rosenfeld, Sascha Stürze, and Fusayo Umezawa.

### **Notes**

<sup>1</sup>The low-wage countries we studied were Argentina, Brazil, Bulgaria, Chile, China, Colombia, Croatia, the Czech Republic, Estonia, Hungary, India, Indonesia, Latvia, Lithuania, Malaysia, Mexico, the Philippines, Poland, Romania, Russia, Slovakia, Slovenia, South Africa, Thailand, Turkey, Ukraine, Venezuela, and Vietnam. The mid- to high-wage countries we studied in depth were Canada, Germany, Ireland, Japan, the United Kingdom, and the United States; Australia and South Korea were studied by way of extrapolation.

<sup>2</sup>All branches except civil and agricultural engineering.

<sup>3</sup>Juhi Bhambal, interview with Alan Choi, Korn/Ferry's regional managing director for Greater China, *Global Outsourcing*, January 11, 2005.

<sup>4</sup>We considered only companies with more than 1,000 employees. Foreign-owned companies in Hong Kong, Macao, and Taiwan were excluded.

<sup>5</sup>This estimate is based on MGI's study of the global automotive industry, where 48 percent of all jobs require a college education. Since the estimate includes headquarters functions, we reduced it to 30 percent.

<sup>6</sup>Andrew Grant and Georges Desvaux, "Narrowing China's corporate-leadership gap," *China Daily*, May 18, 2005.

<sup>7</sup>Diana Farrell, Antonio Puron, and Jaana K. Remes, "Beyond cheap labor: Lessons for developing economies," *The McKinsey Quarterly*, 2005 Number 1, pp. 98–109.

<sup>8</sup>"Surplus rural laborers hit 150 million," *Xinhua News Agency*, April 8, 2004.

<sup>9</sup>Yuan-yuan Huang and Hua-li Xu, "Trends in English language education in China," *ESL Magazine*, November/December 1999.

<sup>10</sup>Li Yuan, "Chinese companies vie for a role in US IT outsourcing," *Wall Street Journal*, April 5, 2005.

<sup>11</sup>McKinsey will pilot such a program in early 2006.

