

Highlights:

New McKinsey research on China's expanding middle class, the country's e-tail revolution, and its infrastructure landscape

Lenovo CEO Yang Yuanqing on thriving in a 'PC-plus' world

The next wave of Chinese innovation

Yasheng Huang and Michael Pettis on China's great economic rebalancing

How to thrive as Chinese manufacturing moves up the value chain

The dean of Tsinghua University's business school on developing China's business leaders

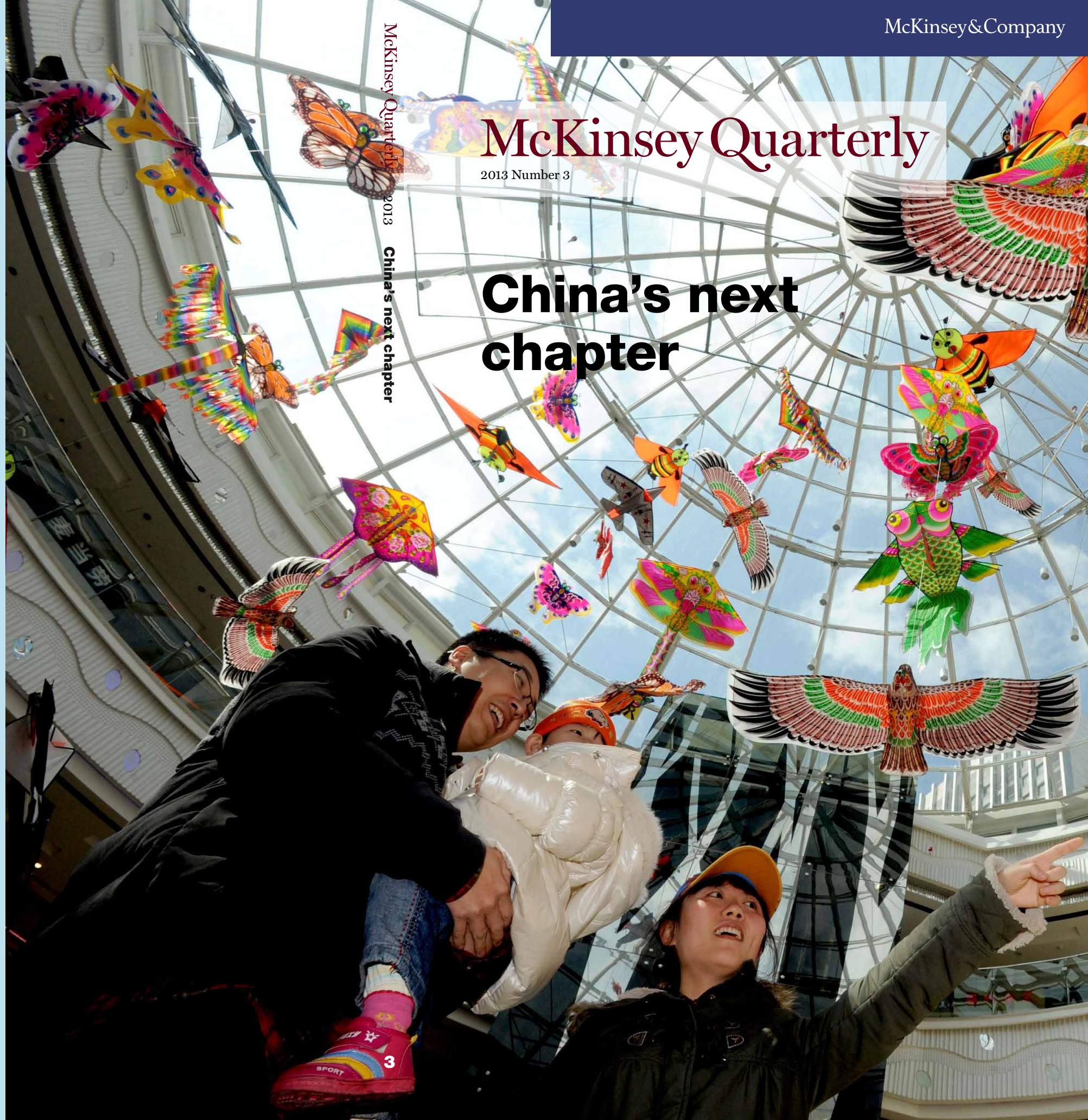
Chinese industry dynamics: Four snapshots of sectors on the move

China's rising stature in global finance

McKinsey Quarterly

2013 Number 3

China's next chapter



This Quarter

Regardless of whether China's new leaders want to reshape the country's economy, it is changing around them. The growth rate is slowing. Neither exports nor investment will be the engines that they once were. And public policies will inevitably reflect these shifts. China's next chapter, in short, is going to look decidedly different from the one we've grown accustomed to. In this special issue of *McKinsey Quarterly*, we focus on the themes business leaders must understand to navigate this new China successfully:

'Rebalancing' and the new middle class. As the importance of private consumption to China's economic-growth engines rises, serving consumers will become more lucrative and more challenging. McKinsey research described in "Mapping China's middle class," on page 54, highlights the segments that will drive spending growth—notably, an emerging upper middle class and a generation of young, globally minded consumers. The extraordinary growth of Chinese e-tailing only adds to the complexity.

Manufacturing moves up the value chain. The growth of China's new consuming class rests on rising wages, even in manufacturing, where low-cost exports have underpinned past economic growth. Adapting to this new reality means upgrading operations that can no longer compete solely on cheap labor, raising productivity, rationalizing supply chains, and boosting capital efficiency—all the while, meeting domestic demand for higher-value products.

Technology and innovation. Rising expectations are just one reason the growing spirit of Chinese innovation is so important—and so exciting. That comes across in our interview with Yang Yuanqing, chairman and chief executive of Lenovo, who sees such thinking as vital to his company’s “PC-plus” strategy. It also jumps out of conversations we’ve had at other leading Chinese companies, which are starting to form new partnerships with universities, to build intellectual-property protection into their organizational cultures, and to tap into a youthful and creative new talent base.

Developing China’s human capital. The country may not have exactly the mix of people it needs to lead, manage, and operate the companies fueling its next stage of growth, says Yingyi Qian, dean of the School of Economics and Management, Tsinghua University, one of China’s leading business schools. But China is making rapid progress, with corporate capability-building efforts reinforcing more formal educational ones. We detail some of the former in “Capability building in China,” on page 126.

A new investment environment. Investors will have huge opportunities to help build the next-generation infrastructure of smarter, cleaner cities. But for private-equity players, the era of relatively easy growth-based returns is probably over, suggests a group of leading investors. Becoming more involved in operations—a move that requires enhanced corporate governance—will be an important driver of future returns.



These significant changes give attackers and new entrants opportunities to leapfrog current winners and, potentially, put their hard-won leadership at risk. We hope this issue of the *Quarterly* helps you navigate your own path forward successfully. ○

A handwritten signature in black ink, appearing to read 'Nick Leung'.

Nick Leung
Director, Beijing office

A handwritten signature in black ink, appearing to read 'Gordon R. Orr'.

Gordon Orr
Director, Shanghai office



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E-tailing leaps forward
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Idea Exchange

Readers mix it up with authors of previous McKinsey articles on China

Earlier this year, two McKinsey articles appeared on the outlook for China: “What’s in store for China in 2013?” (Gordon Orr) and “What’s next for China?” (William Cheng, Xiujun Lillian Li, and Jonathan Woetzel). Both articles generated a lively discussion online.

What’s in store for China in 2013?

Kathleen Brush

kathleenbrush.com, Seattle, WA

“The Chinese economy must move away from low-cost production and toward innovation. While China has seen a record number of patent filings in recent years, in truth they are only incremental improvements on other innovations. If the Chinese cannot make products that are better, faster, and cheaper, demand for domestic products will be lackluster.”

The author responds:

“You’re right, Kathleen. The quality of patent filings in China does vary, although there are real signs of progress in many industries as domestic leaders invest more in R&D. But for several years to come, domestic demand for products that offer better value—rather than deeply innovative ones—will continue to drive growth in China. True, Apple sold nearly \$25 billion worth of products there in 2012, but the core of the smartphone market went to domestic players selling products in the \$100 to \$150 price range. Similarly, in business-to-business markets, the vast majority of volume is in the value segment, where cost reduction is the priority.”

What’s next for China?

Manjula Nair

California State University–Northridge, Stevenson Ranch, CA

“With accelerated growth, caution must prevail; China must be mindful of scarce resources and environmental sustainability. The recent air-pollution scare in China reinforces the need for policies that can drive growth and provide healthy urban living.”

The authors respond:

“Resource scarcity and the environmental and social externalities of urban growth are very much on the minds of the Chinese leadership. The latest party congress stressed the need to move from urbanizing the country’s land to urbanizing its people—that is, delivering on the promise of greater access to resources, a better quality of life, and more widespread prosperity. Environmental expenditures in China are going to increase, and with that will come a rethinking of urban planning, finance, and government-performance metrics. These are long-term issues, however, and will require a long-term, concerted effort at all levels of society.”

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Chinese infrastructure: The big picture

Yougang Chen, Stefan Matzinger, and Jonathan Woetzel

China leads the world in infrastructure investment. Explore today's impressive reality, and see what the future holds, in this by-the-numbers summary.

Infrastructure development remains a top priority for China's government, which has long recognized that a modern economy runs on reliable roads and rails, electricity, and telecommunications. From the late '90s to 2005, 100 million Chinese benefitted from power and telecommunications upgrades. Between 2001 and 2004, investment in rural roads grew by a massive 51 percent annually. And in recent years, the government has used substantial infrastructure spending to hedge against flagging economic growth.

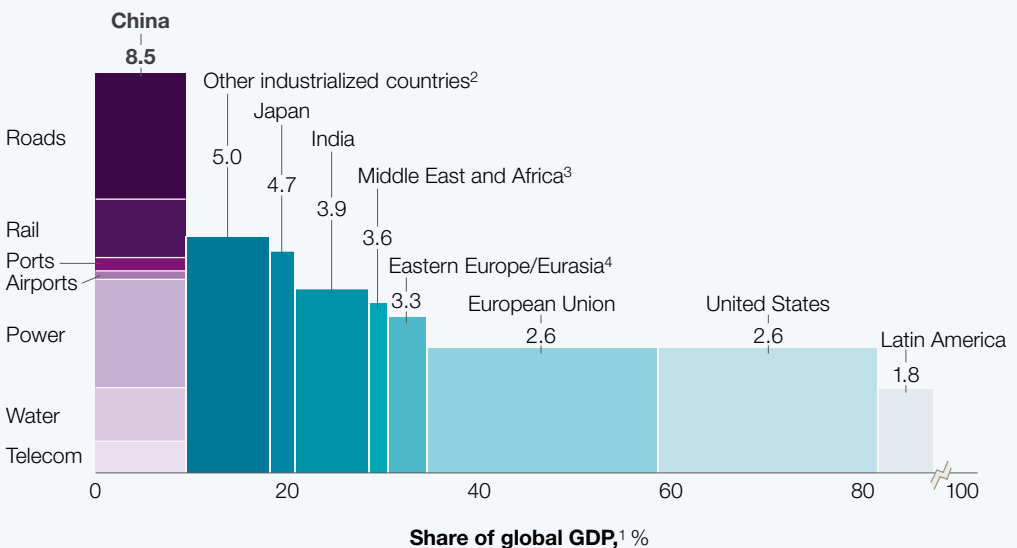
China's leadership has charted equally ambitious plans for the future. Its goal is to bring the entire nation's urban infrastructure up to the level of infrastructure in a middle-income country, while using increasingly efficient transport logistics to tie the country together. What follows is a by-the-numbers portrait of this dynamic sector.

Investment leader

As China has grown, it has plowed a substantial 8.5 percent of GDP into infrastructure, far exceeding what any other country or region spends: twice the level of fast-growing India and more than four times that of Latin America, for example. In absolute terms, China's annual infrastructure spending now surpasses that of the United States and the European Union. Over the last two decades, the largest portion of this spending has gone toward roads, power, rail, and water. The rapid pace of expansion has fueled concern about the quality of design, materials, and construction—problems underscored by a disastrous 2011 train crash tied to faulty rail signals and by a rash of recent bridge collapses. Getting the economics of investment levels, operating costs, and user fares right can be challenging, too. This issue recently entered the public eye when many Chinese citizens found that ticket prices for new high-speed rail lines were more than they could afford.

China has overtaken the United States and the European Union to become the world's largest investor in infrastructure.

Amount spent on infrastructure, 1992–2011,
weighted average % of country's GDP



¹The 86 countries analyzed generated 87.1% of world GDP; countries accounting for the remaining 12.9% are not plotted.

²Australia, Canada, Croatia, Iceland, Liechtenstein, New Zealand, Norway, Singapore, South Korea, Switzerland, Taiwan (Chinese Taipei), and the United Arab Emirates.

³Excludes unusually high port and rail data for Nigeria. If included, they bring total weighted average to 5.7%.

⁴Albania, Azerbaijan, Bulgaria, Georgia, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Romania, Russia, Serbia, and Turkey.

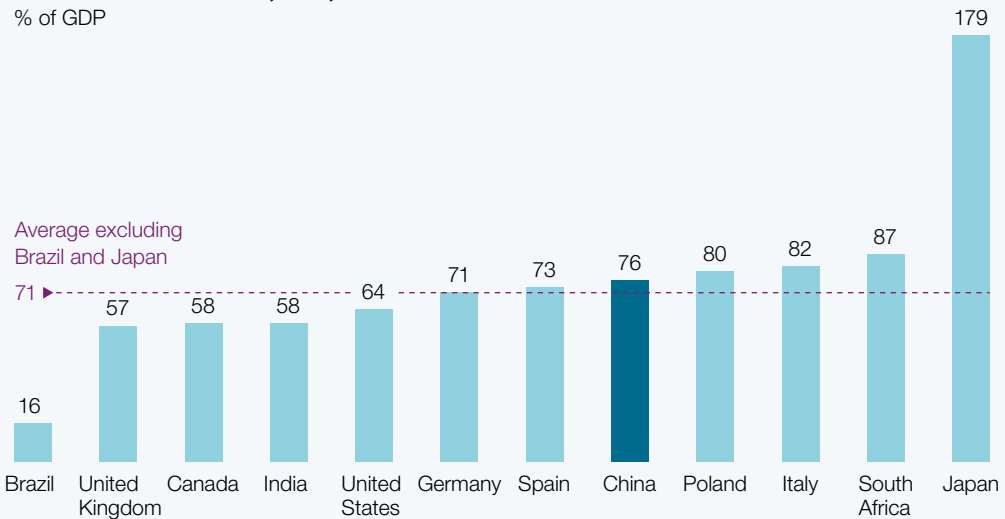
Source: IHS Global Insight; Global Water Intelligence; International Energy Agency (IEA); International Transport Forum, Organisation for Economic Co-operation and Development (OECD); McKinsey Global Institute analysis

Seeking world-class status

China's stock of infrastructure as a percentage of GDP is now above the global average—in fact, its asset base relative to GDP is greater than that of developed nations such as Canada, Germany, and the United States. Nonetheless, China's infrastructure still ranks only 44th in the World Economic Forum's survey of factors contributing to global competitiveness, despite the country's steady climb up the quality ladder in recent years. According to a range of global benchmarks assessing infrastructure penetration, China's greatest strengths lie in power systems and telecommunications. In phone and Internet usage, as well as electrification, China not only is above the average of developing nations but also approaches the levels of developed markets. China does less well on measures such as the proportion of roads that are paved and access to improved water sources.

China's infrastructure stock as a percentage of GDP is above the world average.

Total infrastructure stock, 2012,
% of GDP



Source: IHS Global Insight; Global Water Intelligence; International Transport Forum, Organisation for Economic Co-operation and Development (OECD); OECD's perpetual inventory method; McKinsey Global Institute analysis

Tomorrow's targets

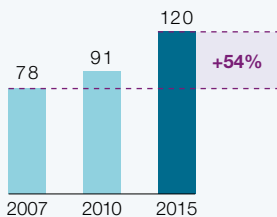
China's leadership has set aggressive goals for many infrastructure sectors: it plans 70 new airports, 43,000 kilometers of new expressways, and a major expansion of port facilities by 2020, as well as 22,000 kilometers of additional rail track by 2015. Looking further ahead, we estimate that the country will need to spend \$16 trillion (6.4 percent of GDP) on such infrastructure projects from now to 2030 to maintain its stock of assets at current levels. Power, roads, telecommunications, and water will remain leading areas of expenditure.

To a large degree, funding will continue to come from the public purse. China's various levels of government supply 96 percent of infrastructure financing: 99 percent funding of urban public-transit and airport projects, for example, and 80 to 85 percent of power, water, and port projects. Private sources provide the remainder. As spending rose from \$116 billion annually in 2001 to over \$500 billion in 2010, the number of engineering and construction firms swelled from 45,000 to more than 71,000. Perhaps not surprisingly, five of the top ten global construction and engineering companies (by 2010 revenues) are Chinese.

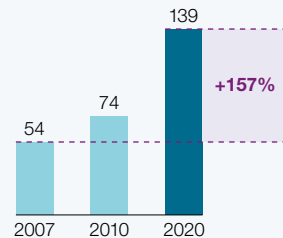
China plans aggressive expansion across key infrastructure sectors to support and stimulate future growth.

■ Planned expansion

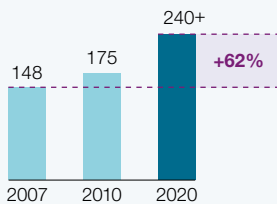
Length of railways, thousand km



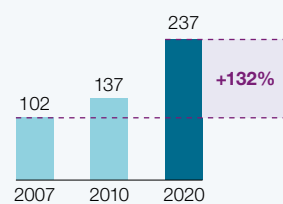
Length of expressways, thousand km



Airports, number of airports



Capacity of container terminals, million TEU¹



¹Twenty-foot-equivalent unit.

Source: CEIC Data; CIA Factbook; German Institute of Urban Affairs (Difu); Standard & Poor's; World Bank; *Yearbook of China Transportation and Communications*; McKinsey analysis

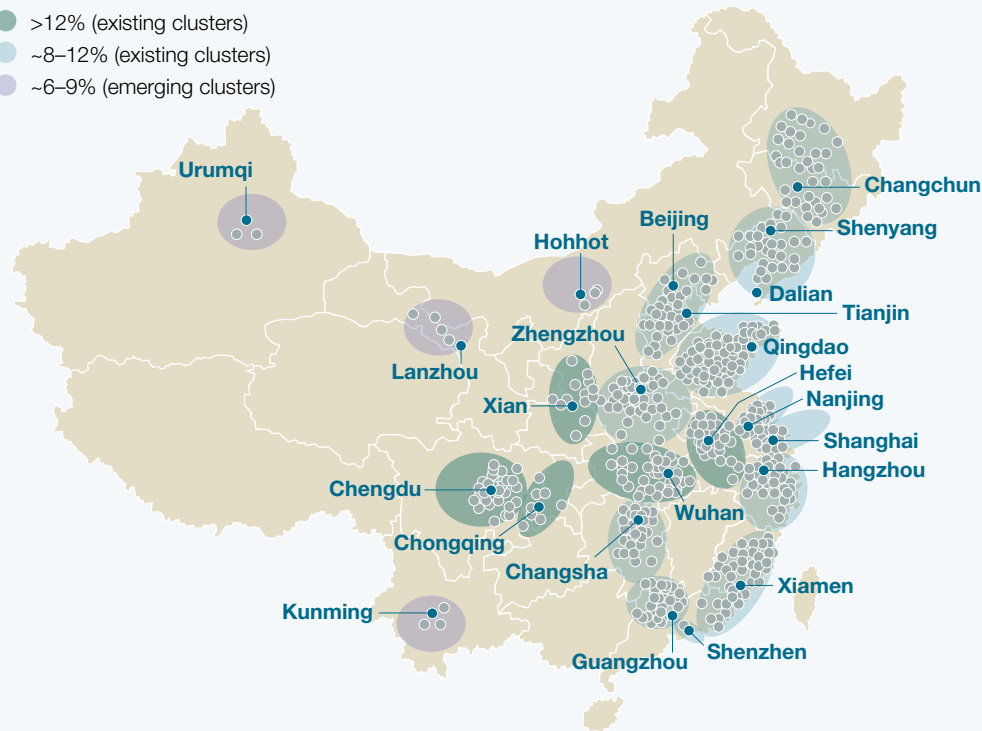
Regional integration

New policy blueprints, outlined in the 12th five-year plan of China’s National Development and Reform Commission, link infrastructure, city development, and regional economic growth. Urban hubs along China’s coast will remain the nation’s biggest and wealthiest economic zones and continue to invest in facilities that support trade. In the future, though, inland areas with faster industrial-growth rates will get an increasing share of infrastructure investment. China also is poised to develop ten logistics corridors connecting city clusters across the nation with new rail lines, expressways, and bridge crossings. Interior regions will receive additional funding to improve their resource utilization and address environmental concerns. In larger eastern cities, some infrastructure investments will underpin the transition from traditional manufacturing to high tech, services, and advanced manufacturing.

City clusters located in China’s interior will carry increasing economic weight, and new clusters will emerge.

GDP growth, CAGR, 2010–20¹

- >12% (existing clusters)
- ~8–12% (existing clusters)
- ~6–9% (emerging clusters)



¹Real industrial CAGR (compound annual growth rate); government plans include the four emerging clusters—Hohhot, Kunming, Lanzhou, and Urumqi—though they currently have much smaller urban populations and economic bases.

New logistics corridors envisioned by infrastructure planners will link these city clusters, both new and emerging.

Planned key logistics channels

- | | |
|--|---|
| <p>1 between northeast China and areas within Shanhaiguan</p> <p>2 linking south to north in east China</p> <p>3 linking south to north in central China</p> <p>4 between eastern coastal area and northwest China</p> <p>5 between eastern coastal area and southwest China</p> | <p>6 between northwest and southwest</p> <p>7 between the Yangtze River and the Grand Canal</p> <p>Two other nationwide channels address transportation of coal and imports/exports; a third will connect southwest China to countries in southeast Asia.</p> |
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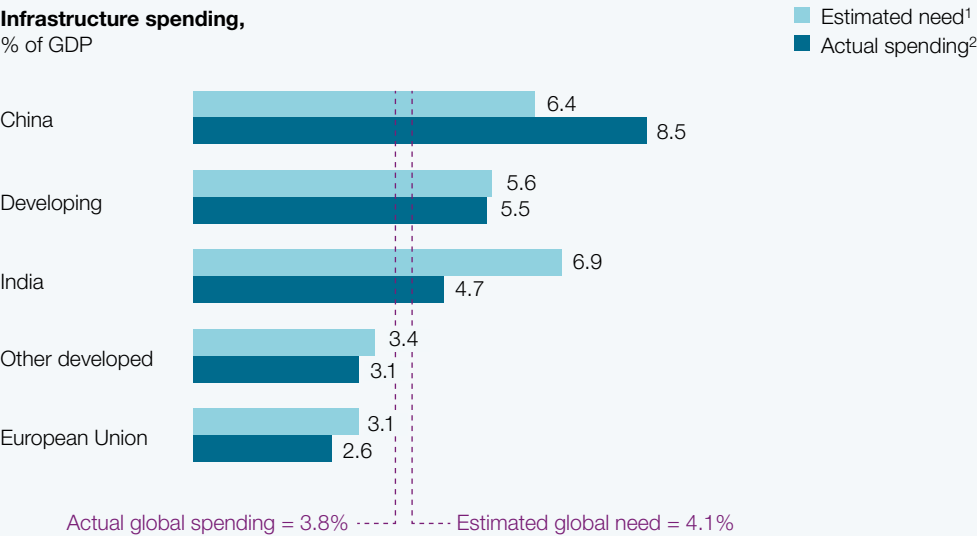


Source: *Logistics industry restructuring and revitalization plan*, State Council of the People's Republic of China, March 2009; McKinsey analysis

Room to maneuver

China is in a comfortable position after years of infrastructure investment solidly above the global average. We assume that investment will continue at these levels. But we estimate that the country could *reduce* future investment from 8.5 percent of GDP currently to 6.4 percent of GDP and still maintain its stock of infrastructure at 71 percent of GDP, the average of ten major economies around the world. By contrast, we estimate that global spending on infrastructure will need to rise, on average, to 4.1 percent of GDP, from 3.8 percent, if the rest of the world is to maintain the quality of its stock. For many nations, such as Brazil, India, and the United States, the investment climb will be steeper.

China could reduce future infrastructure investments from historical levels and still maintain a comfortable ratio of infrastructure stock to GDP.



¹Based on projected growth, 2013–30.
²Weighted average annual expenditure over years of available data, 1992–2011.
Source: IHS Global Insight; Global Water Intelligence; International Transport Forum, Organisation for Economic Co-operation and Development (OECD); OECD’s perpetual inventory method; McKinsey Global Institute analysis

In continuing such elevated levels of spending, China has the potential to start resembling Japan (arguably an overinvestor in infrastructure). There are opportunity costs as well. Lower levels of infrastructure investment in China could free up resources to its service sector (where capital is needed to generate employment) and to investments in technologies (such as energy efficiency and renewable energy) that could mitigate the environmental impact of industrialization. China could achieve further reductions by mustering infrastructure-productivity gains of the kind that our colleagues have described elsewhere.²



Following years of strong infrastructure investment, China's leaders now aim to deliver the benefits to its cities and regions. That goal will require a new, infrastructure-productivity mind-set, whose hallmarks are a greater openness to private-sector involvement and better management discipline and project governance than regional and local governments, in particular, have shown in the past. Although foreign players could help, in the past the government's near-monopoly on projects left them with only a small space. By contrast, in China's real-estate sector, private firms have played a substantial role in project management and finance, helping to drive down costs.

Despite challenges such as these, the surging scale and broadening scope of infrastructure development seem inexorable. Much as the pace of urban and industrial development often renders China unrecognizable to returning visitors, the next wave of infrastructure investment is going to create a landscape that will differ strikingly from today's already impressive reality. ○

² For the full McKinsey Global Institute report, see *Infrastructure productivity: How to save \$1 trillion a year*, January 2013, mckinsey.com.

The authors would like to acknowledge the contributions of Priyanka Kamra and Lu Wang to the development of this article.

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Photo essay

Long-haul China

Rachel Katz

Long-distance trucking is the backbone of China's economy, accounting for 76 percent of domestic freight shipments by volume. Yet the industry is fragmented and inefficient—particularly in the country's interior, where manufacturing and consumption are growing rapidly as companies move inland for cheaper land and labor. These photos, shot as I was conducting research on Chinese trucking (with the support of the Fulbright program), capture the spirit of this disorganized but vibrant form of transport, whose continued modernization is critical to China's economic development and environmental improvement.

Owner-operators dominate China's fragmented trucking industry, which comprises about seven million firms operating, on average, fewer than two trucks each. In central China, most owners hire co-drivers, so they can share the driving and maximize time on the road.



Tough roads, overloading, and small profits for owner-operators mean that trucks are heavily used and often poorly maintained, which increases pollution. To get by, drivers adapt their vehicles to carry more goods per trip. Nonetheless, given poor coordination between owners and clients, as well as inefficient routing practices, trucks return from their deliveries empty in about 40 percent of all trips.



Drivers seek new loads at the Chuanshan Freight Market, in Chengdu. Small, unregulated intermediary companies establish relationships with nearby factories and use chalkboards to post information about outgoing shipments to solicit bids from drivers.



Workers outside a factory in rural Sichuan province load tobacco onto trucks. Loading and securing cargo is a slow, strenuous process usually done by hand. Because of factors such as weather or poor coordination with clients, drivers may wait for hours—or days—before departing.



China is building roads in the central and western part of the country at a breakneck pace, but the task is daunting given these regions' formidable terrain. Many new highways become gridlocked almost as soon as they are constructed, and long delays are routine. ○

Rachel Katz is a consultant in McKinsey's San Francisco office. As a Fulbright Scholar during 2011, she conducted research on China's trucking sector. Highlights of her work, now available at longhaulchina.com, will soon be published as a book.

Industry dynamics


Getting to know China's premium-car market

Erwin Gabardi, Theodore Huang, and Sha Sha

Consumers in the fastest-growing market for these autos are seeking more than status.

Perhaps as early as 2016, China will overtake the United States as the world's largest market for premium cars.¹ Multinationals currently dominate it in China, but they must now adjust to a market where consumers are becoming more sophisticated than previous generations of buyers, who cared primarily about social status. The reason for the change, in part, is that more premium buyers will be driving their own cars rather than being chauffeured.

Our research compared the preferences of consumers in China and Germany because the latter country's carmakers hold about 80 percent of the Chinese premium-auto market (exhibit). It suggests that in China, advanced power trains are much more important for attracting high-end buyers than they are in Germany.² Fuel efficiency also looms larger for affluent consumers hesitant to step up to premium cars. Perhaps less surprisingly, price matters more in China, particularly for people interested in but less able to afford luxury cars, so there may well be a major market for

lower-priced premium models. Germans care more about other attributes: handling and technology for the consumers most willing and able to pay for such cars, quality and comfort for less affluent consumers. Automakers in China shouldn't stint even on these features, however; our research indicates that many Chinese view some of them as a "given" for premium cars. 

¹ For our purposes, the premium-car market comprises Acura, Aston Martin, Audi, Bentley, BMW, Cadillac, Ferrari, Infiniti, Jaguar, Jeep Wrangler, Lamborghini, Land Rover, Lexus, Lincoln, Lotus, Maserati, Mercedes, Mini, Porsche, Rolls-Royce, Smart, Volkswagen Phaeton, Volkswagen Touareg, and Volvo.

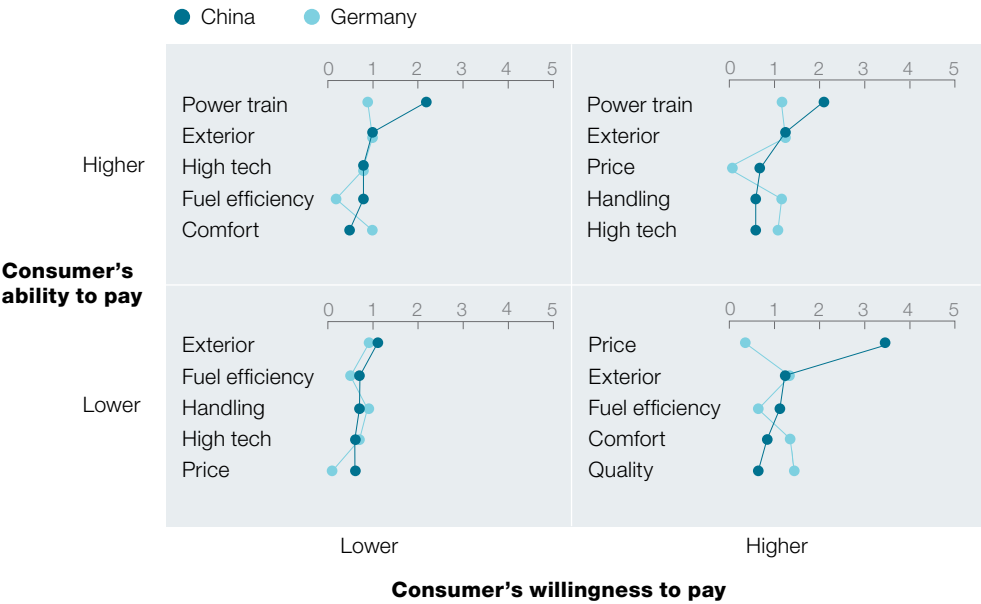
² We surveyed 1,200 premium-car consumers in 12 of China's largest cities and conducted industry interviews and focus groups on consumer preferences. These results were compared with those of a 2010 McKinsey survey of premium-car customers in Germany.



For a more complete discussion of this research, download the full report, *Upward Mobility: The Future of China's Premium Car Market*, on mckinsey.com.

The preferences of Chinese consumers who are willing and able to buy luxury cars differ from some of their German counterparts' priorities.

Ranking of top 5 most important attributes by segment (aggregate scores¹)



¹Survey respondents prioritized 22 attributes; those selected as #1 in priority scored 5; #2, 4; #3, 3; #4, 2; #5, 1; and all remaining attributes scored 0.

Source: 2012 McKinsey survey of Chinese premium-car buyers; 2010 McKinsey survey of German premium-car buyers; McKinsey analysis

Erwin Gabardi is an associate principal in McKinsey's Vienna office, **Theodore Huang** is an associate principal in the Shanghai office, and **Sha Sha** is a principal in the Hong Kong office.

Industry dynamics

Taking the pulse of China's ad spending

Johnson Yeh and Ming Zhang

A big shift in Chinese advertising spending is under way.

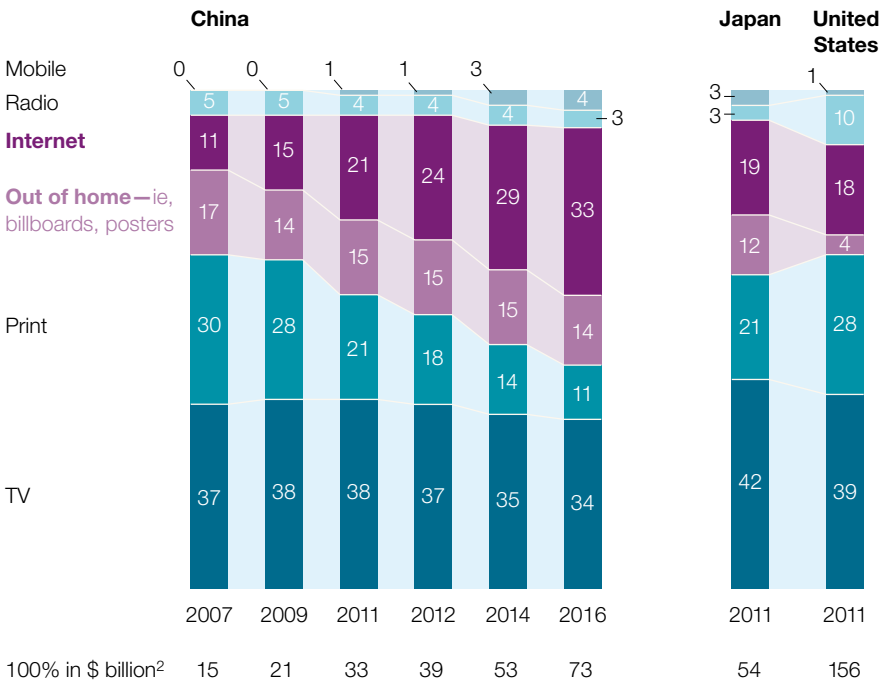
China already is the world's third-largest advertising market, and it is poised nearly to double, reaching more than \$70 billion by 2016. In China—as in the world's two biggest ad markets, the United States and Japan—television remains the largest single category (roughly 40 percent) of ad spending.

There are some interesting differences as well. Chinese companies spend relatively more on the Internet, and relatively less on print, than their counterparts in the United States and Japan do. In fact, our research suggests that by 2014, the continued steady decline of spending on print advertising will place it behind out-of-home channels—billboards and posters—in China. As a result of the country's relatively light regulation of these ads, they mostly occupy public spaces

inside commercial buildings, especially in and around elevators. In Japan, by contrast, out-of-home channels are also popular, but predominantly in outdoor and transit contexts (exhibit). Mobile ads will grow significantly in China but remain a small part of overall ad spending, since it is still a challenge to make money from them. ○

Digital advertising is on the upswing in China, but billboards and posters will retain their popularity.

Share of annual advertising spending by channel,¹ %



¹In nominal prices for each year; 2012 data are estimates, 2014 and 2016 data are forecasts. Figures may not sum to 100%, because of rounding

²Exchange rate used was average bid rate in given year except for 2014 and 2016, where average bid rate for 1Q 2013 was used.

Source: iResearch; Magna Global; Strategy Analytics; Zenith Research Group; McKinsey analysis

Johnson Yeh is an associate principal in McKinsey’s Taipei office, and **Ming Zhang** is a principal in the Shanghai office.

Industry dynamics

The ‘social’ side of health care

Cindy Chiu, Chris Ip, and Ari Silverman

Most Chinese physicians participate actively in social media, and many hospitals have picked up on the trend—but drug manufacturers are just beginning.

The tidal wave of social media in China is rapidly changing how individuals behave—including doctors.¹ More than 50 percent of them use social media regularly (exhibit), according to a recent survey.² Some leading ones have hundreds of thousands of followers. Oncologists and physicians who treat chronic diseases are among the doctors with the largest followings.

Hospitals have picked up on this trend, and for good reason. Seventeen percent of Chinese patients use the Internet as a source of information to select hospitals. For people under 25 years old, it's 28 percent.³ Leading institutions, such as Peking Union Medical College Hospital, have created social-media accounts for their medical staffs, and some require physicians to use social media when communicating with patients. Even the government is testing the power of social media to

enhance health care's reach and quality. But pharmaceutical companies have done more to take advantage of digital channels in Western markets than in China, where only a few use social media to engage with, listen to, or better understand the needs of physicians and patients.

For more on this research, download the full report, *Healthcare in China: Entering uncharted waters*, on mckinsey.com. ○

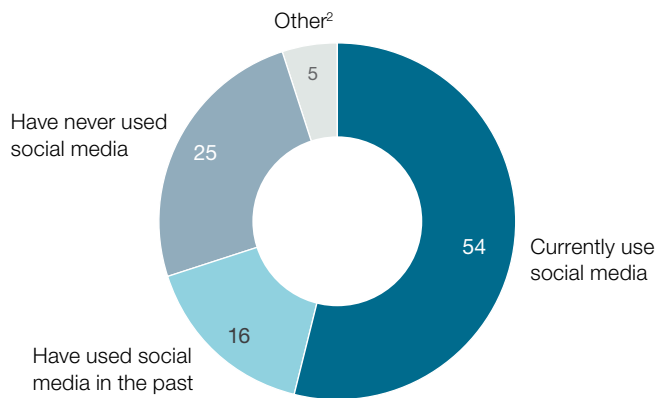
¹ See Cindy Chiu, Chris Ip, and Ari Silverman, “Understanding social media in China,” *McKinsey Quarterly*, 2012 Number 2, mckinsey.com.

² Social-media usage figures are from a survey conducted by DXY, a McKinsey survey partner in China and one of the largest online communities for physicians in the world, with more than 3.2 million members.

³ Internet usage figures are from a McKinsey survey of 1,098 patients about their experiences with China's hospitals.

Nearly three-fourths of surveyed Chinese physicians have used social media.

Use of social media,¹ % of physicians (n = 2,056)



¹ Use encompasses professional purposes (eg, disseminating medical, scientific, and technology- and drug-related information) and personal interests (eg, sports, finance). Most social-media engagement involves microblogs, which contain less text and have smaller file sizes than traditional blogs do.

² Includes 1% who have never heard of social media and 4% who did not reply to question.

Source: 2012 DXY survey of 2,056 Chinese physicians

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Industry dynamics

A new direction in Chinese banking

Hongying Liao, Emmanuel Pitsilis, and Jun Xu

Shifting from large enterprises to individuals and small businesses presents a huge challenge for Chinese banks.

After several years of seemingly clear sailing for China, bank analysts are now fretting about the nonperforming loans that the 2009 economic stimulus left behind and the proliferation of wealth-management products manufactured by underregulated trust companies. These problems are real, but bank executives face a much bigger longer-term challenge.

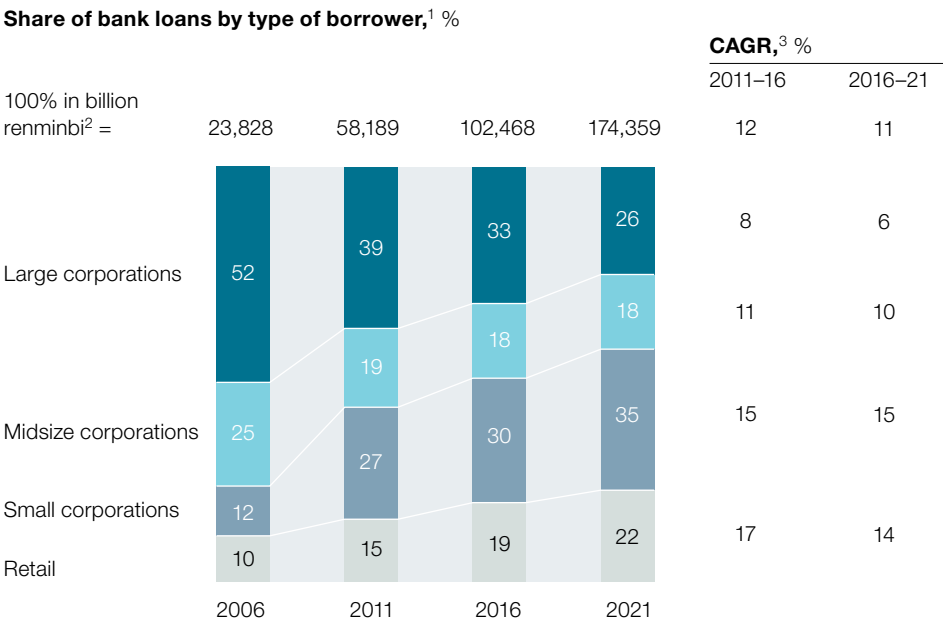
Using international benchmarks, China's historic growth patterns, and our understanding of upcoming reforms, we have developed projections suggesting that the structure of China's

banking market will continue to change at an unprecedented rate as business opportunities shift from large state-owned enterprises to small and midsize businesses and the newly enlarged ranks of middle-class consumers (exhibit).

The implications for the business and organizational models of banks, and for the capabilities they'll need to succeed in this new environment, are profound.

Regardless of the impact of the cyclical issues worrying analysts at the moment, the profits of those banks unable to respond to the structural shift in the sector will come under growing pressure. ○

A more balanced business mix for Chinese banks



¹Figures may not sum to 100%, because of rounding; data for 2016 and 2021 are forecasts.
²In 2011, on average, 6.46 renminbi = \$1.
³Compound annual growth rate.
Source: People’s Bank of China; China Banking Regulatory Commission; McKinsey analysis

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China's rising stature in global finance

Richard Dobbs, Nick Leung, and Susan Lund

The country's financial markets are deepening, foreign investment keeps on pouring in, and capital is flowing outward. What would it take for China to assume a new role as world financier?

China, as the world's largest saver, has a major role to play in the global financial rebalancing toward emerging markets. Today, these countries represent 38 percent of worldwide GDP but account for just 7 percent of global foreign investment in equities and only 13 percent of global foreign lending.¹ Their role seems poised to grow in the shifting postcrisis financial landscape, since the advanced economies face sluggish growth and sobering demographic trends. As a lead player in that shift, China could become a true global financial hub and establish the renminbi as a major international currency.

Yet a long-closed economy—even one with more than \$3 trillion in foreign reserves—can't swing open its doors overnight. China's domestic financial markets will have to deepen and develop further, and returns earned by the government, corporations, and households must rise if the country is to attract and deploy capital more effectively. At the same time, the barriers that prevent individuals and companies from investing more freely outside the borders of China, and foreigners from investing within them, will have to diminish gradually, and the country must build

the trust of global investors. Continued reform in China, coupled with its vast domestic savings and outsized role in world trade, could make the country one of the world's most influential suppliers of capital in the years ahead.

Growth and growing pains in China's markets

As China's financial markets have become more robust and deeper, the value of its domestic financial assets—including equities, bonds, and loans—has reached \$17.4 trillion, trailing only the United States and Japan (Exhibit 1). That's a more than tenfold increase in a span of two decades, and it doesn't include Hong Kong's role in channeling funds to and from China.

In contrast to most advanced economies, where lending has been stagnant amid widespread deleveraging, bank loans in China have grown by \$5.8 trillion since 2007, reaching 132 percent of GDP—higher than the advanced-economy average of 123 percent. About 85 percent of that Chinese lending has been to corporations; households account for the rest. This rapid growth has raised the

specter of a credit bubble and a future rise in nonperforming loans, though regulators have attempted to slow the pace in overheated areas such as real estate.

China’s corporate-bond market is also developing. Bonds outstanding from nonfinancial companies have grown by 45 percent annually over the last five years, bonds from financial institutions by 23 percent.² There is ample room for further growth, since China’s levels of bond-market borrowing are significantly below those of advanced economies. Indeed, bond financing could provide an alternative source of capital for the

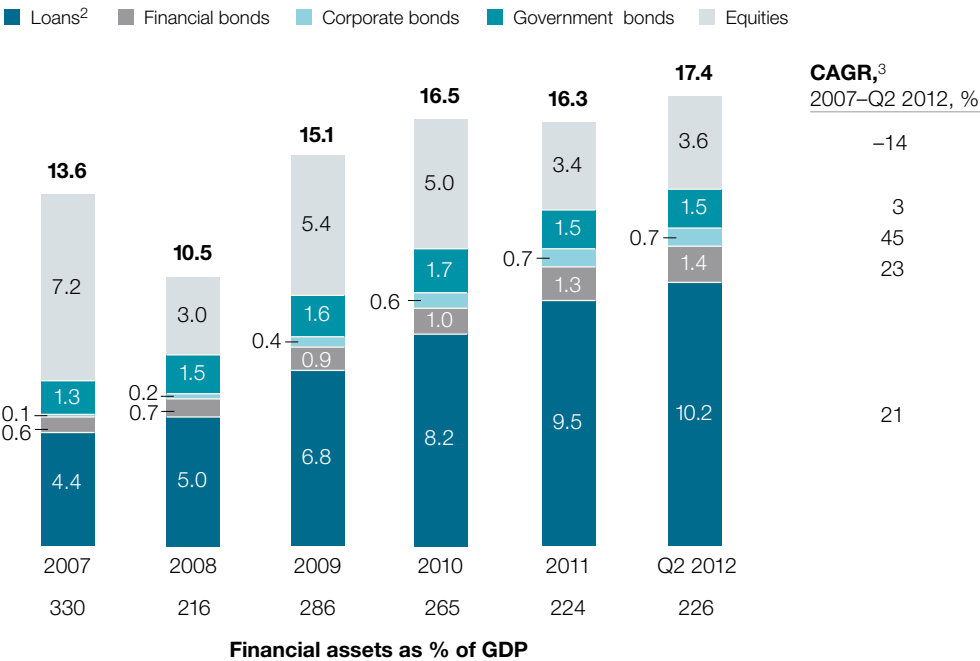
country’s expanding corporate sector, enabling banks to increase their lending to households and to small and mid-size enterprises.

Unlike many major equity markets, China’s stock market has not rebounded since the financial crisis and global recession. Total market capitalization has fallen by 50 percent since 2007, plunging from \$7.2 trillion in 2007 to \$3.6 trillion in the second quarter of 2012. Investors sent valuations soaring at the market’s peak, but fears of a slowdown and a more realistic view of company valuations dampened their enthusiasm,

Exhibit 1

A surge in lending has boosted China’s financial assets by \$3.8 trillion since 2007, but growth has not kept pace with that of GDP.

China’s financial assets outstanding, \$ trillion¹



¹Constant 2011 exchange rates; figures may not sum to 100%, because of rounding.

²Sum of securitized and nonsecuritized loans.

³Compound annual growth rate.

Source: McKinsey Global Institute analysis

underscoring the fact that China's equity markets, like those of other emerging economies, remain subject to sharp swings.

Cross-border investment surges

China has defied global trends in cross-border capital flows, which collapsed in 2008 and remain 60 percent below their precrisis peak. For China, by contrast, foreign direct investment (FDI), cross-border loans and deposits, and foreign portfolio investments in equities and bonds are up 44 percent over 2007 levels (Exhibit 2). Total foreign investment into China reached \$477 billion at the end of 2011, exceeding the 2007 peak of \$331 billion.³ Foreign companies, eager to establish a presence in China, account for roughly two-thirds of the inflows.

Capital from foreign institutional and individual investors could provide another leg to growth as long-standing restrictions on foreign portfolio investment continue to ease. The number of qualified foreign institutional investors (QFII) approved by Chinese regulators has grown from 33 in 2005 to 207 in 2012 and will undoubtedly rise further. Regulators also are giving registered foreign funds more latitude to invest their holdings of offshore renminbi in China's domestic capital markets. Both moves have further opened the door to foreign participation in those markets.

Famously, the People's Bank of China, the nation's central bank, has accumulated the world's largest stock of foreign-currency reserves: \$3.3 trillion

at the end of 2012. While much of this money is invested in low-risk sovereign debt—for instance, US treasuries, which account for at least \$1.2 trillion of China's reserves—the growth in such investments has slowed considerably. Instead, China is both loosening restrictions on other types of financial outflows and moving to diversify its foreign holdings. That was the impetus behind the 2007 creation of the China Investment Corporation (CIC), one of the world's largest sovereign-wealth funds, with assets of \$482 billion. CIC's holdings include shares in many of the world's blue-chip companies; mining, energy, and infrastructure projects; global real estate; and even a stake in London's Heathrow Airport.

Chinese companies are also stepping up their role in global finance. Foreign direct investment by both state-owned and private-sector Chinese companies grew from just \$1 billion in 2000 to \$101 billion in 2011. At the end of 2011, Chinese companies accounted for \$364 billion of global foreign direct investment, with most of it tied to commodities. About half of these investments went to other emerging markets—a share higher than that for companies in advanced economies.

Much of China's rapidly increasing global lending is tied to foreign investment deals involving Chinese companies (for instance, financing a mine in Peru, with construction to be undertaken by a Chinese company). Outstanding foreign loans and deposits totaled \$838 billion at the end of 2011. To put this sum in perspective, consider

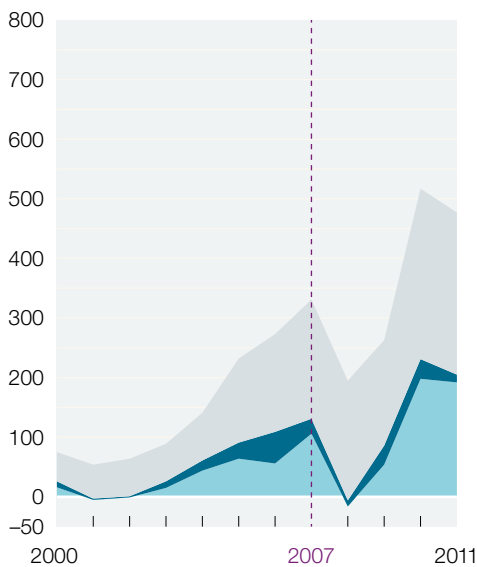
Exhibit 2

While global cross-border capital flows have declined by 60 percent since 2007, China's capital flows have been reaching new heights.

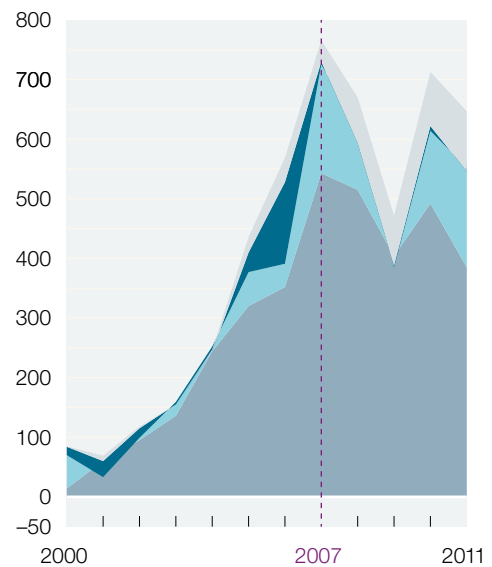
China's capital inflows and outflows, \$ billion¹

■ Foreign direct investment (FDI) ■ Equity and debt securities ■ Loans and deposits² ■ Reserves

Capital inflows



Capital outflows



¹Constant 2011 exchange rates.

²In 2008, inflows of loans and deposits totaled –\$16 billion, while in 2009 outflows of loans and deposits totaled –\$19 billion.

Source: McKinsey Global Institute analysis

the fact that the total level of loans outstanding from the world's five major multilateral development banks is about \$500 billion. Since 2009, Chinese loans to Latin America have exceeded those of both the Inter-American Development Bank and the World Bank (Exhibit 3).

Africa is another priority. At the 2012 Forum on China–Africa Cooperation, China pledged an additional \$20 billion in new lending to that continent over the next three years. In March 2013,

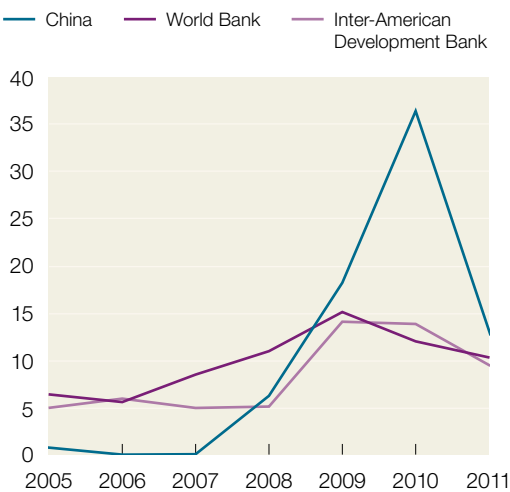
President Xi Jinping traveled to Africa for his first overseas trip as head of state, reaffirming this lending pledge and signing an agreement to build a multibillion-dollar port and industrial zone in Tanzania.

So far, the returns on many of China's investments at home have been below their cost of capital. There is almost an expectation of low returns—in some cases, negative real returns—on corporate invested capital, on domes-

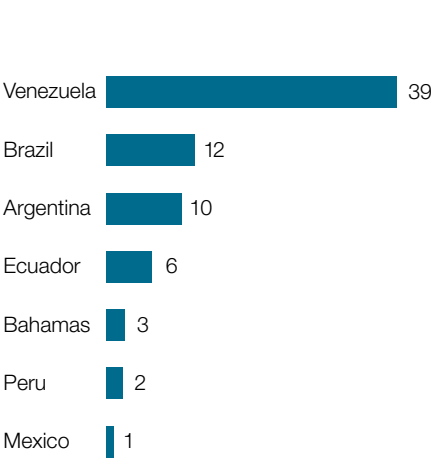
Exhibit 3

China now provides a higher volume of loans to Latin America than the World Bank and the Inter-American Development Bank.

Annual flow of bank loans to Latin America, \$ billion



Recipients of Chinese lending in Latin America, cumulative flows, 2005–11, \$ billion



Source: World Bank; Inter-American Development Bank; Inter-American Dialogue; Heritage Foundation; McKinsey Global Institute analysis

tic bank deposits, and even on returns the government earns on its foreign reserves. The returns that will be earned on many of China’s recent foreign direct investments and foreign loans remain to be seen. The pace and process of the migration to market-level returns will be a challenge for policy makers.

The long road to renminbi convertibility

As China’s economy and financial clout continue to grow, so will use of the renminbi. China has aspirations to make it an international currency, perhaps eventually rivaling the US dollar and the euro for global foreign reserves. But

realizing these ambitions will require substantial progress on several fronts.⁴ One is developing deep and liquid domestic capital markets for renminbi-denominated financial assets. Despite the progress described above, China’s financial depth (the total value of its financial assets as a share of GDP) remains less than half that of advanced economies. Developing larger bond markets, as well as derivatives markets to hedge currency and other risks, will be essential.

To take on a greater global role, the renminbi must also become an international medium of exchange. In recent years, China has promoted the use of its currency to settle international

trade contracts; for instance, it has created swap lines to supply renminbi to 15 foreign central banks, including those of Australia and Singapore. As a result, the use of the renminbi in China's trade has grown from around just 3 percent several years ago to an estimated 10 percent in 2012. According to a survey by HSBC, Chinese corporations expect one-third of China's trade to be settled in renminbi by 2015.⁵

However, to become a true international currency, the renminbi will have to be fully convertible—meaning that any individual or company must be able to convert it into foreign currencies for any reason and at any bank or foreign-exchange dealer. China's central bank has acknowledged that the time has come to move in this direction and accelerate capital-account liberalization,⁶ and it recently outlined both short- and long-term road maps for this process. Short-term moves could include reducing controls on investment directly related to trade and encouraging Chinese enterprises to further increase outward foreign direct investment. For the longer term, the bank has outlined actions such as opening credit channels to flow both into and out of China and moving from quantity- to price-based approaches to monetary policy management. And over time, China will need to build trust in its institutions by developing a set of rules, applying them consistently, and sticking with them.

For now, however, the doors remain only partially open. Achieving the institutional development needed to fully liberalize

capital accounts and remove currency controls will take time.

To assume the role of financier to the world, China will have to embrace financial globalization and advance reform more fully, and that won't happen overnight. There is already movement toward greater openness, though, which makes China's recent once-in-a-decade leadership transition a telling moment: if the new economic team picks up the pace of reform, the world financial system could have a very different look in just a decade's time. ○

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¹ This article is based on the McKinsey Global Institute report *Financial globalization: Retreat or reset?*, March 2013, mckinsey.com.

² Compound annual growth rate.

³ The 2011 data are the latest available from the Chinese government on capital inflows and outflows.

⁴ A number of papers have been written about the internationalization of the renminbi. See, for instance, Eswar Prasad and Lei (Sandy) Ye, *The renminbi's role in the global monetary system*, Brookings Institution, February 2012.

⁵ See "RMB maturing as cross-border usage broadens, says HSBC survey," Hongkong and Shanghai Banking Corporation, hsbc.com.tw, October 24, 2012.

⁶ See the full report, *Accelerating capital-account liberalization* (in Chinese), People's Bank of China, cs.com.cn, February 23, 2012.



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Looking forward

Two women overlook the cityscape of Lanzhou, the capital city of Northwest China's Gansu province. The rapid growth and urbanization that began in China's coastal regions is moving inland.

China's great rebalancing: Promise and peril

Yasheng Huang

Some encouraging signs indicate that China's new leadership is serious about moving from an investment to a consumption model.

Every March, coverage of the annual session of China's National People's Congress (NPC)—the country's equivalent of the US Congress, though without the filibusters and fiery speeches—saturates the media. This year's NPC was significant: March 14th formally marked the country's once-per-decade transition of power, this time from President Hu Jintao and Premier Wen Jiabao to Xi Jinping and Li Keqiang, respectively. Yet just a day later, another event with huge implications unfolded to little front-page coverage. The Wuxi subsidiary of Suntech Power, one of the world's largest producers of solar panels, defaulted on a bond payment of more than \$500 million. The company, once praised and feared by Western analysts, went into technical bankruptcy.

The woes of Wuxi Suntech and its counterparts in other industries exemplify the massive policy challenges that will confront China's new leaders in the next decade. These challenges can be distilled into one statistic: household consumption accounts for only around 38 percent of China's gross domestic product. To put the facts another way, consumers have not begun picking up the economy's slack, as they must if they are to fuel economic growth now that the country's investment-led model is reaching its limits. Chinese household consumption as a share of GDP is barely half that of the United States, where it typically accounts for about 70 percent of economic activity, and significantly less than the prevailing rate (approaching 60 percent in recent years) of other large economies, such as Brazil, France, Germany, and India.

China's solar-panel industry is illustrative because it's a classic example of massive investment outstripping demand. In barely a decade, the industry went from nowhere to a position of dominance: the ten largest Chinese manufacturers today account for more than 60 percent of global solar-panel production. The problem is that this growth was almost entirely production driven—in 2010, 96 percent of solar panels made in China were exported; in 2011, 88 percent. Banks showered these private-sector companies with loans as part of a post-2009 stimulus program, and that led to oversupply and sharply lower margins. China also has accumulated massive capacity in state-owned heavy industries, only to discover periodically that such an investment-heavy strategy is both economically and environmentally unsustainable. Environmental crises are increasingly common, income inequality is widening, and the use of cheap credit and state-driven subsidies has sharply accelerated the country's debt levels, leading to fears of potential financial distress.

As the government acknowledges, China's economy must rebalance by reducing its reliance on investment and increasing consumption. Doing so while maintaining growth and stability requires both economic and political changes. We already have some preliminary evidence that economic ones are under way; political changes are harder to forecast, but the probability is certainly higher than it was in the past. Firms and executives must consider the likelihood of changes on both fronts when crafting China strategies for the next decade. That means understanding the likely promise—and peril—of China's great rebalancing.

The economic-policy adjustment has one objective: shifting China from a production-oriented economy to one centered around household consumption. On this front, the country's leadership has already taken some tentative but encouraging steps. Earlier this year, for example, Beijing released a plan to raise the dividend payouts of state-owned enterprises and to use a portion of the distribution to strengthen social-security funds. The plan still requires approval, but its disclosure suggests that there is a realistic possibility it will be implemented and help to curb the investment appetite of state-owned companies while shifting wealth to Chinese households.

Two other policy moves are worth noting and, if implemented, would indicate that China's leadership no longer favors the investment-driven growth model. First, the Ministry of Finance proposed a carbon tax, to be rolled out in the next two years, which, while modest,

signifies that the government is serious about addressing environmental concerns. Taxing and raising the price of fossil fuels will not only curb the capital expenditures of Chinese firms but also give them and households an incentive to embrace renewable-energy sources.

On that front, the State Grid Corporation of China has started buying—in extremely modest quantities—electricity from distributed-generation facilities such as solar units operated by households. This year, the National Energy Administration increased its solar-energy-supply target for 2015 by 67 percent. The significance of these developments lies not so much in their magnitude as in the changed policy direction they signal.

The second policy move relates to removing or reducing the implicit subsidies embodied in low energy prices. Production subsidies stealthily transfer wealth from households to firms, reinforcing the production and capacity-building biases of the Chinese system and supporting less competitive companies (including many state-owned enterprises) that would otherwise struggle to invest and grow. This move may reflect a fresh willingness on the part of the country's new leadership to rethink the role of state-owned companies as part of the effort to pivot toward a consumption-based, people-centered model of economic growth. In short, it's another hopeful sign that China's leadership both understands the imperative to rebalance and is beginning to take some concrete steps to do so.

Of course, there is no guarantee that rebalancing will succeed. Part of the problem is that the politics associated with it—boosting the income of Chinese households at the expense of state-owned companies and other large investment-oriented entities—is actually more complicated than the economics. But one thing is certain. China is rapidly reaching the point of diminishing economic and political returns from its investment-driven model, which is headed for change one way or another: either through a proactive rebalancing, with reforms and policy adjustments, or a forced rebalancing precipitated by rising stresses in and beyond the financial system. So far, the signs are encouraging that the new leadership is serious about changing China's growth model, and this is reason enough for global firms that have benefited from China's investment boom to rethink their strategies for the years ahead. ○

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Winners and losers in China's next decade

Michael Pettis

The move from investment to consumption will drive some industries, hamper others.

It is not enough for global businesses to know that in coming years China's economy will move away from an overreliance on investment and toward more consumption. They also must know that the potential costs and benefits of rebalancing the world's second-largest economy are high and will affect industries not only domestically but also around the world. The degree of impact depends largely on the policies that Beijing chooses to implement. While China's leadership—under both President Xi Jinping and his predecessor, Hu Jintao—has made it clear that it understands the risks of rebalancing, the process won't be easy. Companies must be ready.

The reason for rebalancing is obvious. The sharp increases in investment that have driven China's rapid economic growth for the past 30 years are not sustainable, and consumers can't provide additional demand unless wealth is redistributed toward Chinese households. The most obvious consequence of rebalancing is that it will result in much slower growth over the medium term. While many economists now project that average annual economic growth will fall to between 5 and 7 percent a year during the next decade, I expect it to slow even more, perhaps to 3 to 4 percent a year. In modern history, no country that has experienced an investment-driven growth "miracle" has avoided a slowdown (such as Japan's after 1990) that surprised even the pessimists, and it is hard to find good reasons to think China will be an exception.

If consumption is to grow enough as a source of demand to replace investment—in other words, to force up household income as a share of GDP—Beijing must reverse policies, such as keeping the currency undervalued and depressing interest rates, that for the past three decades have subsidized investment by constraining the growth of household income. The government must pursue such policies while reconciling the country's conflicting interests, including those of the powerful groups, sectors, and companies that have benefitted the most from China's investment-intensive growth model, especially from access to artificially cheap credit. As a result, many businesses in China and around the world will thrive, while others will be forced to make wrenching changes. Here are four predictions about the ways China's rebalancing will affect the global economy:

1. The price of hard commodities will drop sharply. China consumes a disproportionate share of the world's hard commodities, such as aluminum, copper, and iron ore. Adjusted for GDP, the country buys four to ten times as much of these commodities as the rest of the world does, and its appetite has driven most of the global increase in commodity demand during the past two decades. That demand is a direct consequence of the country's growth-through-investment approach, which is far more commodity- than consumption-intensive. As investment growth slows, so will China's demand for hard commodities, whose prices may consequently drop, perhaps by as much as 50 percent, over the next few years. This will benefit countries that import hard commodities and companies where they are an important cost component. However, not all commodity prices will drop: if rebalancing succeeds, the income of China's middle- and lower-middle classes should grow, keeping demand for food strong.

2. Industries that profit from building infrastructure or manufacturing capacity will suffer. Rebalancing will sharply reduce the growth of aggregate spending on construction equipment, heavy manufacturing, transportation, and other sectors that have historically benefitted from China's explosive surge in investment. Among these sectors, however, government policy will influence which will suffer more and which less.

3. Companies that produce consumer goods will be marginally affected overall, while specific sectors will do much better or worse. China's rebalancing requires household incomes to continue growing faster than GDP. The composition of this growing consumption,

however, may change dramatically. First, rebalancing means that the Chinese middle class will expand, reducing the relative importance of the rich and the poor in the country's consumption profile. Second, political constraints will drive how the cost of rebalancing is distributed among the powerful vested interests, and that will affect how benefits are distributed among Chinese households. Faster growth in household income, for example, can occur as wages increase, as the price of imports drops, or as deposit rates rise, and each of these would benefit different sets of households and providers of different kinds of consumer goods.

4. Countries, especially developing ones, that rely heavily for growth on manufacturing will benefit. Low unit-labor costs, repressed interest rates, and an undervalued currency are at the heart of China's export competitiveness. By definition, rebalancing increases all of these and will significantly reduce China's export competitiveness, at least in the near term. This development has already benefitted low-cost producers in countries such as Mexico, whose manufacturing sector was nearly decimated until recently by aggressively priced Chinese manufacturing exports. How foreign manufacturers benefit overall depends on political decisions about how China's rebalancing occurs—for example, whether capital- or labor-intensive industries bear the brunt of the adjustment.

Beijing's new leaders understand that they must urgently rebalance China's economy. They also know that this will change the sources of Chinese demand dramatically and may involve significant direct transfers from the state to the household sector through measures such as privatization, land grants, and the elimination of residency requirements. These changes will fundamentally be driven by how China's leadership decides to rebalance or, to put it less euphemistically, how it decides to balance the costs and benefits between powerful vested interests and the needs of the economy. It's too early to say exactly how this will occur, but there is no question that it will drive or retard growth in many industries around the world. ◉

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China's environmental future

Golden opportunity—or nightmare?

Qi Ye

The rapid growth and urbanization that began in China's coastal regions is moving inland. This movement is either a golden opportunity for more people to achieve the “Chinese dream” or a nightmare if pollution spreads wider and deeper into the country's more ecologically fragile west. Beijing's new administration should seize the opportunity to make industries more environmentally sound and economic growth more sustainable. Policy makers also should emphasize new goals to make urbanization smart, green, low carbon, and inclusive. Because urbanization has the potential to increase China's carbon emissions significantly—urban areas release three times more carbon dioxide per capita than rural ones—a new approach is required.

China has made a strong start on climate change—a key component of its 12th five-year plan—but the real driver of action here may be domestic concerns about local pollution rather than international negotiations. There is perhaps no better demonstration of the urgent need to address the country's environmental issues and green the economy than the thick and severe smog that earlier this year overwhelmed almost all of China's east coast, an area equal to the combined size of France, Germany, Italy, and the United Kingdom. The smog choked Beijing, leading to peak air-pollution readings (during the Chinese New Year) that were some 40 times the World Health Organization's air-quality guidelines. Is China ready and able to respond? Well, the government certainly has much catching up to do. Then again, so does everyone else. ○

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What real progress would look like

Elizabeth C. Economy

If current trends hold, an additional 300 million Chinese will become urban residents by 2030. Residents of cities consume as much as four times more energy and two-and-a-half times more water per capita than rural Chinese. Yet investment in environmental protection continues to hover at around 1.3 percent of GDP. Despite official policy, one recent academic study found that local officials are rewarded more for investing in infrastructure than for making environmental protection an explicit priority.

What could indicate that the Chinese government was making real progress toward environmental protection? First, Beijing ought to invest more financial and human capital: Chinese scientists say government investment in the environment should be at least 2.2 percent of GDP just to prevent further deterioration. Second, the National People's Congress ought to develop environmental laws and regulations that are sufficiently detailed to ensure proper enforcement. Third, the government should develop a system of political and economic incentives and disincentives (which it is discussing in the context of a new carbon tax) that encourage local officials and businesspeople to do the right thing. And fourth, Beijing ought to view nongovernmental organizations, the media, and the public as partners rather than adversaries by improving access to information and enlisting public participation. ○

Elizabeth Economy is the director for Asia Studies and the C. V. Starr senior fellow at the Council on Foreign Relations.

Forecasting China

Gordon Orr

McKinsey's Gordon Orr has been publishing predictions about China for nearly five years. Join him for a review of the good guesses, major misses, and lessons he's learned from both.

I started writing lists of what might happen in China seven or eight years ago. At first, they were just for me—a way of organizing my own thinking in early January for the 12 months ahead. Then I began to post some of the more interesting ideas on the blog I write for McKinsey colleagues.

Four years ago, when my publishing colleagues suggested I share my predictions externally—first in English, then in English and Chinese—the stakes rose significantly. This development not only brought the forecasts to the attention of thousands of users on a McKinsey site but also made it possible for social and traditional media to amplify the message to hundreds of thousands of people (and, in the case of one notorious forecast, to several million of them). Better data, more coherence, greater sensitivity to the possible implications of what I was saying, and thorough editing were needed. In the annual forecasts, I have tried to strike a balance among the following considerations:

- Developments that I'm convinced will really happen and have a material impact on the country but aren't being highlighted as much as I think they should. They range from small changes that illustrate a broader point—sometimes even a real discontinuity—to large changes of national significance.

- Things that might or might not happen, but whose impact would be very material if they did and are worth thinking about anyway for what they tell us about China today.
- Things that are highly unlikely to happen but would be fun if they did. Exploring them has allowed me to share interesting and perhaps unexpected things I learned about China.

For 20 years, it has been my privilege to make China my home and to immerse myself in the transformation of its business, its economy, and its society. I live and work in China but I am not of China. I hope that gives me both optimism about what can be achieved there, often rapidly, and objectivity enough to see the flaws alongside the successes and to recognize when foundations are solid and when they are cracked.

The themes I write about come implicitly and explicitly from my interactions with many people. I have seen four, five, even six generations of country heads of multinational companies come and go. I have been able to work with the executives of many multibillion-dollar Chinese companies as they have moved from middle management to the top of their organizations. And I have seen many of the talented Chinese nationals we recruit for McKinsey grow into partners and, in some instances, move beyond the firm to lead some of the most exciting enterprises in China today.

How did the forecasts do?

Here are some of the highlights and lowlights of my forecasts over the last four years.

2009

The forecasts for 2009 were perhaps the most provocative—and specific—and included one that subsequently went viral and was read by millions. In my comments on the substandard quality of Chinese construction, I had suggested that a major tower block would fall over. So when fire destroyed a tower in the new China Central Television (CCTV) complex in Beijing a few months later, and a newly completed housing tower block in Shanghai collapsed for lack of

proper foundations, China's social media claimed I had magical foresight.

Slightly less presciently, I forecast that Mexico would expand significantly as a production base for Chinese manufacturers. South Korean producers already had a large presence there, and the early signs suggested that cost and demand pressures were driving the growth of multiple manufacturing hubs. Foxconn and Haier did acquire factories in Mexico, and recently Lenovo announced that it will be assembling PCs in the United States. But Chinese manufacturers did not act as boldly to diversify their production geographically as I had expected. The advantages of staying close to their existing supplier base and avoiding complexity far from home proved more compelling.

I had thought that following Huawei's failed 2008 attempt (with support from Bain Capital) to buy the US network-equipment manufacturer 3Com, another iconic US technology company might be the object of Chinese attention in 2009. Since the Lenovo acquisition of IBM's PC business unit in 2005, however, no Chinese company has succeeded in buying a US technology business of any size, not even those that have fallen on hard times. Many observers have noted the changing political climate: if the Lenovo acquisition had been proposed a few years later, it would probably have been turned down. Fear of rejection remains a powerful deterrent to larger-scale Chinese acquisitions in the United States—so much so that the American Chamber of Commerce in China is currently planning an initiative to help Chinese companies invest in the United States.

Competition in the telecom sector, meanwhile, has declined to a whimper even without the continued consolidation I forecast at the start of 2009. Government-orchestrated share shifts enabled through policy and regulatory pronouncements have prevented the weaker operators, with their large legacy fixed-network assets, from getting into serious financial distress.

Although China has not made quite the leap I predicted in electric cars, its commitment to developing the world's leading electric-vehicle (EV) industry has been substantial. That commitment includes

billions of dollars in subsidies and huge incentives for potential buyers, as well as directives to government purchasers to buy electric. The original Program to Promote the Automotive Industry, in 2009, set a target of 500,000 new-energy (EV, hybrid, and other) vehicles by 2011. The actual volume turned out to be 15,000, of which 10,000 are EVs.

To date in China, as elsewhere in the world, consumers have largely rejected EVs, and EV technology has failed to live up to the commitments of Chinese companies. The share price of BYD, one of the businesses I highlighted, has fallen by more than 65 percent since the euphoria that followed Warren Buffet's investment. The timing of my forecast was spectacularly wrong. But the need for electric vehicles is still pressing—if anything, more so given the intense pollution in Beijing this earlier this year. Chinese companies recognize how challenging it will be to develop the technology, particularly batteries, and are reaching out globally. Wanxiang's recent purchase of A123 Systems is a case in point. There will be a second wave for EVs in China, but probably not on a major scale until after 2017.

I was at least partly justified, at the start of 2009, in looking forward to warm cross-strait relations between the mainland and Taiwan. Mainland banks have invested modestly there, although the first representative branch didn't open until 2010. By the end of 2012, four mainland banks—Bank of China, Bank of Communications, China Construction Bank, and China Merchants Bank—had a branch or office in Taipei.

2010

As a result of a couple of transactions I was supporting over the Christmas and New Year period, I wasn't able to make that year's forecast in time for publication.

2011

The list of forecasts was shorter in 2011 than in other years. I thought inflation would be a problem, and, sure enough, it rose by more than 5 percent (against 3.3 percent in 2010 and -0.7 percent in 2009). The jump in food prices was of particular concern to government officials. To this day, the food chain remains highly strained, vulnerable to harvests disrupted by weather or outbreaks of disease. Imports

of agricultural products also took off in 2011, encouraging financial investors to find opportunities in the sector.

I predicted a rise in minimum wages as well, albeit with the caveat that productivity gains would outstrip labor costs. With the push to boost economic growth through consumption, minimum wages did increase, by as much as 20 percent annually in many cities. Companies struggled to achieve matching productivity gains, though. For the first time, many multinationals experienced a China with middling, even high, labor costs and significant rigidities when it came to hiring and firing workers. The country now has a much clearer understanding of the trade-off between hiring factory workers and making capital investments—and especially of the risks of hiring expensive white-collar staff with, at best, average productivity levels.

As I expected, 2011 was a bumper year for outbound acquisitions by Chinese companies, which committed more than \$50 billion to deals. A majority of the largest were in the energy sector, notably Sinopec's purchase, for \$4.8 billion, of a 30 percent stake in Petrogal Brasil (petroleum and natural gas); China Three Gorges Corporation's \$3.5 billion strategic partnership with Energias de Portugal, an electric utility; and China Investment Corporation's decision to invest \$4.3 billion for a 30 percent stake in the exploration and production division of GDF Suez (natural gas). Chinese companies also acquired rights to exploit oil and gas fields in Australia and in the United States, and there were several sizable mining acquisitions. In other sectors, Lenovo bought NEC's personal-computer business and a 37 percent stake in Medion, a German consumer-electronics manufacturer. Chinese investment in international port operations also grew.

My poorest forecast was probably that China's government would meaningfully reduce its stake in state-owned enterprises, particularly in the industrial companies overseen by the State-owned Assets Supervision and Administration Commission (SASAC). Instead, the status quo well and truly held. Indeed, since 2010 the market share of state-owned enterprises has grown in numerous sectors.

2012

I had some easy wins in 2012. For example, compensation again predictably rose across the board, as did minimum wages (by 13

percent in Shanghai and even more in many other cities). White-collar salaries rose still further—so much that it might be cheaper to employ a researcher in Munich than in Shanghai. In one Chinese company's R&D organization, the average compensation cost rose to \$70,000.

Accounting scandals in Chinese companies grew in number and scale through 2012 and continued in 2013, at a pace faster than I had anticipated and across a broader range of industries. Even an illustrative list is long: Boshiwa, China MediaExpress, Daqing Dairy, Focus Media, Longtop, SinoForest, Zoomlion, and, more recently, Zhengzhou Siwei Mechanical & Electrical Manufacturing (a subsidiary of ERA Mining Machinery). This is an important issue, and not only for shareholders. A number of multinationals have walked away from acquisition negotiations because they were worried that problems might be lurking, and not because they found anything (see "Due diligence in China: Art, science, and self-defense," on page 144).

Chinese companies also became bolder with their acquisitions in 2012, particularly in agriculture and in basic materials. Larger deals were still most common in energy. They included Sinopec's minority stakes in five of Devon Energy's US shale-oil and -gas fields (for \$2.44 billion); China Guangdong Nuclear Power Holding's 57 percent stake in the uranium-focused Australian company Extract Resources (acquired for \$1.3 billion); and Sany Heavy Industry's \$700 million purchase of the German concrete-pump manufacturer Putzmeister.

I was right that the Chinese automotive market would slow down—as it turned out, from 32 percent growth in 2010 to 9 percent in 2012. The impact was greater on domestically owned producers (which grew by just 5 percent) than on the major joint ventures between local companies and multinationals (sales were up by 11 percent in 2012). OEMs at the very high end of the market grew more than 20 percent, notwithstanding the economic slowdown and the clampdown on conspicuous consumption.

Hospital reforms also went ahead as anticipated. Hospitals may now be 100 percent foreign owned, though the reluctance of medical staff to leave the state sector constrains private-sector growth.

At the start of 2012, I was bullish about green investment. It proved to be a great year for solar installations in China and a terrible year to manufacture solar equipment there. China installed about

5 gigawatts (5,000 megawatts) of solar capacity in 2012, double the more than 2.5 GW achieved in 2011, itself four times the 2010 figure. The country is now the world's number-two end market for solar, thanks in large part to increased support from the Chinese government.

Solar-module manufacturers, on the other hand, faced lower selling prices, weakening demand in Europe, industry overcapacity, and rising trade barriers. China's manufacturing capacity in 2012 was about 40 to 45 GW, against global demand of about 30 GW. Chinese solar panels are selling for 60 cents per watt-peak¹ (Wp)—at or below manufacturing cost—compared with \$1/Wp a year ago, \$1.60/Wp in 2011, and \$4/Wp in 2008. Most manufacturers depend on borrowing from Chinese banks to survive, and consolidation is overdue. However, as too often happens in China, when demand growth slows, local government steps in with support.

China escaped any disease-driven discontinuity in 2012 but has done little to reduce the potential for the further food inflation I expected. Structurally, China's trade deficit in agricultural products continues to grow, reaching \$56 billion in 2012. Given tight global markets in many agricultural products, inflationary pressures have been building, but across-the-board inflation did not materialize in 2012; indeed the pig price cycle was at a disinflationary point in 2012. I could have seen that more clearly.

My suggestion that private-equity and venture-capital funds might go “walkabout” perhaps proved too alarmist. But although there was no high-profile instance of a private-equity manager diverting funds, I believe this development is only a matter of time. At a personal level, I saw the owner of my son's school in Shanghai divert school fees to another project. No money remained for salaries, housing, or insurance—or to renew the visas of non-Chinese teachers. It was only thanks to the staff's loyalty that the school kept going until the end of the year.

¹Watt-peak (Wp) is a measure of the nominal power output of a solar panel under laboratory-testing conditions.



A pig farmer feeding grass to her pigs in Jiaxing in China's eastern Zhejiang province. China's trade deficit in agricultural products continues to grow, reaching \$56 billion in 2012.

© Peter Parks/AFP/Getty Images

2013

Much less than halfway through the year (as I write this article), it's too early to tell how my list for 2013 will fare. I've predicted, among other things, a rough time for banks, a doubling of pork or chicken prices, the bankruptcy of a brick-and-mortar retailer, and investment by European soccer teams in the Chinese Super League. The banks are indeed increasingly concerned that their wealth-management products are becoming a liability, and German retailer MediaMarkt has highlighted the challenges in retailing with its announcement that it is leaving the China market (following the closure by Best Buy of its branded stores in 2011). We will need to wait until the end of the soccer season in Europe to see if its teams will invest in China.

It is more important for forecasting to be interesting—thereby encouraging debate, scenario planning, and a flexible mind-set—than comprehensive.

What I have learned

New Year forecasting is a widely practiced business art in most areas of the world, but in China it carries particular risks and rewards. Here are a few reflections to help leaders trying to plan ahead in this fast-changing land:

- As long as you are directionally correct, growth in China will make your predictions right at some point, and often very quickly. Having a sense for the pace of change is critical.
- Don't rely too heavily on government statistics. In the past, at least, the government struggled to gather quality data, and what data it had were often heavily massaged.
- Trying to forecast exactly when discontinuities will happen is a fool's game. But identifying what types of discontinuities could occur—and having a plan to deal with them if they do—is a basic corporate responsibility.
- Volatility is a central feature of the Chinese economy. Consumers and businesses still overreact to signals to spend, to invest, and to cut back, so there will be unexpected jumps in demand—and setbacks. Don't forecast in straight lines.
- Economics is still economics in China. If something looks odd, it probably is. Find out why before you forecast (or invest).
- It is more important for forecasting to be interesting—thereby encouraging debate, scenario planning, and a flexible mind-set—than comprehensive.

As for my own modest efforts, I've learned to live with the fact that public forecasts never disappear; people still circulate the old ones online. So I'm developing a thick skin, while trying to balance my role as provocateur with my desire to avoid saying something today that will embarrass me in years to come. ○

Gordon Orr is a director in McKinsey's Shanghai office. For more on his 2013 predictions, see "What's in store for China in 2013?," on the McKinsey Greater China Web site, mckinseychina.com.

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Chinese homebuyers talk with a saleswoman at a real-estate company in Dalian city in Northeast China's Liaoning province. Continued growth in the size and diversity of China's middle class will create new opportunities for domestic and international companies.



Mapping China's middle class

Dominic Barton, Yougang Chen, and Amy Jin

Generational change and the rising prosperity of inland cities will power consumption for years to come.

The explosive growth of China's emerging middle class has brought sweeping economic change and social transformation—and it's not over yet. By 2022, our research suggests, more than 75 percent of China's urban consumers will earn 60,000 to 229,000 renminbi (\$9,000 to \$34,000) a year.¹

In purchasing-power-parity terms, that range is between the average income of Brazil and Italy. Just 4 percent of urban Chinese households were within it in 2000—but 68 percent were in 2012.² In the decade ahead, the middle class's continued expansion will be powered by labor-market and policy initiatives that push wages up, financial reforms that stimulate employment and income growth, and the rising role of private enterprise, which should encourage productivity and help more income accrue to households.³ Should all this play out as expected, urban-household income will at least double by 2022.

Beneath the topline figures are significant shifts in consumption dynamics, which we have been tracking since 2005 using a combination of questionnaires and in-depth interviews to create a detailed portrait by income level, age profile, geographic location,

¹All income figures refer to annual household disposable income, in real (2010) terms.

²Households in this income range, which we define as middle class, spend less than 50 percent of their income on necessities and display distinctive consumer behavior.

³For more, see "What's next for China?," January 2013, mckinsey.com.

and shopping behavior.⁴ Our latest research suggests that within the burgeoning middle class, the *upper* middle class is poised to become the principal engine of consumer spending over the next decade.

As that happens, a new, more globally minded generation of Chinese will exercise disproportionate influence in the market. Middle-class growth will be stronger in smaller, inland cities than in the urban strongholds of the eastern seaboard. And the Internet's consumer impact will continue to expand. Already, 68 percent of the middle class has access to it, compared with 57 percent of the total urban population (see "China's e-tail revolution," on page 70).

Importance of the 'upper' cut

The evolution of the middle class means that sophisticated and seasoned shoppers—those able and willing to pay a premium for quality and to consider discretionary goods and not just basic necessities—will soon emerge as the dominant force. To underscore this group's growing importance, we have described it in past research as the "new mainstream."⁵ For the sake of simplicity, we now call consumers with household incomes in the 106,000 to 229,000 renminbi range upper middle class. In 2012, this segment, accounting for just 14 percent of urban households, was dwarfed by the mass middle class, with household incomes from 60,000 to 106,000 renminbi. By 2022, we estimate, the upper middle class will account for 54 percent of urban households and 56 percent of urban private consumption. The mass middle will dwindle to 22 percent of urban households (Exhibit 1).

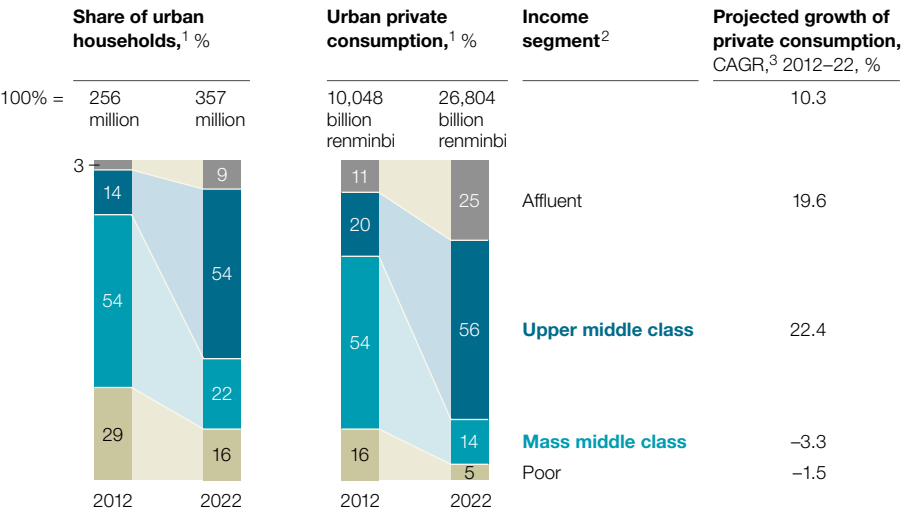
The behavior of today's upper middle class provides some clues to China's future. Our research indicates that these consumers are more likely to buy laptops, digital cameras, and specialized household items, such as laundry softeners (purchased by 56 percent of the upper-middle-class consumers we surveyed last year, compared with just 36 percent of the mass middle). Along with

⁴Since 2005, we have interviewed more than 70,000 Chinese consumers in upward of 60 cities to gain a deep understanding of attitudes and spending behavior in 100-plus product categories. The incomes, ages, regions, city clusters, and city tiers of the respondents—representing 74 percent of China's GDP and 47 percent of its total population—vary widely.

⁵See Yuval Atsmon and Max Magni, "Meet the Chinese consumer of 2020," March 2012, mckinsey.com.

Exhibit 1

The magnitude of China’s middle-class growth is transforming the nation.



¹ Figures may not sum to 100%, because of rounding; data for 2022 are projected.
² Defined by annual disposable income per urban household, in 2010 real terms; affluent, >229,000 renminbi (equivalent to >\$34,000); upper middle class, 106,000 to 229,000 renminbi (equivalent to \$16,000 to \$34,000); mass middle class, 60,000 to 106,000 renminbi (equivalent to \$9,000 to \$16,000); poor, <60,000 renminbi (equivalent to <\$9,000).
³ Compound annual growth rate.

affluent and ultra-wealthy consumers, upper-middle-class ones are stimulating rapid growth in luxury-goods consumption, which has surged at rates of 16 to 20 percent per annum for the past four years. By 2015, barring unforeseen events, more than one-third of the money spent around the world on high-end bags, shoes, watches, jewelry, and ready-to-wear clothing will come from Chinese consumers in the domestic market or outside the Mainland.

Generation 2 comes of age

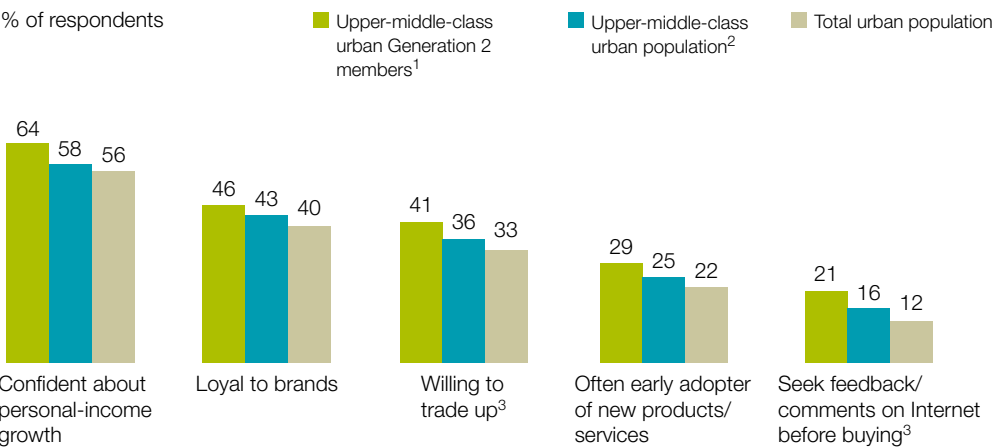
China’s new middle class also divides into different generations, the most striking of which we call Generation 2 (G2). It comprised nearly 200 million consumers in 2012 and accounted for 15 percent of urban consumption. In ten years’ time, their share of urban consumer demand should more than double, to 35 percent. By then, G2 consumers will be almost three times as numerous as the baby-boomer population that has been shaping US consumption for years.

These G2 consumers today are typically teenagers and young people in their early 20s, born after the mid-1980s and raised in a period of relative abundance. Their parents, who lived through years of shortage, focused primarily on building economic security. But many G2 consumers were born after Deng Xiaoping’s visit to the southern region—the beginning of a new era of economic reform and of China’s opening up to the world. They are confident, independent minded, and determined to display that independence through their consumption. Most of them are the only children in their families because when they were born, the government was starting to enforce its one-child policy quite strictly.

McKinsey research has shown that this generation of Chinese consumers is the most Westernized to date. Prone to regard expensive products as intrinsically better than less expensive ones, they are happy to try new things, such as personal digital gadgetry. They are also more likely than previous generations to check the Internet for other people’s usage experiences or comments. These consumers seek emotional satisfaction through better taste or higher status, are loyal to the brands they trust, and prefer niche over mass brands (Exhibit 2). Teenage members of this cohort already have a big influence on decisions about family purchases, according to our research.

Exhibit 2

Generation 2 – Chinese consumers in their teens and early 20s – takes a more Western approach to shopping.



¹ People born after the mid-1980s and raised in a period of relative abundance.
² Annual household income of 106,000–229,000 renminbi (equivalent to \$16,000 to \$34,000 in 2010 real terms).
³ Personal-care-product example.

Source: 2012 McKinsey survey of 10,000 Chinese consumers

Even as the G2 cohort reshapes Chinese consumption patterns, it appears to be maintaining continuity with some of the previous generations' values. Many G2 consumers share with their parents and grandparents a bias for saving, an aversion to borrowing, a determination to work hard, and a definition of success in terms of money, power, and social status. For the G2 cohort, however, continuity in values doesn't translate into similar consumer behavior. Likewise, 25- to 44-year-old G1 consumers, despite their loyalty to established brands, are more open than their parents to a variety of schools of thought, and as retirees in the years ahead they will certainly demonstrate a "younger" consumption mind-set than today's elderly do.

The rise of the west (and the north)

In 2002, 40 percent of China's relatively small urban middle class lived in the four Tier-one cities: Beijing, Shanghai, Guangzhou, and Shenzhen. By 2022, the share of those megacities will probably fall to about 16 percent (Exhibit 3). They won't be shrinking, of course; rather, middle-class growth rates will be far greater in the smaller cities of the north and west. Many are classified as Tier-three cities, whose share of China's upper-middle-class households should reach more than 30 percent by 2022, up from 15 percent in 2002.

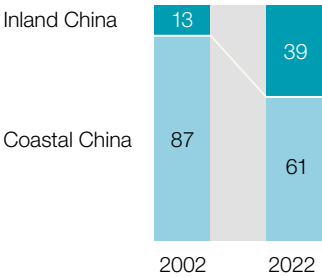
Tier-four cities, smaller still, will also be part of that geographic transition. Consider Jiaohe, in Jilin province. This northern inland Tier-four city is growing quickly because of its position as a transportation center at the heart of the northeast Asian economic zone, an abundance of natural resources (such as Chinese forest herbs and edible fungi), and the fact that it is one of China's most important production bases for grape and rice wine. In 2000, less than 1,000 households out of 70,000 were middle class, but by 2022, those figures are set to rise to 90,000 and 160,000, respectively.

Another Tier-four city, Wuwei, in Gansu province, is growing rapidly because it's within the Jinchang–Wuwei regional-development zone and at the junction of two railways and several highways.

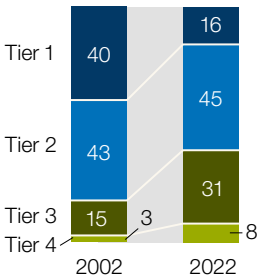
Exhibit 3

The geographic center of middle-class growth is shifting.

Share of middle class¹ by geography, %



Share of middle class,¹ by type of city, %



¹ Based on information for 266 cities; data for 2022 are projected. Cities in China are grouped into 4 tiers based on their economic development and political importance. For Tier-1 cities, 2010 nominal urban GDP is >932 billion renminbi; for Tier-2 cities, 120 billion–932 billion renminbi; for Tier-3 cities, 22 billion–120 billion renminbi; for Tier-4 cities, <22 billion renminbi.

² Figures may not sum to 100%, because of rounding.

Wuwei too had less than 1,000 middle-class households (out of 87,000 total) in 2000. By 2022, though, 390,000 of the city's 650,000 households should be middle class.



Continued strong growth in the size and diversity of China's middle class will create new market opportunities for both domestic and international companies. Yet strategies that succeeded in the past, given the wide distribution of standardized products for mass consumers, must be adjusted in a new environment with millions of Chinese trading up and becoming more picky in their tastes. A detailed understanding of what consumers are doing, how their preferences are evolving, and the underlying reasons for their behavior will be needed.

Armed with better information, companies can begin tailoring their product portfolios to the needs of increasingly sophisticated consumers and revising brand architectures to differentiate offerings and attract younger consumers eager for fresh buying experiences. There will be not only challenges but also plenty of opportunities for companies whose strategies reflect China's new constellation of rising incomes, shifting urban landscapes, and generational change. ○

Dominic Barton is McKinsey's global managing director; **Yougang Chen**, based in Greater China, is a principal with the McKinsey Global Institute; **Amy Jin** is a consultant in McKinsey's Shanghai office.



For more data on the middle class in China's cities—or urban growth across the world—see the McKinsey Global Institute's new iPad app, **Urban World**. An interactive map offers customizable visual displays of current and projected populations, household incomes, and GDP for more than 2,600 cities globally.

Download the Urban World app in the iTunes Store, at appstore.com/urbanworld.

Winning the battle for China's new middle class

Max Magni and Felix Poh

A huge wave of increasingly affluent consumers will constitute China's urban majority by 2020. To serve them, multinationals must adapt—or be left behind.

The rapid emergence of a prosperous, more individualistic, and more sophisticated class of consumers in China is creating unprecedented opportunities and challenges for companies serving them. The opportunity is clear: in less than a decade, more than three-fourths of China's urban households will approach middle-class status on a purchasing-power-parity basis (for details, see “Mapping China's middle class,” on page 54).

But the market is rapidly bifurcating between a still large (but less affluent) mass market and a new, even bigger group of upper-middle-class consumers—one that's so large and significant we've referred to it in the past as the “new mainstream.”¹ The people in this more affluent segment tend to live in China's higher-tier cities and coastal areas, enjoy household incomes between 106,000 and 229,000 renminbi (\$16,000 to \$34,000) a year, and have opinions strikingly different from those of their mass-market middle-class counterparts.²

As China's new upper-middle class swells to include more than half of the country's urban households by 2020—up from just 14 percent in 2012—it will strain many of today's business models. Companies

¹ See Yuval Atsmon and Max Magni, “Meet the Chinese consumer of 2020,” mckinsey.com, March 2012.

² Income figures refer to annual household disposable income, in real (2010) terms.

that have long catered to consumers trying to meet basic needs at affordable prices will face a shrinking market and risk losing millions of customers looking to trade up.

Simultaneously serving a familiar but declining mass market and an uncertain but promising new upper-middle-class one will require novel approaches. This article is a report from the front lines: how consumer-goods companies can craft brands that appeal to the rising middle class, develop “dual strategies” and transition plans for the evolving landscape, and build the marketing muscle to compete in an increasingly complex environment.

1. Aspirational brands

Until recently, Chinese consumers were generally too new to the market to focus on anything beyond the basic functional attributes of most products. These shoppers were also historically quite pragmatic, particularly in making purchase decisions in prosaic product categories where emotional connections aren’t strong. So for every Dove Chocolate or Starbucks that prospered by learning to create strong emotional ties as “occasion” products—emphasizing attributes such as “chocolate indulgence” or “the coffee break experience”—other equally recognizable brands struggled. China’s consumers simply weren’t ready for them.

How times have changed. As recently as 2010, functional benefits dominated the list of key buying factors for just about all of the 40 consumer-goods categories we studied. Just two years later, emotional benefits had become a top-five key buying factor in these same categories—and in many cases the top one or two. In the shampoo category, for example, upper-middle-class shoppers are 50 percent more likely than their mass-market counterparts to regard emotional factors as an important purchase consideration.

Consider the experience of SCA, a Swedish manufacturer of personal-care and forest products. The company uses traditional consumer roadshows to demonstrate the basic, functional benefits of its facial tissues to a broad base of Chinese consumers. But SCA also wants to position the products as affordable luxuries to which upper-middle-class consumers should aspire (the company already follows a similar

approach in the wealthier Hong Kong market). “Our target is the white-collar young professional woman,” notes Stephan Dyckerhoff, president of SCA’s North Asia Hygiene Products division. “We want her to show off our product in much the same way she might show off using an iPhone.”

To achieve such big aspirations, the company looks for unique ways to strengthen the emotional connection between consumers and its products. One approach involves karaoke lounges, where SCA distributes special small packs of tissues to create a positive association between the product and activities customers enjoy. Such clever approaches to execution will probably be differentiators in a crowded market. Similarly, other leading companies are working hard on in-store execution and word-of-mouth effects (including social-media platforms where more and more consumers exchange ideas) to help ensure that China’s increasingly affluent consumers notice their products.³

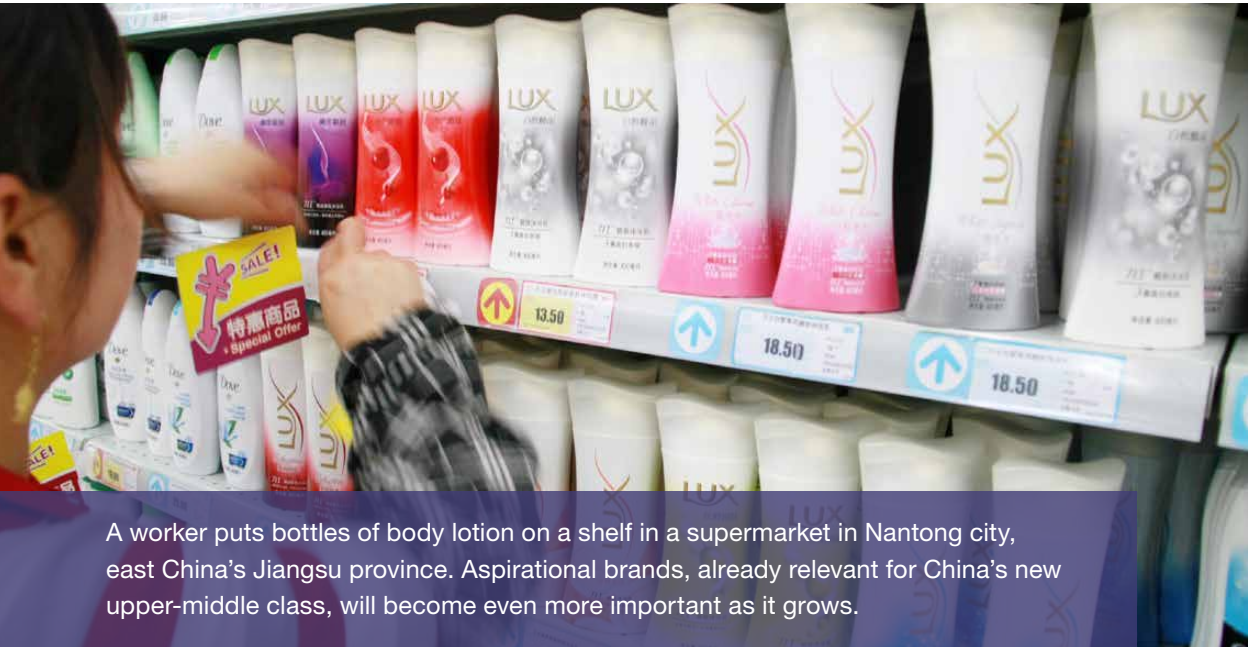
2. Dual strategies

Aspirational brands, already relevant for China’s new upper-middle class, will become even more important as it grows. “The new upper-middle-class opportunity is where the future is,” says Alan Joje, the head of Unilever’s businesses in North Asia. “It’s huge across categories and even more important than the luxury class of consumers.”

Yet as Unilever and other leading companies size up the new consumer, they also recognize the power that China’s consumer mass market still wields. “Consumers in coastal China may be getting wealthier and trading up,” notes Michael Yeung, the president of Wrigley Asia Pacific, “but China’s interior and lower-tier cities will continue to be a vast market for us.”

A few forward-looking companies are responding with dual strategies: a mass-market business designed for volume alongside an upper-middle-class one for profits. In practical terms, such a strategy often

³ For more, see Yuval Atsmon, Jean-Frederic Kuentz, and Jeongmin Seong, “Building brands in emerging markets,” *McKinsey Quarterly*, 2102 Number 4, mckinsey.com.



A worker puts bottles of body lotion on a shelf in a supermarket in Nantong city, east China's Jiangsu province. Aspirational brands, already relevant for China's new upper-middle class, will become even more important as it grows.

© Imaginechina/Corbis

plays out along geographic lines: large regions divided into smaller clusters, each, perhaps, with its own product portfolio, pricing, marketing approach, and execution plan. The most sophisticated players establish clear profit-and-loss responsibilities for regions and recognize that the “shape” of that P&L—the relative importance of volume, value, cost control, and margins—will inevitably vary.

A major snack manufacturer uses such a strategy to create relatively cheap entry-level mass-market products while reserving higher-margin offerings for customers who trade up. To minimize product cannibalization, the company limits the distribution of entry-level products to lower-tier cities with average incomes below a certain threshold—and even there, only in more traditional “mom and pop” stores.⁴ This approach helps keep the company’s low-end products off the shelves of modern retailers that carry its premium ones. The company doesn’t stop at distribution: to combat gray-market sales, its employees routinely visit retail outlets, inspecting the shelves and using scan codes to determine where products originated and

⁴ For more about navigating both traditional and modern retail environments in emerging markets, see Alejandro Diaz, Max Magni, and Felix Poh, “From oxcart to Wal-Mart: Four keys to reaching emerging-market consumers,” *McKinsey Quarterly*, 2012 Number 4, mckinsey.com.

where they belong. Distributors that violate the rules are first warned, then cut loose if they don't comply.

Meanwhile, the company reserves its more expensive offerings for wealthier cities in coastal areas, carefully marketing and packaging products to attract more sophisticated, aspirational shoppers who view higher-priced snacks as a way to reward themselves. This approach has helped the company to increase its revenues in China by more than 15 percent annually over the past three years. Volume growth leads the way in the country's interior, while the richer coastal cities drive profitability.

Bayer Consumer Care has adopted a similar approach. The company recently undertook an initiative to widen its sales and distribution coverage in China's smaller cities. But it also added sales representatives in 28 core municipalities in top-tier ones, where the company hopes to raise its game with new upper-middle-class consumers.

3. Disciplined transition timing

Timing is a crucial element of effective dual strategies. Companies must recognize the nature of shifts under way in different geographies and move fast to stay ahead of competitors. But they can't move so quickly that their mass-market business is destabilized. All that takes discipline.

Consider the timing discipline of a global consumer-goods manufacturer pursuing a dual strategy. The company's executives started by dividing consumers into about 40 geographic microclusters based on their income levels and preferences, as well as the activities of competitors. Next, teams representing each of the company's major product categories looked at the microclusters with an eye toward grouping them into archetypes based on the stages of their evolution: solidly mass market, beginning the transition, or rapidly uptrading. The company then reviewed these recommendations and, to sharpen its thinking, used differences the teams had identified—for example, one microcluster was rapidly uptrading in shampoos but not yet in soaps.

The company's activities in microclusters that remained solidly mass market went largely unchanged. Microclusters in the second

category (beginning the transition) were included in a marketing plan to introduce more upmarket brands and products over a 12- to 24-month horizon. For the rapid uptraders, the company ramped up the pace: a 6- to 9-month window for new brands and stock-keeping units, as well as new promotional messages to help drive up average prices. To avoid being wrong-footed by rivals, the company created competitive-intelligence teams that travel through the country to collect insights and work with the sales force to coordinate the appropriate response. When a rival's new product or strategy appears to affect the transition plan, the company can quickly change the pace of the shift to shut out competitors quickly and avoid losing market share.

This company's ability to adapt quickly has been instrumental in the strategy's success. The results have been impressive: 12 to 15 percent volume growth and a 15 to 20 percent boost in revenues in each of the past three years, along with a clear increase in earnings before interest and taxes (EBIT) as investments to establish the strategy begin to pay off.

As this example clearly shows, timing and geography often intersect when companies make strategic choices. Consider the balancing act of a multinational personal-care company with its body-care-products business. Recognizing that tastes are different in northern China—a relatively low-income region with a large mass market—the company focuses heavily on sales of its more traditional bar-soap products to match local preferences there. Meanwhile, the company is gearing up its marketing efforts to begin converting those customers to higher-margin liquid soap as they transition into the new upper-middle class. By contrast, mass-market consumers in southern China already prefer liquid soap. As these customers become more affluent, the company works to persuade them to upgrade from cheaper, local brands.

4. State-of-the-art marketing

Successfully implementing sophisticated, time-based dual strategies requires serious marketing muscle. Multiple touch points are not only important but also, in many cases, increasingly digital. The key is to use them creatively to balance the tension between reaching a

large mass audience and appealing to the greater individuality of the new middle class.

Consider Nike, long familiar for its TV advertising in China and for its ubiquitous urban billboards showing famous athletes. More recently, the company launched its first marketing campaign on WeChat, a popular Chinese mobile-messaging platform. The campaign, billed as a sports-subscription service, allowed users to “follow” the company and receive daily updates about an upcoming Nike sports festival. To encourage participation, the company aggressively placed QR codes⁵ on taxis, outdoor posters, and other noticeable spots. WeChat’s broad reach—it has 200 million users—helped Nike to keep in touch with the mainstream, while opportunities for user participation helped heighten the sense of individuality for upscale consumers.

Pulling off such campaigns calls for sophisticated customer insights, which are becoming ever more important as the upper-middle class grows and its tastes evolve. One global food and beverage maker has responded by creating “insights centers” in six regions of China to stay ahead of changing customer preferences and behavior. Similarly, in P&G’s Beijing Innovation Center, the company built a small *hutong* neighborhood—a set of narrow, traditional Chinese lanes formed by the walls of *siheyuan*, or traditional courtyard homes. Researchers in P&G’s simulated *hutong* observe consumers as they brush their teeth or change diapers, standing ready to propose immediate changes to product prototypes, much as researchers do in the simulated baby playrooms at the company’s Cincinnati, Ohio, headquarters. In the same Beijing facility, P&G stocks simulated supermarket shelves with its own products and those of competitors to better understand how consumers shop.

There’s another increasingly important source of insights: social media. In 2006 L’Oréal, for example, launched the social platform Rose Beauty by Lancôme, an online community where women in China could exchange beauty tips and seek expert advice. The community now has close to a million members, many of them active—in 2011, two-thirds of site visitors returned more than once

⁵ Quick response (QR) codes are two-dimensional barcodes that can be scanned by a smartphone with a camera. The smartphone then displays the images, text, or other digital content stored in the codes.

Tech-enabled customer engagement

Chris Ip and Harrison Lung

Chinese companies, like their multinational counterparts, are ramping up their efforts to get more from digital technology. In a recent McKinsey survey, more than half of the Chinese executives responding said they were planning, piloting, or deploying digital-marketing and big-data strategies. The solutions devised for the Chinese market will, to some extent, be unique to it. Taking a closer look at how leading players in China are using technology to better understand and engage its new middle class is therefore worthwhile. Here are two examples of how technology is making a difference.

Innovating in mobile payments. Alipay, a third-party online-payment platform owned by the online retailer Alibaba, recently developed a mobile-payment app that integrates the back-end payment engine of its social media, e-commerce, and gaming businesses to point-of-sale outlets in physical stores. When a customer is ready to check out, the app generates a unique bar code on that shopper's smartphone, with account information the retailer scans using

a traditional optical scanner. The system is convenient for shoppers, since it also allows them to use gift cards, discount coupons, or store-issued credit cards. It provides Alipay with valuable customer-preference data that could ultimately help refine its product, distribution, and marketing strategies and those of its online and traditional brick-and-mortar partners. The amount of data is significant: Alipay currently has more than 700 million registered accounts.

Improving customer service.

China Pacific Insurance links its back-office sales force with its field-sales counterpart through mobile automation tools that help customers conduct inquiries about policies, request information from agents, and handle other tasks. The systems and tools help China Pacific to better target increasingly sophisticated customers, while providing 24-hour underwriting that enhances service to them.

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a day, and nearly half of the discussion topics the company posted had more than five comments from users. The platform is not only an important promotional tool but also a valuable source of information for L'Oréal, allowing the company to better understand the expectations of Chinese women and to tailor its product-development efforts accordingly. Such smart applications of social media are just one example of how technology and data sources are becoming increasingly important in the world's largest market (see sidebar, "Tech-enabled customer engagement").

But technology will never eliminate the need for creativity, which remains central to smart marketing in China and sometimes generates lucky breaks. SCA recently invited Chinese consumers to come up with their own clever uses for an empty box of facial tissues to drive home associations between its products and resource sustainability. The winner received a trip to the company's private forest in Sweden, where SCA grows trees in a sustainable way to be used as raw material in its products. What started as a marketing experiment soon drew the attention of a Chinese TV station, which flew reporters to Sweden along with the contest winner. The station ultimately aired a two-hour documentary on the experience, an outcome that exceeded even the company's most optimistic expectations for the campaign.



China's new middle class is becoming more important more quickly than most companies could have anticipated. Multinationals that haven't begun preparing to serve increasingly affluent and demanding shoppers should start now—or risk watching their businesses deteriorate as the market shifts beneath them. ○

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China's e-tail revolution

Elsie Chang, Yougang Chen, and Richard Dobbs

The rapid growth of e-tailing is encouraging consumption and reshaping the industry.

Almost overnight, China has become the world's second-largest e-tail market, with estimates as high as \$210 billion for revenues in 2012 and a compound annual growth rate of 120 percent since 2003. The country's retail sector already is among the most wired anywhere—e-tailing commanded about 5 to 6 percent of total retail sales in 2012, compared with 5 percent in the United States—while it is distinctly different from that of other countries. Only a small portion of Chinese e-tailing takes place directly between consumers and retailers, whether online pure plays or brick-and-mortar businesses on retailers' own Web sites. Instead, most occurs on digital marketplaces. What's more, Chinese e-tailing is not just replacing traditional retail transactions but also stimulating consumption that would not otherwise take place. Finally, e-tailing may catalyze a “leapfrog” move by the broader retail sector, putting it on a fast track to a more digital future.

Structural differences

Some 90 percent of Chinese electronic retailing occurs on virtual marketplaces—sprawling e-commerce platforms where manufacturers, large and small retailers, and individuals offer products and services to consumers through online storefronts on megasites analogous to eBay or Amazon Marketplace.¹ The megasites include PaiPai,

Taobao, and Tmall, which in turn are owned by bigger e-commerce groups. A large and growing network of third-party service providers offers sellers marketing and site-design services, payment fulfillment, delivery and logistics, customer service, and IT support.

By contrast, in the United States, Europe, and Japan, the dominant model involves brick-and-mortar retailers (such as Best Buy, Carrefour, Darty, Dixons, and Wal-mart) or pure-play online merchants (such as Amazon), which run their own sites and handle the details of commerce. Developed markets have major specialized retail chains in the e-commerce arena. In China, such independent merchants account for only 10 percent of e-tailing sales. Although still in the early stages of growth, China's e-tail ecosystem is profitable, logging margins of around 8 to 10 percent of earnings before interest, taxes, and amortization—slightly higher than those of average physical retailers.

Powering consumption

This unique e-tailing engine is enabling China's shift from an investment-oriented society to one that's more consumption driven. E-tailing, our research indicates, is not simply a replacement channel for purchases that otherwise would have taken place offline. Instead, it appears to be spurring incremental consumption, particularly in less developed regions. By analyzing consumption patterns in 266 Chinese cities accounting for over 70 percent of online retail sales, we found that a dollar of online consumption replaces roughly 60 cents of sales in offline stores and generates around 40 cents of incremental consumption (Exhibit 1). It's important to note that the data sets behind this analysis don't cover the full market. Our approximations do, however, provide a preliminary picture of what's occurring in China and permit a rough calculation of the extent to which e-tailing may be boosting consumption there. (These estimates suggest that the channel may have added 2 percent of incremental value to private consumption in 2011 and could generate 4 to 7 percent in incremental consumption by 2020.)

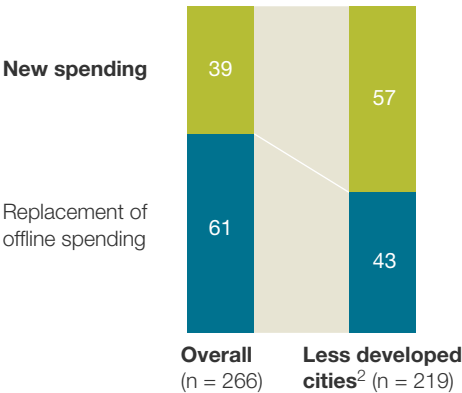
E-tailing's impact is more pronounced in China's underdeveloped small and midsize cities. We found that while incomes in these

¹ In the United States, marketplaces represent 20 to 30 percent of commerce.

Exhibit 1

Online spending raises China’s total consumption—and the effect is even more pronounced in less developed areas.

Share of online spending in sample of Chinese cities,¹ 2011, %



¹266 cities analyzed, representing >70% of online retail sales.
²Specifically, Tier 3 and Tier 4 cities. Cities in China are grouped into four tiers based on their economic development and political importance. Tier 1 cities have the highest urban GDP, while Tier 4 cities have the lowest.
Source: McKinsey Global Institute analysis

urban areas are lower, their online shoppers spend almost as much money online as do people in some larger, more prosperous cities—and also spend a larger portion of their disposable income online (Exhibit 2). For these shoppers, the utility of online purchasing may be higher, since they now have access to products and brands previously not available to them, in locations where many retailers have yet to establish beachheads.

Further boosting online purchases is the fact that e-tailing has cut consumer prices: depending on the category, they are, on average, 6 to 16 percent lower online than in China’s stores.² Apparel, household products, and recreation and education are the categories where price discounts are greatest. They are also the three largest online retail segments (Exhibit 3).

² When adjusted for the portion of products common to both e-tailing and traditional retailing (measured in stock-keeping units, or SKUs), the price effect is lower: 4 to 9 percent.

The leapfrog effect

China's retailing industry, coming of age in an era of digital disruption, will probably follow a trajectory different from that of retail sectors in other markets. In developed nations, the industry typically followed a three-stage path. It began with the rise of regionally dominant players. This field then consolidated into a smaller number of national leaders. Eventually, online players challenged them, and the industry became multichannel. Some brick-and-mortar players (Tesco and Wal-Mart Stores, for instance) have embraced a multichannel strategy, while others (such as Borders in the United States and Jessops and Woolworths in the United Kingdom) have been driven from the market.

China differs from these developed markets, however, because a crop of national leaders has yet to emerge in traditional retailing. Building stores across China's considerable geography, with its many smaller cities, takes both time and high levels of investment. As a result, China's largest brick-and-mortar retailers have captured a smaller share of the country's overall retail market than have major players in the United States and elsewhere: the top five retailers

Exhibit 2

Despite lower incomes, consumers in small and mid-sized cities spend almost as much online as those in many larger, more prosperous cities.

Online spending in sample of Chinese cities,¹ 2011

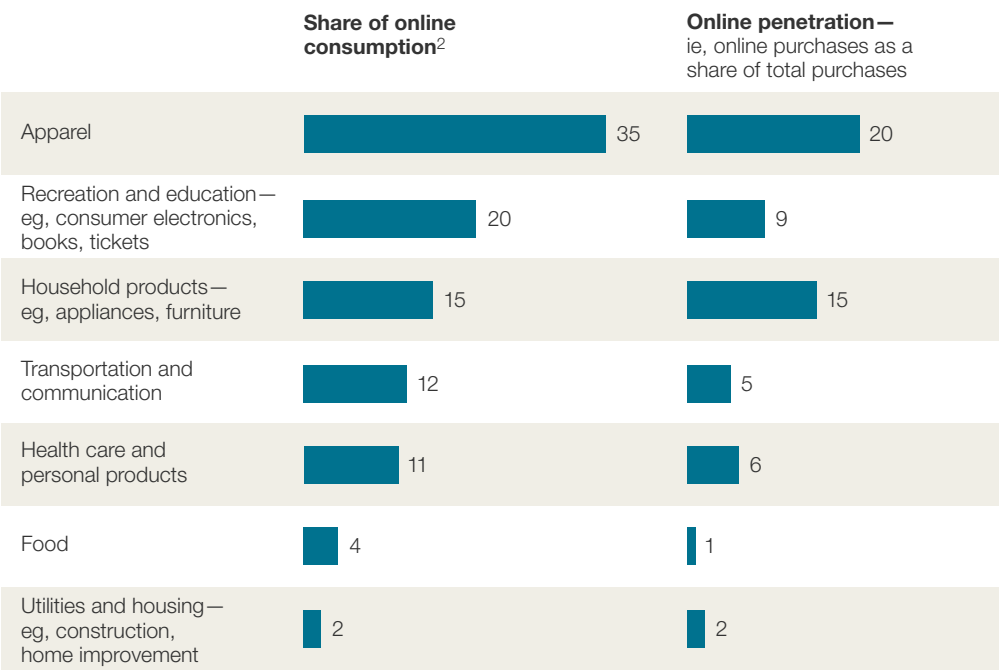


¹266 cities analyzed, representing >70% of online retail sales; in 2011, on average, 6.46 renminbi = \$1.
²Cities in China are grouped into four tiers based on their economic development and political importance. Tier 1 cities have the highest urban GDP, while Tier 4 cities have the lowest.
Source: 2011 McKinsey iConsumer survey; McKinsey Global Institute analysis; McKinsey analysis

Exhibit 3

Apparel, recreation and education, and household products are the three largest online retail segments in China.

Online spending in sample of Chinese cities,¹ 2011, %



¹266 cities analyzed, representing >70% of online retail sales.

²Figures do not sum to 100%, because of rounding.

Source: McKinsey Global Institute analysis

by category hold less than 20 percent of the market—much lower than US levels of 24 to 60 percent in comparable categories.

In China, the combined effects of the complexities of store expansion and a distinctive model of e-tailing could lead to a different retail dynamic: as e-tailing continues to grow, China’s industry may leapfrog the second (national) stage, passing directly from the regional to the multichannel one. In fact, China’s online ecosystem of marketplaces and agile support services has grown rapidly precisely because it can exploit the inefficiencies and higher costs of China’s existing retail market. Already, the major online companies Alibaba (which owns marketplaces such as Taobao) and 360buy.com

(focusing on sales of electronics) have established a prominent national role, ranking among China's top ten retailers.

Coming next

The view forward may be more impressive. We estimate that by 2020, as 15 to 20 percent annual growth rates (before inflation) continue, e-tailing could generate \$420 billion to \$650 billion in sales, and China's market will equal that of the United States, Japan, the United Kingdom, Germany, and France combined today.³ Patterns of future change are coming into focus.

Retail modernization

E-tailing will continue to transform the retail sector. As competition among e-tailers has lowered prices, it has also both increased the size of the consumer market and created efficiencies in the important adjacent markets that support e-commerce—logistics, supply chains, IT services, and digital marketing. This efficiency edge should force brick-and-mortar retailers to modernize and pave the way to a more efficient coordination of supply and demand across the Chinese economy.

One cloud hanging over the e-tailing scene is a growing talent shortage resulting from heady growth. Eventually, it could raise labor costs and hamper expansion plans unless e-tailers significantly improve their labor productivity, which at best matches that of physical retailers. The good news is that if the online ecosystem learns from developed markets, e-tailing's productivity should rise as high as two to four times that of offline retailers.

Meanwhile, China's store-based retailers, and the manufacturers that supply them, will need to place some new bets—soon. Many have yet to fully embrace multichannel strategies, focusing instead on the sizable growth and consolidation opportunities still available in their brick-and-mortar businesses. They'll have to decide whether to join existing e-tail marketplaces or establish their own

³ This e-tailing market-size forecast is based on regression analysis of 17 countries from 2003 to 2011.

online storefronts and whether to own parts of the value chain (such as distribution and IT) or use third-party suppliers.

To what extent will e-tailers bypass virtual marketplaces?

As the e-tail ecosystem diversifies and matures, merchants that today use digital marketplaces may find it tempting to pursue growth by operating independently. To do so, these companies must go beyond current strategies, which depend chiefly on products and prices, where competition already is fierce. Instead, to build a strong online brand, e-tailers will need to dedicate management resources and investments to creating an attractive package of value propositions—superior customer service, fast and reliable delivery, a better shopping experience, or more targeted marketing. That will require a new level of capabilities and, perhaps, partnerships with experienced players outside China.

Consumer companies: Threats and opportunities

Since marketplaces hold the leading share of China's e-tailing market, they are a natural place for consumer-products manufacturers to focus when they enter China—or grow outside its leading cities. Marketplace ecosystems provide a business infrastructure to reach customers at a reasonable cost. That infrastructure is particularly valuable for new entrants, which may find it an economical way of testing a market's temperature. Uniqlo, for one, used a combination of marketplaces and service providers when it started its online apparel business in China in 2009.

At the same time, however, e-tailing innovation is creating more competition. New entrants have sprung up on the major e-tail marketplaces (known as Taobrand on the Taobao marketplace) to sell lines such as apparel and cosmetics directly to consumers. With products sourced straight from workshops and OEM factories, and sales stimulated by targeted marketing campaigns, these immensely popular companies offer good quality and attractive prices.

Meanwhile, China's model and innovations are spilling beyond its borders. Other emerging economies are developing e-tailing markets that could follow China's business model—and potentially achieve similar growth rates. In other emerging economies, e-tailing markets

are being developed with business models similar to China's and experiencing similar growth rates. China's new marketplace sellers are expanding internationally, leveraging their direct access to Chinese workshops and OEM factories. Global consumer-goods players should be ready to face competition from Chinese small and mid-size enterprises and microbusinesses selling directly through marketplaces in emerging economies.



China may have largely sat out the 19th-century Industrial Revolution, but as the explosion of its new consuming class continues to reshape 21st-century economic life, e-tailing and the Internet revolution have important roles to play. E-tailing is boosting the Chinese consumer's propensity to spend. The distinctive course charted by the country's e-tailers is having an impact on merchants, consumer-product companies, and value-chain partners. And it's widening the field of opportunities for players both in and outside China. With continued robust growth, changes in industry business patterns that are already under way will only grow in importance. ○

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For a full discussion of these findings,
see the McKinsey Global Institute report
*China's e-tail revolution: Online shopping
as a catalyst for growth*, on mckinsey.com.



Manufacturing moves up the value chain

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**A new era for
manufacturing
in China**

Karel Eloot,
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**Seizing China's
energy-efficiency
opportunity:
A case study**

Steve Chen,
Maxine Fu, and
Arthur Wang

Employees work on low-energy-consumption LED bulbs at a factory in Nanjing, in East China's Jiangsu province. Rising wages and the appreciation of the renminbi have dampened the country's exports in recent years, prompting reexamination of its role as the world's low-cost manufacturing center.



A new era for manufacturing in China

Karel Eloot, Alan Huang, and Martin Lehnich

Companies that continue to base their manufacturing strategies solely on China's rock-bottom wages and stratospheric domestic growth rates are in for a rude awakening. New challenges will require new competitive priorities.

China's emergence as a manufacturing powerhouse has been astonishing. In seventh place, trailing Italy, as recently as 1980, China not only overtook the United States in 2011 to become the world's largest producer of manufactured goods but also used its huge manufacturing engine to boost living standards by doubling the country's GDP per capita over the last decade. That achievement took the industrializing United Kingdom 150 years.

Today, however, China faces new challenges as economic growth slows, wages and other factor costs rise, value chains become more complex, and consumers grow more sophisticated and demanding. Moreover, these pressures are rising against the backdrop of a more fundamental macroeconomic reality: the almost inevitable decline in the relative role of manufacturing in China as it gets richer.¹ Manufacturing growth is slowing more quickly than aggregate economic growth, for example, and evidence suggests that the country is already losing some new factory investments to lower-cost locations, such as Vietnam, sparking concern about China's manufacturing competitiveness.²

¹Empirical evidence suggests that manufacturing's relative contribution to a national economy tends to peak when it reaches 20 to 35 percent of the country's GDP. Today, China's manufacturing sector accounts for roughly 40 percent of its GDP.

²In 2011, the growth rate of China's manufacturing GDP had slowed by 34 percent from its precrisis peak. Overall GDP growth slowed by 20 percent over the same period.

Competitiveness, of course, is a broad term that can confuse more than clarify. During the 1980s, for example, there was much hand-wringing in the United States about declining manufacturing competitiveness versus Japan. In the following decade, however, those concerns faded, replaced by a focus on the failings of “Japan Inc.,” the SUV-fueled resurgence of the US automotive sector, and the boom in US high-tech manufacturing. In the United States then, as in China today, there isn’t just one manufacturing sector; there are many, each with different competitive strengths and weaknesses.

In this article, we move beyond the hyped hopes and frantic fears for Chinese manufacturing as a whole, to gain a more balanced picture of this diverse sector. We start with a summary of four key challenges that affect different types of manufacturers in different ways and then move on to a discussion of competitive priorities whose importance again varies for players of different stripes. Despite the variation across manufacturing subsectors, companies—Chinese owned and multinational alike—can’t escape the need to raise their game and move up the value chain by boosting productivity, refining product-development approaches, and taming supply-chain complexity. Those that do should prosper in the years ahead, while those that rely on yesterday’s model of rock-bottom wages and stratospheric domestic growth rates are likely to fade.

Four challenges

For years, China’s low salaries; strong supply base; high investment in port, road, and rail infrastructure; and solid engineering and technical skills provided a strong platform for manufacturing exports. Meanwhile, a vast domestic market helped fuel China’s continuing transition to a consumption-based economy. Today’s outlook is more mixed. Here, we review four core challenges and the types of players particularly affected by each of them. In doing so, we draw on a set of global manufacturing archetypes established recently by the McKinsey Global Institute (see sidebar, “The makeup of Chinese manufacturing”).³

³Sectors were grouped according to the intensity of the following: capital, energy, labor, R&D, trade, and value. For the full McKinsey Global Institute report, see *Manufacturing the future: The next era of global growth and innovation*, November 2012, mckinsey.com.

The makeup of Chinese manufacturing

	Global producers for local markets	Energy and resource-intensive commodity players
	Around one-third share of both Chinese and global 2010 manufacturing value added.	Around a quarter of Chinese and 22 percent of global 2010 manufacturing value added.
Sectors	Appliances, automotive and transport equipment, chemicals, electrical machinery, and pharmaceuticals	Metals and mining, pulp and paper, and other extractive industries
China-based players	Bohai Chemical, ChemChina, China Resources Pharmaceutical Group, First Automotive Works (FAW), Midea, Shanghai Automotive Industry Company (SAIC), Shanghai Electric, and Sinochem	Baosteel, Chalco, China Minmetals, China National Petroleum (CNPC), Shandong Chenming Paper, and Sinopec
Multinationals	ABB, BASF, Dow Chemical, GM, Pfizer, Sanofi, Siemens, and Volkswagen	BP, International Paper, Posco, and Shell
Success factors	Global R&D, ability to generate stream of new products and models	Privileged access to raw materials and energy, high resource and energy productivity, transportation and infrastructure logistics, proximity to demand

China’s manufacturers can be classified into five distinct groups, or archetypes, defined by different labor- and resource-cost exposures, innovation intensities, access to trading opportunities, or a mix of these.

Global technologies/ global innovators	Regional processing	Labor-intensive tradables
9 percent of both Chinese and global 2010 manufacturing value added	Around one-fifth of Chinese and 28 percent of global 2010 manufacturing value added	10 percent of Chinese and 7 percent of global 2010 manufacturing value added
Consumer electronics, office machinery, semiconductors, and telecommunications equipment, as well as medical, optical, and other precision equipment	Fabricated metals, food and beverages, printing, and tobacco	Apparel, textiles, and other handicrafts
Hisense, Huawei, Lenovo, Mindray, Semiconductor Manufacturing International (SMIC), Shinva Medical, Spreadtrum, and ZTE;	China Tobacco, COFCO, Mengniu Dairy, and Wahaha	ANTA Sports, Li Ning, and Metersbonwe
Alcatel-Lucent, Cisco, EPSON, Ericsson, Intel, Nokia Siemens Networks (NSN), Philips, and Samsung	Anheuser-Busch InBev, Coca-Cola, Nestlé, P&G, and Yihai Kerry (Wilmar)	adidas, Kappa, and Nike
Strong global R&D and production networks, high value density of products, economically transportable from production sites to customers around the globe	Close observation of customers and competitors to develop deep insights	Low-cost production critical

Rising factor costs

Rising wages and the appreciation of the renminbi have dampened China's exports in recent years and focused global attention on its future viability as a low-cost manufacturing center. Most multinationals that produce labor-intensive goods, like textiles and apparel, are actively seeking to diversify beyond China to reduce costs and mitigate political and supply-chain risks. China-based processors of goods such as beverages, fabricated metals, food, and tobacco are also concerned about rising costs, including those for packaging. Yet their regional focus makes this less a global competitive issue and more a question of which players in the value chain will create the most value.

Rising consumer sophistication

McKinsey research suggests that by 2020, the income of more than half of China's urban households, calculated on a purchasing-power-parity basis, will catapult them into the upper middle class—a category that barely existed in China in 2000 (for more, see “Mapping China's middle class,” on page 54). The members of this group already demand innovative products that require engineering and manufacturing capabilities many local producers do not yet adequately possess. An executive of a Chinese television-panel maker, for example, recently confessed that his company cannot fully meet the requirements of high-end customers and that the quality of his company's flat-screen panels is exceeded by that of products from fast-moving South Korean competitors. China's automakers face a similar challenge: consumers perceive their brands as lower in quality, even compared with foreign brands assembled in nearby Chinese factories.

These issues confront players in a range of other sectors—from appliances and chemicals to electrical and office machinery, pharmaceuticals, telecommunications gear, and transportation equipment. What they have in common is that they compete on the strength of their R&D, technology, and ability to bring customers a steady stream of new products and services. Rising consumer expectations will require even food and beverage players to raise their game on freshness and regulatory compliance, areas where China's standards still lag behind Western ones.

Rising value chain complexity

Another big challenge is coping with the rising value-chain complexity that accompanies consumer growth. Greater affluence and rapid urbanization require product makers to manage, make, and deliver an array of increasingly diverse and customized products to increasingly remote locations. Between now and 2015, for example, almost two-thirds of the growth in demand for fast-moving consumer goods will come from smaller (Tier-three and Tier-four) cities, which outnumber their Tier-one counterparts, such as Beijing or Shanghai, by a factor of 20.

Product proliferation and booming e-commerce also contribute to value-chain complexity. Business-to-consumer online sales in China are expected to grow by 45 percent a year from 2010 to 2015. For product makers, this means smaller and smaller lot sizes and deliveries to households farther and farther “out there.” During Chinese festival periods, the supply chains of many companies already creak under the strain of online orders. Demanding consumers contribute to supply-chain headaches, as well. Since many retailers in China accept cash-on-delivery payments, it’s not uncommon for shoppers to pit online retailers against one another by ordering, say, three identical products from three retailers—and refusing delivery to all but the first to arrive.

Such issues are relevant for technology companies and others responding to the Chinese consumer’s increasingly sophisticated tastes. But rising value-chain complexity is also a worry for manufacturers of more labor-intensive goods, given the sheer variety of products they make, and for regional processors, whose logistics networks are affected by urbanization and booming infrastructure development.

Heightened volatility

The uncertain global economic environment since 2008 has complicated life for manufacturers everywhere. Those in China have arguably been the most severely affected, given its status as the workshop of the world.

In China’s steel industry, for example, annual demand growth slowed to 3 percent in 2012, after a decade of double-digit increases.

The result has been lower capacity utilization, cutthroat competition, and a 56 percent decline in average profit margins for the industry from 2010 to 2012. Similarly, in China's massive auto industry, annual growth rates over the past five years have varied from 7 percent to 52 percent.⁴ Appliance and electrical-machinery producers have also experienced strong demand fluctuations, exacerbated by gyrating overseas demand.

Volatility at such levels makes planning difficult for China's manufacturers. This is problematic for companies that routinely make large, long-lived capital expenditures whose returns are crucial determinants of performance.

Three imperatives for China's manufacturers

As labor costs rise and slowing growth dampens the ability of China's steadily rising industrial output to deliver regular productivity gains, manufacturers there will need to strive for global levels of operational excellence. Energy efficiency is a particular opportunity for many companies (see "Seizing China's energy efficiency opportunity: A case study," on page 94), but far from the only one. Companies hoping to differentiate themselves beyond low-cost labor also can focus their efforts upstream (to harness innovation and product-development efforts) or downstream (to tame supply-chain complexity) or both, depending on the characteristics of competition in their sectors.

1. Achieve manufacturing excellence

Lean and Six Sigma are not new to China. Plant managers in domestic and multinational companies alike have worked hard to bring manufacturing-excellence tools and approaches to the country's shop floors. But for all these efforts, significant potential remains, mainly because plant managers in China often focus on "hard" technical tools at the expense of "softer" ones involving mind-sets and behavior. A recent lean-manufacturing transformation at one state-owned enterprise, for example, fell far short of its efficiency targets when managers and supervisors failed

⁴Since China's auto industry is also the world's largest, such volatility can result in eye-popping swings in production. In 1995, for example, production was 300,000 vehicles below what the long-term annual growth rate (1995–2012) would have predicted. By contrast, the production totals for 2010 were 2.7 million vehicles over it.

to complement the otherwise excellent technical changes with the necessary softer skills—including leadership—that would have made the changes stick.

One factor that complicates these problems has been the breakneck development of China's manufacturing sector, which means that many workers are relatively new to the job. We have seen too many frontline managers, lacking the experience to identify the problems inevitably associated with new plants and new ventures, merely react to problems rather than look for their root causes. Companies facing this problem will never get the full benefit of the productivity improvements they expect from lean. In one auto-assembly and body-shop operation, for example, team leaders spent as little as 5 percent of their time on coaching and problem solving (best practice is about 30 percent). Improvement efforts stalled until the company introduced standardized daily work agendas for team leaders and supervisors, to emphasize that shift meetings were occasions for problem solving and coaching—not firefighting.

Cultural differences also continue to thwart operational improvements in Chinese companies. In one auto plant, the multinational joint-venture partner installed visual-performance boards to make the status of work projects transparent, assuming that the tools would be accepted as they are elsewhere in the global auto industry. In fact, the frontline workers resisted them, interpreting the initiative as a criticism of individual colleagues and forcing the joint venture's leaders to devise ways to achieve the same effect without alienating the staff. Moreover, the Chinese company's senior plant managers, while supporting the changes, were initially uncomfortable about role-modeling the more transparent and inclusive way of working. A new continuous-improvement department eventually helped workers and managers alike to view greater transparency and continuous improvement as a new way of working rather than a "flavor of the month" exercise. The automaker's experience is not uncommon; indeed, the fact that the domestic leaders became involved was encouraging—all too often, the front line must sort out such changes itself.

Finally, companies in China must aspire to extend efficiency improvements throughout the value chain. An automotive joint venture recently began this journey by working with 60 of its

suppliers to address the 30 most pressing quality problems. The company fixed them in only six months and has since prevented their recurrence, in large part by equipping its people with assessment tools and skills and by engaging suppliers to address problems at the source. A new performance-management system helps ensure that both the automaker and its suppliers keep up their ends of the bargain.

2. Look upstream

For industries reliant on innovation, the triple whammy of rising costs, complexity, and competitive pressure means that the old ways of developing products in China now risk becoming liabilities. Staying competitive will require domestic companies and multinationals alike to change, starting with the mind-sets and attitudes that have pervaded product-development activities in China.

Product-development roadblocks. Domestic Chinese companies must get beyond the “faster, cheaper” fixation that has characterized their approach to R&D in recent decades. For every world-beating innovator such as Huawei, we still see dozens of smaller players struggling to develop the R&D pipelines that would help them grow from scrappy upstarts into incumbents that can realize their global ambitions. The growth of one China-based medical-device player, for example, has halved in recent years as smaller domestic competitors copy its designs and undercut its prices, much as the company itself copied from multinationals in earlier years. Yet even as it works now to boost its R&D capabilities and to generate market insights—extremely difficult tasks given the absence of necessary skills and institutional processes—the copying mind-set remains strong.

To some extent, multinationals face a mind-set challenge as well. Many invest significantly in their China R&D units⁵ while continuing to regard them as cost-saving satellites of the home-office “mother ship.” Even when multinationals establish supposedly autonomous R&D units in China, many lack the support and skills

⁵Eighty percent of global executives in a recent McKinsey survey reported that the best way to position their companies to meet innovation goals was to establish satellite R&D units that operate as a network. Sixty-three percent of respondents said that their R&D organizations already include satellites. For more, see Marla M. Capozzi, Peet Van Biljon, and Jim Williams, “Organizing R&D for the future,” *MIT Sloan Management Review*, 2013, Volume 54, Number 3, pp. 19–20.

to become intellectual-property creators, not just consumers. The experience of another medical-product company we studied—this one a multinational—highlights the challenge.

The leaders of the multinational's China R&D group thought they'd identified a lucrative niche for a new, low-cost medical-diagnostic product—but were denied funding by the head office back home. The general manager of the China business fought what he thought was a shortsighted decision, winning permission to proceed if his business unit could finance the new product itself. His unit ultimately did just that, in part by promoting the product to customers and collecting advance orders. Once launched, it was highly successful—at first in China but soon in other countries too as the company's sales reps got wind of its popularity and began offering it in their own regions.

Fast-forward about 18 months, when the company decided to revise the product. Rather than entrust its development to the China R&D



Workers at the Fiat SpA and Guangzhou Automobile Group Co. (GAC) manufacturing plant in Changsha, Hunan Province, assemble door panels for Viaggio vehicles.

team, the company assigned it to the main R&D group at headquarters and used the China team for support. The product flopped when new and technically elegant features and other changes insisted on by the Western group proved too expensive for customers or irrelevant to them.

A success story. The experience of a global lighting manufacturer suggests how some companies are overcoming the challenges. With global consumer preferences shifting toward new applications of a decades-old technology, the company identified a huge market opportunity in LED lighting. The market was also hugely competitive—Chinese and Taiwanese players were piling into the lower-end consumer segments—so a well-designed product clearly wouldn't be enough. Hitting a low price point and rapidly establishing scale would also be necessary.

The multinational briefly considered using its world-class global R&D unit to develop the product. But senior executives worried that the group's insular, engineering-centric culture would lead it to "overspec" the offering with costly features. Leaving it to the company's China unit, on the other hand, was too risky: that group couldn't generate unique customer insights and didn't have enough experience working with supplier networks upstream or with the company's global supply chain downstream to compete on cost and speed. The obvious compromise—combining the groups in a more traditional way by playing to the strengths of each—might mean suffering the usual time-zone delays while reinforcing the "silo" cultures the company's leaders wanted to break. It ultimately chose to view the project as an experiment for improving both units, so that the one in China would become more independent and the effort's benefits could be leveraged globally.

To get there, company executives quickly assembled a mixed R&D team in China comprising representatives from the marketing, procurement, supply-chain, and quality groups. For ten weeks, the team worked closely to develop an idea-generation and decision-making process that could not only create a winning, scalable design but also build skills and develop processes the company could use globally. The team collaborated to create and test customer insights,

complementing the work with teardowns of competitors' products. It also conducted shop-floor walkthroughs with suppliers and met with a variety of manufacturing experts to learn how the product could incorporate cheaper, more modular designs.

A set of simple rules proved critical to breaking old habits and unlocking good ideas: to ensure that the team never fixated on one part of the value chain at the expense of another, it consistently asked a handful of total-cost-of-ownership questions when it made its most important decisions. This approach helped spark improvement ideas in unusual areas, such as product packaging: the team found a way to give one of its products a more prominent shelf appearance—a locally important factor because of high levels of competition—while lowering logistics and other costs through the efficient use of materials.

As the effort picked up steam, it became popular with other managers in the China business. The company trained some of these “evangelists” as change agents to maintain momentum at the end of the pilot. This effort ultimately helped the company to lower the costs associated with the product line by an additional 20 percent beyond initial expectations. Further, the effort positions the company well for future cost-reduction opportunities that should arise as the industry matures.

3. Tame supply-chain complexity

While the effects of value-chain complexity vary by manufacturing subsector, most Chinese consumers are changing faster than supply chains are adapting. Indeed, supply chains in the country—both multinational and domestic—are generally set up for a low-labor-cost environment that is quickly disappearing.

Now that long cycles characterized by so-so levels of transparency and cross-functional collaboration are proving insufficient, companies will have to start by revisiting their demand planning. Consider the experience of a large consumer-electronics company whose processes were proving unsuited to the new demand patterns associated with some of its high-end products. Poor or delayed forecasts were disrupting operations and leading to excess inventories, while also upsetting customers downstream.

Chinese consumers are changing faster than supply chains are adapting.

The turning point was the company's recognition that its planners were applying the same broad-brush approach to all products, regardless of their market characteristics. In response, the company's leaders created a tiered approach to detach planning activities for some basic appliances whose demand patterns were well understood (rice cookers, for example) from plans for faster-moving products with less certain demand. For the basic products, the company developed a streamlined, "good enough" planning approach. For the high-end goods, it crafted specific plans by product line.

Its results, including an overall improvement in forecast accuracy to more than 65 percent, from 35 percent, have been impressive. Inventory fell from more than 55 days to 30 days, and the company increased its proportion of on-time deliveries to more than 95 percent, from 60 percent. What's more, the changes in the company's planning approach made the work more interesting for its employees, as many of them subsequently received training in advanced forecasting techniques. Consequently, employee turnover among the planning teams went down dramatically—from 50 percent before the effort to just 20 percent afterward. In a second phase, currently under way, the company extended this approach for high-end products to others with similar demand characteristics.

Significantly, the company is separating what had been a monolithic China supply chain into nimbler "splinters" that can better manage complexity. Products with steadier demand go to market in the traditional manner: via coastal distribution centers and large drop-ship orders to retail partners. Higher-end ones travel via smaller regional distribution centers located closer to demand inland. For some products, this approach allows the company to experiment with postponement strategies—finalizing product assembly closer to demand—that help reduce costs and inventory levels (in the case of some customers, by as much as 45 percent).⁶

As companies look to move their footprints closer to customers in Tier-three and Tier-four cities in China's interior, another likely change will be the long-term development of logistics hubs and assets. In this way, those companies will be better positioned to serve booming demand for online purchases (see "China's e-tail revolution," on page 70). These investments are risky, and many senior executives we know are worried about overextending their companies. Some describe what they say is a need to "go West—but not too far West." As for domestic Chinese companies with global plans, they know that getting closer to customers means Western customers as well. A few of the largest white-goods makers are thinking about expanding their assembly and test activities in the developed world, because they recognize that they can no longer adequately serve it from Shenzhen and other hubs.



China's rise to manufacturing preeminence in recent years has been amazing. Yet rising costs, more sophisticated consumers, and fundamental macroeconomic realities mean that yesterday's approaches to manufacturing are losing their relevance. For Chinese-owned and multinational manufacturers alike, the imperatives now are to boost productivity, refine product-development approaches, and tame supply-chain complexity. Those that do so can create an enduring competitive edge. ○

⁶For more, see Yogesh Malik, Alex Niemeyer, and Brian Ruwadi, "Building the supply chain of the future," mckinsey.com, January 2011.

The authors would like to thank She Guo, Mads Lauritzen, Gregory Otte, Gernot Strube, Min Su, and Forrest Zhang for their contributions to this article.

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Seizing China's energy-efficiency opportunity:

A case study

Steve Chen, Maxine Fu, and Arthur Wang

Improving energy efficiency in industrial environments starts with changing minds—not machinery. The progress made by one of China's largest state-owned enterprises holds lessons for industrial players of all stripes.

Energy efficiency and conservation have rocketed up China's corporate agenda, particularly for heavy-industry players such as power plants, steelmakers, chemical companies, and automakers. Energy is the largest expense for some of these industries, and since variable costs represent a larger share of total costs in China than in more developed countries, where fixed labor outlays are higher, volatile commodity prices hit China's core industrials much harder. These economic fundamentals apply to multinationals and local players alike, so efforts to secure the benefits of improved energy efficiency are important for a wide cross-section of companies.

Yet achieving those benefits is difficult. The tendency at most industrial companies, and not just in China, is to equate energy savings with capital expenditures, hardware, and other technical solutions. Actually, what is often most important to change is poor cooperation and unhelpful mind-sets prevalent on the front line. Similarly, many companies in China and elsewhere lack an integrated view of how energy yields, energy output, and energy consumption combine to affect their operations. Some measure these factors only in a superficial way.

Nonetheless, a few of China's leading industrial players are making impressive headway. In this article, we'll look at one such company—a large resource- and emission-intensive Chinese state-owned enterprise—that in the wake of the global financial crisis began rolling out a series of energy-efficiency improvements across its plant network. A closer look at the company's flagship plant, where energy consumption fell by more than 10 percent, offers insights for other industrial groups, in China and beyond, as they seek ways to lower costs and use energy resources more wisely.

Welcome to the downturn

As consumer demand plummeted at the start of the global economic downturn, the company's leaders watched as prices for its goods fell by more than 50 percent in a matter of weeks. Within four months, the group's record figure for profits was followed by a comparable loss.

To stanch the bleeding, the company's leaders launched an aggressive operational-improvement effort. To no one's surprise, energy efficiency appeared the likeliest starting place—after all, energy was the biggest cost driver, representing half of a plant's variable costs and about 40 percent of the total. Personnel costs, by contrast, were less than 8 percent of the total. Only by improving energy efficiency, the leaders believed, could the company hope to regain profitability and put its operations on a more solid footing.

'Energy is free'

The team of company experts these executives assembled to assess the situation faced an immediate hurdle: no one at the plant level was responsible for tracking energy in the necessary detail. Even at the group level, the company had little visibility into the way energy consumption, yields, and output combined to affect the economics or operations of plants. At the company's flagship facility, only one employee worked on energy-related issues—part time—and he focused on basic monitoring and on collecting data for government-reporting purposes, not on efficiency improvements.

This state-owned company's inattention to energy efficiency is far from unusual in China, and far more common in industrial environments around the world than you might expect. The reason is that the costs associated with energy use often are felt, if they are felt at all, far from the factory floor, where energy is consumed. Most of the Chinese company's line workers thought of energy as "free," when they bothered to think of it—a sentiment we hear across shop floors around the world. At this company, that mind-set encouraged well-meaning yet shortsighted activities. On the front line, for example, workers used compressed air to cool down motors and extend their operating lives, although on an annualized basis the compressed air cost several times more than a new motor.

As company experts began to work closely with leaders at the flagship plant to gather data and identify opportunities, they quickly encountered another mind-set challenge common to operational-improvement settings: complacency. The leaders of the plant knew full well that it was the pride of the group, and many believed that its efficiency approached or matched global standards on some measures. Only a few percentage points of improvement were possible, many thought, and new equipment would be needed to realize energy-efficiency gains. This attitude was shared throughout the plant. "We thought we were already the best in China," said one worker. "We were running at our technical limits," said another.

Wake-up calls

Two events began turning the tide. First, a benchmarking effort showed that the flagship plant was squarely in the middle of the pack when ranked against global competitors. The company's best wasn't good enough.

Second, the company's CEO decided to pay a surprise visit to the facility. He recognized that seizing energy-efficiency opportunities would require determination and a new way of thinking about operations and wanted to see the starting point first-hand. He also hoped to send a clear signal—to plant leaders and workers alike—that he was serious about change.

Leaving his company car and driver at his hotel to avoid tipping off the plant's staff, the CEO set out with two others in a private car late one evening to observe the night shift. After spending nearly 20 minutes locating a supervisor in the guts of the vast plant, the CEO was dismayed to find no one working in an area of its coal-gasification¹ unit where employees should have been making energy-saving temperature adjustments. Instead, these workers were visiting with colleagues in a control room. One detail illustrated the lack of seriousness some of them showed in approaching the energy challenge: a maintenance checklist bore a signature indicating that an inspection had been completed at 5 AM the following morning. It was not quite midnight.

A similar visit later that week to a nearby satellite facility, while not as dramatic as the first one, also drove home the need for change. A week later, the CEO announced a wholesale replacement of the plant's leadership, in an effort to impose the management discipline needed for energy-efficiency efforts.

Getting down to business

Following these wake-up calls, managers and workers began buckling down. In the plant's coal-gasification unit, for example, the company rationalized the way coal was transported and stored. Coal begins to oxidize and degrade as soon as it's mined, but through better handling and a straightforward "first in, first out" system, the company improved the energy yield of its coal significantly.

Meanwhile, a better screening system ensured that coal particles were more uniform in size, which improved the efficiency of gasification. Finally, better management and tracking in the coal yard helped the company reduce inventory from 20 days to 10. All told, these changes—plus comparable moves to make the boilers, turbines, and other steam-related equipment more efficient—helped reduce costs in this area by 13 percent (and by 7 percent in the first month alone).

¹Coal gasification is a common process, used in heavy-industry settings such as chemicals, steelmaking, and oil refining, to extract fuel energy from coal.

The company launched similar efforts to improve the efficiency of motors, pumps, and other equipment vital to plant operations. Like the changes to the steam-related processes, most of these improvements will require little in the way of capital investment. To date, company executives have identified a potential 15 percent improvement in this area and expect to fully achieve (or exceed) it within 12 months.

Measure, then manage

To help ensure that the changes would stick, the company implemented rigorous data-gathering and performance-management systems alongside the operational changes. Earlier, it hadn't measured energy use in any of the plant's large operational processes. Today it measures all of them. Improved tracking and straightforward shop-floor *kanbans* (signboards that help workers visualize work flow and trigger activities that enhance fast responses) help workers monitor temperatures, processes, and tolerances to maximize energy efficiency. The plant also conducts "theoretical limit" analyses to see what best performance looks like—an exercise that lets workers determine where and how to focus and quantify their efforts.

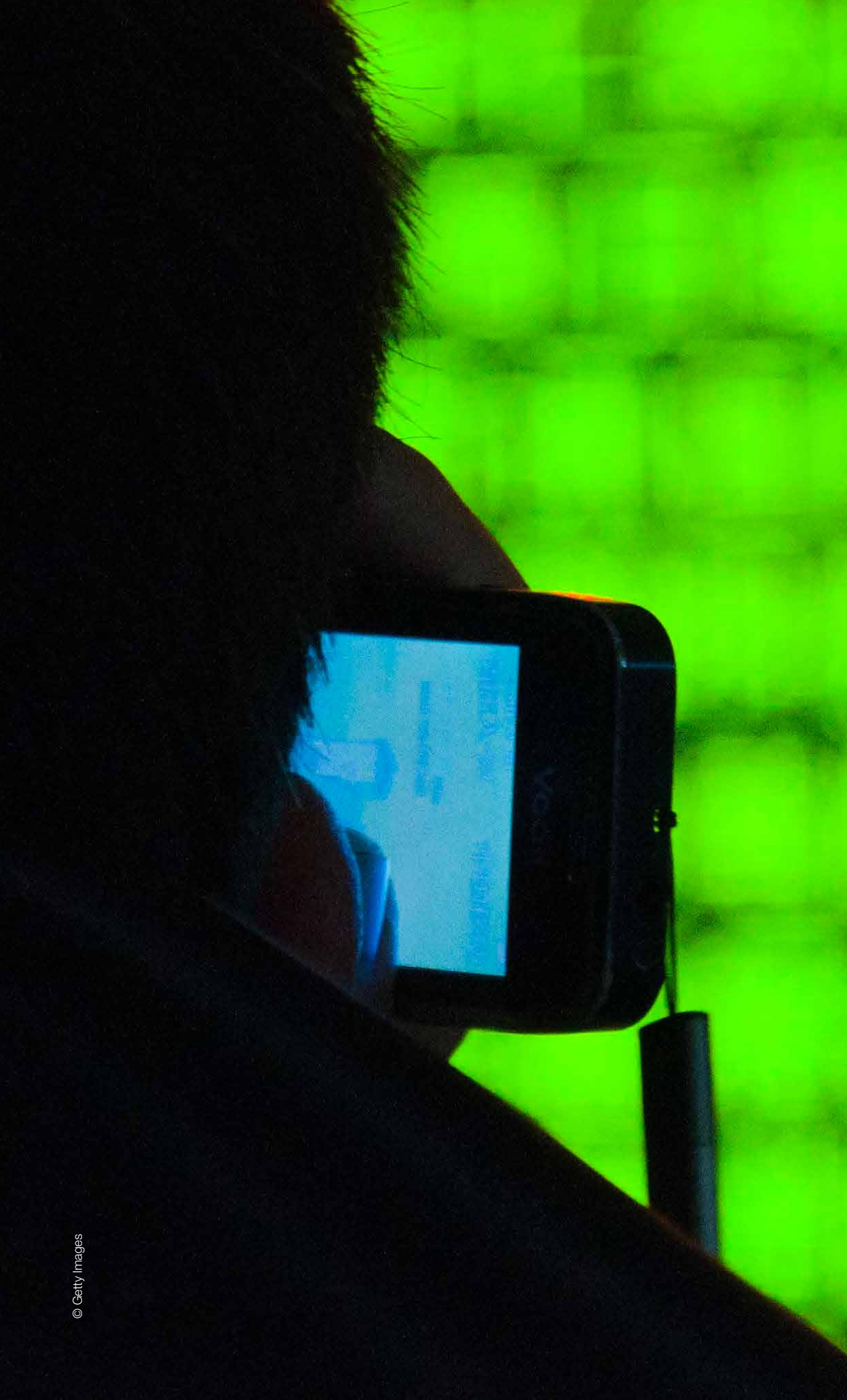
Efficiency targets are now tied to the performance appraisals of plant managers. Similarly, managers and workers who have direct control over underlying factors that drive energy efficiency—say, the operating temperature of a mechanical process—are assigned as "owners," with direct responsibility for meeting targets. Daily performance dialogues help workers keep on track while giving them a forum to identify, discuss, and solve problems in a timely manner. Moreover, by carefully defining, sequencing, and weighting the targets at the plant and individual shop-floor levels, the company keeps frontline workers focused on the underlying factors that influence the efficiency of the process or activity at hand. This approach also ensures that these workers' specific areas contribute to the plant's big-picture energy-efficiency goals.

Meanwhile, at the corporate level, the company created a new organization, headed by a group vice president, that is responsible for energy efficiency. Assistant managers in each of the company's plants work closely with specialists in the most energy-intensive

divisions to monitor progress and suggest improvements. Some of these ideas have come from the shop floor, where workers now have a much clearer idea of how their actions influence energy use. Collaboration is also improved. As one vice department manager put it, “We have established much closer communication and cooperation between departments and plants along the energy value chain.”

The initial wave of results was encouraging, and changes continue to be rolled out at the flagship and other plants. After the first year, the flagship had exceeded its overall target, lowering its energy consumption by 12 percent and saving some 200 million renminbi (about \$32 million). A second wave of energy-efficiency improvements, under way now, is expected to generate additional savings. Subsequent benchmarking found that the flagship plant is poised to become one of the world's ten most energy-efficient facilities of its kind—a goal the company's leaders expect to achieve in the near future. They now see energy efficiency as the biggest lever for boosting profits. Indeed, it is expected to contribute a majority of the operational-improvement gains the company has identified this year across its whole network of plants. These gains are projected to exceed those achieved at the flagship plant by more than a factor of ten. ○

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Technology and innovation

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**Thriving in a
PC-plus world:
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**Recent
developments in
Chinese innovation**
Gordon Orr
and Erik Roth

An investor with a digital camera watches the electronic board at a stock exchange in Shaoyang City, in South Central China's Hunan Province. The pace of Chinese innovation is quickening and a new spirit of innovation is spreading across sectors, into universities and even into key departments of the Chinese government.

Thriving in a PC-plus world: An interview with Lenovo's Yang Yuanqing

The Chinese computer maker—now among the world's largest—expects mobile devices to supplement PCs, not replace them.

For its first two decades, Lenovo Group was largely unknown outside its native China. That all changed in 2005, when the company's \$1.75 billion purchase of IBM's personal-computer business,¹ including the iconic ThinkPad line, catapulted Lenovo into the ranks of the world's biggest personal-computer makers. Today, the Chinese company is among the world's largest PC manufacturers and is aggressively pursuing fast-growing markets for tablet devices and smartphones.

Yang Yuanqing, who was in the fledgling company's first wave of employees, joined Lenovo as a salesman in 1989, just five years after it was founded. He rose rapidly through its ranks to head the personal-computer business in 1994, becoming chief executive officer when founder Liu Chuanzhi stepped down in 2001. He himself stepped down as CEO in 2005 and then served as chairman for four years. In 2009, Yang Yuanqing returned as CEO and Liu Chuanzhi as chairman. Together, they steered Lenovo through the aftermath of the world financial crisis. Following the company's successful recovery, Liu Chuanzhi retired in 2011 and Yang Yuanqing became chairman and CEO, spearheading Lenovo's ascent to its current position. In this interview with McKinsey's Rik Kirkland and Gordon Orr, Lenovo's chairman and chief executive explains the importance of investing in innovation and why personal computers must evolve.

¹Announced in December 2004, the acquisition involved \$1.25 billion in cash and equity, as well as the assumption of debt.

The Quarterly: *There are a lot of people, particularly in the United States, talking about a very rapid decline in the PC industry over the next couple of years. How are you preparing Lenovo for the possibility that might happen?*

Yang Yuanqing: Strategy. The industry is absolutely shifting toward mobile devices, such as smartphones and tablets, which are growing fast. But Lenovo has prepared for this shift for many years. Our belief is that we can address those markets as well as our core PC market. In the smartphone sector, for example, we're number two in China; we're in the top five now worldwide.

The Quarterly: *Mostly driven by China.*

Yang Yuanqing: Mostly, yes, but we are entering other emerging markets. Having said that, we just don't believe the PC is dying. You can use a phone or tablet to do some simple work, but you cannot do everything—it's simply not as functional as a PC. For example, I prefer to reply to e-mail using a keyboard. We know that we still need to innovate when it comes to the traditional PC, however, and Lenovo has done a lot of work on that.

Yoga, our ultrabook that functions both as a laptop and tablet, is a good example. Before we launched it, we had never addressed the high-priced-laptop market in the US. Now, since launching Yoga, we have a more than 40 percent market share in the \$900-and-above price band in the US retail market. That's from this one product with just two models, a 13-inch and an 11-inch. It's been a huge, huge success. And it's not only helped us to grow our volume and market share but also to build our brand. It has repositioned us as a brand known for innovation.

So that's one example. Another good example is our just-launched table PC, called Horizon, which evolved from the traditional all-in-one PC or desktop PC. We've changed it from a one-person machine to a multiple-person machine—a family entertainment center—focusing not just on hardware but also software and applications. It's this kind of innovation that ensures that the PC won't die, but actually grow. We don't think there's a post-PC era—we see a PC-plus era. We know that the PC is no longer the only Internet-access device, but it's still critical.

The Quarterly: *You became the world's largest PC maker by some metrics during one quarter last year. How important is that for you and your competitors?*

Yang Yuanqing: In the past, we were a Chinese local brand. Now they view us as a very serious competitor—we are more competitive in the market. This is a volume industry, a scale industry. If you have the scale, you have the advantage. So, first, becoming one of the leaders is very important from an efficiency point of view. And, second, being a top PC company promotes our brand. This is even more important for Lenovo, given where we were just a few years ago. Someone in the Chinese media asked me how important it was to become number one, and I asked him, “Can you name the world’s highest mountain?” And he replied, “Everest.” Then I asked, “And what’s the world’s second highest?” That’s why being number one is important.



Yang Yuanqing

Vital Stats

Born November 12, 1964,
in Zhejiang, China

Education

Graduated with a BS in
computer science in 1986
from Shanghai Jiao Tong
University and an MA in
computer science in 1989
from the University of
Science and Technology
of China

Career highlights

Lenovo

(1989–present)

- Chairman (2011–present,
2005–09)
- CEO (2009–present,
2001–05)
- President (2001–05)

Fast facts

Named “Chinese Business
Leader of the Year” by Fortune
China (2007), “Businessman
of the Year” by Forbes Asia
(2008), and “Best CEO in
China” by Finance Asia (2011).

Is a member of the New York
Stock Exchange's International
Advisory Committee, as
well as the National Youth
Association Committee.

Serves as director of China's
Entrepreneurs' Association
and is a guest professor at
the University of Science and
Technology of China.

The Quarterly: *Did your competitors do anything wrong?*

Yang Yuanqing: I think some were too slow to address the mobile-Internet trend. And one reason is that they believe you can outsource everything, not only manufacturing but even R&D. When you do that—when you rely on external parties to think for you—you lose the spark of innovation.

Our momentum has been stronger than our competitors' not because we quickly follow whatever Apple does; we don't. It's been stronger because we saw the market trends a decade ago and have invested in innovation. We knew that, sooner or later, the PC market would become smaller. I still insisted that we undertake R&D on a smartphone, and, after I took over as CEO, we bought back the phone business that was previously sold and launched the device because we already had it designed. And, fundamentally, we executed. We executed well. So that's one example of how we have maintained strong momentum.

The Quarterly: This is interesting because many people around the world view Chinese companies as exactly the opposite: they believe Chinese companies have no R&D and just copy other countries' products. But you view in-house R&D as critical and are investing in R&D centers not just here in China but also in Japan and the United States.

Yang Yuanqing: Well, on the one hand you can say we are focusing on devices—Internet-access devices. That's pretty basic. But we know that the future is not just hardware. R&D is critical because we must consider the whole package: hardware, software, services, and content. That's how you give customers the best user experience and rich applications. Our belief is that if you want to be the most innovative, you must leverage the best talent. And that talent and new technology come from everywhere, and different countries and different markets have different demands and requirements. So having global R&D centers is very important.

The Quarterly: *Were there challenges when you sought to evolve Lenovo from a China-centered company to a global one?*

Yang Yuanqing: There are a lot of challenges with becoming a global operation. Even small things: when we had our first global-operation call, I couldn't understand everything that was said.

Everybody spoke English, but the accents were completely different! Seriously, culture was definitely a challenge—we didn't know the Western culture at all. And from a business-model point of view, we didn't know whether our success in China could be replicated in the rest of the world. It was very tough. But I often use this story: if someone always swims in the river and has never swum in the ocean, it doesn't matter how strong a swimmer he is; he's never swum in the ocean! He's scared. But you have to remember that the skills transfer. You can swim very well in the ocean; you just need to become more confident.

The Quarterly: *You jumped into the deep end when you bought IBM, and you're now acquiring a lot of other companies in Brazil and Germany and other places. Are you swimming confidently now?*

Yang Yuanqing: We are, and we have realized over time that it's critical for globalization to be real. Many so-called multinational companies—global companies—are not actually global. Most companies in the Fortune 500 are not global; most of their top executives are American. In European companies, most top executives still come from Europe. So they're not real global companies. Given Lenovo's heritage, we have no choice; we have to be genuinely global.

When we bought IBM's PC business, we were a \$3 billion company buying a \$10 billion company. To be honest, we didn't even know we were going to swim in the ocean until we actually were, so we had to hire a coach to teach us. We had two generations of American CEOs who helped the company finish the first stage of globalization: to integrate the company, to make it more efficient. Because of this heritage, our top executives come from everywhere. As an example, our Lenovo executive committee has nine members from six nations.

We also know that if we want to be an even more successful global company, we must leverage local talent. And that's not just for sales and marketing but also for more roles and functions, such as manufacturing and R&D. Our belief is that we can best serve local customers and understand local markets that way rather than trying to do so remotely. Our ambition is to build Lenovo as a global local company. So in key markets, we want to build a local footprint, either organically or through acquisition. And we already have a

strong foundation in China, the US, Japan, and Germany, and now we're moving into Brazil, India, and Russia.

The Quarterly: *In India, you've become the biggest PC maker organically. How?*

Yang Yuanqing: There are four aspects that apply to how we approach all markets. The first is having the right strategy and good execution. For us, that means moving up the value chain over time in all of our product areas. The second is good products and innovation. The success we had at this year's Consumer Electronics Show was proof of that—people really saw us as innovative and at the cutting edge. The third is our business model, which is effective and efficient. And the fourth is having a diversified, global team and culture.

In all markets, our business model is important. A direct model, such as Dell's, is good for enterprise customers. They care about reliability, durability, security, those kinds of things. But it's not a perfect model for consumers. Consumers care about whether they're using the latest technology, what's in fashion. The supply model is different. A relationship model is good for enterprise customers and more profitable for direct sales. But for consumers, we believe a transactional model works best—it must be a push model in which products are pushed from the manufacturer, not requested by customers.

So we built our end-to-end integrated-transaction model in China and we have replicated that in India across all of our functions. In terms of growing organically there, we have approached low-tier cities first in an effort to be the pioneer to develop these emerging markets. Basically, we have been careful not to view India as just one big emerging market—we look at it as a number of smaller markets, and we separate it into different tiers.

The Quarterly: *How will people describe Lenovo ten years from now?*

Yang Yuanqing: We want to become an even more respected company in the world, with a strong global business across all segments and technologies—PC and mobile, consumer and

commercial, mature markets and emerging. We know that China still contributes most of our profit—after all, in the US we had never had a consumer business until a few years ago. And since we’ve just started that business, and in other countries too, we can’t squeeze every penny into the bottom line; we must use some money to invest in the future or invest for the future. We believe the investments in those businesses will start to pay off in the next few years.

We want to transform ourselves from a PC market-share leader into a PC-plus innovation leader. This will ensure we have sustained growth, profitability, and the strong foundation to build a great global company that can last for generations. ○

This interview was conducted by **Rik Kirkland**, senior managing editor of McKinsey Publishing, based in McKinsey’s New York office; and **Gordon Orr**, a director in the Shanghai office.

Recent developments in Chinese innovation

Gordon Orr and Erik Roth

Meaningful advances are emerging in fields ranging from genomics to mobile apps—and what’s happening beneath the surface may be even more significant.

Back in 2011, when we began work on a *McKinsey Quarterly* article called “A CEO’s guide to innovation in China,”¹ much of the debate was about whether the country was more likely to become innovative or to remain a fast follower of foreign leaders. Even then, that seemed like yesterday’s question. Companies in China *were* innovating; we were seeing that every day in areas such as renewable energy, consumer electronics, instant messaging, and mobile gaming, both at domestic players and at multinationals with significant research and product-development presences.

Nothing that has happened since has changed our view. Indeed, our sense today is that the pace of innovation is quickening and that a new spirit of innovation is spreading across sectors, into universities and even into key departments of the Chinese government. In a recent series of interviews with executives at Chinese companies, we detected evidence of real innovation leadership and the potential for more to come. John Oyler, CEO of the three-year-old Chinese biotech company BeiGene, for instance, underscored the attitude—“anything is possible, we can make it happen, there is no challenge we cannot conquer, we will surprise the world”—that he’s now seeing among Chinese scientists at his company.

In fact, a wide range of companies have begun mounting challenges in sectors traditionally the preserve of US, European, Japanese,

¹ Gordon Orr and Erik Roth, “A CEO’s guide to innovation in China,” *McKinsey Quarterly*, 2012 Number 1, mckinsey.com.

or South Korean businesses. Beijing Genomics Institute (BGI), for example, the world's biggest genetic-sequencing company, now claims to account for roughly 50 percent of global capacity and probably sequences more genetic material than Harvard University and the Massachusetts Institute of Technology combined, while developing some of the world's most advanced biologic-computing models. In information and communications technology, Huawei raised eyebrows at this year's Consumer Electronics Show, in Las Vegas, with innovative new smartphone platforms built on chips and software designed in-house. Another smartphone player, Xiaomi, founded in 2010 and called by some the "Chinese Apple," for its marketing strategy and loyal following, is on track to sell more than 15 million phones this year. Midea surprised its industry recently by announcing a highly efficient 1-hertz variable-speed air-conditioning compressor ahead of foreign competitors. And YY.com, a voice-based communications and gaming service, has captured growing attention with its mass online karaoke.

In our previous article, we suggested that tomorrow's winners in China would focus on infusing their innovation efforts with a more sophisticated understanding of Chinese customers, retaining local talent, instilling a culture of risk taking, and promoting internal collaboration. This list remains crucial, but it is incomplete. In this article, based on recent interviews and our work with dozens of Chinese companies, we want to highlight three more recent developments that are likely to shape the innovation environment during the years ahead: the growing role of Chinese universities in the local innovation ecosystem; the gathering local interest in, and concern about, intellectual-property (IP) protection; and the emergence of a new generation of talent. If we are right that these forces are accelerating China's realization of its innovation potential, then embracing them is mission critical—for Chinese companies and multinationals alike.

1. Seek Chinese universities as innovation partners

The prevailing view of Chinese universities is that they are highly effective at turning out large numbers of reasonably well-qualified

specialists whose strengths are in the application of existing practices to predefined problems and whose future may lie in *shanzhai* (“copycat”) innovation. But that picture is changing rapidly, with the best universities starting to recruit the world’s top faculty talent for priority disciplines and creating an environment where breakthroughs can happen. When Fudan University wanted to develop a wastewater-treatment science program, for example, it hired one of the world’s top thinkers on the topic, who was teaching and conducting research in Singapore at the time. Globally recognized scientific journals are also increasingly filled with publications from leading Chinese researchers: *Nature*, for example, published 303 papers by Chinese scientists in 2012, up from 46 in 2006.

As Chinese universities raise their game, they are becoming increasingly interesting innovation partners for a wide range of domestic and global companies. To some extent, this is nothing new: Intel, for example, has long collaborated with these universities to sponsor research projects, PhD theses, and technical forums related to technology that’s close to the company’s business. What seems to be changing is the growing use of Chinese universities as a form of “outsourced R&D,” to borrow a phrase from an executive we interviewed recently.

One Chinese packaged-goods company conducts food-science research almost entirely through the labs of a local university. Peiyuan Peng, vice president and head of LG Electronics’s Shanghai-based R&D center, recently described for us the range of joint-research efforts his company undertakes with leading Chinese university labs and the role that Chinese professors play in helping LG recruit the best and brightest Chinese researchers and engineers. Meanwhile, in the life-sciences sector, BeiGene’s Oyler describes Chinese universities and research institutions as underappreciated treasure troves of innovation pockets. Oyler’s team actively collaborates with scientists at the National Institute of Biological Science (located across the street from BeiGene’s headquarters, headed by Xiaodong Wang, a member of the US Academy of Sciences, and full of creative, passionate world-class scientists), which last year discovered the Hepatitis B virus receptor, a huge advance against one of the most

² “NIBS scientists identified a functional receptor for hepatitis B and D viruses,” www.nibs.ac.cn/en/research_news/elife.html, November 2012.

common chronic diseases in Asia. Researchers from the two organizations trade ideas in both formal and informal meetings.²

There are risks for multinationals, to be sure. Many Chinese universities have strong ties to the government, whose prioritization of domestic innovation may discourage close and open work on advanced topics. As LG's Peng points out, though, those ties also mean that Chinese professors often pick up valuable information from government officials about changes in policy direction and market rules. Multinationals that make Chinese universities part of their innovation ecosystem are likely to gain earlier access to these insights, too.

2. Make intellectual-property protection a core part of innovation culture

The government has become noticeably more active in its support of intellectual-property protection. Gao Feng, deputy director of the Ministry of Public Security's economic-crime investigation department, has been describing, with surprising openness, the weaknesses of the current IP system and vowing continued improvements.³ The Chinese government ministry charged with prosecuting intellectual-property violations recently announced that it handled 2,347 cases in 2012, up almost 40 percent from 2011, and over those two years resolved \$2 billion in violations.⁴ And in Jiangsu province, the local government in Suzhou is building a 500,000-square-meter facility next to its innovation park. The idea is to bring together IP-related agencies and leading technology companies to elevate IP issues in importance, while improving the processing and quality of patent approval and protection. Efforts such as these, while localized, reflect a growing appreciation for the importance of IP protection.

Nonetheless, intellectual-property theft—including the reverse-engineering, copying, and sale of components and finished products—remains a concern, particularly for multinationals. Many

³ Wang Xiaodong, "Progress in fight against fake products," chinadaily.com.cn, January 23, 2013.

⁴ Ibid.

continue to report deliberate cybersecurity breaches by Chinese hackers trying to steal valuable secrets over corporate computer networks and across national borders. Interestingly, savvy Chinese companies are already working hard to protect themselves. One priority: creating physical barriers to piracy. We've seen companies forbidding the use on their campus grounds of PCs, mobile devices, and other electronics not issued by the company. Precautions might extend to not allowing laptops or smartphones to enter or leave the campus, for fear that they might carry sensitive material, and restricting the most sensitive engineering activities to buildings where wireless access is blocked, computers are tied down to desks, and there is no access to external networks.

Other practices include compartmentalizing knowledge so that only a few individuals have a complete understanding of complex core systems. It is increasingly common to require camera-enabled devices to be stored under lock and key before entering R&D facilities. Many companies have also banned the use of devices, such as portable hard drives and USB thumb drives, that could be used to transfer media electronically. Haier, for its part, has begun monitoring employee activity on technology platforms, including e-mail and Web browsing.

Haier's experience suggests it is possible to create strong structural safeguards without compromising a company's innovation culture. Culture, in fact, can be a crucial element of internal IP-protection efforts. Increasingly over the last year or so, we've seen companies trying to make intellectual property part of internal codes of conduct and ethics efforts, sometimes demanding an annual review

Over the last year or so, we've seen companies trying to make intellectual property part of internal codes of conduct and ethics efforts, sometimes demanding an annual review and a formal sign-off process by employees.

and a formal sign-off process by employees. For multinationals, the opportunity is particularly large: employees who feel they are deeply valued as part of a broader global entity, as opposed to a fungible resource needed to help “crack China,” are less likely to sell company secrets.

In an understandable effort to minimize IP leakage, many multinationals inadvertently isolate the Chinese team from the rest of the company. But as one Chinese executive said to us, “If you want Chinese employees to be loyal, then ask yourself how loyal you are to your employees. There must be a mutual feeling of respect to gain their trust.”

3. Tap into a younger generation of Chinese talent

It’s commonly said of China that innovation *capacity* (measured in terms of patent volumes and the construction of R&D facilities, for example) outstrips *capability*—in particular, the quality of China’s



Professor Gao Chao, of the Department of Polymer Science and Engineering at Zhejiang University, in east China’s Zhejiang Province, displays the newly developed carbon aerogel—an ultralight, solid material used in various areas of manufacturing.

talent pool. Young Chinese graduates, especially, come under the microscope: educated in large numbers, raised in relative affluence, and more attracted to safe career tracks in the government or state-owned enterprises than to entrepreneurial ones, according to surveys.⁵

We don't dispute any of these surveys, but they don't quite square with our experience meeting young Chinese entrepreneurs such as 28-year-old Guosheng Qi, a Tsinghua University graduate and the founder and CEO of Gridsum, a cloud-based Web-analytics company. Gridsum's customers range from Baidu to multinationals such as Coca-Cola, and last year it beat out companies from around the world to be named as one of Microsoft's most innovative new software partners.

Leaving aside the entrepreneurial world, we'd also highlight a powerful corporate cross-current that senior leaders, especially at multinationals, should heed. As one Western executive at a Chinese company told us, the simultaneous growth in the number of young graduates and new companies is having an important impact on corporate cultures and individual mind-sets. His logic is that regardless of the attitudes young people bring to the first day on the job, those just entering the professional workforce following their undergraduate or graduate studies are highly malleable to new ways of working. Echoing this viewpoint, Taosang Tong, president of Tencent's Social Network Group, says his company prefers pulling talent directly from college, "Before they are exposed to less innovative Chinese company cultures."

Further, more Chinese graduates now move into the private sector than into any other source of employment. And many of today's fast-growing companies are more likely to breed innovative habits than were the large-scale "first employers" of the 1980s or 1990s, a substantial number of which were state-owned enterprises or had only recently been privatized. In short, as the number of students entering and graduating from Chinese universities skyrockets (from 1.6 million new students in 1999 to 7.5 million in 2012, and from about 1 million graduating students to 6.7 million for the same years), the Chinese talent landscape is evolving in tandem.⁶

⁵ Bob Davis, "Chinese college graduates play it safe and lose out," *Wall Street Journal*, March 26, 2013.

⁶ China National Bureau of Statistics.

Yet many multinationals we know seem focused primarily on landing experienced Chinese hires who can help them quickly localize operations. They're less interested in cultivating the next generation of talent and aren't looking to it for the fresh ideas needed to sustain and grow their businesses. Indeed, only about 17 percent of respondents to a recent McKinsey survey of high-tech companies (including multinationals) operating in China described their development efforts there as leading edge.

Contrast all that with the approach of companies such as Lenovo, which, according to chief technology officer (CTO) George He, hires roughly 70 percent of its fresh talent straight from Chinese universities. Multinationals should certainly embrace the young-talent pool. But more than that, they are unlikely to overcome their established habits until they shift innovation decision-making authority to China. Companies can move in this direction by creating autonomous "ring fenced" Chinese R&D budgets and by permanently relocating the CTO or other innovation-related senior-executive roles to China.

Microsoft is an interesting example of a multinational raising its game with young talent in China. Ya-Qin Zhang, corporate vice president and chairman of Microsoft's Asia-Pacific Research and Development Group, oversees the company's Asia-Pacific R&D headquarters in Beijing. He proudly showed us around the new Azure accelerator, which is intended to help start-ups make use of the Azure cloud-computing platform when they set up their companies. Business teams submit proposals to a contest and are selected to join the accelerator, where they are assigned an executive sponsor and receive training from Microsoft engineers. The incubator represents more than a cloud-computing play; it's also part of a long-term effort by Microsoft to boost its visibility among rising engineering talent. This effort appears to be paying off. Ya-Qin Zhang commented during our tour that the engineers Microsoft can recruit in China are now on par with those hired at its corporate headquarters, in Redmond, Washington—a big change from the prevailing reality ten years ago.



The Chinese model for innovation, and the kinds of breakthroughs Chinese organizations achieve, are likely to be quite different from those of Western ones. There is a greater willingness in China to go directly from development (usually based on already-known or highly anticipated customer orders) to manufacturing and shipping products. Circumventing the traditional “create, test, refine, develop, produce, market, sell” innovation process of many Western companies breeds speed, in the form of shorter time frames to launch and scale new businesses. That will be difficult for many multinationals to match. We constantly hear from these companies’ innovation and product managers about their struggles, through seemingly endless sets of steps and approvals, to make “China for China” innovation a reality instead of merely corporate rhetoric.

The Chinese approach also has its limitations; we’ve all seen evidence of quality breakdowns, excess waste in the development process, and unpredictability in production, all of which open the door for multinationals. Those that are not only inspired by the latest surge of Chinese energy but also mindful of the latest trends in universities, IP, and talent will be among the winners, turning out cutting-edge products of the kind we now still associate with the United States, Europe, Japan, and South Korea. ○

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Young office workers in the business district in Beijing. The demand for managers with strong leadership skills and international experience is growing significantly faster than the supply of qualified candidates in China.

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Developing China's business leaders:

A conversation with Yingyi Qian

In an interview with McKinsey's Dominic Barton, the dean of Tsinghua University's School of Economics and Management reflects on the characteristics of successful Chinese leaders, and the skills they'll need to thrive in the future.

China has spent decades, and hundreds of billions of dollars, building the physical infrastructure necessary to support the world's second-largest economy. In the years ahead—as the country's growing middle class places new demands on the companies that serve it, manufacturers compete on more than low-cost labor, and the ability to innovate becomes more important—building China's *human* infrastructure will move to the fore. Local players and multinationals alike are already struggling with rising salaries and lengthy recruitment processes. Furthermore, the manifold changes taking place in China mean it's unlikely that the effective Chinese manager of tomorrow will look like the Chinese manager of yesterday or today—prompting a need to reexamine leadership development.

While Western business schools, many of which now operate outposts in China, are part of this transition, so is a thriving crop of Chinese institutions focused on management education. A prominent example: Tsinghua University's School of Economics and Management, in Beijing. The school's dean, Yingyi Qian, is from China—he graduated from Tsinghua with an undergraduate degree in mathematics in 1981—but subsequently spent more than 20 years in the United States

before accepting his current role, in 2006. (Qian earned master's degrees from both Yale University and Columbia University, as well as a doctorate in economics from Harvard University, in 1990.)

Dean Qian has written extensively about comparative and institutional economics and has taught at Stanford University, the University of Maryland, and the University of California, Berkeley. Now he's helping Tsinghua rethink what it means to educate business leaders for China. In this interview with McKinsey's global managing director, Dominic Barton, and Shanghai-based consultant Mei Ye, dean Qian shares what he's learning on that journey, as well as some nuances of Chinese management that Western companies need to understand.

The Quarterly: *What is the state of leadership development in China?*

Yingyi Qian: It's a challenging question because there is no such thing as "the enterprise" in China, and there is no one kind of successful leader. Our EMBA¹ students are a good representation of this. We have students from SOEs,² for example, and everyone can tell they're from SOEs. They have the attributes of bureaucrats, but at the same time have good managerial qualities, and some of them are quite entrepreneurial as well. These students are comfortable in both the government and business worlds, and this is an important skill in today's China.

Then we have students from multinationals, mostly midlevel managers. They speak good English, follow the rules very well, and are very worldly. They know a lot. They probably have most of the standard skills that Western business-school students have.

Finally, about 40 percent of our students are locally grown entrepreneurs. Some have strong technical backgrounds in IT or other fields, while others have very little formal education. Some are almost entirely self-taught. Many of them have good people skills—in some cases, incredible people skills—and they are adept at dealing with the uncertainty of emerging markets and changing

¹Executive MBA.

²State-owned enterprises, of which there were more than 114,000 in China in 2010.

environments, as well as with government bureaucracy. All of them are very entrepreneurial.

All three types of leaders can be highly successful in today's China, but in different ways.

The Quarterly: *How do you see these various leadership models evolving over the next five to ten years?*

Yingyi Qian: They will definitely change, but how is hard to say. If you had asked me ten years ago, I would have told you that the move would have been toward more market-oriented and international business skills. But over the past few years, we've seen some leaders moving from the private sector back to the SOEs, and in some cases even from leading multinationals to SOEs, so it's a much more complicated business environment in China now.

The Quarterly: *Are there common skill requirements that cut across all three groups?*

Yingyi Qian: The “softer” skills are a leadership necessity for all leaders in China: things like teamwork, communications, presentations, culture—all the skills that help you deal with people. Leadership is built on these skills, but in the past, Tsinghua University was only strong in the “hard,” analytical skills: things like accounting, mathematics, science, and engineering.



Yingyi Qian has been the dean of Tsinghua University's School of Economics and Management since 2006. He earned master's degrees from both Yale University and Columbia University, as well as a doctorate in economics from Harvard University, in 1990.

We changed our MBA curriculum five years ago to emphasize the “softer” things. For example, we have an experiential course called “leadership development.” We have required courses in things like communications, presentations, corporate ethics, and crisis management. These are basic but very important skills, but they are only the starting point.

The Quarterly: *Beyond those basics, what leadership attributes do you feel are most important to developing strong business leaders in China?*

Yingyi Qian: When I address our new EMBA students at the beginning of their programs, I always remember that most of them are in their 40s. Many of them are already successful; arguably, they are already leaders, and even quite successful ones in their organizations. I remind them of this.

Then I tell them that we hope they can do better—that they can aspire to lead not only their enterprises but also their industries, or beyond them. I tell them that if they really want to become leaders who make a big difference in a fast-changing China and the world, they must have vision and must see the future ahead of other people. It's ambition that separates a “CEO of the year” from the “CEO of the decade.” I cite Steve Jobs, a visionary business leader, as an example of the latter.

The second thing I tell these students is that we will challenge them to think critically and creatively. They have to think differently, and that is very hard in the Chinese context. In their previous education in China, the goal was most likely rote memorization and seeking standard solutions. Thinking differently is very hard when everything up to now has been about conforming, herding, and group thinking. Even the word “critical” has some negative connotations in contemporary Chinese language that it doesn't have in English. We are working hard to change this mind-set at Tsinghua, because this is essential to achieve the mission of our school: to create knowledge and cultivate leaders for China and the world.

The Quarterly: *Western managers often speak of mind-set differences, or cultural differences, as unique challenges in China. What are the biggest differences you see, and how do they affect business leaders there?*

Yingyi Qian: The first difference is the institutional environment in China—half market and half government. It's in transition. This can be very challenging for Western managers. It requires managers to learn the "hidden rules" in addition to formal rules. Not only do you have to manage your enterprise but you have to know the government, the politics, the laws—you have to know everything, and everything is changing fast. In the United States, for example, a CEO might simply hire a lawyer or other experts to understand and navigate many of these things. In China, it's the leader's job. A CEO here must know a lot more.

This explains why there are so many more forums between academics, government, and entrepreneurs in China than there are in the United States. I asked some entrepreneurs once why they attend all these forums—they have to pay to go to them—and they said, "We've got to go to understand the government and how government policies will be interpreted and implemented."

The second difference is about culture, and it is all about people. This includes the importance of personal connections, of your network, and of the value, for example, of not losing face. Face is hugely important. In a US company, for example, you can do a 360-degree feedback evaluation effectively as part of a performance review. But here in China, that's very difficult because people just don't like to give such honest evaluations—they are afraid that others will take things too personally. If I say something strong to an employee in the US, people say, "OK, that's not personal." That never works in China. How to get things done in China is different—even if you want to achieve the same things.

The Quarterly: *Were you personally challenged by any cultural differences when you returned to China to become the dean of Tsinghua's School of Economics and Management in 2006?*

Yingyi Qian: Absolutely. I previously knew many of these things in theory—as a social scientist, I'd studied them in the literature—but

I really only learned them after I became the dean. I spent 25 years in the United States as a student first and then as an educator, and in some ways probably behave more like a Westerner than a Chinese. Some of these lessons took a lot of pain for me to learn. I call it “reverse culture shock.”

For example, if you want to get something done in the West, you have a meeting and you discuss the issues and perhaps you vote. Not so in China—the meeting is usually the last step, only a formality. You have to communicate and persuade people *before* the meeting, not during the meeting. And unlike in the West, a 51 percent majority is not enough if you're making a decision. Achieving a kind of consensus is important, and everyone has a veto power to some extent. No one necessarily tells you these things beforehand, though, so you have to learn them from your experiences.

Like many economists, perhaps, I had a tendency to deemphasize the behavioral and cultural sides of things. But now I pay a lot of attention to these things. It reminds me of a study in cross-cultural psychology carried out by a professor I know at UC Berkeley.³ He and his coauthor showed participants a picture of a group of fish, with one fish out in front of the others. American participants were more likely to think that fish was leading, while Chinese participants were more likely to think it was an outlier. There really is a cultural difference with roots in cognitive psychology that we need to understand. ○

³Michael Morris and Kaiping Peng, “Culture and cause: American and Chinese attributions for social and physical events,” *Journal of Personality and Social Psychology*, 1994, Volume 67, Number 6, pp. 949–71.

This interview was conducted by **Dominic Barton**, McKinsey's global managing director, based in McKinsey's London office; and **Mei Ye**, a senior expert in the Shanghai office.

Capability building in China

Karel Eloot, Gernot Strube, and Arthur Wang

Skill building must be rewards-based, rooted in real work, and tailored to local conditions.

Capability building—leadership, managerial, and team-based skills rather than technical ones—has become an urgent imperative for many companies in China. As the country loses its extreme low-cost-labor advantage, businesses must look for ways to increase productivity and internal collaboration, to better understand consumers, and to develop a more sophisticated appetite for risk.

Companies in China face many of the same challenges—a lack of up-front planning and inadequate resources—that bedevil capability-building exercises everywhere. But certain “China factors” stand out. For starters, the demand for managers with strong leadership skills and international experience is growing significantly faster than the supply of qualified candidates. That imbalance makes it more difficult to pull off successful skill-building efforts, even for multinationals that typically invest more in training than Chinese companies do. (Indeed, one implication of China’s white-hot war for talent is that outside trainers brought in by multinational companies to set up and run new programs often move on before relevant tools and internal processes are in place.) Another perennial challenge for multinationals: the Chinese context and culture, which may require local tailoring of global approaches.

Then, of course, there are China’s state-owned enterprises. Many of them only recently converted from government departments into commercial entities and are still working to adapt to a competitive environment and adopt a true business mind-set. These companies

generally lack a systematic approach to nurturing employees moving up the organizational ladder. They misconstrue capability building as a classroom activity, missing the impact of linking it to actual business. And they are too inflexible either to fire underperformers or to reward and promote employees, including managers, who change their behavior and adopt the necessary mind-sets.

While the challenges facing multinationals and state-owned enterprises differ, our experience with leaders at both kinds of organizations (as well as with private-sector Chinese companies) has highlighted the importance of some common, broadly applicable principles. In this article, we describe three that should help companies overcome many of the obstacles that have frustrated capability-building efforts in the past.

1. Relate capability building to real activities

In many Chinese companies today, capability building remains synonymous with classroom training, partially thanks to the tradition of rote learning in schools. The case for building new skills is easier to understand, however, if the exercise is rooted in visible operational outcomes, as well as improvements in the welfare of participating employees.

A large state-owned enterprise we know consciously built the capability-building program at one of its refineries around tangible targets. About 30 change agents were held accountable for 12 productivity improvements, such as higher energy efficiency and more reliable equipment. In the process, these employees had an immediate opportunity to apply the technical and managerial skills they had learned and to observe the benefits, including a 10 percent fall in energy consumption.

Or consider the experience of a Chinese automotive joint venture that recently began to develop new car models in China after years of manufacturing only cars transferred from mature markets. The venture has now set up a “corporate university” to encourage cross-functional collaboration among a range of functions—notably, engineering, finance, manufacturing, purchasing, quality, and sales—as well as better communication with global headquarters to ensure

a successful launch. This is capability building with a purpose that everyone can understand and rally around.

As this example emphasizes, capability building rooted in real work and aimed at overcoming real challenges often benefits from a broader support system. Historically, many human-resource departments emphasized quantity over quality, placing priorities such as cross-functional collaboration and leadership skills on the back burner. Even today, many HR functions do no more than oversee salaries and benefits, relying largely on one-to-one training in local plants. As industry processes and value chains grow in complexity and innovation becomes more important, a comprehensive approach is required.

2. Instill incentives and create opportunities for promotion

In China, a hierarchical culture remains a formidable barrier to better performance. Individuals do not always gain promotion or receive sufficient reward for their efforts; the plaudits tend to go automatically to people with the longest tenures in the highest ranks. In many corporate environments, the most important thing is not to make mistakes and, hence, not to take risks.

All of those problems proliferated at one big Chinese state-owned heavy-industry company we know. Most of its leaders had transferred from technical positions into general-management ones, without sufficient training or coaching on how to manage that transition. Seniority and technical skills rather than broader leadership and managerial talent or potential determined promotions and rewards, and no centralized knowledge or learning resources were available to help fill in capability gaps. As a result, some talented young managers chose to leave the company.

By contrast, another state-owned enterprise recently discovered the power of incentives. To sustain its improvement program, it established an accreditation process that officially certifies change agents who outperform their peers, rather like General Electric's Black Belt program. The rule now is that every senior manager has

to pass this certification test before being considered for further promotion. Ten percent of the profit improvement the change program generates is used to motivate the people involved. As employees have come to see how the initiative is improving performance and winning them recognition from the company's leadership, participation has climbed.

3. Don't forget China's unique culture

Chinese employees will be much more receptive to capability-building materials that reflect the local culture rather than, say, American or European examples and case studies. Local trainers invariably add know-how and credibility to the wider organizational rollout, notably in winning over skeptics.

One worldwide industrial-packaging leader, facing significant competition in a highly commoditized and fragmented market, sought to use its global commercial-excellence program to accelerate growth. But its salespeople could not apply what they learned to the China market, and the costs, in the form of employee fatigue, were considerable.

The solutions may sound obvious: developing Chinese teaching materials to help solve problems, building day-to-day business problems around products that participants would find in the Chinese market, and localizing global training materials through culturally appropriate metaphors and examples. But we know from experience how easy it is to overlook these issues. In our own work, we routinely use a case involving a coffee machine to teach managers about the seven types of waste and how a "lean" perspective can address them. When we recently used this case at a Chinese state-owned enterprise, however, the managers couldn't make sense of the story, because they had never used a coffee machine. We have now adapted the context to tea making. ○

Karel Eloot is a director in McKinsey's Shanghai office; **Gernot Strube** is a director in the Hong Kong office, where **Arthur Wang** is a principal.

Twin-track training

Henrik Thiele

Knorr-Bremse's Henrik Thiele explains how the German braking-systems company has developed a global-local approach to capability building in China.

Most multinationals seeking to establish a successful local business have to build a high-performing team with strong capabilities and relevant local knowledge. I know from experience that in such a competitive and rapidly growing market as China, it's a daunting task to shape an organization that combines the best local talent with the practices and culture of the parent company.

Knorr-Bremse (KB) now has seven wholly foreign-owned or joint-venture factories in China making state-of-the-art braking systems and other subsystems for the railway industry, as well as two major factories manufacturing parts for commercial vehicles. We've succeeded by using a phased approach that reflects how our China organization has evolved from a small local presence, tightly run by group headquarters in the early years, to a more fully fledged, entrepreneurial, and self-standing business today. Our approach also acknowledges the changing nature of the Chinese market-place and the growing demands of the customers we serve.

In the almost 15 years since we first started local production and assembly in China to supply air brakes to Shanghai Metro, the Knorr production system (KPS) has been central to our operations. Closely modeled on the classic Toyota Motor production system and applied to our industry environment, it reflects our focus on quality, efficiency, and safety. This means that if you go to any of our plants in China, Europe, or the United States, you'll find the same culture and ways of working.

Our ramp-up in China was massive, especially from 2004 onward, when the Ministry of Railways allowed the introduction of localized non-Chinese technology for the country's new high-speed railway network. Provided we could produce and deliver what our customers were asking for, we were well positioned to grow very quickly.

While our Chinese companies have always had—and still have—local managing directors, operations were primarily driven by KPS-trained expatriates, and most of the engineering skill and knowledge in our brake products remains in Europe. Initially, the management capabilities and strategic drive for China came from these expatriate managers, from the heads of our centers of competences in Germany (who had direct responsibility for making the Chinese operations work), and from our Asian headquarters in Hong Kong.

With KPS as the backbone, the key challenge was to instill the execution and quality culture into our local employees. We taught those in “line” jobs how to apply KPS methods and tools so as to achieve the right standard of reliability, rather than providing them with theoretical training they would have had to transfer to the workplace themselves. We strove to create a culture of continuous improvement on and from the shop floor—which doesn't come naturally in a country that's far more hierarchical than ours.

An important dimension for us from the beginning was to foster a workplace where people wanted to stay. KB's long history and reputation in the market certainly helped, as did our rapid expansion and our emphasis on employee learning. As a result, Knorr-Bremse's attrition rate at, for example, Suzhou (near Shanghai) is today about a third that of the surrounding industrial players. That's a huge competitive edge; if, as some companies do, you have to replace one-quarter of your workforce each year, the investment in training multiplies accordingly. We still lose too many people—every well-trained and experienced member of our staff who leaves the company is a big loss—but we are making a big effort to improve our retention rate.

The second phase of our China journey, starting about four years ago, has not only made our operations more self-reliant but also increased our local application-engineering know-how and expertise. Gradually, local leaders started to replace our expats. The need to

work on problem solving with our Chinese customers and to meet their new requirements prompted us to add more China-based engineering support. In some cases, we even started to develop, entirely on our own, local products such as platform screen doors that separate passengers from the railway track when there is no train in a station. Since at least 80 percent of the world market for these products is in China, we knew that we could be successful only by developing them there instead of relying on imported technology. For this part of the business, we therefore established our center of competence for product development in Guangzhou—a move that I am absolutely convinced was and is the right step. However, we have taken a different approach with our brake products, which are more safety sensitive and complex.

Knorr-Bremse has now embarked on a third phase of capability building, which will help our operations in China become fully self-standing for our other products. We are concentrating on both the better application of local engineering skills to the needs of local customers, as well as the development of an organization and business system that can meet heightened customer expectations. Our competitors do not sleep on the job; if we don't act, they will.

Chinese customers may take a bit of time to make up their minds about things, but when they have decided on, say, a supplier, they expect delivery *yesterday*. For us, that means instilling a Chinese organizational culture that builds on European processes for systematic quality control while adapting to the more flexible approach of our Chinese customers. Some will say that this challenge is as tough as squaring a circle. It's certainly not easy, but we are making progress. Non-Chinese people sometimes find it hard to understand the expectations of our Chinese customers, but it is our responsibility to ensure that Knorr-Bremse's organization is well adapted to meet their needs and allows us to remain their trusted partner. In other regions, companies may object that a particular quality problem is not their responsibility and do nothing about it. In China, by contrast, you need to help your customer solve the problem first; only later should you sort out whose fault it is and how you're going to share the cost. If the customer is king in Europe and the United States, in China the customer is god.

Most people know the concept of *guanxi*: the personal relationship between individuals exchanging favors. That is very important in a

Chinese business context. I believe that in addition to personal *guanxi*, which will always play an important role, we need to think about company relations in that light. For me, this “corporate *guanxi*” means that companies exchange services and help each other out even if there is no contractual obligation to do so. You know that a trusted partner—a customer or a supplier—will return the favor in due course, and both parties will ultimately benefit from a long-term trusting relationship.¹

What I’m talking about is a way of doing business that formerly prevailed in Europe but has gotten lost in a world where companies there and in the United States too often write huge contracts and then haggle over the small print. We must embed corporate-*guanxi* thinking not only into our local-company culture but also into our broader business model for China.



Our step-by-step, phased approach has served us well, and I think others can learn from it. However, given the speed of change in China, it is necessary to reevaluate the master plan at any moment. What seemed like the right thing to do today might be overtaken by some new development tomorrow. ○

¹Chinese companies, like their counterparts everywhere, naturally look after their own interests, and may do so in a more direct way. Building a relationship of trust does not mean ignoring the attention and mechanisms needed to protect legitimate rights—for instance, safeguarding intellectual property.

The author would like to thank Knorr-Bremse’s Martyn Perkins for his helpful comments and advice.

Henrik Thiele is a member of the board of Knorr-Bremse Rail Asia Pacific, based in Hong Kong. This commentary is adapted from an interview with **Gernot Strube**, a director in McKinsey’s Hong Kong office, and McKinsey Publishing’s **Tim Dickson**.



An employee of a trading house in Shanghai, China comments on Chinese shares. For investors, picking winning sectors is much harder than it was a few years ago.

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Private-equity lessons from the front line

The opportunities are still plentiful if investors apply a different skill set.

Since 2011, investor enthusiasm for China has been somewhat tempered by concerns that the country's rapid economic rise was slowing down, the financial reporting of some Chinese companies was unreliable, and the present political transition might hamper much-needed economic and regulatory reforms. McKinsey principal Bruno Roy recently sat down in Beijing to consider the outlook with four leading private-equity investors: Jin-Goon Kim, a partner at TPG; Suyi Kim, managing director of Asian private equity at the Canada Pension Plan Investment Board; David Qiu, a managing director at Hony Capital; and Jonathan Zhu, a managing director at Bain Capital Asia. What follows are edited highlights of their conversation.

The Quarterly: *How would you describe the current state of private equity in China?*

Jonathan Zhu: "Transition" is the word that comes to mind. During the first decade of the 21st century, the investment environment was tremendous: revenues and profits were rising and capital markets were accommodative. A lot of private-equity firms generated extraordinary returns, and this attracted many new general partners into the fray between 2007 and 2009. Things have been more difficult in the last couple of years, and looking ahead we don't see a rebound before 2014. The macro tailwind isn't there and the exit options aren't very favorable. We still see lots of opportunities, but it will take a different approach and a different skill set to capitalize on them.

David Qiu: In the past, it was possible to achieve above-average returns by investing in construction materials, machinery, or the export-orientated industries. But the drivers of the Chinese economy are now changing, and picking the winning sectors is much harder. How much runway is there left in basic industrialization? Will urbanization still generate outperformance? Is it now all about the consumer? These are the questions we are wrestling with right now.

Suyi Kim: China is about 20 years behind the US and ten years behind Europe in terms of private-equity market development. It's maturing just like any emerging market. We are seeing that as the overall growth slows, more money is chasing a limited number of opportunities. General partners cannot just rely on the overall growth of the economy and the expansion of multiples between entry and exit; they will have to be more active in adding value and developing multiple exit options.

Jin-Goon Kim: The changes that have been taking place in Chinese private equity over the last decade are happening twice as fast as they did in the US or Europe. Five to ten years ago, it was about money and relationships—you could bet on the pre-IPO and often make good returns. Then new people came into the market, and firms were forced to develop an angle and special expertise. The third stage, which we are in now, is about PE firms helping entrepreneurs build better companies and adding value to the businesses. PE has to pick winners, but as the macro and industry environment evolves there will be fewer sectors that will win and only a few winners in each sector. It's not about passively betting on a business to make a two- to three-times return; it's about figuring out how to drive outsized returns by building strong leaders in winning sectors. Many general partners haven't seen a full cycle yet—with the opportunity that provides to learn from mistakes—and they are going to struggle.

The Quarterly: *In China, PE firms seldom operate with majority control. How do you exert influence as a minority shareholder?*

Suyi Kim: The model in China is sometimes quite different from what you find in the West, so it's really important for GPs to be able to influence entrepreneurs, management, and the majority shareholder, and that the chemistry is right. It's worth bearing in

mind that a lot of company owners are skeptical about how much value private-equity people can bring in, so PE firms have to show them how it can work.

Jin-Goon Kim: As one of the first international PE firms to enter the China market, our model has been to invest in large iconic companies where we have influence or joint control. Even as a minority stakeholder, we can add value, helping to build the business and ensuring effective governance.

Jonathan Zhu: We either have full control or significant influence—we don't make passive investments. As a result, we make fewer investments than many others. But as investors, we are not there to take the place of management teams. Instead, we typically send our portfolio executives to work with company management teams to develop strategies and work on specific initiatives, whether in a control transaction or a minority transaction.

David Qiu: If you are making a minority investment yet still hope to exert significant influence, management-team diligence becomes critical. We do background checks before we make an investment, especially on the CEOs of private companies. It's really important to find out about their history, notably what entrepreneurs have been doing in the previous 10 to 15 years, perhaps through talking to industry people who have worked with them. Even if an industry looks attractive, we won't invest unless we really like the chief executive. We'd rather be in a mediocre industry where we have confidence in the CEO than be in a great industry where we do not trust the CEO.

The Quarterly: *What will it take for China to have leveraged buyouts of the kind so common in the United States?*

Suyi Kim: For three decades, many companies have been run by first-generation entrepreneurs who have not wanted to cede control. As the structure of the economy matures, I think you will also see a new generation more willing to contemplate full buyout deals.

David Qiu: A lot of the balance sheets of Chinese companies are already overleveraged as a result of the capital expenditure and working capital needed to support their growth. As growth slows

and those borrowings fall, there may be more free cash flow to support buyout deals.

Jonathan Zhu: For leveraged-buyout deals you need leverage! And that's been virtually impossible for renminbi-denominated onshore funds. In an offshore context, leveraged structures are not terribly tax efficient. The Focus Media deal has been a recent exception, so it will be interesting to see how that goes.

The Quarterly: *Which sectors are you most excited about?*

David Qi: We like service sectors like insurance and financial services, which will benefit from a more wealthy aging population. But there are regulation issues that still have to be overcome. We will certainly be wary of companies that just relied on low labor costs, low energy costs, and low pollution-control costs in the past. Their growth cannot be sustained by these factors alone.

Jonathan Zhu: The 20 to 30 years of China as the factory of the world may have run their course, especially if you are benchmarking against the likes of Sri Lanka and Vietnam. In innovative businesses where labor costs are less important or skills are highly prized, though, China will be more competitive. And in some industries, labor-cost advantages are still meaningful. We have invested in a company with a lot of IT-engineering capabilities, whose costs are still a fraction of what they would be in the US and Europe.

Jin-Goon Kim: China has a very consumption-driven growth strategy, and we will align our investment strategy with that, which includes retail–consumer, health care, and technology, media, and telecommunications. We will also continue to invest in the sectors that we've built strong expertise in, such as financial services and energy. Some of our most successful deals are in these sectors, such as Daphne International, Lenovo, Shenzhen Development Bank, and NT Pharma.

The Quarterly: *Do you think PE companies will get involved with corporations as they go shopping for outbound acquisitions?*

David Qiu: This is a great change for Chinese companies, and there are now more than 70 of them in the Fortune Global 500, although



Jin-Goon Kim is a partner at TPG, a global private investment firm with approximately \$55 billion of capital under management. He is also executive vice chairman of Beijing-based Li Ning Company and vice chairman of the board of China Grand Automotive Service Company.



Suyi Kim is the Hong Kong-based managing director of Asian private equity at the Canada Pension Plan Investment Board, which manages the \$172.6 billion Canada Pension Plan Fund.



David Qiu is a managing director and partner at Beijing-based Hony Capital, founded in 2003 and a pioneer in China's home-grown private-equity industry with approximately \$6.8 billion of assets under management.



Jonathan Zhu, based in Hong Kong, is a managing director at Bain Capital, a global alternative-asset-management firm, which has approximately \$70 billion of assets under management. He is also nonexecutive chairman of ASIMCO Technologies and Uniview Technologies.

admittedly most are state-owned enterprises and not fully market driven like Lenovo and Haier are. In my view, many Chinese companies still lack the capabilities to operate globally. The market and legal structures are very different, on top of which there's a very big domestic market to focus on. PE certainly has a role to play in helping those that do make acquisitions outside China.

Jin-Goon Kim: TPG has worked on many cross-border opportunities, taking US companies to China and Chinese companies into other regions. We are working on more deals of this kind, and I think PE will play a big part in both supplementing the talent pool and supplying expertise on foreign markets.

Jonathan Zhu: Some companies do require global expertise; others should concentrate more on figuring out their domestic growth strategy. International expansion is a very difficult process, after all. I often challenge Chinese businesspeople to tell me why they think they are capable of pulling off an overseas acquisition and why they would be better at running the business than the existing owners. When they explain that they want to buy technology, I point out that there are lots of ways of acquiring technology without buying the company that makes it and without spending a lot of money. Why not enter into a technology-licensing agreement, for example?

The Quarterly: *Foreign firms in several sectors are apt to complain that local firms have an unfair advantage in China. Do you think that's true from a PE perspective?*

Suyi Kim: Some of the approval processes would seem to favor local firms, and certain sensitive sectors are not open for foreign firms to have ownership. That said, foreign firms with pan-Asian or global platforms have the advantage of being able to allocate capital to other markets if China is not looking good. Over time, I believe the limits to foreign investors will be removed as the regulatory environment matures and the currency becomes freely tradable.

Jin-Goon Kim: Local PE firms do have privileged access to certain regulated industries, notably in financial services. But what's really going to matter is having strong operational capabilities and local teams that have local relationships and operate in a local business

environment, while demonstrating an ability to bring in global resources and international sector expertise.

David Qiu: As the traditional growth-capital transactions go away and as our industry moves increasingly toward active ownership, I think it's the local firms who are lagging behind and who need to catch up. Foreign firms can bring to bear real operating expertise and deep functional skills in areas like pricing, branding, and lean operations—skills they have applied around the world. If local firms don't build these capabilities, they will likely be left behind.

The Quarterly: *You have all been active in China for a long time. What is your biggest lesson when you look back, and what worries you most when you look forward?*

David Qiu: The biggest lesson is that investment, above all, is a people business, and it's more important to look at the quality of the entrepreneur than the projected returns. One of the most important challenges we are currently facing is a lack of qualified talent in the portfolio companies themselves. We should have more clarity on the direction of policy changes over the course of the months to come. This could have huge implications for our portfolio companies and investment strategy in the years ahead.

Jin-Goon Kim: Our key learning has been how important it is to find a great partner who has made the right call on sectors, has great relationships and resources, and deep insights into his or her industry. You don't have to get everything right, on an investment horizon of seven to eight years, to shape the market and transform the business. That's why we spend so much time and effort understanding the background of the leadership teams of our potential investee companies.

As for risks, it's worth remembering that the development of the private sector has been very short, uneven, and volatile. The structure is far from ideal, and the sector does not have sufficient management talent, operational capabilities, and access to resources.

Jonathan Zhu: I think it is key for investors to understand whether they're putting their money into an institutional or a personal business. Also, if you look at China from far away, you'll think of it as a country blessed with 30 years of uninterrupted growth. Not true. The business cycles in China can be short and sharp. Besides the political transition, there are many risks—from the environment and official corruption to external issues like territorial conflict—that keep us awake at night. ○

This roundtable interview was conducted by **Bruno Roy**, a principal in McKinsey's Beijing office.

Due diligence in China: Art, science, and self-defense

David Cogman

Widespread delisting of Chinese companies has investors rethinking due diligence and looking harder for subtle clues that something is amiss.

It's not often that the credibility of an entire class of companies is called into question at once. The aggregate market capitalization of US-listed Chinese companies¹ fell in 2011 and 2012 by 72 percent—and around one in five was delisted²—even as the Nasdaq rose by 12 percent. (See exhibit) Nor is delisting of Chinese companies purely a US phenomenon: since 2008, around one in ten Chinese companies listed in Singapore has also been delisted or suspended.

The extent of the damage to investor confidence is hard to gauge. The broad decline in market capitalization suggests investors may be tarring even the most transparent and upstanding Chinese companies with the same brush. Now-familiar cases like Longtop Financial Technologies, the China-based software company charged with fraud in 2011, or Sino-Forest, the erstwhile forest-plantation operator that announced plans to liquidate itself last year after allegations of fraud, have left investors with fundamental concerns. These companies had, after all, followed required listing procedures, yet they somehow slipped through the regulatory requirements of the IPO and statutory-reporting processes that might have identified

¹Based on the 518 companies listed in the United States before January 2012 that were either domiciled in China or domiciled in Hong Kong, with a significant portion of their revenues derived directly from China.

²In all, 106 of these companies were delisted over the past two years. More may be implicated by the ongoing US Securities and Exchange Commission investigation into accounting practices.

deficiencies. In many cases, the problem was fraud, and often involved false or misleading documentation that would not have been discovered by a regular audit—since such audits primarily rely on documentation supplied by the company itself. Indeed, almost all the companies involved were audited by Big Four firms; most were brought to the market through IPO or reverse takeover by major US investment banks. Even investigative diligence, which can be extremely costly and time-consuming, has been far from foolproof; past examples have shown that private-equity and strategic investors can miss accounting fraud despite conducting a detailed, professional diligence.

The problem is surely not limited to just Chinese companies, though they are at the center of investor concerns today given the importance of that country's growth and stability to the world economy. Overcoming investor concerns—in China, as anywhere transparency is lacking—may mean going back to some investing basics. Diligence is, after all, as much about developing a sense of trust in a company as it is an exercise in finding and checking facts. Financial, portfolio, and corporate investors alike need to revive the habit of looking beyond the usual statutory and regulatory disclosures for less direct indicators of trouble in areas such as the ones we discuss in this article: governance, management, financing, market context, and partnerships. Such indicators are not conclusive in themselves. Nor are they a replacement for the other aspects of diligence. But they can be valuable clues that something unpleasant is hiding under the surface, even when everything looks healthy on paper.

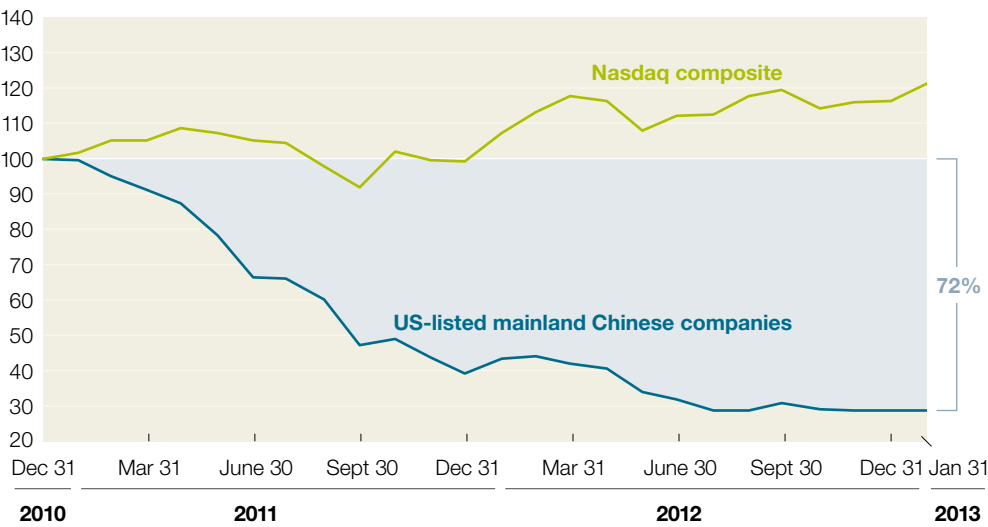
Governance

Corporate governance merits serious attention for a variety of reasons. To start, when it's weak, the floodgates open for unscrupulous management teams. Blatant misappropriation of company resources may be less common than it once was, but it was a factor in some of the companies delisted in the United States recently: in one case, for example, the board chairman transferred ownership of company assets to himself just prior to raising funds from US investors and conspired with the CEO to avoid disclosure.

Exhibit

In recent years, the aggregate market capitalization of US-listed Chinese companies fell dramatically.

TRS index: value on Dec 31, 2010 = 100¹



¹Total returns to shareholders (TRS); index based on median monthly TRS movements for 440 companies from Dec 31, 2010, to Jan 31, 2013.
Source: Bloomberg; Datastream; McKinsey analysis

Governance arrangements also reveal how the top team thinks about its rights and responsibilities. Senior management demonstrates its understanding of them in myriad small and large ways that sometimes serve as early-warning signs. Consider, for example, the many private Chinese companies where a single minority shareholder plays a de facto controlling role. This is not necessarily a problem, but it pays to look closely at how such shareholders views their relationship with the company. Minor things, such as small transactions between the company and the controlling shareholder, can reveal much about shareholders’ attitudes toward the company. Do they see it as something to which they have a duty of trust or as an extension of their personal property? Do they understand and respect basic boundaries between company and personal business? Have they gone out of their way to treat minority shareholders fairly during corporate restructurings—something that is easy to avoid doing?

When Chinese companies list their shares on foreign exchanges, particularly in the United States, they need to make sure their corporate-governance infrastructure complies with exchange regulations. The choices made in this process say a lot about management's motivation and about whether there is real intent to improve the company's governance. Have managers made a serious attempt to upgrade their controls and decision-making process? Have there been concrete changes in how top management works and in how it is overseen by the board, or have managers simply made token changes to comply with regulations? Halfhearted governance-compliance efforts may be a leading indicator of deeper problems—even outlandish ones, such as questions that arose about the very existence of an oil and gas exploration company's operations after it was listed.

Management

A number of delistings of Chinese companies in the United States involved accusations of falsified transaction documents provided for audits. In some cases, the fraud was happening well below top management and even without its direct knowledge, as was alleged at one energy company. Investors therefore need to keep a lookout for warning signs about management that extend beyond the top team and its compliance with governance standards.

How can that be done? A first step for many investors should be examining the bench strength of a company's professional management. It is relatively easy to assemble a senior team that will leave a good impression in a roadshow. As part of their IPO process, in fact, a number of Chinese midcap companies have fielded compelling leadership teams that included several figureheads brought in recently to add credibility. It's much harder, especially in a market like China where talent is expensive, for executives to build a strong pipeline of competent operational managers with long tenure in the company: that can often take years to develop. Depth of management talent is an indicator of a company that's being built to last—and its absence could signal that a company may have deeper problems.

A mismatch between a company's management capabilities and its growth plans is another potential red flag. If the CFO plans to upgrade the company's financial planning, investors should confirm that the finance team has the size and experience to follow through. If the company plans to expand manufacturing capacity, does it have enough plant managers to run existing facilities as it ramps up new ones? If the company plans to locate manufacturing overseas, does it have general managers who can work in a foreign-language environment? These questions may seem obvious, but too often they go unasked.

The quality of operational management is another area where on-the-ground scrutiny is worthwhile. Good plant discipline is hard to develop and harder to fake, and its absence is typically visible to the trained eye on a single site visit. Even a one-hour walk-through, if used carefully, can provide validation of staffing levels, inventory levels and age, and plant utilization. If a company resists a walk-through, that should sound alarm bells. How good are the company's manufacturing or service operations? Are there good visual-management systems? Is there evidence of strong health, safety, and environmental and quality systems? Are testing labs in constant use, or does a layer of dust cover work desks? Affirmative answers to questions like these don't necessarily mean a company is trustworthy, but negative ones should be cause for concern.

Financing

Financial management is, in China at least, one of the greatest risk factors. Although proper evaluation is only possible in the context of a full diligence, a company's commercial-banking relationships can offer some indications of whether the conditions exist to facilitate fraud—and these indicators can be assessed quickly and easily through frank discussion with managers. Among the companies delisted in the United States were several that colluded with banks to falsify audit documents, others that took on excessive leverage through sweetheart loans that circumvented banking regulations, and still others that borrowed unnecessarily and then moved the cash out of the company. Investors should ask several questions. Does the company have relationships with multiple banks, or

is it reliant on a single one? Are its critical financial relationships with major, well-regarded national banks or smaller, less well-known provincial or municipal ones? How important is the company's business to the bank branch or branches that it works with? None of these factors would prove the existence of financial malfeasance, but they would make malfeasance a lot easier.

Similarly, much can be inferred from the way a company structures and times its loans. Investors should examine whether a company has structured loan facilities and projects to get around restrictions (for instance, breaking a project into sections that are within a loan officer's approval limit). Has historic capital raising occurred when there were no clear needs—for example, has the company borrowed money when it had ample reported cash on its balance sheet and no major investments under way? Do current patterns of capital raising clearly match its investment plans?

Discovering fraud in these areas through regular audits can be a long process. Well-run Chinese companies are usually keen to provide transparency to investors; reticence is in itself a warning sign. In either case, closer observation of transactional banking relationships and capital raising can give an early indication that something is wrong, without definitively showing what.

Market context

Several of the companies delisted in the United States operated in opaque and protected markets, such as reselling advertising, importing specific fuel or agricultural products into concentrated and highly regulated markets, or operating logistics infrastructure in specific geographies. From an investor's perspective, these episodes reinforce something more fundamental: companies that have competed effectively in open markets are intrinsically more credible than those that function in closed ecosystems.

Of course, many companies operating in protected sectors are reliable and trustworthy and deserving of capital. It can be challenging for investors to reassure themselves of that, though. Further complicating matters is the role that low-cost financing from Chinese banks is alleged to play in some sectors; companies that on the

surface seem to be competing vigorously actually may be floating on artificially cheap capital.

For skeptical investors, the other indicators covered in this article can help. Moreover, many Chinese companies are already making the transition to more open competition: consider the country's telecommunications-equipment providers, which have moved from dominating the domestic market to succeeding in international markets, where they must stand on their own without government support. Others, including both private and state-owned enterprises, still face limited natural competition in their domestic market. This is often due to regulation aimed at creating a stable industry structure that government can more easily manage. When policy support is a factor in a company's performance (as was the case in solar-panel manufacturing, where it led to overcapacity), it is usually obvious—and rarely sustainable.

Partnerships

A final reliable sign of corporate trustworthiness is a company's track record with partners. It's reasonable for investors to conclude that a company involved in multiple joint ventures with the same leading multinational partner has survived several rounds of close-up diligence from an experienced operator. It may still have issues, but it was reliable enough to motivate the multinational company to form additional joint ventures rather than turn to other potential partners.

This is not foolproof logic, however. In China, investment restrictions force multinational companies in many industries to work with local joint-venture partners—and some multinationals have clearly gotten partnership decisions wrong. In the infamous high-speed-rail cases, for example, partnerships that multinational companies hoped would help them address the local market turned into disputes over local partners' development of their own technology platforms.



The spate of delistings in the past two years may, in retrospect, have had some beneficial effects. It has forced many corporate and private-equity investors to increase the depth and detail of their formal due diligences. It has spurred the growth of what could be termed forensic equity research—analysts that specialize in looking for potential fraud in listed companies. Although often disliked by their targets, this group provides a valuable balance to traditional equity research. It is also forcing the US Securities and Exchange Commission to look hard at the reliability and acceptability of certain audits, which will most likely result in better standards of practice. Finally, we hope that it will leave investors more cautious about the information on which they rely and more thoughtful and circumspect about how they interpret it. ○

The author would like to acknowledge the valuable contributions of Ravi Gupta, Rishi Raj, and Rachna Sachdev.

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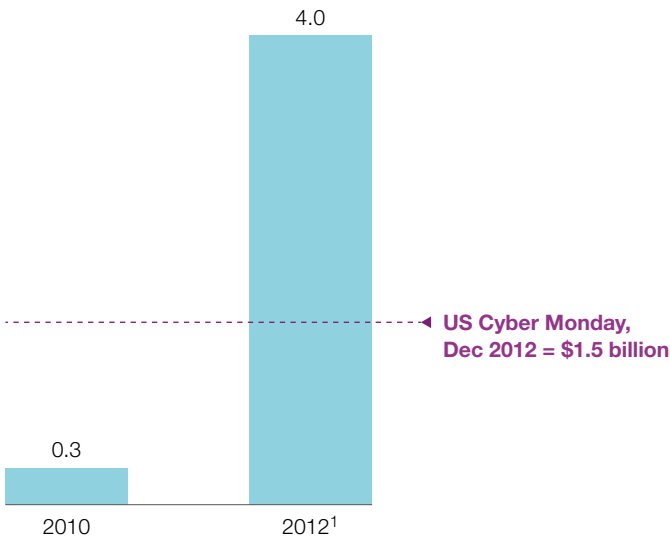
Extra Point

E-tailing leaps forward in China

Yougang Chen, Elsie Chang, and Richard Dobbs


November 11 marks Singles Day, or Double 11, in China. Created by college students in the 1990s as an alternative to Valentine’s Day, the occasion is celebrated by a frenzy of shopping. Singles Day moved online in 2009, when e-tailer Alibaba Group began aiming sales promotions at it. Independent merchants—including 360buy, Amazon .com, Dangdang, Suning, and Vancle—followed suit, and sales have been skyrocketing. In 2012, they reached \$4 billion, more than twice the revenue posted by US retailers on their pre-Christmas Cyber Monday. The resulting strain on infrastructure is evident. Express-delivery services in China now mobilize tens of thousands of extra vehicles and staff for the unofficial holiday, and in 2012 the flood of online transactions briefly overloaded bank-payment systems.

How Singles Day shopping has skyrocketed,
online sales revenue, November 11, \$ billion



¹Alibaba’s share of 2012 sales revenue equaled ~\$3 billion.
Source: comScore; Zhou Ping, “China: The Singles Day online boom,” blogs.ft.com, Nov 13, 2012; McKinsey Global Institute analysis

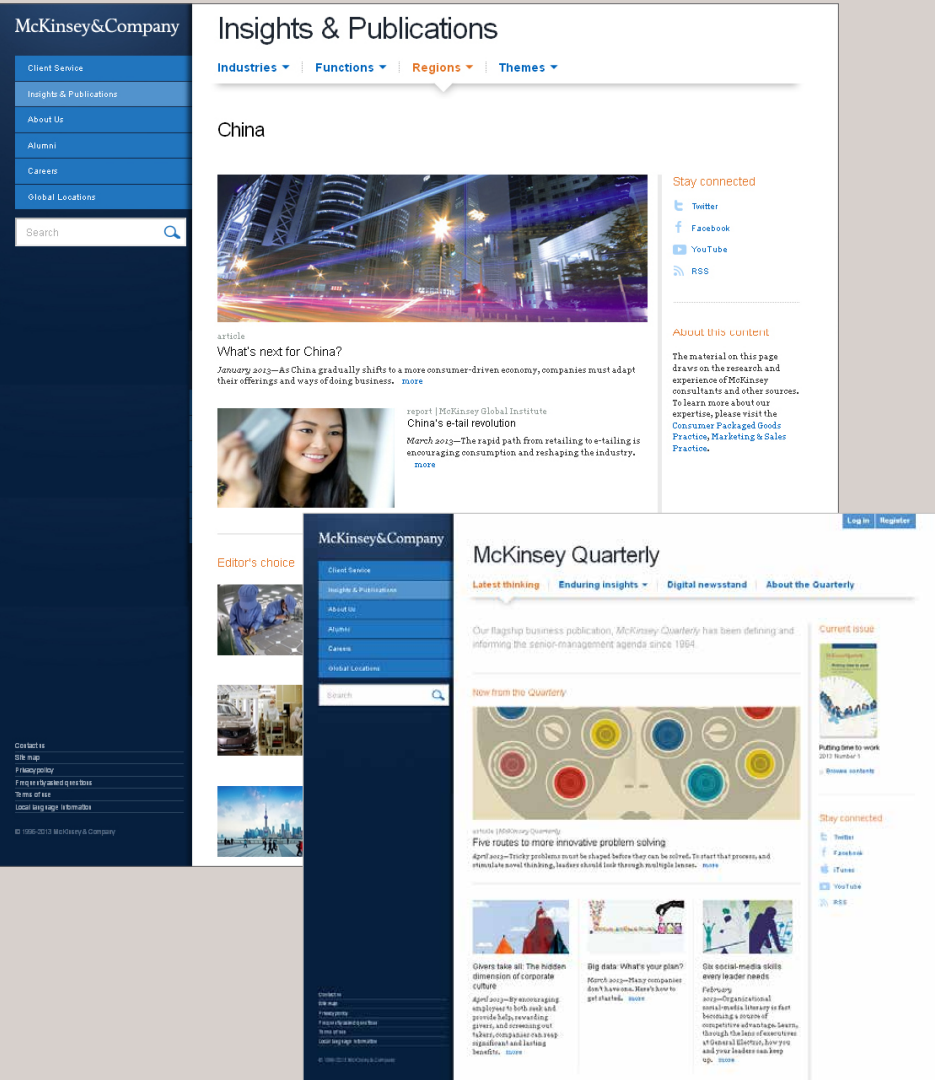
Elsie Chang is a senior fellow of the McKinsey Global Institute (MGI), where **Yougang Chen** is a principal. Both are based in Greater China. **Richard Dobbs**, based in McKinsey’s Seoul office, is a director of MGI.

 For more on e-tailing in China, see “China’s e-tail revolution,” on page 70.

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by McKinsey & Company,
55 East 52nd Street,
New York, New York 10022.

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