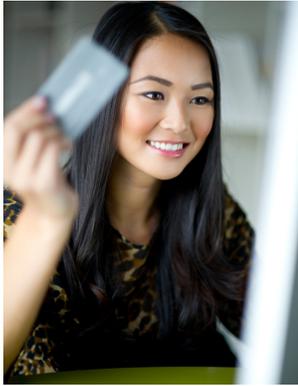


McKinsey Global Institute



March 2013

# China's e-tail revolution: Online shopping as a catalyst for growth



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March 2013

# China's e-tail revolution: Online shopping as a catalyst for growth

Richard Dobbs  
Yougang Chen  
Gordon Orr  
James Manyika  
Michael Chui  
Elsie Chang

# Preface

Over the past few decades, China has made great strides in catching up to the level of industrialization in other major economies. At the heart of this transformation has been a massive wave of investment and an unprecedented migration from countryside to city in support of export-led manufacturing. The economic growth generated by this strategy will continue for some time, but the marginal returns are diminishing, as is China's comparative advantage from low labor costs. The next stage calls for a sharper focus on productivity and a better balance between investment and domestic consumption as drivers of growth—and this crucial turning point has coincided with the arrival of the Internet revolution in China.

Seemingly overnight, China has become one of the world's most wired retail markets. Millions of newly minted consumers can now log on and purchase a vast range of products they could only dream of acquiring just a few years ago. This is particularly the case outside of China's largest cities, where brick-and-mortar retail remains underdeveloped. E-tailing—which encompasses online sales to consumers by merchants of all sizes—is beginning to fill the gap.

The ability to spend online is allowing Chinese consumers to spend more. In this report, the McKinsey Global Institute (MGI) analyzes the clear incremental effect that online shopping is already having on private consumption in China. We also examine the potential for e-tailing to create a profound “leapfrog” effect on China's broader retail industry, vastly improving its efficiency and the availability of products without the need to build out extensive networks of traditional physical stores. Better supply-and-demand matching from e-tailing could also help to improve productivity in other consumer-related sectors.

This project was led by Elsie Chang, a senior fellow of MGI in Taipei; Yougang Chen, a principal of McKinsey and of MGI, based in China; Richard Dobbs, a director of McKinsey and of MGI, based in Seoul; and Gordon Orr, a director of McKinsey, based in Shanghai. The team received guidance from James Manyika, a director of McKinsey and of MGI, and Michael Chui, a principal of MGI, both based in San Francisco. The project team consisted of Jennifer Huang, Yuyao Wang, and Yuan-Yuan Fan.

In the course of the project, we interviewed more than 50 regional experts and business leaders to understand the landscape of the e-tailing ecosystem in China. This independent MGI initiative leveraged various reports and data from Alibaba Group Research Center and Taobao UED User Research, both of which are part of Alibaba Group. Much of our analysis was made possible through this collaboration.

A number of McKinsey colleagues provided support and insight, including Shanghai office directors Jonathan Woetzel and Ingo Beyer Von Morgenstern, principals Daniel Zipser, Eddie Huang, and Ming Zhang, and associate principal Mingyu Guan; Beijing office director Nick Leung; Hong Kong office director Alan Lau, principal Max Magni, and associate principal Jayson Chi; Dallas office director David Court; and San Francisco office senior expert Dan Ewing and associate principal Dan Leberman. We also thank McKinsey alumni Michael Fei and Edward Chen.

We are also grateful for the challenge and advice provided by our academic advisers for this research: Martin Baily, the Bernard L. Schwartz Chair in Economic Policy Development at the Brookings Institution; and Richard Cooper, Maurits C. Boas Professor of International Economics, Harvard University.

McKinsey's research and information network and MGI's analytics group also played a pivotal role in the production of this report. The authors would like to acknowledge the researchers who made significant contributions to the fact base: Kinshuk Kocher, a research analyst in global economics with MGI; Akshat Harbola, a knowledge specialist in global economics with MGI; and William Cheng, a research analyst with Insights China.

Thanks go to Lisa Renaud and Lin Lin for editorial support and to other members of our communications, operations, and production teams—including Julie Philpot, Rebecca Zhang, Rebeca Robboy, Glenn Leibowitz, Deadra Henderson, Marisa Carder, and Fanny Chan—for their much-appreciated contributions.

This report furthers MGI's mission to understand the forces transforming the global economy, identify strategic opportunities, and prepare for the next wave of growth. As with all MGI research, this work is fully funded by the partners of McKinsey & Company and has not been commissioned or sponsored in any way by any business, government, or other institution.

**Richard Dobbs**

Director, McKinsey Global Institute  
Seoul

**James Manyika**

Director, McKinsey Global Institute  
San Francisco

# *A powerhouse industry ...*

China has the world's largest online population, with

**130 million**

residential broadband accounts

E-tailing produced more than

**\$190 billion**

in 2012 sales

China's e-tailing industry has posted

**120%** compound annual growth since 2003

More than

**6 million** e-merchants list products on Taobao

Singles Day 2012 generated

**\$4 billion**

in online sales, surpassing Cyber Monday in the United States

# ... *with huge growth potential*

China's broadband penetration is only **30%**

Online sales could reach **\$650 billion** by 2020

By 2020, e-tailing could potentially lift China's private consumption by an additional **4-7%**

In Tier 4 cities, the average online shopper spends **27%** of disposable income through e-tailing

E-tailing could boost labor productivity in China's retail sector by **14%**



# Contents

<b>Executive summary</b>	<b>1</b>
<b>1. The evolution of e-tailing in China</b>	<b>11</b>
<b>2. E-tailing's impact on China's economy</b>	<b>27</b>
<b>3. Capturing the potential of e-tailing</b>	<b>34</b>
<b>4. Implications for stakeholders</b>	<b>43</b>
<b>Appendix: Technical notes</b>	<b>53</b>
<b>Bibliography</b>	<b>62</b>



# Executive summary

China's remarkable economic rise has coincided with the Internet revolution. The convergence of these two powerful forces is transforming the retail landscape and unleashing a surge of innovation and entrepreneurship. In a nation where many other sectors are rapidly expanding, e-tailing stands out for its astonishing growth.<sup>1</sup>

China's e-tailing sales totaled \$120 billion (RMB 774 billion) in 2011, surpassing online sales in Japan (\$107 billion), the United Kingdom (\$56 billion), and Germany (\$32 billion). By 2012, the Chinese market had soared to an estimated \$190 billion–\$210 billion (RMB 1.2 trillion–1.3 trillion) in revenue.<sup>2</sup> It is exceedingly rare for a market measured in the hundreds of billions of dollars to achieve a year-over-year sales increase of some 60 percent.

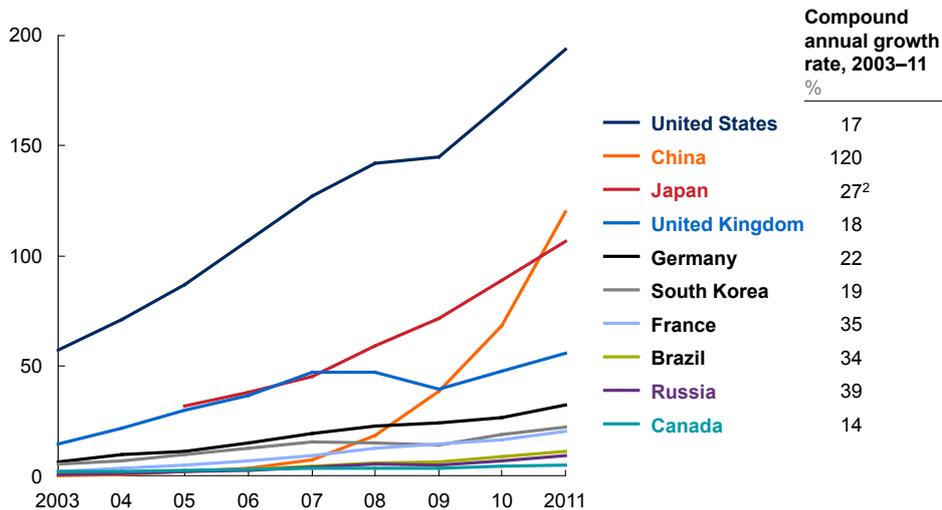
China was the world's second-largest e-tailing market in 2011, and came very close to equaling the United States for the top spot in 2012. Its growth is outpacing the rest of the world by leaps and bounds (Exhibit E1).

## Exhibit E1

### China's e-tailing market has posted the world's highest growth rate

2003–11 e-tailing market<sup>1</sup>

\$ billion



<sup>1</sup> Excluding online travel.

<sup>2</sup> Japan's CAGR covers 2005–11.

SOURCE: Euromonitor; Forrester; US Census Bureau; Japanese Ministry of Economy, Trade, and Industry; iResearch; McKinsey Global Institute analysis

1 This report focuses on the segment of e-commerce known as *e-tailing*—that is, consumer-facing e-commerce transactions. The sellers may be larger businesses (B2C) or microbusinesses and individuals (C2C). Our definition of e-tailing excludes online job search services, financial services, and billing services.

2 Excluding online travel; exchange rate at 1 USD = 6.32 RMB in 2012 and at 1 USD = 6.46 RMB in 2011.

As China's consuming class continues to expand, the market may reach \$420 billion–\$650 billion (RMB 2.7 trillion–4.2 trillion) in sales by 2020.<sup>3</sup> The broader economic impact of e-tailing will be much bigger still.

Underpinning this growth is the world's largest online population. China had 129 million broadband accounts in 2011, dwarfing even the 81 million accounts in the United States.

Surprisingly, China's retail industry is already more wired than many of its international counterparts. E-tailing accounted for 5-6 percent of 2012 retail sales in China vs. about 5 percent in the United States.

Our analysis of spending patterns across 266 cities in China suggests that e-tailing is having a strong incremental effect on private consumption. This increase is particularly evident in China's medium-size and small cities, which generally lack compelling physical retail offerings. As consumers gain better access to a broader set of products, they are spending more. Unlocking demand in currently underserved regions accelerates China's policy goal of increasing private consumption.

Chinese retail is still predominantly regional; it is exceedingly difficult to scale up traditional store networks across such a large and diverse developing country. The emergence of large national chains has been a milestone in the retail development of most countries, but Chinese retail is coming of age during an era of profound digital disruption. Because of that context, there are two different scenarios for its future evolution.

China could develop a balanced mix of physical and digital retail, with national brick-and-mortar chains eventually dominating some product categories and online sales capturing others. But given the extraordinary growth of e-tailing, Chinese retail might mature along very different lines. In this alternative scenario, e-tailing could unleash a transformative "leapfrog" effect. China could forgo the national expansion of physical stores commonly seen in Western nations and move directly to a more digital retail environment. Such a shift would not only help to boost efficiency in the overall retail sector, but it could have broad implications for China's urban development. In a more digital world, emerging Chinese cities would need less space for physical storefronts—and civic life might not revolve around shopping districts and malls in the traditional sense. Warehouse space, trucking routes, and other logistics infrastructure would have to be priorities for smaller cities to fully participate in this Internet economy.

E-tailing is already beginning to generate broad ripple effects. First and foremost, it has provided a powerful launching pad for China's next-generation entrepreneurs and small and medium-sized enterprises (SMEs). These SMEs are able to sell directly in the e-tailing marketplaces where economies of scale matter less than in traditional manufacturing and distribution. Strong growth in e-tailing may lower demand in the commercial real estate sector, but it will also create tangible market incentives for innovation in technology, another policy priority for China.

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3 Based on 2011 prices and exchange rate.

Realizing the full potential of e-tailing in China will require investment in large-scale expansion of broadband penetration, 3G+ coverage, data analysis capabilities, and logistics infrastructure. The industry will also have to make great strides in labor productivity.

But the size of the prize is vast—and all stakeholders, government and private-sector alike, should recognize the strategic importance of this opportunity. E-tailing is only one of many drivers that will contribute to China's new growth model, but it assumes larger significance as a new source of comparative advantage in the world. If Chinese e-tailing successfully achieves a “leapfrog effect” that drives a rapid transformation in consumption, innovation, logistics, and productivity, it will serve as an important case study for other emerging economies in how to harness disruptive change as a catalyst for growth.

### **CHINA'S E-TAILING INDUSTRY IS SHAPED BY THE COUNTRY'S UNIQUE CONTEXT AND DOMINATED BY THE MARKETPLACE MODEL**

China's new consuming class increasingly has money to spend, but in many regions, the offline (brick-and-mortar) retail industry remains underdeveloped. E-tailing has produced super-charged growth precisely because it is successfully targeting and fulfilling this previously unmet consumer demand. In addition, China's powerful manufacturing sector provides ease of sourcing for a great diversity of merchandise—and selection is critical to generating consumer pull.

Among the striking characteristics of the Chinese market, based on 2011 figures:

- Large B2C (business-to-consumer) sites are the clear leaders in other countries, but not so in China, where nearly 90 percent of the industry is marketplace-based (see Box 1, “Online marketplaces: The giants of Chinese e-tailing”). This compares with a marketplace share of only 23–24 percent in the United States. With few major physical retailers developing a successful multichannel approach, marketplace operators have consolidated a huge market share. They have become an effective channel for a significant base of small manufacturers and wholesalers eager to sell directly to consumers.
- More than 70 percent of the market is C2C (consumer-to-consumer), a share that is in the single digits in most other countries.<sup>4</sup> This again underscores the importance of small businesses in driving the industry's growth.
- Although the industry is still in the initial building phases, high growth is being achieved with relatively low investment of 2–4 percent of revenue on an annual basis. The prevalence of C2C and marketplace transactions has made this possible.
- The overall e-tailing ecosystem is profitable, at around 8–10 percent earnings before interest, taxes, depreciation, and amortization (EBITDA). Marketplace-based players are the more profitable segment.

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<sup>4</sup> C2C in China encompasses sales by small enterprises and microbusinesses without company registration, while C2C in other countries primarily consists of secondary-market transactions by individuals. This difference accounts for the much larger share of C2C in China.

### Box 1. Online marketplaces: The giants of Chinese e-tailing

The largest online marketplace operators—Taobao, Tmall, and Paipai—account for an enormous share of the Chinese e-tailing market (Exhibit E2). Like eBay, their US-based counterpart, they provide one central website where a wide universe of SMEs and microbusinesses can sell all manner of merchandise. Taobao alone had more than six million registered sellers by the latest count; together they generate hundreds of millions of product listings. These e-merchants are able to fill micro and local pockets of demand while staying price competitive due to their low overhead.

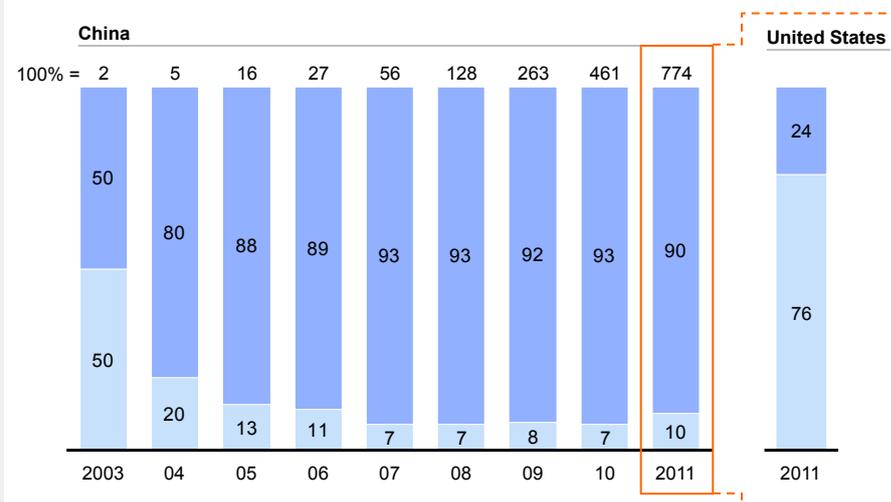
For individual e-merchants, the most crucial advantage of selling through a marketplace is tapping into the huge aggregated traffic flow that these sites have already built. In addition, marketplaces act as one-stop shops that assist these businesses in launching quickly and with minimal start-up costs by providing the tools needed for setting up their individual online storefronts, listing items, and collecting payment. They can also connect sellers with certified providers of services such as warehousing and shipping. Marketplace operators generate revenue through online advertising and, in some cases, charging sellers transaction fees.

#### Exhibit E2

#### Marketplaces dominate Chinese e-tailing

#### E-tailing market

%; RMB billion



NOTE: Numbers may not sum due to rounding.

SOURCE: iResearch; eMarketer; expert interviews; McKinsey Global Institute analysis

Comparing the Chinese and US models of e-tailing side-by-side reveals some interesting differences (Exhibit E3). For example, Chinese and US consumers have different expectations about how their purchases will be delivered. US consumers do not expect one- or two-day delivery from all e-merchants (although that is a feature offered by some leading names), but they almost always have the option to pay extra for faster delivery, which is available across most of the nation. Chinese consumers in the largest cities do expect next-day delivery, but that level of service is not available in small cities. Cash on delivery has largely become a thing of the past in the United States, but it remains common among many independent B2C merchants in China. This has given rise to the Chinese phenomenon of the “mobile fitting room” (when apparel purchases are delivered, couriers often wait for the shopper to try on the garment before collecting payment).

### Exhibit E3

#### How does China's e-tailing market differ from the US market?

■ Similar  
■ Different

		China	United States
<b>How large is the market?</b>	Size of e-tailing market (\$ billion) <sup>1</sup>	\$190–\$210	\$220–\$230
	E-tailing as % of retail <sup>1</sup>	5–6%	5%
<b>Where do sales happen?</b>	Marketplaces' share of e-tailing (%)	90%	23–24%
	C2C's share of e-tailing	>70%	Single-digit
<b>What do online shoppers buy?</b>	Biggest product category	Apparel	Travel
<b>How do e-tailers perform?</b>	Average EBITDA across ecosystem	8–10%	8–10% <sup>2</sup>
	Diversity of EBITDA across ecosystem	Wide range	Narrower range
<b>What devices are shoppers using?</b>	Mobile commerce's share of e-tailing	2%	5%
	Smartphone penetration in population	10%	42%
<b>How are products delivered?</b>	Coverage of next-day delivery by major express delivery companies	Mostly in Tier 1 and Tier 2 cities	Almost nationally
<b>How do shoppers pay?</b>	Cash on delivery by independent B2C	Common	Rare
	Third-party payment systems/bank cards	Majority	Majority

1 2012 figures, while others are 2011 figures.

2 Assumes the same revenue share by roles as in the Chinese e-tailing ecosystem.

SOURCE: McKinsey Global Institute analysis

## E-TAILING IS GENERATING INCREMENTAL CONSUMPTION AND BECOMING A MAJOR ECONOMIC DRIVER

E-tailing is not just a replacement channel for purchases that would otherwise take place offline. It actually seems to spur incremental consumption in China, especially in lower-tier cities where there is pent-up demand for choice in merchandise that physical retail stores have not yet managed to deliver.<sup>5</sup> China's economy has long been reliant on manufacturing exports, but e-tailing could play a role in realizing the government's stated policy goal of increasing domestic consumption to drive further development and growth.

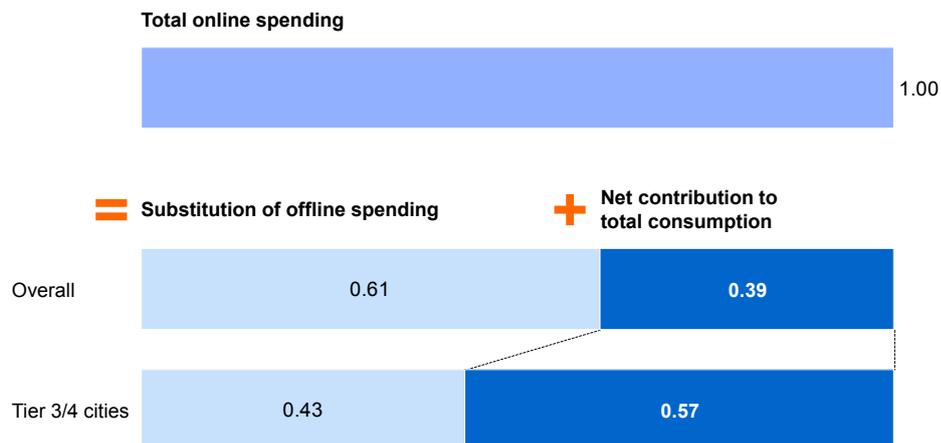
5 Cities in China are grouped into four tiers based on their economic development and political importance. Tier 1 cities are Beijing, Shanghai, Guangzhou, and Shenzhen; in all four, the 2010 nominal urban GDP is in excess of RMB 932 billion. Tier 2 cities are mostly provincial capitals, plus a few other major urban areas with RMB 120 billion–932 billion nominal GDP in 2010. Tier 3 cities have a nominal GDP of RMB 22 billion–120 billion in 2010. Tier 4 cities have less than RMB 22 billion GDP in 2010.

Examining data from 266 cities, we find that the development of e-tailing has produced an incremental increase in total consumption. After controlling for income variances, we observe that cities with higher online consumption tend to have higher overall consumption. It seems that more than half of every yuan of online consumption comes from replacing consumption through physical stores, but slightly less than half is new consumption instigated by the online channel. While data limitations make it difficult to precisely quantify these effects, preliminary analysis points to an even larger incremental effect in lower-tier cities (Exhibit E4).<sup>6</sup> Taking these preliminary data as a proxy, we estimate that e-tailing may have already added 2 percent of incremental value to China's private consumption in 2011.

#### Exhibit E4

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

\$



SOURCE: McKinsey Global Institute analysis

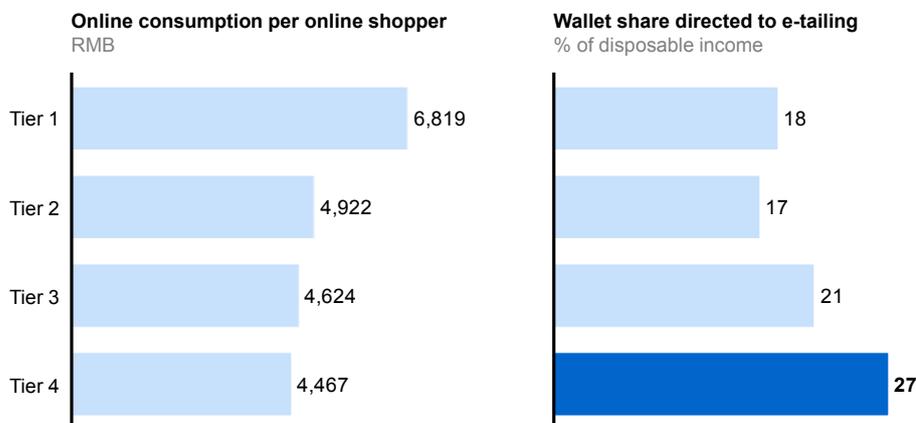
Consumption levels used to exhibit striking variations across city tiers, but e-tailing is equalizing these differences. The enthusiasm for online shopping among consumers from lower-tier cities is apparent when we analyze the relative wallet share directed to online purchases by active online shoppers (that is, the share of their disposable income that is spent online). Online shoppers in Tier 4 cities have lower average incomes, but the amounts they spend online tend to be similar to those of shoppers in China's Tier 2 and 3 cities, which are larger and more prosperous. This translates into a higher wallet share for online spending in lower-tier cities (Exhibit E5). Qualitative research confirms that the main driver of this higher wallet share is access to a greater assortment of goods. While pricing is always important, it may not be the most crucial motivator for online purchases in lower-tier cities.

<sup>6</sup> Although data availability issues rendered a full statistical multi-variable regression analysis impractical, the effect of e-tailing on overall consumption is clear, as is the pattern showing a larger effect in lower-tier cities.

**Exhibit E5****Tier 4 cities have the highest wallet share directed to online spending**

266 CITIES

China e-tailing consumption by buyer location



SOURCE: McKinsey Insights China database; McKinsey iConsumer survey; McKinsey Global Institute analysis

Beyond increasing overall consumption, e-tailing is reshaping the Chinese economy in other profound ways—notably by lowering retail prices for consumers and driving significant growth in adjacent sectors.<sup>7</sup> E-tailing has spurred the development of a \$13 billion (RMB 83 billion) service provider industry that encompasses online advertising and marketing, payment systems, warehousing, express delivery, and IT services—all of which e-merchants are using to support their selling activities. E-tailing is also accelerating consolidation and the modernization of formats in the physical retail world. More efficient retail will affect other sectors, creating better coordination between supply and demand that improves efficiencies for the overall economy.

### THE INDUSTRY'S POTENTIAL IS ENORMOUS—IF ITS PRODUCTIVITY AND INFRASTRUCTURE CONTINUE TO IMPROVE

By 2020, we project that Chinese e-tailing will match the combined size of today's US, Japanese, UK, German, and French markets, reaching \$420 billion–\$650 billion (RMB 2.7 trillion–4.2 trillion) in sales. This has the potential to generate an incremental gain of 4–7 percent in private consumption. The major enabler of this continued growth will be enhanced 3G+ and broadband penetration.

Previous MGI research has found that as Internet usage spreads, its observable positive effects grow.<sup>8</sup> The Internet has already had significant impact in China and other emerging economies, but there is tremendous potential for driving

<sup>7</sup> Our research (including both data and expert interviews) finds that online prices are an estimated 6–16 percent lower than offline prices (or 4–9 percent lower after taking into consideration the proportion of common stock-keeping units, or SKUs).

<sup>8</sup> *Internet matters: The Net's sweeping impact on growth, jobs, and prosperity*, McKinsey Global Institute, May 2011.

future GDP growth if these countries reach the levels of access and usage seen in advanced economies.<sup>9</sup>

But unleashing the full potential of e-tailing in China is not a foregone conclusion. Achieving this growth hinges on realizing significant gains in labor productivity. Productivity across the entire e-tailing ecosystem is still much lower than that of brick-and-mortar retail, and given the shortage of high-tech talent, the industry may be forced to find productivity drivers that can mitigate the need for workforce expansion.

International experience shows that a dramatic improvement is possible: select e-merchants in the United States, Japan, and the United Kingdom have achieved productivity levels that are 2.2 to 4.4 times the productivity of offline retailers. Labor productivity in China's retail sector is only two-thirds of the US level today. By 2020, the overall sector's performance could rise by 14 percent if China's e-tailers catch up with their counterparts in other major markets. Enhancements such as basic IT tools or big data applications may hold the key.

Capital investment to date has been minimal for the majority of the market, despite the rapid growth. This has contributed to the industry's profitability, but it will be difficult to sustain as competition intensifies, technology evolves, and consumer expectations rise. Given that such a large portion of the market consists of small and medium-size merchants operating through marketplaces, there is an urgent need for the government or marketplace operators to commit the necessary investment and expenditure in data analysis and warehouse capacity. That being said, the total capital employed to support e-tailing is still more efficient than in the brick-and-mortar world, due to the lack of need to build a physical presence.

Sustainable growth in e-tailing has to be built on attaining efficiency in the broader ecosystem. But efficiency gains have not been the primary driver of the Chinese economy for decades; a new mindset will be required on the part of both government and the private sector to recognize the looming barriers and act on them quickly.

## **STAKEHOLDERS HAVE ENORMOUS OPPORTUNITIES AND CHALLENGES**

The growth of e-tailing is already generating tremendous consumer surplus—starting with lower overall retail prices. It has given consumers in smaller cities and more remote areas access to a much wider array of goods than they have ever been able to purchase before. Even residents of Tier 1 cities benefit from the greater convenience afforded by online shopping and the availability of niche products.

Private companies need to be fully prepared if they hope to capture the opportunities presented by the rapid rise of e-tailing. China's entrepreneurs now have the ability to launch new ideas with minimal start-up costs and access to a large pool of potential customers. E-tailing is still a young and wide-open market where small, innovative businesses can gain traction very quickly.

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<sup>9</sup> *Online and upcoming: The Internet's impact on aspiring countries*, McKinsey & Company High Tech Practice, January 2012.

Established makers of consumer products can take advantage of the e-tailing platform to accelerate tapping into new markets in smaller cities, although they will have to meet the challenges of managing a more fragmented digital trade (especially as wholesale networks move online) and developing more complex brand and product portfolios to serve the online market. Brick-and-mortar retailers will need to adapt their format and footprint strategies, and they will be forced to make clear decisions on supply-chain investment.

As e-tailing matures and the associated business infrastructure develops, an increasing number of e-merchants may opt to set up their own online storefronts beyond the marketplaces. Right now, many independent e-merchants are losing money in an attempt to compete solely on price. They will need to invest wisely to build and strengthen their unique value proposition and improve productivity. This may involve using big data tools to identify their target customers, understand their needs, and price their offerings; it may also involve investing in aspects such as automated sorting and packaging or modular product design that can facilitate mass customization.

For service providers, holistic supply-chain and information management will be a major growth area. The field is open and competitive for marketing services, IT, warehousing, and integrated service providers to enter. By contrast, clear winners are already emerging in online advertising, payment services, and delivery (although many companies are still operating in a relatively labor-intensive way).

For marketplace operators, quality and safety assurance, as well as fraud detection and prevention, are already significant administrative challenges—after all, this is a universe in which sellers number in the millions. China's logistics system is also far from efficient. But there are ways to address these problems, primarily by developing strong systems that centralize back-end administrative tasks and making the necessary investment to keep pace with technology. Marketplace providers will also need to sustain their productivity and prepare innovative strategies to deal with a looming shortage of workers with the right set of skills.

The Chinese government has allowed e-commerce to develop without a great deal of intervention to date. It can facilitate continued growth in e-tailing—and encourage its attendant effects on overall consumption—by focusing on expanding broadband and 3G+ infrastructure; accelerating and incentivizing investment in logistics infrastructure and big data capabilities; facilitating R&D geared to technology innovation; and addressing the looming skills shortage. Public-private partnerships may be the answer for investing to further improve infrastructure.

The growth of e-tailing will pose new issues for cities, given the reduced need for physical storefronts and the increased need for warehouse space, trucking routes, and other logistics. Even residential architecture might need to be adapted to accommodate package delivery as a facet of daily life.

Other emerging economies can draw on China's experiences in growing e-tailing to unleash entrepreneurship. Building the backbone technology infrastructure to provide payment systems and traffic aggregation should be the early-stage priorities.



If China continues to develop the most robust e-tailing market in the world, it may create a successful example of leapfrog growth, overtaking Western nations in the move to a more digital and efficient retail market. This could occur even without a physical store footprint that extends across the entire country—and if this scenario unfolds, it will have broad implications for the development of Chinese cities. E-tailing is fast becoming an area in which China could lead the world in innovation rather than relying on its historical labor cost advantage. China may have largely sat out the 19th-century Industrial Revolution, but today it is poised to become one of the leaders of the 21st-century Internet revolution.

# 1. The evolution of e-tailing in China

China is very close to overtaking the United States as the world's largest e-tailing market. The industry has posted a growth rate that far outpaces the rest of the world—but it is not always following the evolutionary path seen in other countries. Among the striking characteristics of the Chinese market, based on 2011 figures:

- Large B2C sites are the clear leaders in other countries, but not so in China, where nearly 90 percent of the industry is marketplace-based. With few major physical retailers developing a successful multichannel approach, marketplace operators have consolidated a huge market share. They have become an effective channel for a significant base of small manufacturers and wholesalers eager to sell directly to consumers.
- More than 70 percent of the market is C2C. In most other countries, that share is in the single digits.<sup>10</sup> This again underscores the importance of SMEs in driving the industry's growth.
- Although Chinese e-tailing is still in the initial building phases, high growth is being achieved with relatively low investment of 2–4 percent of revenue on an annual basis.
- The overall e-tailing ecosystem is profitable (at 8–10 percent EBITDA), and marketplace-based players are the best-performing segment.

See Exhibit E3 in the Executive summary for a side-by-side comparison of the Chinese and US e-tailing markets.

The high-octane growth of e-tailing in China is shaped by the country's unique context. With the offline (brick-and-mortar) retail industry still underdeveloped and fragmented, e-tailing is largely profitable precisely because the small online merchants are able to exploit these local inefficiencies and pockets of unmet demand. China's powerful manufacturing sector provides ease of sourcing for a great diversity of merchandise—and selection is critical to generating consumer pull. The government is also investing in building the basic infrastructure that will allow e-commerce to thrive.

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<sup>10</sup> C2C in China encompasses sales by small enterprises and microbusinesses without company registration, while C2C in other countries primarily consists of secondary-market transactions by individuals. This difference accounts for the much larger share of C2C in China.

## CHINA IS POISED TO BECOME THE WORLD'S LARGEST E-TAILING MARKET

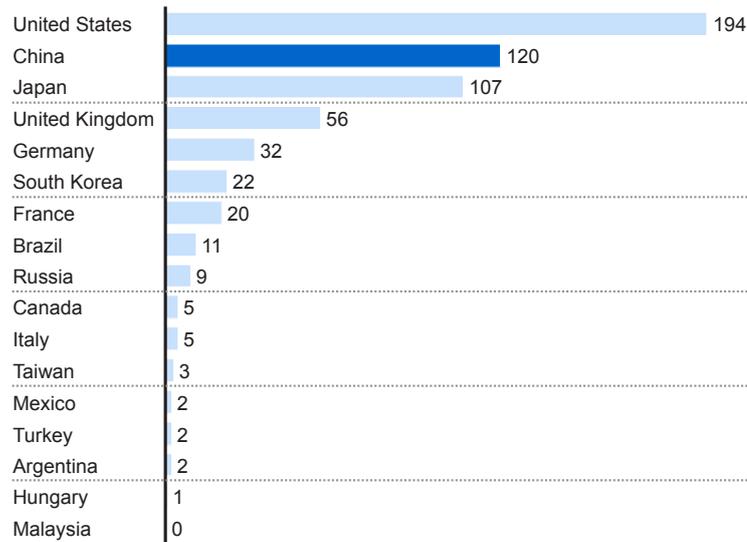
In 2011, China's e-tailing market generated \$120 billion in sales, surpassing Japan, the United Kingdom, and Germany (Exhibit 1).<sup>11</sup> E-tailing posted compound annual growth of 120 percent from 2003 to 2011 in China (Exhibit 2). This expansion outpaced every country in the world (including the United States, with an annual growth rate of 17 percent, and Brazil, with 34 percent growth).

### Exhibit 1

#### China was already the second-largest e-tailing market in the world in 2011

2011 e-tailing market size<sup>1</sup>

\$ billion



1 Excluding online travel.

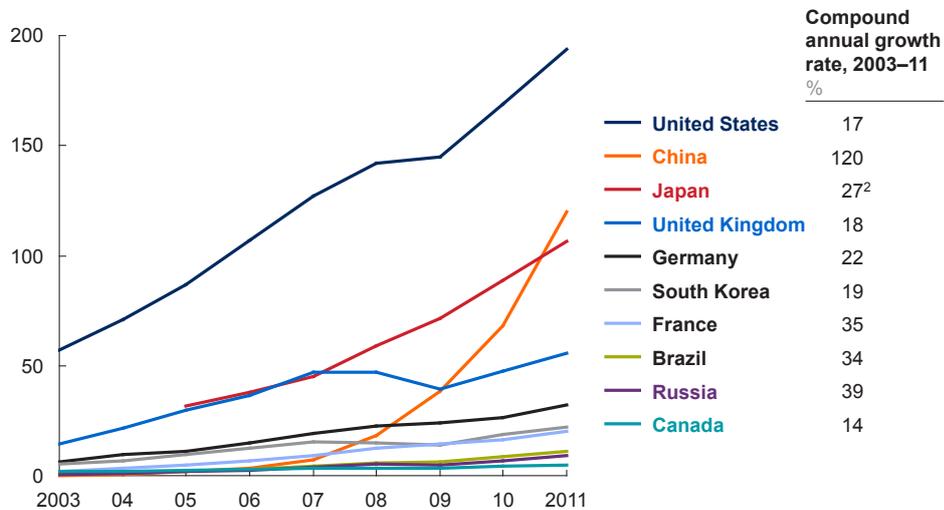
SOURCE: Euromonitor; Forrester; iResearch; EIU; McKinsey Global Institute analysis

### Exhibit 2

#### China's e-tailing market has posted the world's highest growth rate

2003–11 e-tailing market<sup>1</sup>

\$ billion



1 Excluding online travel.

2 Japan's CAGR covers 2005–11.

SOURCE: Euromonitor; Forrester; US Census Bureau; Japanese Ministry of Economy, Trade, and Industry; iResearch; McKinsey Global Institute analysis

11 Excluding online travel. Exchange rate at 1 USD=6.46 RMB in 2011.

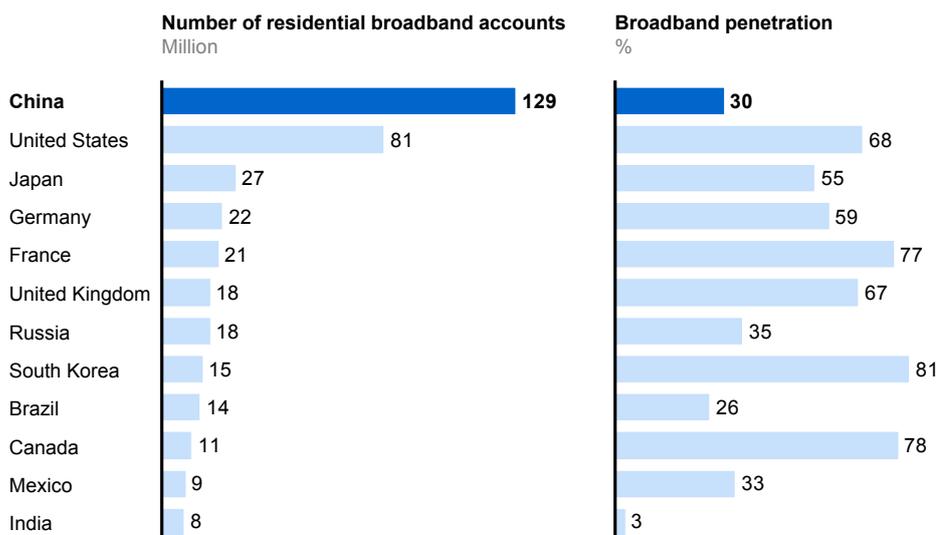
By 2012, the Chinese market had soared to an estimated \$190 billion–\$210 billion (RMB 1.2 trillion–1.3 trillion) in revenue. It is rapidly closing the gap with the United States, where the e-tailing market is now estimated to be a \$220 billion–\$230 billion business.<sup>12</sup> E-tailing accounted for 5-6 percent of 2012 retail sales in China vs. about 5 percent in the United States, confirming that e-tailing already has a higher penetration rate in China.

Underpinning this market is the world's largest online population (Exhibit 3). China had 129 million residential broadband accounts in 2011, dwarfing even the 81 million accounts in the United States. Yet the broadband penetration rate of 30 percent is still relatively low in China, compared with 59 percent penetration in Germany or 68 percent in the United States. Other enablers—such as expanded 3G+ coverage and wider bank card usage—are just gaining traction. Above all, the market will continue to build momentum from a continuing rise in disposable income as millions enter the consuming class.<sup>13</sup>

### Exhibit 3

#### China has the world's largest number of broadband accounts—and great potential for further growth

2011 broadband usage



SOURCE: Pyramid Research; McKinsey Global Institute analysis

Mobile commerce (purchasing via mobile phone) is not yet a significant phenomenon in China. As of 2011, it accounted for only 1.9 percent of the e-tailing market (approximately \$2.2 billion/ RMB 14.5 billion). But there is great potential for this segment to take off (Exhibit 4). China's smartphone penetration rate was only 10 percent in 2011. (Contrast that to the United States, where the smartphone penetration rate was 42 percent, but mobile commerce accounted for only 5.4 percent of the e-tailing market, or \$11 billion, in 2011.)<sup>14</sup> Just one year later, Chinese mobile commerce had already reached \$8.7 billion (RMB 55 billion)

<sup>12</sup> Extrapolated from 2012 Q1-Q3 data from iResearch for China, and from the US Census Bureau and Forrester Research for the United States; excluding online travel.

<sup>13</sup> *Urban world: Cities and the rise of the consuming class*, McKinsey Global Institute, June 2012.

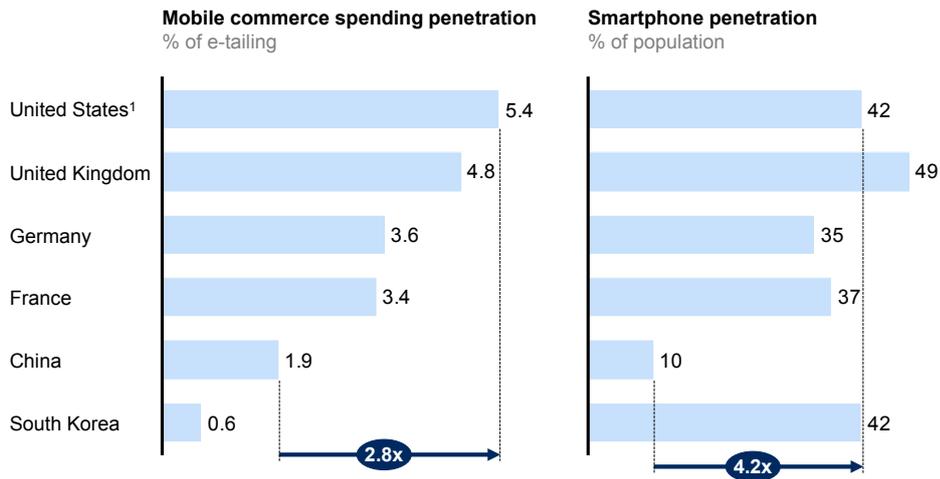
<sup>14</sup> Mobile commerce accounts for 2.8 percent of the market, or about \$6 billion, if excluding mobile sales on eBay, which are mostly C2C secondary-market transactions.

in 2012, representing about 4 percent of the e-tailing market.<sup>15</sup> The average Chinese smartphone user has a higher tendency to shop online, and smartphone penetration is likely to increase to 23 percent in 2015.<sup>16</sup>

#### Exhibit 4

#### China is in the early stages of smartphone adoption, but has rapidly embraced mobile commerce

2011 mobile commerce and smartphone penetration of major e-tailing markets



<sup>1</sup> The US mobile commerce penetration rate is 2.8% if excluding the number from eBay, which has a lot of C2C/secondary market transactions.

SOURCE: Strategy Analytics; Forrester; Internet Retailer; Fuji Keizai; Verdict; EHI Handelsdaten; Korea Online Shopping Association; Korea Information Society Development Institute; Fevad 2011

Some companies are beginning to target the business opportunities in mobile shopping. Shanghai Baiban, for instance, has developed the biggest mobile application online development and operation platform in China, called *zhuixin*. It provides a one-stop solution for e-merchants that want to operate mobile stores, allowing them to develop their mobile apps just by clicking a few design options. More than 23,000 Taobao merchants have started their mobile stores on the *zhuixin* platform. As of June 2012, the *zhuixin* platform had been online for 13 months and had already activated 20 million mobile users, a number that is increasing by 50,000 every day.

#### MOST E-TAILING TAKES PLACE ON MARKETPLACE SITES IN CHINA

The e-tailing market can be split into two categories: marketplaces vs. independent merchants. Marketplaces are by far the leading model in China, accounting for roughly 90 percent of the e-tailing market in 2011 (Exhibit 5).

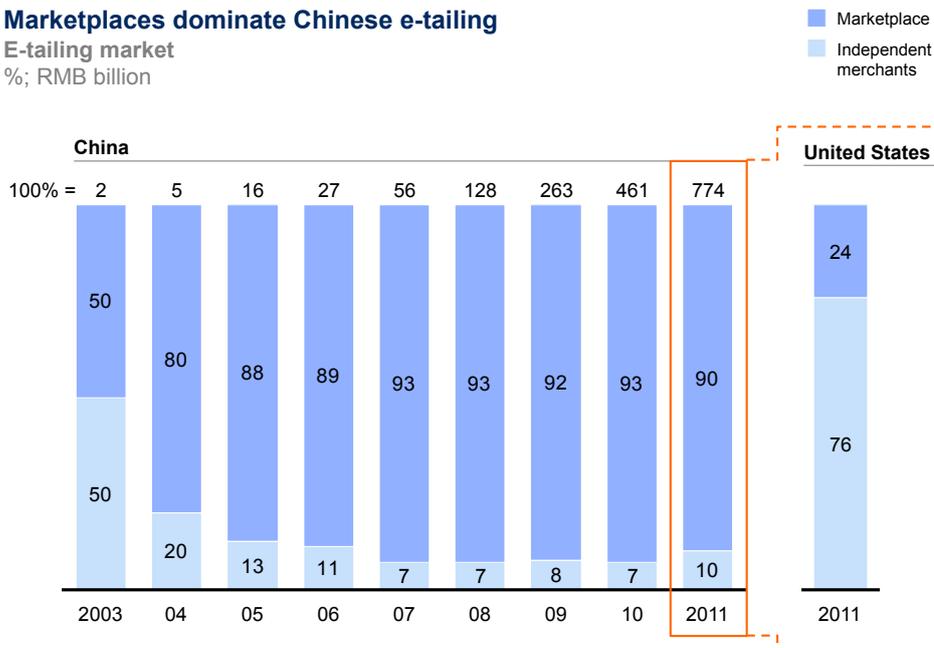
Marketplaces provide a website for a wide range of merchants to list their offerings, along with aggregated traffic flow and the tools to list products and set up individual online storefronts. They can also connect sellers with certified service providers to assist with aspects such as customer service, warehousing, fulfillment, and shipping. In return, they charge transaction fees and/or sell online advertising to generate revenue. In China, most merchants choose to work with marketplaces to avoid heavy up-front investment and to gain exposure to the marketplaces' enormous existing customer base.

<sup>15</sup> iResearch.

<sup>16</sup> Projection from Yankee Group market research.

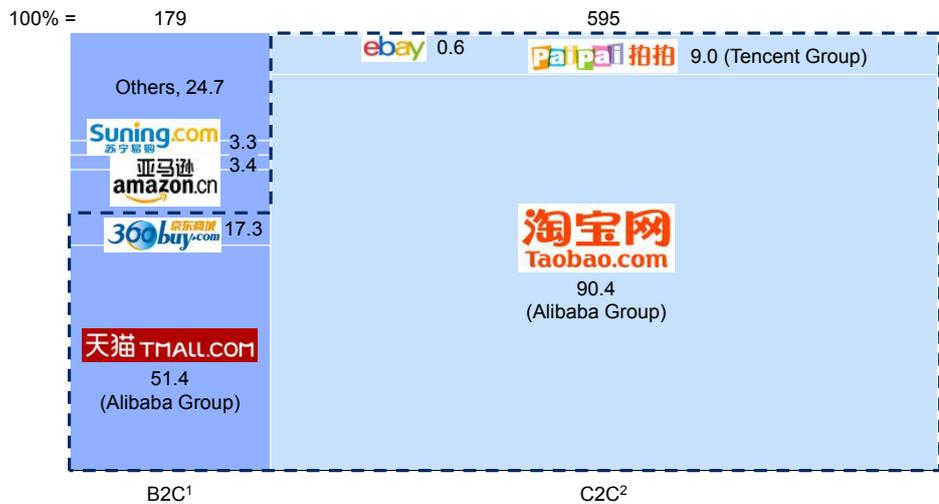
The prevalence of marketplaces in China is striking, especially because they represented only 23–24 percent of the US market in 2011 (Exhibit 6). Because it offers low start-up costs and ease of entry, this model has provided a powerful launching pad for innovative entrepreneurs and SMEs. (See Box 2, “A large universe of small sellers.”) More than six million sellers operate on the Taobao marketplace alone, according to the most recent figures.

**Exhibit 5**  
**Marketplaces dominate Chinese e-tailing**  
 E-tailing market  
 %; RMB billion



NOTE: Numbers may not sum due to rounding.  
 SOURCE: iResearch; eMarketer; expert interviews; McKinsey Global Institute analysis

**Exhibit 6**  
**China's e-tailing market is still highly concentrated**  
 Market share of leading players, 2011  
 % of B2C and C2C respective market size; RMB billion



1 Including storeless B2C, multichannel, and B2C marketplaces.  
 2 Might also be referred to as B2C2C, as the marketplaces (“B”) enable C2C transactions.  
 NOTE: Numbers may not sum due to rounding.  
 SOURCE: iResearch; McKinsey Global Institute analysis

### **Box 2. A large universe of small sellers**

E-commerce transactions can involve the sale of services or tangible and intangible products, and they can occur within and among three participant groups: business, government, and individual consumers. This report, however, will focus only on those segments of e-commerce that sell directly to consumers.

C2C (consumer-to-consumer) refers to e-commerce activities between individuals—but this also includes transactions between microbusinesses that do not have company registration, or between microbusinesses and individuals. In fact, microbusinesses and SMEs are the sellers in most C2C transactions in China. Most of them operate within marketplaces, of which Taobao and Paipai are the major names. This is in contrast to other countries, where most of the C2C sales are secondary-market transactions between individuals.

C2C is much bigger than B2C in China, at 77 percent of e-tailing (\$92 billion/ RMB 594 billion) in 2011, although C2C is a very small portion of e-commerce globally. China drove 60 to 80 percent of the global C2C market as of 2011.

B2C (business-to-consumer) refers to e-commerce activities between businesses and consumers. B2C can be offered by manufacturers directly to consumers (e.g., Dell or Lenovo selling their consumer-line PCs on their company websites). It can also be offered by retailers that buy from manufacturers and sell to consumers (Amazon and Yihaodian are the major players in this category in China). Finally, B2C can also be hosted by marketplaces such as Tmall and QQ Mall in China. B2C accounted for 23 percent of e-tailing (\$28 billion/ RMB 179 billion) in China in 2011.

By contrast, independent merchants choose to set up their own online storefronts. Although they are free from the burden of paying transaction fees to a marketplace, they have to invest to set up their own online retail websites and associated operations—an expenditure that is justified only if they manage to attract enough customers to their online stores.

Marketplace players posted significant growth from 2003 to 2005, with eBay's stepped-up investment through EachNet (which it acquired in 2003) and Alibaba Group's creation of Taobao to fend off potential competition from eBay in the SME segments. Because Taobao is built on an advertising revenue model and does not charge merchants a commission fee, it quickly grabbed market share from EachNet. Its gross transaction value rose from roughly \$10 million (RMB 90 million) in 2003 to \$1.2 billion (RMB 8 billion) in 2005—growing by a factor of about 90. The launch of Alipay as a third-party payment tool in 2004 further enhanced consumers' trust for e-merchants on the Taobao marketplace and fueled its growth.

The largest marketplaces (Taobao and Tmall) have facilitated the creation and growth of numerous local e-tailing brands (called "Tao brands" in China). Often created from workshops or OEM factories, they have become incredibly popular,

driven by highly targeted marketing campaigns and attractive quality and price offerings.<sup>17</sup> Among the top 30 e-merchants ranked by Alibaba in 2011 were 16 such “Tao” brands. For example, Fangcaoji, a line of natural cosmetics that was created in 2009, grew its monthly sales from \$0.3 million (RMB 2 million) to \$2.9 million (RMB 20 million) within six months.<sup>18</sup>

Marketplace e-tailing has taken root in China due to two main factors. First, the offline retail industry is still in a relatively early stage of development, with limited business infrastructure. It remains difficult and costly to develop a brick-and-mortar retail presence in lower-tier Chinese cities or rural areas (Walmart, for example, established its roots in US mid-size cities, but its first Chinese stores were mainly in the biggest metropolitan areas). As a result, e-tailing is probably the more economical way for many retailers to reach customers in remote areas. Second, setting up an independent online storefront operation requires an up-front investment that can be justified only with enough volume, which is difficult for independent merchants to pull off.

The major marketplaces have made the investment to construct payment mechanisms, ensure consumer trust, and enhance the customer shopping experience; as a result, they have built significant traffic. It is too costly for independent merchants to replicate all this investment without turning to high-quality, third-party service providers, which are not yet fully developed in China. In essence, the e-tailing marketplaces provide not only an additional channel, but also the associated infrastructure for merchants to run their businesses in China. Marketplaces offer easy one-stop shops that enable entrepreneurs to quickly launch new ideas with minimal up-front costs.

Backed by investors, a few large independent merchants are also growing rapidly outside the major marketplaces. Some of China's top retailers are investing heavily to build their online presence. Price competition and heavy up-front investment needs are significant challenges as they try to chart a clear path to profitability.

## **APPAREL AND HOUSEHOLD PRODUCTS ARE THE TWO MOST WIRED CATEGORIES**

Apparel, recreation and education, and household products are the three largest product categories in Chinese e-tailing (Exhibit 7).<sup>19</sup> They collectively account for 70 percent of online consumption (vs. a bit over 30 percent of overall consumption). Transportation/communication and health-care/personal products are the next two largest categories, accounting for a bit more than 10 percent each.

According to McKinsey's iConsumer survey in 2011–12, Chinese online shoppers also seem to buy more apparel, recreation and education, and household products than their counterparts in other leading e-tailing markets.

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17 OEM refers to original equipment manufacturers.

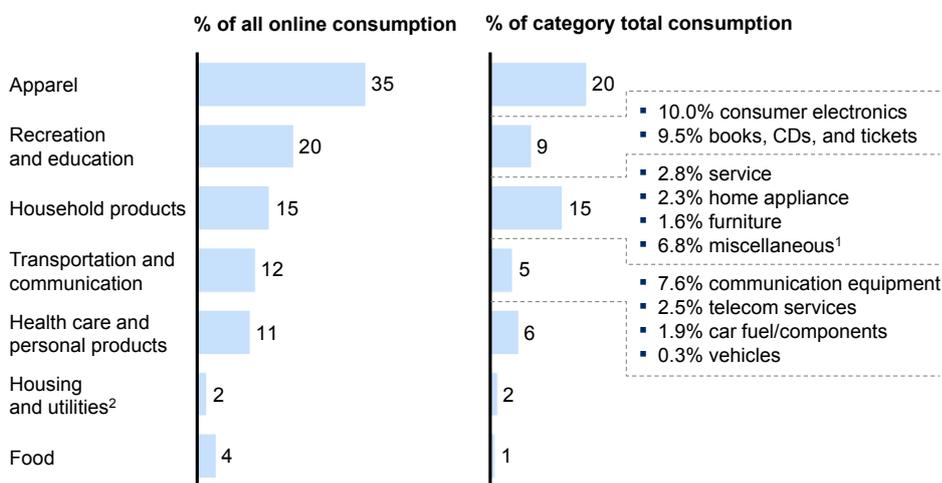
18 Exchange rate at 1 USD=6.83 RMB in 2009.

19 Examples of products in the recreation category include books, CDs, and cinema tickets. Educational products include textbooks and education services. Household products include home furniture, home appliances, and home textiles. Transportation products include cars, auto insurance, and air and train tickets. Communication products include phones and mobile phones, telephone charges, and Internet charges. Health-care and personal products include medicine and cosmetics. Further details can be found in the appendix.

**Exhibit 7****Apparel, recreation and education, and household products are the biggest e-tailing product categories in China**

China's e-tailing product category share, 2011

%



1 E.g., tea sets, utensils, kitchenwares, and hand tools.

2 Mainly construction and home improvement materials.

SOURCE: McKinsey Global Institute analysis

**ADJACENT SECTORS ARE DEVELOPING ALONGSIDE E-TAILING**

As the e-tailing market grows, a variety of specialized service providers are developing along with it. As more and more merchants enter the e-tailing space, they need “insiders” to either teach them how to kick-start their online business or to develop their online business for them. In the latter case, the specialized service provider turns what used to be a fixed cost into a variable cost, enabling merchants to venture into e-commerce without the risk of a heavy up-front investment.

The major associated activities from service providers (illustrated in Exhibit 8) include:

- Marketing services help consumers find and compare offerings. These include two main types: online advertising on marketplaces, search engines, portals, or even product comparison websites; and IT tools or consulting services to help merchants optimize their marketing activity and spending (such as services to optimize online search efficiency or manage specific campaigns).
- Payment services allow consumers and merchants to complete transactions. While cash on delivery is still used in China, often by independent B2C merchants such as Vancl, most merchants on marketplaces use third-party payment providers (e.g., Alipay and Tenpay, which can be thought of as the Chinese counterparts to PayPal in the United States).
- Logistics provide warehousing and delivery to ship products to consumers. E-tailing has been an increasing source of express delivery business in China. For instance, Yunifang, which sells skin-care products, shipped 3,000 orders every day in 2011, accounting for about half of the volume delivered by China's largest express courier in Changsha (the capital of Hunan Province).

- IT companies provide software (sometimes with consulting services to tailor the software) to help merchants scale up their business effectively. For instance, Aimer, a leading lingerie brand, has adopted For You Software for enterprise resource planning (ERP) needs such as supply-chain management and sales management. Companies can also opt for standardized software or IT tools. Shanghai Baiban software offers an application for merchants to set up mobile commerce storefronts easily, for instance, and Kedao offers small tool kits to help marketplace merchants monitor the performance of their customer service teams.
- Integrated services may build or operate online businesses for merchants. Their customers may include small merchants that have not achieved scale, traditional offline retailers trying to establish a presence online, and foreign brands entering China. For instance, clothing retailer Uniqlo used TransCosmos to support its online business in China with only three employees; footwear specialist Skomart used ShopEx; and various sportswear OEMs (e.g., AnTa, Li Ning, Kappa) used GalaXeed.

**Exhibit 8**  
**E-tailing promotes associated value chain activities**

Online purchase cycle	Related industry	Definition	Examples		
			United States	China	
Find and compare	Marketing	<ul style="list-style-type: none"> <li>Online ad</li> <li>Service</li> </ul>	<ul style="list-style-type: none"> <li>Online marketing channels such as search engines, portal websites, mobile channels</li> <li>Service providers helping e-merchants optimize marketing activity and spending</li> </ul>		 
Fulfillment	Warehousing	<ul style="list-style-type: none"> <li>Companies providing services, including physical storage and order fulfillment, or warehouse management service without physical fulfillment</li> </ul>			
					Delivery
Operation	IT	<ul style="list-style-type: none"> <li>Software developers that provide software such as ERP, CRM, and other small online tools; may also provide consulting services</li> </ul>	 	 	
					Integrated

SOURCE: Expert interviews; McKinsey Global Institute analysis

These associated value chain activities generated \$13 billion (RMB 83 billion) in revenue in 2011. Express delivery and online advertisement were the two biggest categories, followed by payment and others (Exhibit 9). While their revenue currently equals only about 10 percent of e-tailing transactions, service providers are expected to grow much faster than the overall e-tail market as merchants increase their adoption of service providers to improve their own operations. The only exception is probably delivery services, since most merchants are already using third-party express shipping to deliver their products (an estimated 40 to 50 percent of parcel delivery growth in China has been driven by e-commerce in the past few years).

**Exhibit 9****E-tailing service providers make up a RMB 80 billion-plus sector**

2011 market size and profitability

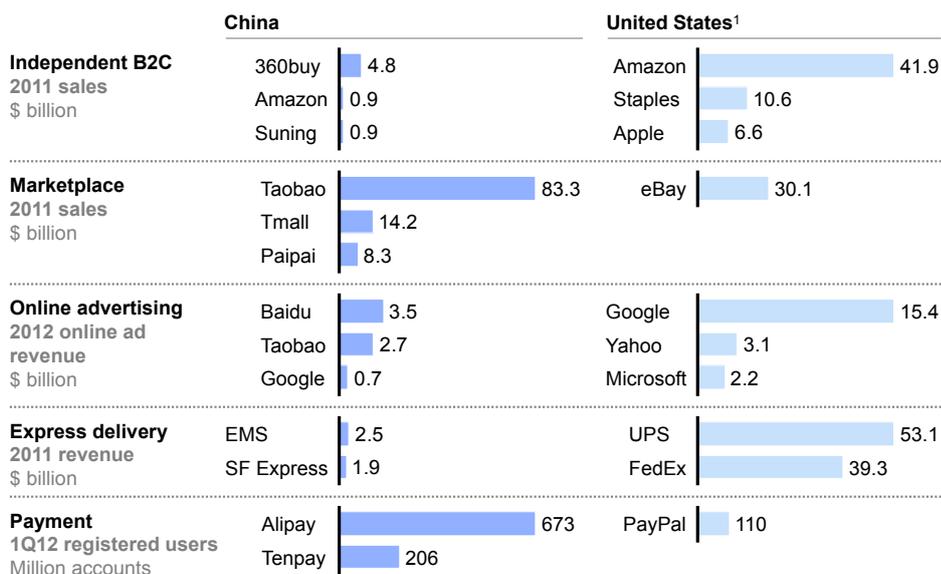


1 Earnings before interest, taxes, depreciation, and amortization.

2 An additional RMB 9 billion of ad revenue for e-merchant marketplaces, which is already counted in the marketplace revenue.

SOURCE: Expert interviews; McKinsey Global Institute analysis

A number of companies have been able to ride the industry's momentum and achieve impressive growth. Among service providers and e-merchants alike, some leading names have already secured significant market share. Exhibit 10 lists the current leaders in each segment and compares them to their US counterparts.

**Exhibit 10****In many segments of the industry, leading names are emerging**

1 US numbers for the independent B2C, marketplace, and online advertising categories are US-only. US numbers for the express delivery and payment categories are global.

SOURCE: iResearch; *Internet Retailer*; Forrester; Eguan; eMarketer; annual reports; McKinsey Global Institute analysis

## ASTONISHING GROWTH HAS BEEN ACHIEVED WITH REASONABLE INVESTMENT

E-tailing requires extensive supporting infrastructure—everything from servers to warehouses (see Box 3, “The ‘Double 11’ promotion” for more on one of the most logistically challenging events launched by e-tailers). In 2011, China's e-tailing industry invested between \$2.8 billion and \$5.7 billion (RMB 18 billion–37 billion).

However, e-merchants do not need to make a much higher investment than that of brick-and-mortar retailers. The e-tailing ecosystem invests 2 to 4 percent of online revenue, compared with a 1 to 3 percent investment made by offline retailers (Exhibit 11).<sup>20</sup> This relatively low level is surprising, given the industry's rapid growth, but it may not be sustainable. However, even taking into account the need for increased investment, the e-tailing ecosystem still has higher capital productivity than offline retail.

### Box 3. The “Double 11” promotion

November 11 marks Singles Day in China, an occasion that young people across the country celebrate with a frenzied burst of shopping. Launched in 2009 by Alibaba Group, operator of China's biggest e-tailing marketplaces (Taobao.com and Tmall.com), the Singles Day promotion caught on rapidly. Sales revenue has climbed from RMB 1.9 billion (\$300 million) in 2010 to more than RMB 25 billion (\$4 billion) in 2012, double “Cyber Monday” sales in the United States.<sup>1</sup> According to Alibaba's official microblog, 2012 sales on Tmall.com reached RMB 13 billion (\$2.1 billion), while Taobao.com posted RMB 5.9 billion (\$900 million) in sales on this one day alone. More than 200 million independent users logged onto Tmall and Taobao for a highly concentrated shopping spree, making up to 106 million orders.

The great success of Alibaba's Singles Day promotion in 2010 and 2011 prompted major independent B2C merchants, such as 360buy, Dangdang, Amazon, and Suning, to join the event. Suning reported a 20-fold increase in sales for its three-day promotion. Express delivery firms gird for the event by mobilizing tens of thousands of extra vehicles and staff, and in 2012, there was so much traffic that some bank payment systems were briefly overloaded.<sup>2</sup> “Double11” is now a major sales bonanza for almost all the major e-tailing players in China.

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1 Source: comScore; Adobe.

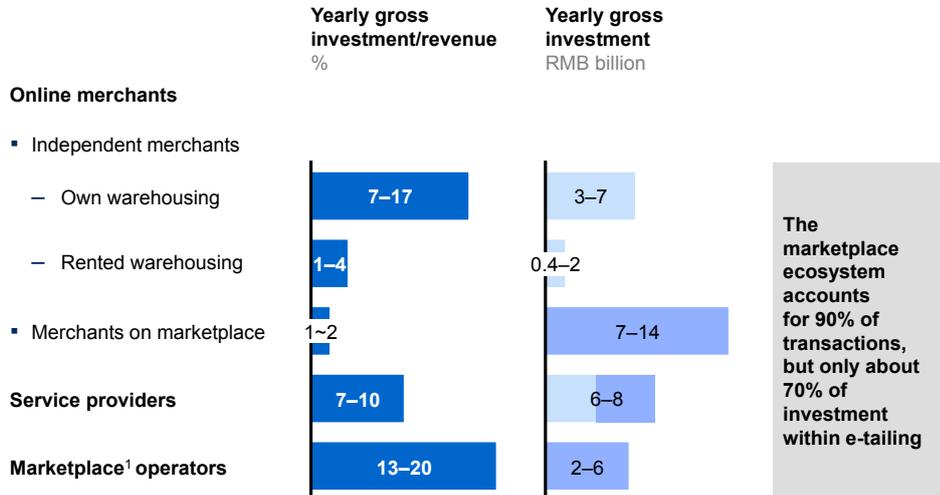
2 Zhou Ping, “China: The Singles Day online boom,” *Financial Times*, beyondbrics blog, November 13, 2012.

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20 The investment here refers to the gross investment on IT or PP&E (property, plant, and equipment) in a single year. The e-tailing ecosystem invests 2.0 to 4.1 percent of revenue, or 1.7 to 3.7 percent if excluding service activities that support both online and offline retail.

**Exhibit 11****The marketplace ecosystem's investment share is lower than its revenue share**

Investment of e-tailing players, by type, 2011



1 Excluding merchants on the marketplaces.

SOURCE: Expert interviews; annual reports; McKinsey Global Institute analysis

In terms of total capital employed (vs. the yearly gross investment mentioned above), capital productivity in the e-tailing ecosystem is still five to ten times better than that of brick-and-mortar retail, even after accounting for heavy IT investment. E-merchants leverage a great deal of online infrastructure built by marketplaces and service providers that tend to have high capital efficiency because they can amortize their investment over a large base. In addition, e-merchants have no need to invest in physical stores, which can easily absorb capital at 1.2 to 2.5 times yearly revenue for a typical brick-and-mortar retailer.<sup>21</sup> The elimination of physical stores also means a reduction of capital employed in logistics and supply-chain management.<sup>22</sup>

Adopting the e-tailing channel could even reduce brick-and-mortar retailers' need for physical space. For instance, Shangpinzhaipai, the made-to-order furniture maker, has online storefronts as well as more than 600 physical stores across China. Because consumers can put together a design on their own through online storefronts, where they can visualize tens of thousands of options, they need to go to the physical store only to check the general look and feel of their purchase. The physical stores need to house very few showroom samples and to provide working space for sales associates and designers, who in fact spend most of their time visiting the customers' homes to take measurements and discuss options. As a result, a typical Shangpinzhaipai store is only 200–400 square meters, while other brick-and-mortar furniture retail stores usually need 400–1,000 square meters to display a dozen or more showrooms.

Large e-merchants with their own in-house warehouses, however, logically have to invest a considerable portion of their revenue to set up these operations. They

21 Many retailers rent commercial space. The following numbers consider those off-balance-sheet physical assets as well.

22 See the appendix for details on the assumptions used in this calculation.

spend 7 to 17 percent of revenue vs. less than 5 percent for merchants without their own warehouses, based on 2011 figures. This stark contrast shows the magnitude of a company's decision to invest in controlling its own dedicated inventory and fulfillment operations.

Larger-scale e-merchants tend to prefer managing the warehouses on their own (even when the facilities sit on others' balance sheets), as delivery speed and reliability are important service dimensions for their customers. In addition, it becomes increasingly important over time for a company to actually own its warehouses, especially if its transaction volume grows to a level that the local rental stock cannot accommodate. For instance, 360buy.com, a leading consumer electronics e-merchant, reported difficulties finding a single warehouse that can manage its product volume and variety. Instead, the company has to rent seven warehouses in Beijing. Finally, some e-tailers might want to hold the real estate to capture the potential appreciation in areas where it is believed that real estate prices will continue rising sharply.

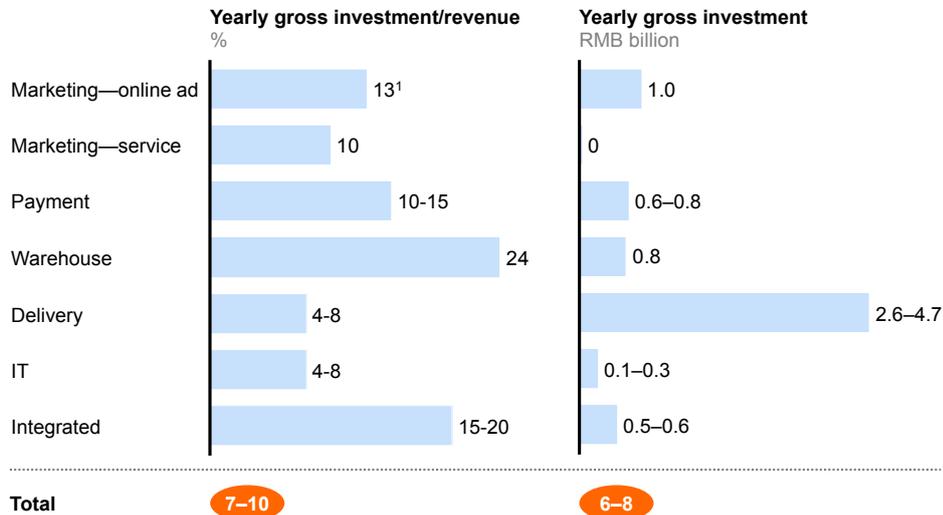
The investment level is quite similar for independent merchants without warehouses vs. merchants on e-tailing marketplaces. The fact that marketplaces, which make investments for the e-merchants operating on their platforms, have been booming so far in China indicates that business infrastructure remains inadequate, even online. Yet the fact that independent merchants without warehouses do not have a much higher investment level may be a sign that this situation is changing; they are increasingly able to obtain basic infrastructure support, often through third-party service providers, for IT, marketing, warehousing, fulfillment, delivery, customer service, and the like. Uniqlo's use of integrated service providers (which offer a range of these services) to enter the Chinese e-tailing market is a prime example.

Marketplace operators and service providers invest 13–20 percent and 7–10 percent of revenue, respectively, to build out infrastructure, which they then offer to e-merchants on a pay-for-use basis. E-merchants on marketplaces turn to others to build the necessary infrastructure, thus shifting the heavy up-front fixed cost of this investment to steady variable payments made over time and minimizing the risks. Consequently, the marketplace-based business model, which hosts not only C2C but also many B2C companies, has captured more than 90 percent of the e-tailing market in the past five years in China.

Service providers, too, have experienced double or triple growth in the past few years. Among the various types of service providers, warehousing and integrated service providers have been investing more heavily (almost 25 percent and 15 to 20 percent, respectively), due to the physical presence that is required (Exhibit 12). Players in online advertising and payment services, where scale and network effects are obvious, also invest relatively heavily (at 10 to 15 percent of revenue) to ensure that they continuously "up their game" to stay ahead of competitors. Finally, companies offering marketing services, express delivery, and IT services all invest 10 percent or less of revenue, based on the 2011 figures. The actual investment might be a bit higher for these categories, as franchises may invest on behalf of the express companies. The largest expenditure for marketing services and IT services is R&D for software engineering (we assume only 10 percent is capitalized due to the short product lifecycle).

**Exhibit 12****In 2011, service providers invested RMB 6 billion–8 billion, more than half of which went to logistics**

Investment of e-tailing service providers, by type, 2011



<sup>1</sup> Advertising for e-merchant platforms already counted in the platform, thus not calculated here.

SOURCE: Expert interviews; China E-commerce Research Center (CECRC); analyst reports; annual reports; McKinsey Global Institute analysis

Going forward, the online ecosystem may find it difficult to sustain this low level of investment as competition intensifies, technology evolves, and consumer expectations rise. There is an urgent need for the government or marketplace operators to invest in data analysis and warehouse capacity. And some large merchants seeking to operate independently will need to make substantial investment to differentiate themselves on various dimensions.

### THE OVERALL MARKET IS PROFITABLE, THOUGH INDIVIDUAL SEGMENTS VARY WIDELY

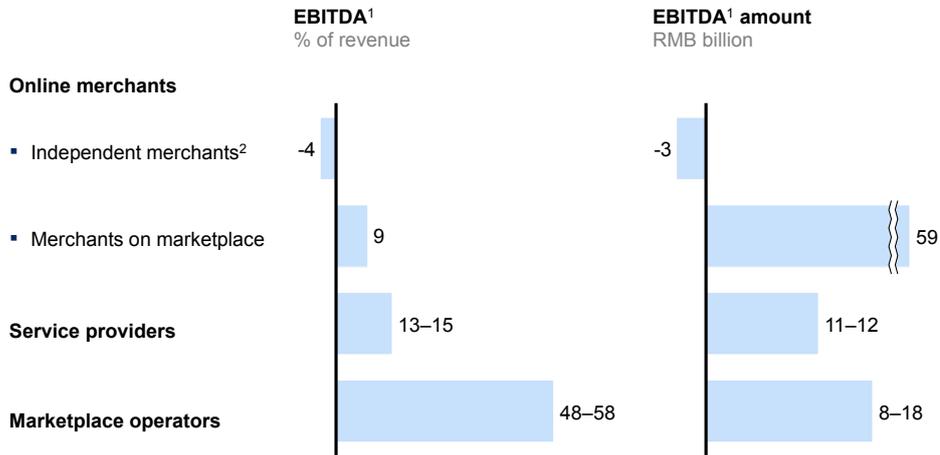
Some might think that Chinese e-tailing is not profitable, but the reality does not bear that out. The overall ecosystem generated \$11.5 billion–\$13.3 billion (RMB 74 billion–86 billion) of EBITDA, for an average EBITDA margin of 8 to 10 percent, in 2011.

The various players within the market, however, have very diverse profitability profiles (Exhibit 13). In China, independent e-merchants suffer an approximately 4 percent EBITDA loss, while the marketplace operators enjoy roughly a 48–58 percent EBITDA margin. The marketplace-based merchants account for over two-thirds of the total EBITDA created in the e-tailing ecosystem in China. For at least the time being, marketplace-based business models seem to emerge as winners.

Among the associated activities, integrated service providers and IT services are the least profitable sectors, due to mainly their fragmented industry structure and early development stage. The current business model of integrated service providers is quite labor-intensive, primarily focusing on services with limited value added such as product listing, customer service, and fulfillment management. Since most of the integrated service providers are new to this sector, they tend to handle increasing demand simply by adding workers rather than investing in tools, process improvements, and organizational models that allow growth at

scale. Under the current labor-intensive operational model, the barrier to entry is relatively low, leading to fierce competition.

**Exhibit 13**  
**China's overall e-tailing ecosystem is profitable—**  
**except for independent online merchants**  
 EBITDA<sup>1</sup> by segment, 2011



1 Earnings before interest, taxes, depreciation, and amortization

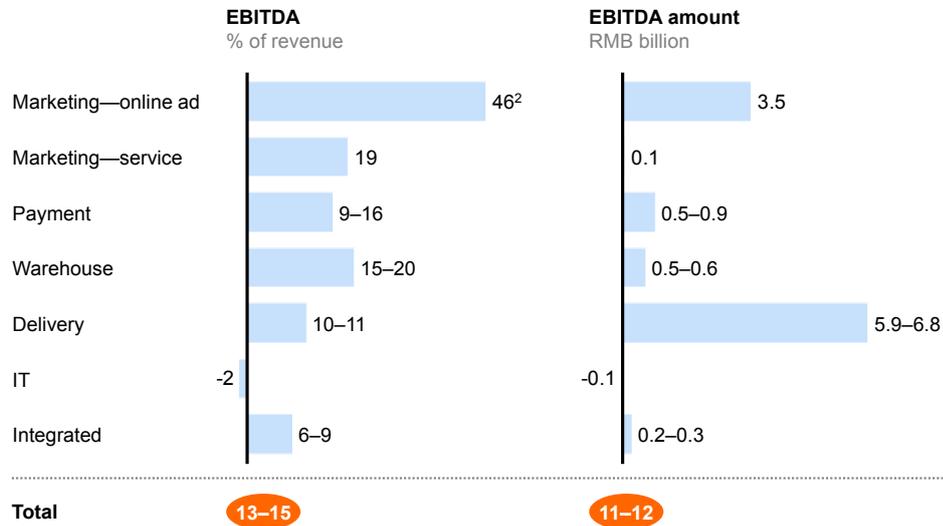
2 With own or rented warehouse.

SOURCE: Expert interviews; analyst reports; annual reports; McKinsey Global Institute analysis

The limitations of customer segments also constrain profitability. While integrated service providers can serve very large e-merchants, their primary market consists of medium-sized e-merchants who want to sell online but do not want to pay the up-front investment (the very small e-merchants tend to rely on only the basic services offered by marketplaces, while the largest e-merchants tend to build their own operations in-house).

IT service providers in the world of e-tailing offer software or IT consultancy services specifically for e-merchants, and their customer segments are very similar to those of integrated service providers. The largest independent e-merchants might choose to work with an IT consultancy's online arm, such as IBM's WebSphere and Oracle's ITG, to create customized solutions. The smallest e-merchants, again, will rely on the basic offerings from marketplaces. IT companies focusing on standardized software products can still grab reasonable margin with enough scale, but because China's e-tailing industry is still so wide open, plenty of software players are vying for a finite number of customers who are only starting to adopt solutions outside the basic offerings from marketplaces. Considerable market education needs to happen before a critical mass of e-merchants recognizes the additional benefits that ERP (enterprise resource planning) or CRM (customer relationship management) software can provide.

The story is very different for marketing, logistics, and payment players, which enjoy enviable EBITDA margins ranging from approximately 10 percent to more than 45 percent (Exhibit 14). Their services are desired by e-merchants of all sizes—including, most notably, the real giants. Offline retailers might need their services as well. These associated activities also exhibit economies of scale much more clearly than IT consultancy or integrated services.

**Exhibit 14****The e-tailing service sector is running at 13 to 15 percent EBITDA**EBITDA<sup>1</sup> of e-tailing service providers, by type, 2011

1 Earnings before interest, taxes, depreciation, and amortization

2 Advertising for e-merchant platforms already counted in the platform, thus not calculated here

SOURCE: Expert interviews; CECRC; analyst reports; annual reports; McKinsey Global Institute analysis

□ □ □

China's unique combination of an underdeveloped brick-and-mortar retail environment and a massive population with rising disposable income has produced unprecedented demand—and the disruptive change unleashed by the Internet arrived at the ideal moment to meet that demand. As of 2011, China already accounted for more than 10 percent of global e-tailing—a remarkable figure for a developing economy. The next chapter will look at the industry's broader impact on the nation's economy.

## 2. E-tailing's impact on China's economy

The growth of e-tailing is playing a role in the fulfillment of China's stated policy goal of becoming a more consumption-based economy. E-tailing in China is not just a replacement channel for purchases that would otherwise have taken place offline—it actually spurs incremental consumption.

We estimate that e-tailing added roughly 2 percent of incremental value to China's private consumption in 2011, and by 2020, we project that it could potentially generate an incremental increase of 4–7 percent in private consumption.<sup>23</sup>

Because brick-and-mortar retail remains underdeveloped in Tier 3 and Tier 4 cities, this boost in consumption is even more pronounced in these smaller and mid-size urban areas.<sup>24</sup> Shoppers in these cities can now buy previously inaccessible offerings for the first time. Though their average income levels are lower, online shoppers in Tier 4 cities spend almost as much on e-tailing as their counterparts in Tier 2 and Tier 3 cities.

E-tailing is only one aspect of the wider Internet economy, which has enormous potential to drive future GDP growth in China and other emerging markets. Previous MGI studies have found that as Internet usage spreads, its observable positive effects grow.<sup>25</sup> These ripple effects have been amplified by the explosive growth of e-tailing in China. McKinsey research has found tremendous potential for the Internet economy to become a more significant driver of future GDP growth if emerging markets reach the levels of access and usage seen in advanced economies.<sup>26</sup>

Apart from unlocking consumption in currently underserved regions, e-tailing is unleashing the growth of SMEs and entrepreneurs that can now sell directly to consumers. In addition to lowering overall retail prices (see Exhibit 20, later in this chapter), e-tailing is forcing greater efficiency and modernization in the broader retail sector—and better coordination between supply and demand in retail will improve efficiencies for the overall economy.

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23 Because of data limitations, it is important to note that these figures are approximations, although they do capture the fundamental trends at work. See the appendix for further detail on our methodology.

24 Cities in China are grouped into four tiers based on their economic development and political importance. Tier 1 cities are Beijing, Shanghai, Guangzhou, and Shenzhen; in all four, the 2010 nominal urban GDP is in excess of RMB 932 billion. Tier 2 cities are mostly provincial capitals, plus a few other major urban areas with RMB 120 billion–932 billion nominal GDP in 2010. Tier 3 cities have a nominal GDP of RMB 22 billion–120 billion in 2010. Tier 4 cities have less than RMB 22 billion GDP in 2010. See the appendix for a full list of cities included in the sample by city tiers.

25 *Internet matters: The Net's sweeping impact on growth, jobs, and prosperity*, McKinsey Global Institute, May 2011.

26 *Online and upcoming: The Internet's impact on aspiring countries*, McKinsey & Company High Tech Practice, January 2012.

The industry is driving significant development in adjacent sectors such as logistics, IT services, and digital marketing (discussed in greater detail in Chapter 1). Strong growth in e-tailing may lower demand in the commercial real estate sector, but it will also create tangible market incentives for innovation in technology, another policy priority for China.

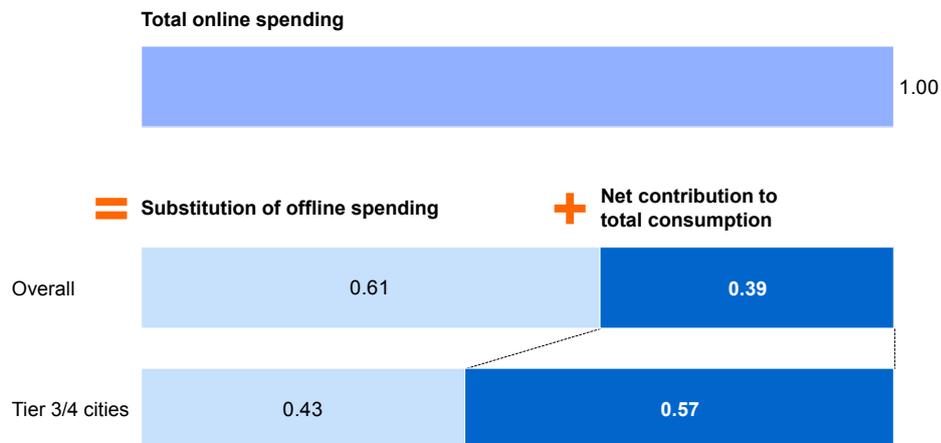
**E-TAILING ENABLES INCREMENTAL CONSUMPTION**

Despite the rapid growth of e-tailing, it has been difficult until now to state definitively whether online spending has indeed made a positive contribution to total consumption, or whether it has simply replaced offline spending. To answer this question, we examined e-tailing sales and consumption data from 266 cities across China that represent more than 50 percent of GDP and 70–80 percent of online spending in China.

The online spending data were provided by a major multi-category e-tailing marketplace and were complemented by data from McKinsey’s proprietary Insights China database. It is important to note that these datasets do not cover the full market, and hence the results are approximations. However, they do provide a picture of what is occurring in China and begin to answer this critical question about the impact of e-tailing.

Looking into the relationship between online consumption per capita and total consumption in these 266 cities, our analysis seems to suggest that roughly 60 percent of online consumption is simply replacing offline retail. But the remainder of around 40 percent is incremental consumption that would not have happened without e-tailing.<sup>27</sup> Online spending does appear to increase overall spending (Exhibit 15).

**Exhibit 15**  
**Online spending raises China’s total consumption—**  
**and the effect is even more pronounced in less developed areas**  
 \$



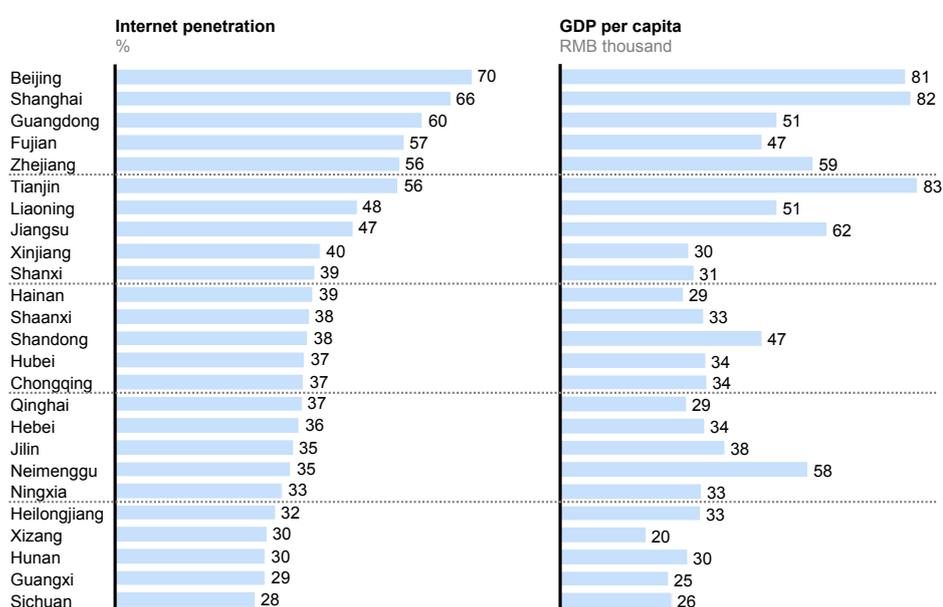
SOURCE: McKinsey Global Institute analysis

27 See the appendix for further detail on the data and methodology.

The incremental rise in consumption is even more pronounced in less developed urban areas; it appears to be nearly 60 percent in Tier 3 and Tier 4 cities. In these locations, brick-and-mortar retail is inadequate, and shoppers are buying products online that were previously inaccessible to them.

Because e-tailing provides access to consumers anytime, anywhere, it may seem logical that differences in consumption levels would smooth out across regions or city tiers. However, Tier 1 and Tier 2 cities, with their superior digital infrastructure, still drive a disproportionate share of online spending. Internet penetration remains highly related to GDP and disposable income per capita (Exhibit 16).

**Exhibit 16**  
**Internet penetration is highly related to overall economic development**  
2011 data



SOURCE: China Internet Network Information Center (CNNIC); CEIC; McKinsey Global Institute analysis

E-tailing can have an equalizing effect on consumption across city tiers once consumers are converted into online shoppers in lower-tier cities. When consumers from any location begin shopping online, they tend to spend a similar amount of money on online transactions (Exhibit 17). Online consumption per online shopper was very similar among Tier 2, 3, and 4 cities in 2011. But since consumers in Tier 3 and Tier 4 cities have lower average incomes, e-tailing commands a 3 to 10 percent higher share of wallet (share of total disposable income) for online shoppers in these regions.

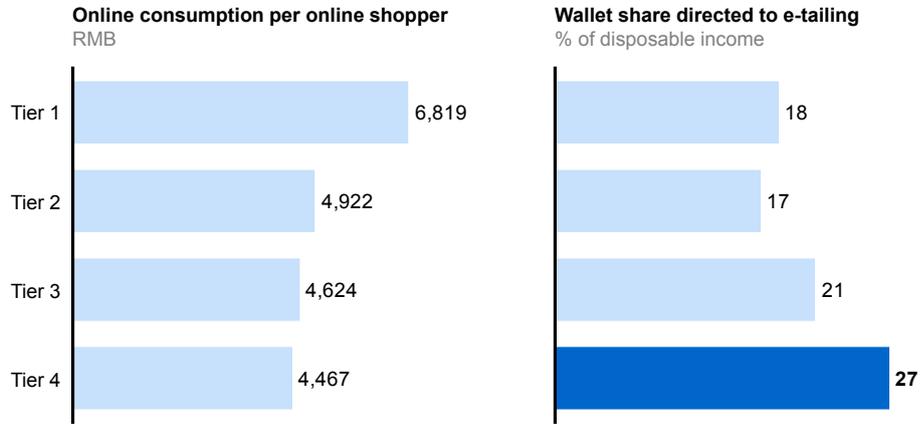
Against the backdrop of rapid e-tailing development, certain cities have emerged as leaders and laggards in online spending (Exhibit 18). A few, such as Dongguan and Foshan in Guangdong Province, and Dongsheng and Baotou in Inner Mongolia, have relatively low online consumption per capita relative to their total consumption levels. We believe this reflects skewed local income structures: Dongguan and Foshan have a considerable number of entrepreneurs, while Dongsheng is famous for its coal mines. The affluent owners in these locations drive up overall income levels but tend to consume offline (purchasing cars, apartments, and luxury products), while employees coming to these cities tend to focus on saving.

**Exhibit 17**

**Tier 4 cities have the highest wallet share directed to online spending**

266 CITIES

China e-tailing consumption by buyer location



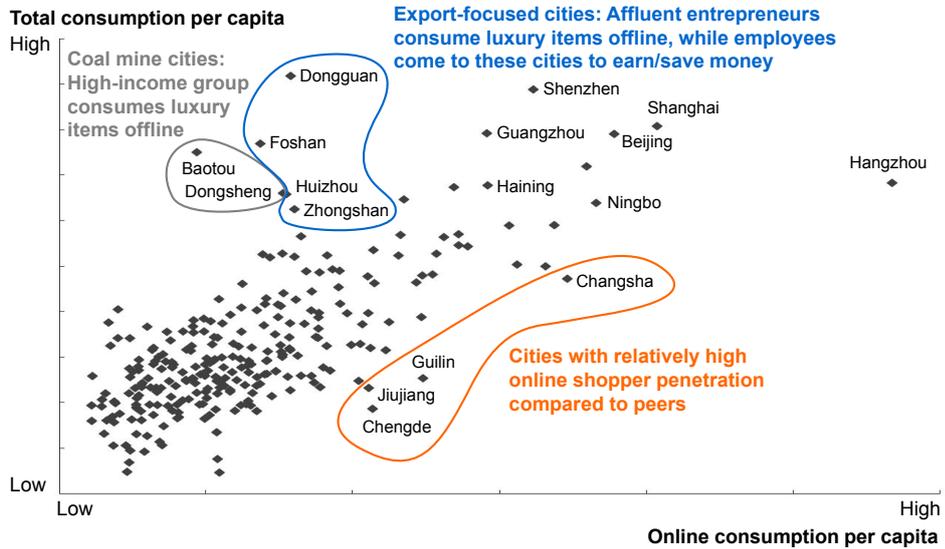
SOURCE: McKinsey Insights China database; McKinsey iConsumer survey; McKinsey Global Institute analysis

**Exhibit 18**

**City-level patterns have emerged in online spending levels: There are leaders and laggards**

2011 total vs. online consumption per capita of 266 Chinese cities

RMB thousand



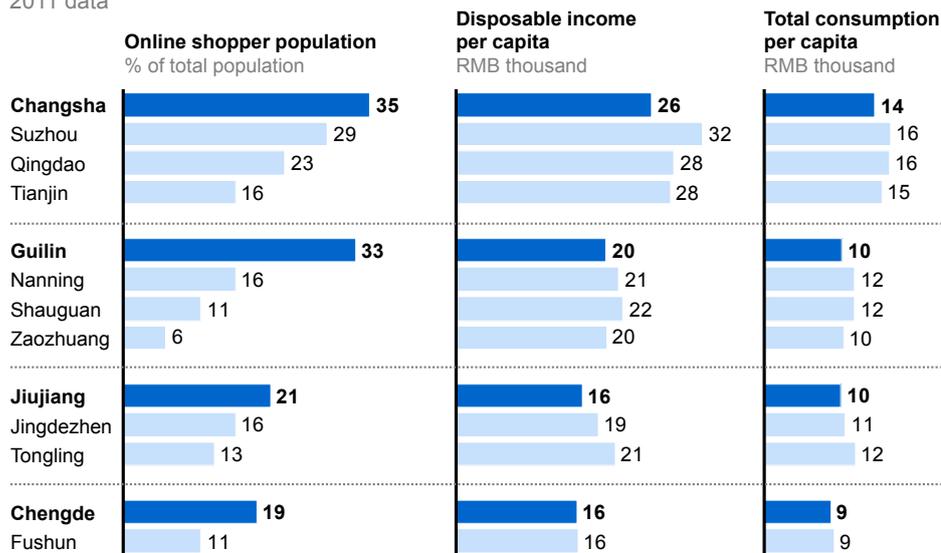
SOURCE: McKinsey Insights China database; McKinsey Global Institute analysis

Meanwhile, some cities have relatively high online consumption per capita relative to their total consumption levels. These cities, such as Changsha, Guilin, Jiujiang, and Chengde, have higher online shopping penetration than the other cities with similar income and consumption levels (Exhibit 19).

**Exhibit 19**

**The online shopper population is an important driver of high online consumption in Changsha, Guilin, Jiujiang, and Chengde**

2011 data



SOURCE: McKinsey Insights China database; McKinsey Global Institute analysis

**E-TAILING REDUCES OVERALL RETAIL PRICES**

Not all products are sold both online and offline. The product categories with more standardized offerings include 3C (computers, communications, and consumer electronics), home appliances, books/CDs, and select items of general merchandise (e.g., food, beverage, and personal care). Depending on the product categories, an estimated 45–85 percent of products listed online are common SKUs sold in both online and offline channels.<sup>28</sup>

Online prices are on average 6–16 percent lower than offline prices (or 4–9 percent lower after taking into consideration the proportion of common SKUs). Household items and offerings in recreation and education are the two product categories with the highest online price discounts, followed by apparel. These product categories are also the three largest and most wired categories in China's e-tailing market. Transportation and communication is the product category with the smallest online price discount (about 2 percent). Overall, e-tailing probably lowered the nation's average retail prices by 0.2 to 0.4 percent in 2011 and by 0.3 to 0.6 percent in 2012 (Exhibit 20).

E-tailing's effect on lowering China's average retail prices has become less pronounced over time. In the major e-tailing product categories, online prices have generally increased more than offline prices since 2010, reflecting the fact that e-merchants probably resorted to unsustainably low prices early on (Exhibit 21).

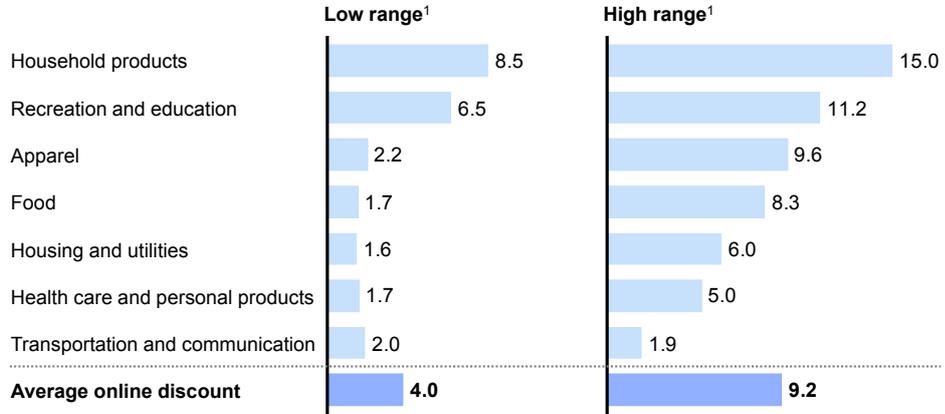
<sup>28</sup> SKUs are stock-keeping units. A unique code is used to identify each product available for sale.

**Exhibit 20**

**E-tailing has lowered overall retail prices**

**Online price discount**

Percentage below offline prices



**Impact on total retail price in 2011/2012<sup>2</sup> (%)**      0.2/0.3      0.4/0.6

1 Low range comes from expert interviews, and high range comes from Taobao UED survey; both are discounted by the percent of standardized product.  
 2 Multiplying average online discount with e-tailing in percent of private consumption, which is 4.8% in 2011 and 6.9% in 2011; 2012 figure based on estimation, excluding online travel.

SOURCE: Expert interviews; Taobao UED survey; McKinsey Global Institute analysis

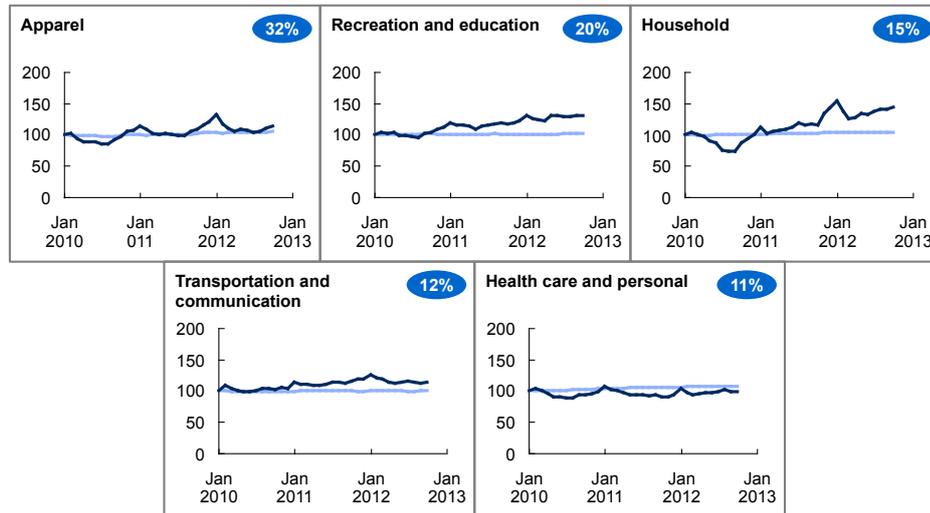
**Exhibit 21**

**Online prices have generally increased more than offline prices as the e-tailing market matures**

**Online vs. offline price index<sup>1</sup>**

Index: 100 = January 2010

— Online  
 — Offline  
 ● Share of 2011 e-tailing sales



1 Online price based on iSPI, and offline price based on CPI.  
 SOURCE: NBS; Ali Research iSPI; McKinsey Global Institute analysis

Interestingly, some e-tailers report that niche items (known in the industry as long-tail SKUs) have a price *premium* online. In this case, the consumer is willing to pay more to the seller that reduces the work involved in searching for a hard-to-find item in stores or enhances satisfaction by providing an item that meets the customer's needs perfectly. As the e-tailing market develops, consumers have started to show an increasing level of sophistication, instead of focusing purely on price.



Our research suggests that online spending is additive: Online consumption creates incremental total consumption, and even more so in Tier 3 and Tier 4 cities, where shoppers now have unprecedented access to goods that have long been unavailable to them. The bottom line is that the ability to spend online is encouraging Chinese consumers to spend more overall. E-tailing is already having significant social and economic impact in China. The next chapter looks at the industry's projected growth in the decade ahead, including its potential for transforming China's broader retail industry.

### 3. Capturing the potential of e-tailing

By 2020, we project that China's e-tailing market will reach \$420 billion to \$650 billion (RMB 2.7 trillion to RMB 4.2 trillion).<sup>29</sup> This would make it roughly equivalent in size to today's markets in the United States, Japan, the United Kingdom, Germany, and France combined. The major drivers of this continued growth will be enhanced 3G+ and broadband penetration.

The speed of this expansion may enable a leapfrog effect in Chinese retail. In advanced economies, the retail industry went through a number of stages of development, moving from local to regional to national and then, after the emergence of the Internet, to a multichannel mix of online shopping and physical stores. In the regional stage, most retailers still have quite regional geographic coverage. Later, national leaders emerge and drive some regional companies out of the market. Multichannel retail refers to the ability to conduct sales in a range of channels that may include physical stores, online stores, mobile transactions, telephone sales, and more. In this stage of retail, the players with highly integrated online and offline channels (along with some online pure players) emerge as winners, driving some former brick-and-mortar national leaders out of the market. In developed markets, the multichannel phase has been accompanied by the bankruptcy of traditional retailers that failed to make successful moves online. Examples include Borders and Blockbuster in the United States and JJB Sports, Jessops, and HMV in the United Kingdom.

China's retail industry is still predominantly regional; it is exceedingly difficult to scale up across such a large and diverse developing country. Dominant multichannel and pure online names are emerging even before brick-and-mortar companies manage to go national. Two future scenarios are possible: China could develop a balanced mix of physical and digital retail, with national brick-and-mortar chains eventually dominating some product categories and online sales capturing others. But if e-tailing sustains its super-charged growth trajectory, it may cause the Chinese retail industry to bypass the national stage altogether, going directly from a regional to a multichannel model. Such a shift would accelerate efficiencies in the broader retail sector and boost China's overall productivity.

In general, China's brick-and-mortar retailers have not yet fully embraced a multichannel strategy, but they will have to do so if shoppers continue to migrate online. The competition posed by e-tailers and the rate of online adoption will force the broader retail industry to mature and innovate more rapidly.

But unleashing the full potential of e-tailing in China is not a foregone conclusion. For much of the e-tailing ecosystem, capital investment has been minimal, and this will be difficult to sustain as competition intensifies, technology evolves, and consumer expectations rise. Besides, the market can continue to grow only if the e-tailing industry improves its labor productivity. Given the shortage of high-tech

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<sup>29</sup> Based on 2011 price and exchange rate.

talent, the industry may be forced to find productivity improvements that can mitigate the need for workforce expansion.

The good news is that labor productivity in the online ecosystem can indeed improve dramatically, based on international experience. The prize is huge: labor productivity in China's retail sector is only two-thirds of the US level today, and by 2020, e-tailing can potentially lift the overall sector's performance by 14 percent. As e-tailing expands, it will make the broader Internet economy an even more powerful driver of China's future GDP growth.

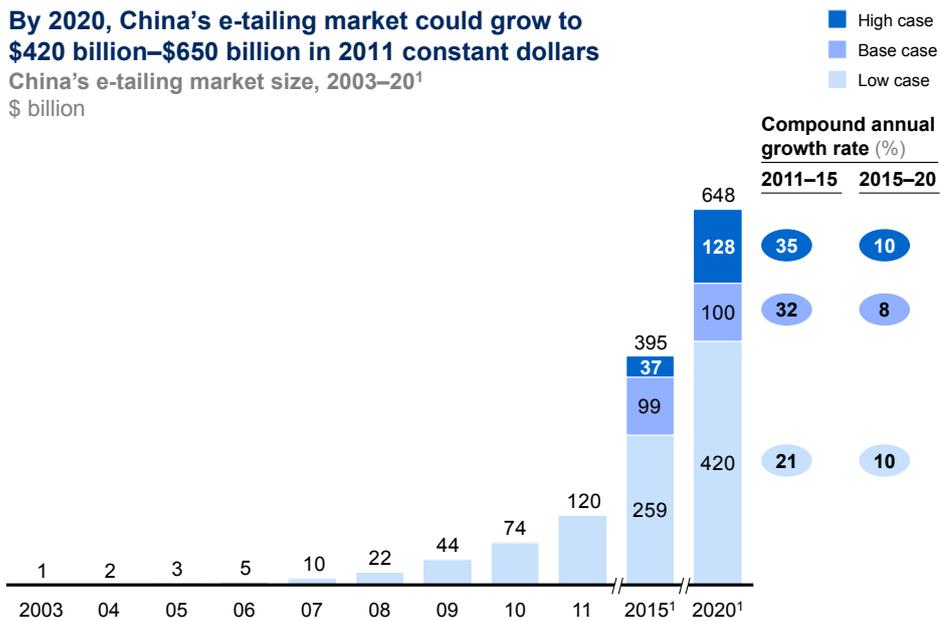
**WITH EXPANDED BROADBAND AND 3G+ PENETRATION, E-TAILING COULD ACCOUNT FOR 10 TO 16 PERCENT OF CHINA'S CONSUMPTION BY 2020**

China's e-tailing market could reach \$420 billion–\$650 billion (RMB 2.7 trillion–4.2 trillion) by 2020 (Exhibit 22). Even in the most conservative scenario, it could become 3.5 times its size in 2011, excluding the effects of any inflation. By 2020, some 10 to 16 percent of total consumption could take place through e-tailing, which would generate an incremental increase in overall spending.

**Exhibit 22**

**By 2020, China's e-tailing market could grow to \$420 billion–\$650 billion in 2011 constant dollars**

China's e-tailing market size, 2003–20<sup>1</sup>  
\$ billion

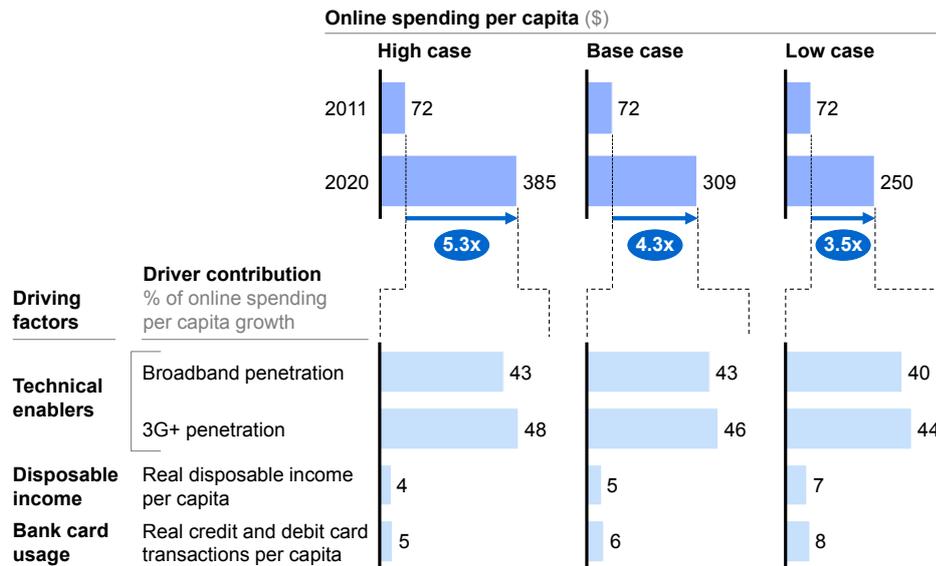


<sup>1</sup> Based on 2011 terms; 2015 and 2020 population forecasts are 1,368 million and 1,387 million.  
NOTE: Numbers may not sum due to rounding.  
SOURCE: iResearch; McKinsey Insights China database; McKinsey Global Institute analysis

Based on the experiences of other countries, it is clear that certain factors are crucial to the industry's growth—and policy makers can take steps to ensure that these drivers are in place. Looking into data from 17 markets concerning 12 different drivers, we can separate out their impact. We find the most important elements influencing the growth of e-tailing markets are 3G+ penetration, broadband penetration, wider use of bank cards, and disposable income per capita.

In addition, we find that in any scenario, some 85 to 90 percent of the growth forecast for China's market by 2020 will be driven by enhanced 3G+ and broadband penetration (Exhibit 23).<sup>30</sup> These factors can be shaped by policy and targeted investment decisions.

### Exhibit 23 Broadband and 3G penetration will be the major drivers for e-tailing market growth



NOTE: All values are based on 2005 terms.

SOURCE: McKinsey Insights China database; McKinsey Global Institute analysis

## E-TAILING COULD HELP CHINA'S RETAIL INDUSTRY LEAPFROG STAGES OF DEVELOPMENT

In advanced economies, the retail industry has typically undergone several clear stages of development. After beginning with local and regional retailers, the field eventually consolidates into a few national leaders. (For instance, the US grocery sector was once dominated by regional companies, but their market share declined from 68 percent in 1999 to 41 percent in 2009.)<sup>31</sup> Eventually, even national leaders face the challenge of competing with online players as the industry becomes multichannel. Some brick-and-mortar leaders eventually come to embrace the multichannel strategy (e.g., Walmart and Tesco), while others are driven out of the market (e.g., Blockbuster and Borders).

Clear national leaders have yet to emerge in China's retail industry (Exhibit 24). The top five retailers by category have less than 20 percent market share, much lower than US levels of 24 to 60 percent in comparable categories. If the rapid growth of e-tailing continues, China's retail industry could leapfrog the national stage altogether and go directly from the regional to the multichannel stage. Pure online players have already carved out a prominent role in China. Alibaba and 360buy.com, both pure online players, are among the top ten retailers.

Because Chinese retail is coming of age in the midst of the digital revolution, its evolution may follow a different—and faster—trajectory than what has occurred

<sup>30</sup> See the appendix for detail on our methodology.

<sup>31</sup> Source: Progressive Grocer; McKinsey Global Institute analysis.

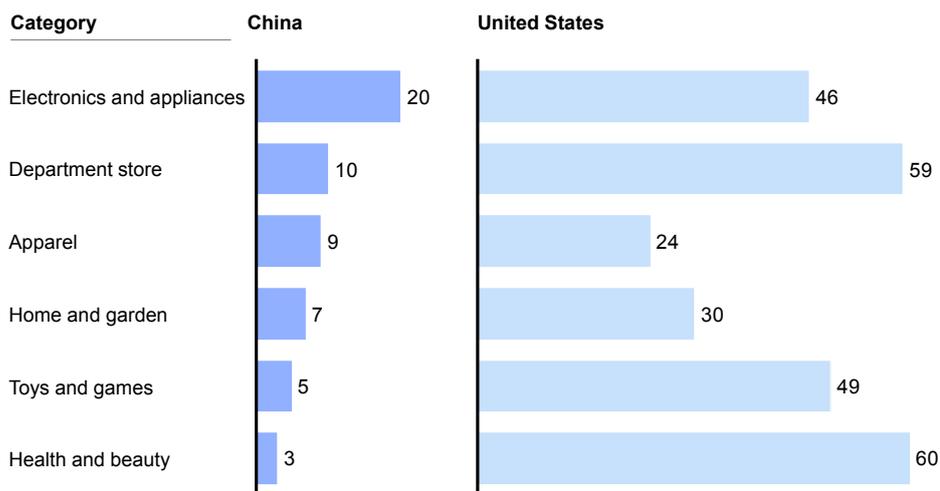
in other countries. China's retail industry is already more wired than many of its international counterparts. E-tailing accounted for 5-6 percent of 2012 retail sales in China vs. about 5 percent in the United States, confirming that e-tailing already has a higher penetration rate in China.

#### Exhibit 24

#### China's retail industry is still relatively fragmented

2011 market share of top five retailers by category

%



SOURCE: Euromonitor; McKinsey Global Institute analysis

While these early signs seem to indicate an industry that is making a dramatic leap into the digital age, some brick-and-mortar retailers in China have hesitated to embrace the multichannel strategy to the same degree as their foreign counterparts (Exhibit 25). First of all, only three offline retailers made it to the 2011 top ten list of independent e-merchants: Suning (which sells home electronics and appliances), Yihaodian (a diversified e-commerce company in which Walmart bought a 51 percent share in 2012), and Coo8/Gome (another electronics and appliance retailer). By contrast, seven of the top ten B2C merchants in the United States are established brick-and-mortar retailers. Second, while some very successful multichannel players have emerged in other markets,<sup>32</sup> many of the brick-and-mortar retailers in China that have ventured into e-tailing have suffered losses in their online businesses.

To realize the leapfrog in development, Chinese retailers would need to shift ahead and think about an endgame in which online and offline are both important channels, instead of focusing solely on building national coverage with brick-and-mortar stores. The need to develop a physical presence is likely to be less crucial in China than in other countries. With the right prerequisites in place, China's retail landscape could become even more wired within a very short time frame, enhancing the tailwinds for the online players—and adding pressure for brick-and-mortar retailers to embrace the e-tailing channel.

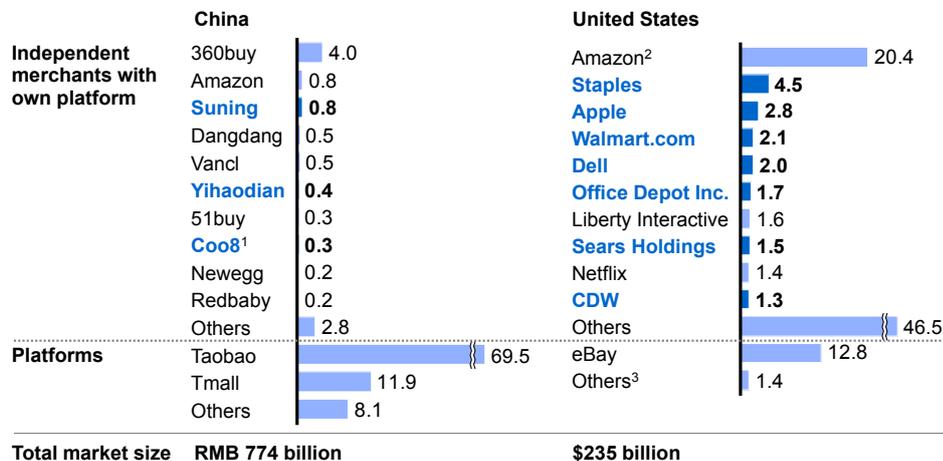
<sup>32</sup> In one example of an innovative multichannel strategy, UK non-food retailers have developed the "click-and-collect" model to build on their physical presence. Many of them conduct more than 50 percent of deliveries this way. Because many consumers are not at home during the day to accept deliveries, Amazon even offers collection lockers in shopping malls.

**Exhibit 25****Compared with the United States, China has fewer e-tailers with offline roots**

■ Players with offline roots

**E-merchant market share, 2011**

% of total e-tailing sales

**Total market size RMB 774 billion****\$235 billion**

1 Acquired in 2011 by Gome, which has strong offline roots.

2 If we split out the Amazon marketplace transaction volume, the US platform market share will be 23–24% in 2011.

3 Assuming that eBay platform transactions represent 90% of the US C2C market.

NOTE: Not to scale.

SOURCE: Company annual reports; Internet Retailer; Forrester; McKinsey Global Institute analysis

**LABOR PRODUCTIVITY NEEDS TO IMPROVE SIGNIFICANTLY TO REALIZE THE INDUSTRY'S FULL POTENTIAL**

The improvement of labor productivity is among the most important prerequisites for e-tailing to fulfill its growth potential and spur the transformation of the broader retail industry in China.

In 2011, some 2.6 million workers were employed by e-merchants, service providers, and marketplace operators in China. Together this ecosystem pays out a bigger portion of its revenue (11–15 percent) in employee compensation than offline retail (which pays 3–4 percent). Service providers, in particular, stand out with the highest share going to employees; they pay out 20–40 percent (Exhibit 26).

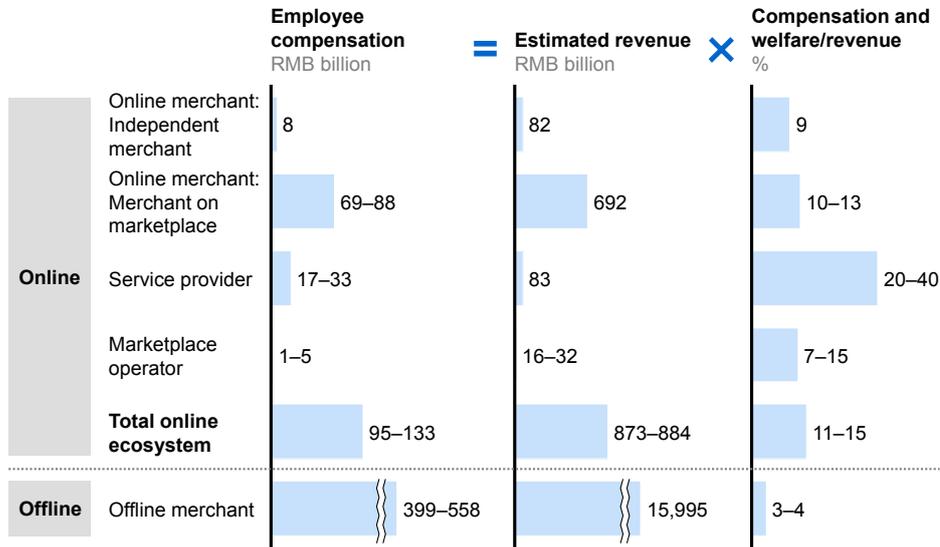
This relatively higher employee compensation is understandable as e-tailing requires a disproportionate share of high-skilled labor. Some 24 percent of these 2.6 million e-tailing workers (including about 400,000 logistics workers) have tertiary education vs. 5 percent in brick-and-mortar retail and 9 percent in the overall economy (Exhibit 27). China is expected to have a gap of 23 million high-skilled workers by 2020.<sup>33</sup> The e-tailing industry is already facing a shortage of talent with the right set of high-tech skills, and that will become even more acute in the years ahead.

33 *The world at work: Jobs, pay, and skills for 3.5 billion people*, McKinsey Global Institute, June 2012.

**Exhibit 26**

**Employee compensation accounts for a much bigger portion of revenue in the online ecosystem than in offline retail**

Employee compensation by segment, 2011



NOTE: Not to scale.

SOURCE: Expert interviews; annual reports; McKinsey Global Institute analysis

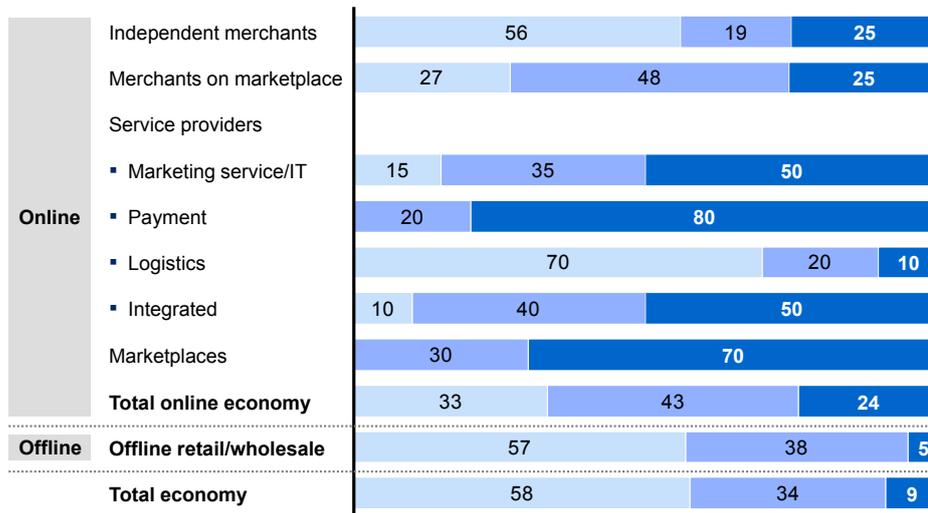
**Exhibit 27**

**China's online ecosystem has a much higher share of high-skill labor than offline retail**

Number of employees by education level

% of total labor force

- Junior high school and below
- High school and junior college
- College and above



SOURCE: National Statistic Department; China Labor Statistical Yearbook (2011); expert interviews; McKinsey Global Institute analysis

Labor productivity among China's independent e-merchants is only slightly higher than that of their offline counterparts today (Exhibit 28). At current labor productivity levels, the online ecosystem will need to add an additional 1.6 million to 2.9 million high-skill workers to meet current growth projections in the next decade. The industry will have to significantly improve efficiencies to mitigate this talent shortage and rein in personnel expenses, since the retail sales generated per worker in the e-tailing ecosystem were about one-quarter of those generated by workers in offline retail in 2011. It is true that productivity in Chinese e-tailing might be underestimated given that about 30 percent of employees for marketplace-based merchants work part time, but there is no doubt that e-tailing players (especially e-merchants and service providers) have a lot of room to improve productivity to ensure profitable growth in the long term.

### Exhibit 28

#### E-merchants and service providers in China have room to improve labor productivity

Labor productivity by segment, 2011

		United States <sup>1</sup>	China	Revenue	Employees
		Productivity RMB million per person	Productivity RMB million per person	RMB billion	Thousand
Online	Independent merchant	5.4	1.6	82	51
	Merchant on marketplace	n/a	0.3	692	2,088
	▪ Small <sup>2</sup>	n/a	0.1	143	1,125
	▪ Medium <sup>2</sup>	n/a	0.3	209	633
	▪ Large <sup>2</sup>	n/a	1.0	340	330
	Service provider	1.8	0.2	83	502
	Marketplace operators	2.7	2–4	16–32	8
	Total online ecosystem <sup>3</sup>	n/a	0.3	770	2,203
Offline	Total offline retail <sup>4</sup>	1.8	1.2	6,304	5,276

1 Based on sample companies: Amazon, Digital River, and eBay for independent merchant, service provider, and marketplace operator respectively.

2 Merchant size definition, by annual sales revenue: small, less than RMB 1 million; medium, RMB 1 million–10 million; large, about RMB 10 million.

3 Excluding delivery.

4 China offline retail refers to above-size retail companies.

NOTE: Not to scale.

SOURCE: National Statistics Bureau; company annual reports; expert interviews; McKinsey Global Institute analysis

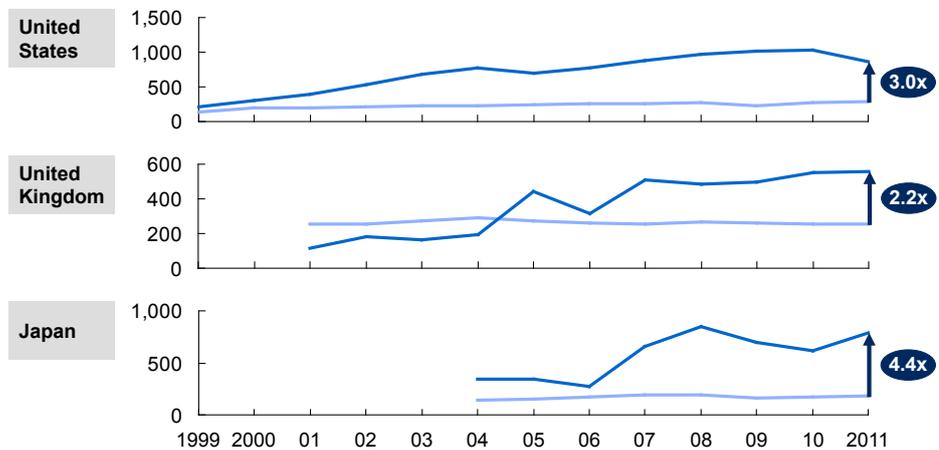
The good news is that such improvements are possible. The online ecosystem can boost its labor productivity up to 2.2 to 4.4 times the level of brick-and-mortar retailers, based on the experiences in the United Kingdom, the United States, and Japan (Exhibit 29). And the prize is huge: labor productivity in China's retail sector is only two-thirds of the US level today, and e-tailing can potentially lift the sector's performance by an additional 14 percent by 2020 (Exhibit 30).

**Exhibit 29**

**Online merchants' productivity can indeed improve significantly over time based on other countries' experience**

Revenue per employee for e-merchants<sup>1</sup> (based on sample companies) vs. overall retail sector

\$ thousand



<sup>1</sup> E-merchant benchmark: United States, Amazon; United Kingdom, Asos; Japan, Rakuten.

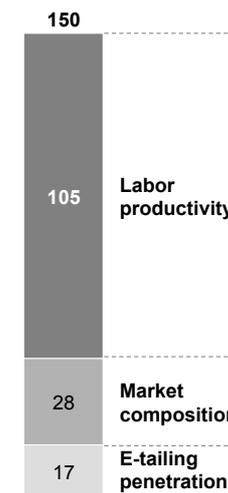
NOTE: Not to scale.

SOURCE: Company annual reports; US Bureau of Labor Statistics; UK Office of National Statistics; www.meti.go.jp/statistics; McKinsey Global Institute analysis

**Exhibit 30**

**E-tailing could increase China's retail labor productivity by 14 percent if online players manage to close the gap with other leading markets**

Potential increase in retail labor productivity  
Revenue per employee (RMB thousand)



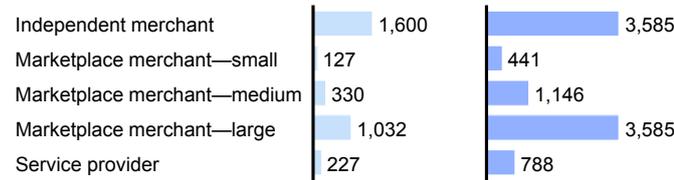
Key drivers

2011

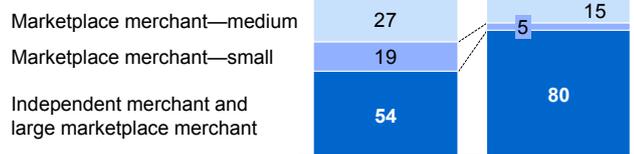
2020 potential

Revenue per capita (RMB thousand)

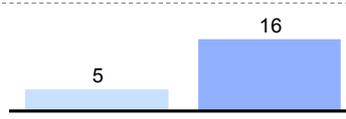
2.2–3.5x improvement



% of total e-tailing sales



% of private consumption



SOURCE: McKinsey Global Institute analysis

In the United States, leading players have invested continuously to improve their efficiency and effectiveness. For instance, from 2006 to 2011, Amazon invested 5.5 percent of its revenue in a range of technologies to reduce labor needs and increase revenue. These included:

- Automated/e-mail customer service systems: These are 90 percent automated vs. 44 percent for the average retailer.
- Dynamic pricing algorithm and web crawlers: These enable intra-day price changes to maintain 5–20 percent price leadership.
- Advanced search capabilities, trigger-based personalized e-mail, and collaborative filtering algorithm for recommendations: These typically achieve a 5–6 percent conversion rate (vs. 1–3 percent for the typical retailer).

China's e-merchants and service providers can draw on the experiences of leading companies in other countries. The express delivery industry in China, for instance, has been automating to contain rising personnel costs. Not only are salaries in the transportation sector rising faster than the national average, but the government is also increasingly enforcing the social benefit payment from the local franchises used by several express companies for delivery to smaller cities or rural areas. In response, express industry leaders have been adopting innovations to mitigate these labor cost increases. Most have already established semi-automated sorting centers in Tier 1 and Tier 2 cities, while the largest companies are continuing to expand the geographical coverage of semi-automation and to push for full automation in sorting centers in Tier 1 cities.

Capital investment to date has been minimal for the majority of the market. This has contributed to the industry's profitability, but it will be difficult to sustain as competition intensifies, technology evolves, and consumer expectations rise. Given that such a large portion of the market consists of SMEs operating through marketplaces, there is an urgent need for the government or marketplace operators to commit the necessary investment in data analysis and warehouse capacity that can propel large efficiency gains.

□ □ □

China's underdeveloped retail sector has posed a hurdle to achieving the policy goal of boosting domestic consumption. But e-tailing could accelerate this process by mobilizing millions of new consumers much faster than the expansion of brick-and-mortar retail in new geographies. And this leapfrog, if successful, can serve as an important model for other emerging economies' retail development. As the e-tailing ecosystem matures, it will need to turn its focus to enhancing productivity—an effort that could have positive spillover effects for the broader retail industry's performance. E-merchants and service providers, in particular, will have to be at the forefront of this transformation in productivity as the industry matures.

## 4. Implications for stakeholders

The growth of e-tailing is already generating tremendous consumer surplus—starting with lower overall retail prices. It has given consumers in smaller cities and more remote areas access to a much wider array of goods than they have ever been able to purchase before. Even residents of Tier 1 cities benefit from the greater convenience afforded by online shopping and the availability of niche products.

Private companies need to be fully prepared if they hope to capture the opportunities presented by the rapid rise of e-tailing. China's entrepreneurs now have the ability to launch new ideas with minimal start-up costs and access to a large pool of potential customers. E-tailing is still a young and wide-open market where small, innovative businesses can gain traction very quickly.

Established makers of consumer products can take advantage of the e-tailing platform to accelerate tapping into new markets in smaller cities, although they will have to meet the challenges of managing a fragmented consumer base and developing more complex brand and product portfolios to serve the online market. Retailers will need to adapt their format and footprint strategies and will be forced to make clear decisions on supply-chain investment. Foreign companies will find large opportunities in the Chinese market, but they will need to identify the right collaboration models.

The Chinese government has allowed e-commerce to develop without a great deal of intervention to date. It can facilitate continued growth in e-tailing—and encourage its attendant effects on overall consumption—by focusing on expanding broadband and 3G+ infrastructure; accelerating and incentivizing investment in logistics infrastructure and big data capabilities; facilitating R&D geared to technology innovations; and addressing the looming skills shortage. Public-private partnerships may be the answer for investing to further improve infrastructure.

If e-tailing does set off a leapfrog effect that profoundly alters China's retail development, it will pose new challenges for local governments—and open new possibilities in urban planning. Smaller cities will have to play catch-up in expanding warehousing capacity, trucking routes, and other logistics infrastructure in order to fully participate in the Internet economy. In a more digital retail world, cities will have a decreased need for physical storefronts. Shopping districts and malls often serve as the anchors of civic life in advanced economies, but they may not play the same role in China's emerging cities. Even residential architecture may have to adapt to accommodate package delivery as a facet of daily life.

The industry's trajectory in China may ultimately inform the choices made by the public and private sectors in other emerging economies seeking to jump-start their own digital consumer revolutions. Building the backbone technology and e-tail infrastructure (e.g., payment systems and logistics coverage) should be the early-stage priorities.

## **E-MERCHANTS AND SERVICE PROVIDERS ARE CRUCIAL TO TRANSFORMING THE INDUSTRY'S LABOR PRODUCTIVITY**

### **E-merchants: Target investment to build a unique value proposition**

Many independent e-merchants are currently losing money in an attempt to compete solely on price. Going forward, they will need to invest wisely to build and strengthen their unique value proposition and improve productivity in order to grow at a sustainable level of profitability.

As the market grows, associated value chain activities also develop. The investment required to set up an independent online store might decrease over time as more specialized service providers enter the market to provide cost-effective solutions. Merchants that successfully scale up may find it attractive to operate their own online storefronts as opposed to relying on a marketplace model.

This shift will be driven by two key factors. First, the merchants might want to enhance their understanding of the customers and thus the “stickiness” of the customer relationship with full control over the design of the shopping experience, as well as the gathering, analysis, and implementation of customer insights. Second, the investment required for an e-merchant to support its own storefront may seem like a big bet during the start-up phase, but once the e-merchant's business and operational model has been proven and is generating a relatively stable cash flow, the risk associated with the investment will decline.

After merchants set up their independent storefronts, they can, of course, continue to use the marketplaces as an additional channel. In fact, we have seen several large e-merchants diversify into marketplaces or even other B2C websites (e.g., Dangdang on Tmall, Vancl on Suning and Tmall, and Gome on Dangdang).

Moving away from the marketplace model and launching an independent operation can be very challenging, even for successful businesses that have achieved impressive growth. Several companies tried to build independent storefronts but ended up going back to the marketplaces. For instance, one of the top online children's clothing brands on Tmall, with more than RMB 200 million in annual sales, decided to build its own B2C website in 2011. However, the independent operation wound up being costly, which turned the company's overall profitability negative. The company finally decided to focus its operations within marketplaces such as Tmall and 360buy. It now maintains the independent website running only at a minimum cost, without further investment or marketing.

Many independent e-merchants resort to competing on price as they strive to gain a foothold outside the marketplaces. As mentioned earlier, the average independent e-merchant is still losing money, with a negative 5 percent operating margin. To attract consumers, e-merchants can either offer differentiated products or sell at attractive prices (especially when they focus on standard products) when operating on the marketplaces. However, if they go independent and take more aspects of operations into their own hands, it is critical to leverage the additional degrees of freedom, which come at a real cost. They will need to think beyond price and even product differentiation to find a unique value proposition—be it superior customer service, fast and reliable delivery, targeted marketing to increase conversion, streamlined shopping experience, customized offerings, easy returns, or something else.

In order to define, build, strengthen, and leverage a unique value proposition, e-merchants need to first identify their target customers and know what these customers value most. They also need to understand their own strengths and weaknesses relative to their competitors in the eyes of consumers. Investment should be clearly directed to support the realization of this underlying value proposition. Merchants then need to consider how to price their offerings.

All of these steps require heavy analytical skills that leverage big data—not as a one-off event for their initial launch, but as a regular process to continuously enhance value creation (through a unique value proposition to consumers) and value capture (through pricing). In China, many players, including Alibaba and Tencent, have started to realize the importance of big data.

Heavy investment may be needed to boost productivity and enable the delivery of certain aspects of the value proposition—for example, automated sorting and packaging to ensure reliable delivery, or a modular product design and flexible manufacturing line to facilitate mass customization. As discussed earlier, Amazon continuously invested in its capabilities and spent 5.5 percent of sales on R&D between 2006 and 2011 (dwarfing even Apple's 3 percent R&D budget). The results included a range of technologies for search, recommendations, automated customer service systems, dynamic pricing algorithms, and a sophisticated supply-chain system to optimize routing. These types of investment will be the building blocks of enhanced productivity.

The US experience shows that heavy investment is necessary while players are still vying for a solid market position. Only those that spend wisely during this stage have a good chance of enjoying profitable growth in the long term.

### **Service providers: Seize the moment**

For service providers, holistic supply-chain and information management will be major growth areas. The field is open and competitive for marketing services, IT, warehousing, and integrated service providers to enter. By contrast, clear winners are already emerging in online advertising, payment services, and express delivery (although many companies are still operating in a relatively labor-intensive way).

Service providers in all of these fields should quickly build up their capabilities to secure market leadership while the current soaring growth lasts. Competition is likely to intensify as the market matures.

As more and more e-merchants try to differentiate themselves, especially by setting up their own online stores, they will increasingly need the help of service providers to improve their offerings and operations. The market is already growing rapidly, and it might accelerate even further in the next few years: service providers are estimated to grow at 77 percent per year in China from 2011 to 2015.<sup>34</sup> In the longer term, this growth will converge with the overall e-tailing market.

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34 Alibaba Group Research Center.

Today, there is a huge range in the profitability of service providers. Some top players are achieving 30 percent EBITDA (outperforming their US counterparts), while the average company in the IT services segment may be in the EBITDA range of -5 to 5 percent. As the market stabilizes, there will be fewer leaders left, and their profitability levels should converge. In the next few years, it will be critical for companies in this space to act quickly to build capabilities and seize a leading position with sustainable profitability—and to do so before the market consolidates.

### **Marketplaces: Sustain productivity and prepare for the looming talent shortage**

Marketplaces must sustain productivity and secure the talent needed to continue providing aggregated traffic and online infrastructure at a reasonable cost. With the rise of independent e-merchants, the marketplaces might see slightly slower growth, increasing the challenge.

Vast numbers of e-merchants do not have enough scale to justify having independent online stores, and they will always need marketplaces to provide access to customers and basic infrastructure such as payment, customer service, and store set-up. The marketplace model will continue to be large and relevant as the overall industry grows rapidly over the next decade. But the share of e-tailing conducted within marketplaces might start to decline in the near future, as the most successful e-merchants branch out with their own independent online stores. Brick-and-mortar retail, too, is bound to improve in infrastructure and productivity in the even longer term, increasing the competitive pressures on marketplaces.

To ensure their competitiveness against independent e-merchants in the near future and against the brick-and-mortar retailers in the long term, marketplace providers need to sustain their productivity. Quality and safety assurance, as well as fraud detection and prevention, are already significant administrative challenges—not surprising, since the business model involves a universe of sellers that numbers in the millions. Addressing these problems will require a strong platform to centralize back-end administrative tasks and a commitment to making the ongoing investment necessary to keep pace with technology.

As discussed earlier, marketplace providers are the only players in China's e-tailing ecosystem that have attained a productivity level on par with their US counterparts. The similar productivity level, coupled with much lower salaries, means that the employee compensation and benefits stands at 6–10 percent of revenue in China vs. 30–35 percent of revenue among comparable US companies. But salary levels will increase in China, reflecting the growing shortage of high-skilled labor. The marketplace providers will have to consider talent acquisition and retention strategies. They will need to mitigate labor cost increases to ensure that basic infrastructure can be offered in a cost-effective way, even if their growth slows slightly (although they will still enjoy very rapid growth by global standards, at double-digit levels).

To mitigate this talent shortage, the online ecosystem could expand the labor force, finding roles for those who would otherwise not participate in the job market without e-tailing. Many e-tailing players are already pursuing the following strategies:

- Structure jobs that can be done from home and/or during flexible hours. This taps into the pool of aging workers or those such as mothers who might choose to stay in the labor market if lower-intensity jobs were available, as well as mobility-impaired workers who can perform more easily from home. E-tailing is uniquely suited to offer this type of flexibility: Meng Hong-Wei, an e-tailing entrepreneur with disabilities, set up a business with his brother to sell cattle online. They sold 500–600 sheep and cows online every day in 2011, creating job opportunities for more than 200 farming households and more than 1,000 people locally.
- Leverage part-time workers. In 2011, 54 percent of marketplace-based e-merchant owners operated their online stores as part-time jobs. Many small merchants with fewer than five employees use family members on a part-time basis as well. It is also quite common for scaled e-merchants to employ part-time workers to work remotely as online customer service assistants.
- Recruit overseas to attract talent from outside China. For instance, Alibaba has been conducting recruiting campaigns in its US office since 2009, targeting top Chinese IT engineers in Silicon Valley.

### **RETAILERS AND MANUFACTURERS COMPETING IN CHINA MIGHT NEED TO EMBRACE A MULTICHANNEL STRATEGY**

Retailers operating in China should explore an online-offline hybrid format, especially for expansion into lower-tier cities. This strategy will meet the challenges of dispersed demand and consumers' demonstrated hunger for merchandising variety. As the retail industry is still maturing in China, brick-and-mortar retailers have a fair chance to succeed even if the industry leapfrogs directly from the regional to the multichannel stage. Brick-and-mortar retailers simply need to embrace e-tailing as an additional channel—especially in remote geographies—instead of deprioritizing e-tailing until they have achieved an absolute leading position in the offline world.

Given that marketplaces still account for a majority of China's e-tail market, retailers and manufacturers could focus on creating a presence on these platforms when starting their online businesses in China. The marketplace ecosystem provides the business infrastructure required to sell through e-tailing in China at a reasonable cost. This could be a low-risk strategy for companies making their initial entry into China; e-tailing on marketplace sites can be a low-cost way to test the temperature. For instance, Uniqlo used a combination of marketplaces and service providers when starting its online business in China back in 2009.

Interestingly enough, very few brick-and-mortar names are getting into e-tailing in China, as discussed in Chapter 3. This is most likely due to two differences. First, Chinese retail is still in the regional stage; it is much more fragmented than the US industry. Offline retailers find it hard to claim enough market share to justify the heavy up-front investment in online infrastructure that is needed to gain a foothold. In contrast, their counterparts in developed economies already

have enough market share across the entire country to amortize the up-front investment. Second, offline retail is still experiencing double-digit growth in China, so the imperative to grow beyond the core business is less urgent than in developed economies.

That being said, brick-and-mortar retailers will feel increasing pressure from e-tailing over time, especially in product categories where e-tailing penetration is highest (apparel, household goods, and recreation and education products). Especially in these product categories, the retail industry could leapfrog directly to the multichannel stage. The market is consolidating quickly, and the leading retailers that act decisively will mitigate the potential competitive impact and place themselves in a solid position to fully capture the benefits of adding an online channel.

The e-tailing landscape is increasingly complex and highly dynamic. To make a successful entry, brick-and-mortar retailers will need to make strategic decisions. For instance, retailers need to define their online channel clearly from the start: will it be primarily a growth engine, an insight generator, or a brand-building device? What will be its distinctive value proposition? Offline retailers will also need to cultivate new assets and skills, including:

- Web shop design and usability: A user-friendly website with a “look, touch, and feel” that is in line with their overall brand perception.
- Assortment strategy: A dedicated online assortment and product presentation based on an assessment of “online fit.”
- Pricing strategy: Alignment across channels, with effective ways to reduce or evade the price battle online.
- Service: Selection of key service dimensions (e.g., delivery/return terms, payment options, and customer support) and level of service, which will have a huge impact on profitability.
- Marketing/traffic generation: Ways for consumers to easily find the e-tailer, and for the e-tailer to actively reach out to find customers (with search engine marketing as the key traffic driver).
- Fulfillment and supply-chain model: Fast and efficient fulfillment, home delivery, and handling of returned goods.

For manufacturers competing in China, unlocking the potential of the broad market through e-tailing becomes a pressing task. Like retailers, they face an imperative to quickly develop marketing plans and marshal their resources to tap into the e-tailing channel. There are at least two complexities to work through:

- The digital trade is taking share from traditional wholesalers, creating issues for pricing and product flow control.
- Refragmentation may occur in a few categories with less homogenous needs or higher margins, opening up space for new competitors. This has already happened in apparel and is beginning to surface in personal care, small appliances, and food. In response, manufacturers might strive to address long-tail demand (although this adds to supply-chain costs and requires a rethink of manufacturing strategy).

## CHINA'S POLICY MAKERS CAN FACILITATE GROWTH THROUGH INFRASTRUCTURE INVESTMENT AND SUPPORT FOR A PRODUCTIVITY PUSH

The Chinese government has allowed e-commerce to develop without much intervention to date. Going forward, the government can facilitate the growth of e-tailing—and encourage its attendant effects on overall consumption—by focusing on three main areas.

First, the government could provide incentives to expand broadband and 3G+ infrastructure, especially in rural areas. Based on an analysis of e-tailing development in 17 countries, we found that these two technology enablers are among the most important drivers of e-tailing growth, but they are lacking in remote areas. Consumers have already shown clear enthusiasm: In 2011, mobile e-commerce accounted for 2 percent of e-tailing in China with only 10 percent smartphone penetration, while in the United States, mobile e-commerce accounted for just 3–5 percent of e-tailing on the back of 42 percent smartphone penetration. If Chinese consumers gain broadband and 3G+ access, they can be converted into online shoppers.

Second, steps can be taken to accelerate investment in logistics infrastructure, especially in automation equipment, modern warehouse capacity, and air cargo capacity. The private sector will have to undertake much of this, but the central government can provide encouragement and government at all levels can find specific mechanisms to help, including tax incentives, subsidies, and land release. As mentioned earlier, the leading express delivery companies are automating their sorting centers in the face of rising labor costs. However, one constraining factor is the availability of modern warehouses: the total stock of modern logistics facilities in China is just 5.8 million square meters, a disproportionately low figure for a nation of 1.3 billion people.<sup>35</sup> In addition, deliveries outside Tier 2 cities generally take longer than two days, due to the lack of air cargo capacity. Beyond Tier 1 and Tier 2 cities, slower delivery might reduce consumers' willingness to purchase discretionary items.

Finally, the skills shortage could impede the further growth of the e-tailing industry in China. As discussed above, some companies have started to tap into the part-time and mobility-impaired workforce to ease the problem, and officials can consider a range of employment policies to facilitate this type of labor pool expansion, as well as employee skill development. For instance, the central government provides tax incentives and specifies a required percentage of mobility-impaired workers, while the provincial governments sometimes have additional policies. Local governments that wish to prioritize this agenda can consider the subsidy models of Beijing and Shenzhen.

The government can also provide incentives for investment in relevant technologies or facilitate university-industry partnerships in technology development.

The e-tailing industry has grown to significant size while being relatively deregulated compared with other industries in China. The free competition within this ecosystem could continue to work its magic if the government focuses on the few critical levers in the near future.

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<sup>35</sup> "China's logistics: rising demand but a shortage of supply," CB Richard Ellis, March 2011.

## **LEADING E-TAILING PLAYERS FROM OTHER COUNTRIES HAVE LARGE OPPORTUNITIES IN THE CHINESE MARKET—WITH THE RIGHT COLLABORATION MODEL**

Few foreign companies have successfully entered China's e-tailing market. Among the top ten independent B2C e-merchants in 2011, Amazon, Yihaodian/Walmart, and Newegg (ranked as numbers 2, 6, and 9, respectively) were the only foreign players, with e-tailing market share of 0.8, 0.4, and 0.2 percent, respectively. Amazon, for instance, has not achieved the kind of market share in China that it enjoys in the United States and other countries.

Many foreign e-merchants have been hampered in the past by an uncompetitive cost/revenue structure, or they have failed to tailor their offerings to local needs and tastes. For instance, after losing market share to Taobao in the early days, eBay escalated its investment through stakes in EachNet. However, it then sold 51 percent of EachNet shares to TOM.com in 2006 and ended the partnership in 2012. Now EachNet has become a marginal marketplace in China, with sales of about \$600 million (RMB 3.6 billion) in 2011, which declined by 62 percent from 2010.

Foreign e-merchants attempting to enter the Chinese market on a large scale should gird for initial losses. It is true that some of the local competitors lack unique value propositions—but they do not shy away from fierce price competition. The market dynamics will be challenging on this front until the local e-merchants learn to compete on something other than price. The opportunity is huge, but the start-up hurdles are daunting.

Foreign service providers have a natural opening in the Chinese market, since their business model is helping e-merchants scale up operations and capture market share. They are uniquely positioned to help China's industry achieve its productivity transformation. Foreign service providers can either enter alone, with sufficient investment to serve Chinese e-merchants from a local operation, or partner with local service providers to deploy their existing staff and investment.

Finally, the marketplace is the segment with clearest network effect, and well-established names are already in this space. Instead of attempting to enter China and compete with these giants, foreign marketplace operators could pursue alternatives. Some of them have stand-alone service provider businesses that can pursue the opportunities discussed above. They can also form partnerships with Chinese marketplace operators to enter other emerging economies, where they might be able to stake out a much larger share of e-tailing than in their home countries.

Some of these potential entry routes involve partnership models. But foreign companies will need to structure the collaborative model to ensure they capture and preserve value as long as possible; their expertise and capabilities will not command the same value over time as the local ecosystem becomes more sophisticated and grows in capacity. Foreign firms also need to be prepared for the additional investment required to adapt their online infrastructure to the local context. This includes tailoring the shopping experience design, logistics, and returns/customer service to meet local expectations.

## CONSUMER GOODS COMPANIES AND TRADITIONAL RETAILERS ENTERING OTHER EMERGING ECONOMIES

Other emerging economies might aspire to emulate China's e-tailing model and achieve a similar growth rate. Retailers and manufacturers should not ignore the potentially important role of e-tailing as a tool to gain a foothold in these new consumer markets. But Chinese SMEs and microbusinesses also see the opportunity to sell directly through marketplaces in those emerging economies, so international firms will face competition in these countries.

## LESSONS FOR POLICY MAKERS IN OTHER EMERGING ECONOMIES

Other emerging economies can learn from China's experiences in growing e-tailing to support growth in productivity and consumption as well as the development of more efficient distribution networks.

Because these countries, like China, typically have inadequate physical retail offerings, the marketplace-based model may take root. However, because they are not operating on China's huge scale, they need to find a way to overcome the initial investment hurdles. These can potentially be addressed through partnerships with associated industries, or even partnerships with overseas marketplace leaders to leverage their experiences.

For emerging economies, two types of basic infrastructure should be priorities:

- Backbone technology infrastructure: Again, broadband and 3G+ coverage are likely to be the most important drivers for e-tailing market growth.
- E-tailing infrastructure (e.g., payment systems and logistics coverage): Since no other market offers the scale of China's opportunity, other countries might have to apply an extra push to get the necessary investment in place. Governments can help by deregulating where necessary and especially by encouraging investment in fundamental systems.

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China is poised to become the world's largest online market—and that remarkable rise has occurred with only limited broadband penetration. If universal broadband and wider 3G+ penetration can be put in place, the growth potential for this market is unprecedented. As incomes continue to rise, the industry could have even more profound effects on the Chinese economy as it continues to unleash pent-up consumer demand and mobilize millions of new shoppers.



# Appendix: Technical notes

1. List of 266 cities
2. Product categories
3. Approach to incremental consumption analysis
4. Online spending per capita forecast model
5. Assumptions for capital productivity calculation
6. Additional data on consumption patterns in the 266-city sample

## **1. LIST OF 266 CITIES**

To compare online and offline economic activities, we picked the 266 cities covered by McKinsey's Insights China database, which captures GDP, disposable income, total consumption, age distribution, and population over time by city in China. The data of 266 cities are used in the incremental consumption analysis discussed in Chapter 2.

There are four Tier 1 cities, 43 Tier 2 cities, 135 Tier 3 cities, and 84 Tier 4 cities, as shown in Exhibit A1.

## **2. PRODUCT CATEGORIES**

We defined seven product categories to compare online and offline consumption patterns and price movements, based on the categorization in the urban household consumption survey by China's National Bureau of Statistics.

Exhibit A2 lists what is included in each product category, as well as the select examples under the subcategories.

**Exhibit A1****List of 266 cities by tier**

Tier 1 (4)					
Beijing	Anshan	Dongguan	Kunming	SuzhouJS	Xian
Guangzhou	Baotou	Dongying	Nanchang	Taiyuan	Xuzhou
Shanghai	Changchun	Foshan	Nanjing	Tangshan	Yantai
Shenzhen	Changsha	FuzhouFJ	Nanning	Tianjin	Zhengzhou
	Changzhou	Haerbin	Nantong	Wenzhou	Zhongshan
	Chengdu	Hangzhou	Ningbo	Wuhan	Zhuhai
	Chongqing	Hefei	Qingdao	Wulumuqi	Zibo
	Dalian	Huhehaote	Shenyang	Wuxi	
	Daqing	Jinan	Shijiazhuang	Xiamen	
Tier 2 (43)					
Tier 3 (135)					
Anqing	FuyangAH	Jingzhou	Nanchong	Songyuan	Yangquan
Anyang	Fuzhou	Jinhua	Nanyang	Suqian	Yangzhou
Baishan	Ganzhou	JiningSD	Neijiang	SuzhouAH	Yichang
Baoding	Guigang	JinzhouLN	Panjin	Taian	Yinchuan
Baoji	Guilin	Jiujiang	Panzhuhua	Taixing	Yingkou
Beihai	Guiyang	Kaifeng	Pingdingshan	TaizhouJS	Yixing
Bengbu	Haikou	Kelamayi	PingxiangJX	TaizhouZJ	Yueyang
Benxi	Haining	Laiwu	Putian	Tonghua	YulinSX
Binzhou	Handan	Langfang	Puyang	Tongliao	Yuxi
Cangzhou	Heze	Lanzhou	Qinhuangdao	Tongling	Zaozhuang
Changde	Huaiain	Leshan	Qinzhou	Wafangdian	Zhangjiakou
Changshu	Huaibei	Lianyungang	Qiqihaer	Weifang	Zhangzhou
Changzhi	Huainan	Liaoyang	Qitaihe	Weihai	Zhanjiang
Chengde	Huangshi	Liaoyuan	Quanzhou	Wendeng	Zhaoqing
Chengzhou	Huizhou	Linyi	Quzhou	Wuhai	Zhenjiang
Chifeng	Huludao	Liuzhou	Rizhao	Wuhu	Zhoushan
Dandong	Huzhou	Longyan	Sanming	Xiangfan	Zhucheng
Datong	Jiamusi	Luohe	Shantou	Xianyang	ZhuzhouHUN
Dezhou	Jiaozuo	Luoyang	Shaoguan	Xingtai	Zigong
Dongsheng	Jiaxing	Luzhou	Shaoxing	Xining	Zunyi
Fangchenggang	Jilin	Maanshan	Shiyan	Xinxiang	
Fushun	Jingdezhen	Mianyang	Shizuishan	Xinyu	
Fuxin	Jingmen	Mudanjiang	Shuozhou	Yancheng	
Tier 4 (84)					
Ankang	Guangyuan	Jinchang	Manzhouli	Shuangliao	Wuzhou
Anshun	Hanzhong	Jincheng	Meizhou	Shuangyashan	Xianning
Baise	Hegang	JiningIM	Nangong	Siping	Xingyi
Baoshan	Hengshui	Jinzhong	Nanping	Tianmen	Xinji
Bijie	Hetian	Jixi	Nehe	Tianshui	Xuancheng
Bozhou	Hezhou	Kaili	Ningan	Tieling	Xuchang
ChaoyangLN	Honghu	Leiyang	Ningde	Tongcheng	Yanan
Chuzhou	Huaihua	Linfen	Pizhou	Tongchuan	Yanji
Dafeng	Huangshan	Linhai	Puning	Tongren	YichunHLJ
Emeishan	Huixian	Linhe	Qingzhou	Weinan	YichunJX
Fengzheng	Jiangshan	Lishui	Ruichang	Wenchang	Yining
Fenyang	Jianou	Liupanshui	Shangrao	Wuan	Yuncheng
Fuding	Jiaohe	Longhai	Shangzhi	Wuwei	Zhumadian
Gejiu	Jiayuguan	Macheng	Shaoyang	Wuzhong	Zunhua

SOURCE: McKinsey Insights China database

## Exhibit A2 Product category definitions

Category	Subcategory	Product example
<b>Food</b>	1. Cereal	Rice, flour
	2. Starch and derived products	
	3. Dried beans and bean products	
	4. Cooking oil	
	5. Poultry, meat and byproducts	Pork, chicken, processed meat products
	6. Eggs	
	7. Seafood	Fish, shrimp
	8. Vegetables	Fresh vegetables, dried vegetables, and vegetable products
	9. Seasoning	Table salt, soy sauce
	10. Sugar	Sugar, candy, chocolate
	11. Tea and beverage	
	12. Dried and fresh fruit	
	13. Pastry and biscuits	Pastry, bread, biscuits
	14. Liquid milk and dairy products	Pasteurized or sterilized milk, yogurt, milk powder
	15. Restaurant	
	16. Other kinds of food	
	17. Tobacco	
	18. Alcohol	
	19. Smoking and drinking supplies	
<b>Apparel</b>	1. Clothing	Men's wear, women's wear, children's wear
	2. Clothing material	Cotton cloth, synthetic fabric, woolen yarn
	3. Shoes, socks and hats	
	4. Clothing processing service fee	Sewing, cleaning
<b>Household products and service</b>	1. Consumer durables	Furniture: bed, table, sofa; Home appliance: refrigerator, air conditioner, microwave
	2. Interior decorations	Curtain
	3. Bedding	Quilt
	4. Household daily use goods	Tea set, tableware, kitchen set, cleaning products
	5. Family service and processing repair services	
<b>Health care and personal products</b>	1. Medical equipment and supplies	
	2. Chinese herbal medicines and Chinese patent medicine	
	3. Western medicines	Antibiotics (anti-infective), vitamins, digestive system agents
	4. Health care equipment and supplies	
	5. Health care services	Registration and doctor fee
	6. Cosmetics and beauty supplies	Skin care, make-up products
	7. Toiletries	Shampoo, body wash
	8. Personal accessories	Jewelry, watches
	9. Personal services	Beauty care, haircut, spa
<b>Transportation and communication</b>	1. Vehicle	Car, motor, bicycle
	2. Automobile fuel and spare parts	Gasoline, spare parts
	3. Car use and repair costs	Insurance, parking, repairs
	4. Urban public transportation fees	Bus ticket, taxi
	5. Intercity transportation fares	Air ticket, train ticket
	6. Communication tools	Phone, mobile phone
	7. Communication services	Mobil communication fees, Internet fee
<b>Recreation and education products and services</b>	1. Durable consumer goods and service for entertainment use	TV set, camera, computer
	2. Education	Books, educational software, education services
	3. Culture and entertainment	Musical instrument, CD, toys, books, newspapers, movie tickets, cable television fee
<b>Housing</b>	1. Construction and decoration materials	Brick, cement, glass, bathroom fixtures
	2. Rental fee	
	3. Owner-occupied housing	Property management fee, maintenance and repair costs
	4. Water, electricity and fuel	

SOURCE: McKinsey Global Institute analysis

### 3. APPROACH TO INCREMENTAL CONSUMPTION ANALYSIS

We conducted a regression analysis on offline spending, with two independent variables: online spending and disposable income. All variables are on a per household basis. A sample of 266 cities was selected given the availability of data. These cities represent more than 50 percent of GDP and 70–80 percent of online spending in China. The online spending data are from a major multi-category e-tailing marketplace, and they are combined with data from McKinsey's proprietary Insights China database. However, it is important to caution that the data do not cover the full market, and hence the results are an approximation, although they do capture the fundamental trends at work.

We used 2010 and 2011 data, the latest available. We ran three variations of the regression: 2011 data (Formula1), 2010 data (Formula2), and 2010 plus 2011 data (Formula3). Both Formula1 and Formula3 yield reasonable results. The coefficient for both online spending and disposable income are also the same in Formula1 and Formula3. The coefficient of online spending per household (X1) is -0.61. That is, every dollar of online spending reduces 0.61 dollars of offline spending, leading to a net increase of 0.39 dollars of total consumption. The coefficient of disposable income per household is 0.54, which is in line with the 40 percent household savings rate and the positive intercept.<sup>36</sup>

On the basis of Formula3 (2010 plus 2011 data), we ran an additional regression by city tiers. The coefficient of online spending (X1) is -0.43 for Tier 3 and Tier 4 cities.

Given the potential endogeneity of online spending, we also used the two-step least squares (2SLS) method to check the results of Formula1. The 2SLS method also shows that online spending has a positive contribution to total consumption. We first estimated online spending per household with various combinations of instrumental variables, including disposable income per household, percent of population with tertiary education, percent of population ages 20–29, and Internet penetration. The estimated values of online spending then were used in the regression of Formula1 to check the original results with actual values of online spending. The 2SLS was used on Formula1 instead of Formula3, and the sample of 266 cities was reduced to 221 cities due to a lack of full data on the percent of the population with tertiary education and Internet access.

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<sup>36</sup> 2009 figure for household savings rate.

#### 4. ONLINE SPENDING PER CAPITA FORECAST MODEL

The model was developed to forecast China's online spending in 2020.

To begin, we created categories for drivers and regions as depicted in Exhibit A3.

##### Exhibit A3 Creating a list of drivers and regions

We identified 4 categories of potential drivers ...	... and included 22 regions covered in relevant MGI reports <sup>1</sup> in the past
<b>Demand readiness</b> <ul style="list-style-type: none"> <li>▪ Disposable income</li> <li>▪ Age distribution</li> <li>▪ Education level</li> </ul>	<ul style="list-style-type: none"> <li>▪ China</li> <li>▪ India</li> <li>▪ Japan</li> <li>▪ Malaysia</li> <li>▪ South Korea</li> <li>▪ Taiwan</li> <li>▪ Vietnam</li> <li>▪ Hungary</li> <li>▪ Russia</li> <li>▪ Argentina</li> <li>▪ Brazil</li> </ul>
<b>Supply readiness</b> <ul style="list-style-type: none"> <li>▪ VC/PE investment in online retail</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mexico</li> <li>▪ Morocco</li> <li>▪ Nigeria</li> <li>▪ United States</li> <li>▪ France</li> <li>▪ Germany</li> <li>▪ Italy</li> <li>▪ Canada</li> <li>▪ Sweden</li> <li>▪ Turkey</li> <li>▪ United Kingdom</li> </ul>
<b>Tech enablers</b> <ul style="list-style-type: none"> <li>▪ Internet penetration</li> <li>▪ Broadband penetration</li> <li>▪ PC penetration</li> <li>▪ Smartphone penetration</li> <li>▪ 3G+ penetration</li> </ul>	
<b>Non-tech enablers</b> <ul style="list-style-type: none"> <li>▪ Credit + debit card transaction value</li> <li>▪ Investment in logistics</li> <li>▪ Offline retail space</li> </ul>	

<sup>1</sup> *Internet matters: The Net's sweeping impact on growth, jobs, and prosperity*, McKinsey Global Institute, May 2011; *Online and upcoming: The Internet's impact on aspiring countries*, McKinsey & Company High Tech Practice, January 2012.

SOURCE: McKinsey Global Institute analysis

Eight of the 12 drivers were excluded after the following three screens. The four drivers that made it to the final list were broadband penetration, 3G+ penetration, disposable income per capita, and bank card transaction amount per capita.

- **Data availability:** The data on venture capital and private equity investment in online retail are sporadic, and the average period between investment and e-tailing development might not be consistent over time.
- **Statistical significance:** Age demographics, education, investment in logistics, and offline retail space show no clear correlation with online spending per capita through R square or scatter plot.
- **Driver interdependency:** Broadband penetration is highly correlated to PC penetration and Internet penetration and is chosen as it is a higher bar than the other two drivers, and thus better differentiates the level of technological sophistication among regions. Similarly, 3G+ penetration is highly correlated to smartphone penetration.

Five of the 22 regions were eliminated after three screens, while 17 regions (Argentina, Brazil, Canada, China, France, Germany, Hungary, Italy, Japan, Malaysia, Mexico, Russia, South Korea, Taiwan, Turkey, the United Kingdom, and the United States) are included in the final list.

- Data availability of dependent variable: Online spending per capita data are not available for Morocco and Vietnam.
- Data availability of independent variable: Broadband penetration data are not available for Sweden and Nigeria.
- Credibility of data: The data on India are potentially problematic due to high errors/residuals vs. other regions.

The data for the five dependent/independent drivers and 17 regions are available for 2003–11. All dollar figures are converted to 2005 values to remove the effect of inflation. The 153 sets of figures, each for a specific region/year combination, are used in a regression to identify the relationship between online spending per capita and the four independent variables. To make sure we have linearly uncorrelated variables in our model, a statistical technique called the Principal Component Analysis was used. This converts a set of observations of potentially correlated variables into a set of values of linearly uncorrelated variables called principal components. We also used dummy variables to control for the region effects since we built a global equation, which might over- or underestimate the online spending per capita for specific regions.

Looking into data for 17 markets, we find that the most important drivers for e-tailing market growth are 3G+ penetration, broadband penetration, bank card transactions per capita, and disposable income per capita.

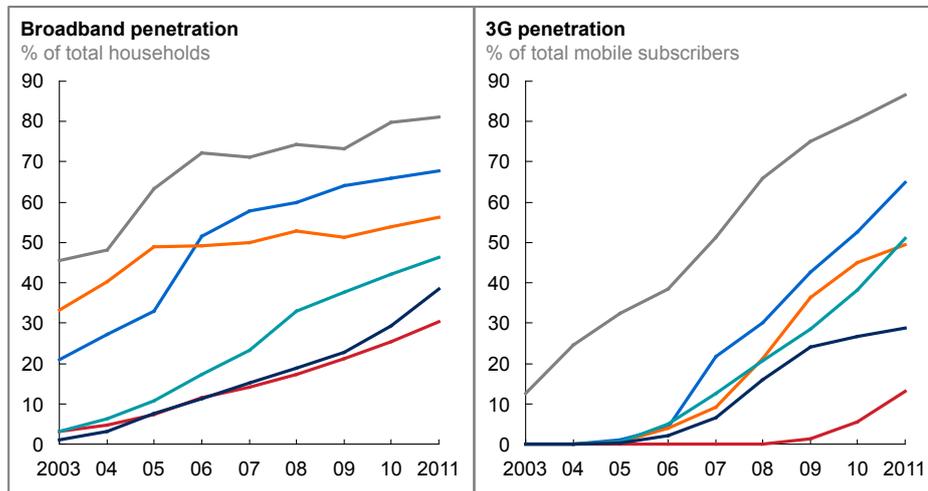
To forecast online spending per capita in 2015 and 2020, we predict the value of the four independent drivers by the following approach:

- Disposable income per capita: From McKinsey's Insights China Macroeconomics Model (April 2012 version)
- Broadband penetration and 3G+ penetration: We constructed high, base, and low cases based on the 2011 data from the following markets (Exhibit A4):
  - South Korea, the United States, and Taiwan for 2020 forecast
  - Taiwan, Hungary, and Malaysia for 2015 forecast
- Bank card transaction amount per capita: Based on its correlation with disposable income since 2003, and the disposable income forecast from McKinsey's Insights China Macroeconomics Model (April 2012 version)

Regardless of the scenarios, 85–90 percent of the forecasted growth by 2020 will be driven by enhanced 3G+ and broadband penetration.

**Exhibit A4**

**Forecasting China's e-tailing market size using benchmarks from other countries for technical enabler inputs**



SOURCE: McKinsey Global Institute analysis

**5. ASSUMPTIONS FOR CAPITAL PRODUCTIVITY CALCULATION**

To understand the productivity of employed capital, we looked into the balance sheets of select brick-and-mortar retailers. We also researched the rented properties (office buildings, stores, and warehouses) to ensure that all major investments are included, regardless of whether they are on or off balance sheet. We looked into Suning, Gome, Wangfujin, and Lianhua, but included only Suning and Gome as examples in our estimate due to the availability of data on rented properties. The first two columns of Exhibit A5 show employed capital as a percentage of revenue for each of the investment items for Suning and Gome.

Next, we assessed whether each of the investment types are required to operate in the online channel. For instance, physical stores are not required at all online. Offices, other long-term assets, and net current assets might be slightly reduced for e-tailers, but, to be conservative, we assumed 100 percent of it is required. Warehouse and machinery/equipment are mainly driven by the number of logistics layers, and we assumed that 30 percent of it is not needed online due to the improved supply-chain efficiency.

At the same time, the IT investment should be increased for the online channel. We assumed the e-merchants' average IT investment as a percentage of revenue. The last two columns of Exhibit A5 summarize our assumptions and the underlying rationale.

Finally, we added back the investments by marketplace operators and service providers (excluding express, as the brick-and-mortar retailers will also use third-party logistics providers) to estimate the capital required for e-tailing. Exhibit A6 shows the results.

### Exhibit A5

#### Assumptions for capital productivity calculation

Asset type	Asset <sup>1</sup> % of revenue		Online employed capital % of offline	Rationale
	Suning	Gome		
Store	239.6	116.3	0	No real store needed for online business
Office	1.1	1.8	100	Similar for online and offline business
Warehouse	0.5	0.4	70	Online business needs fewer layers of logistics
Machinery and equipment	0.7	1.6	70	Online business needs fewer layers of logistics
IT equipment	0.5	0.5	n/a	Calculated according to online merchant investment level
Other long-term assets	9.6	15.5	100	Similar for online and offline business
Net current assets	8.3	4.8	100	Similar for online and offline business

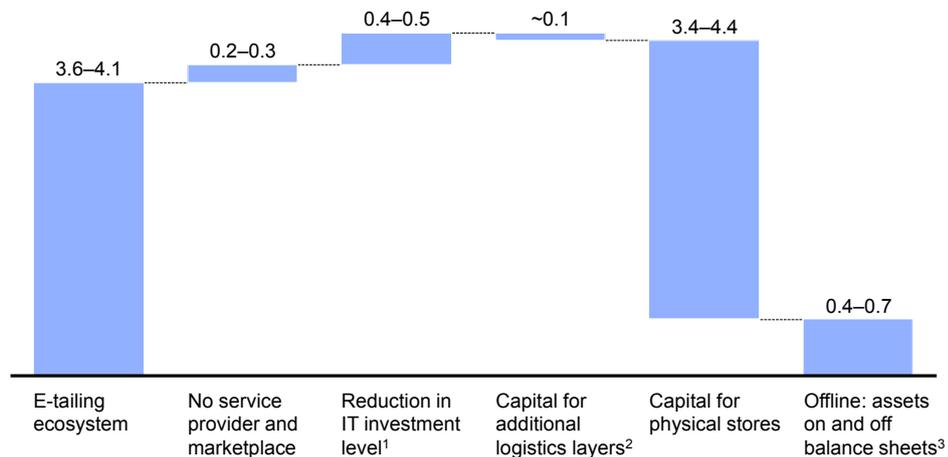
1 Based on 2011 numbers; including rented stores and office buildings.  
SOURCE: Annual reports; McKinsey Global Institute analysis

### Exhibit A6

#### Employed capital could be five to ten times higher if e-tailing sales were realized through brick-and-mortar retailers

##### Capital productivity of online vs. offline ecosystem, 2011

Revenue/total employed capital



1 Calculated from e-merchants' 2011 IT investment level.

2 Assuming that e-tailing needs only 70% of logistics cost of offline retailer thanks to fewer logistics layers.

3 Using Suning and Gome as examples; including rented stores and office buildings.

SOURCE: Company annual reports; expert interviews; McKinsey Global Institute analysis

## 6. ADDITIONAL DATA ON CONSUMPTION PATTERNS IN THE 266-CITY SAMPLE

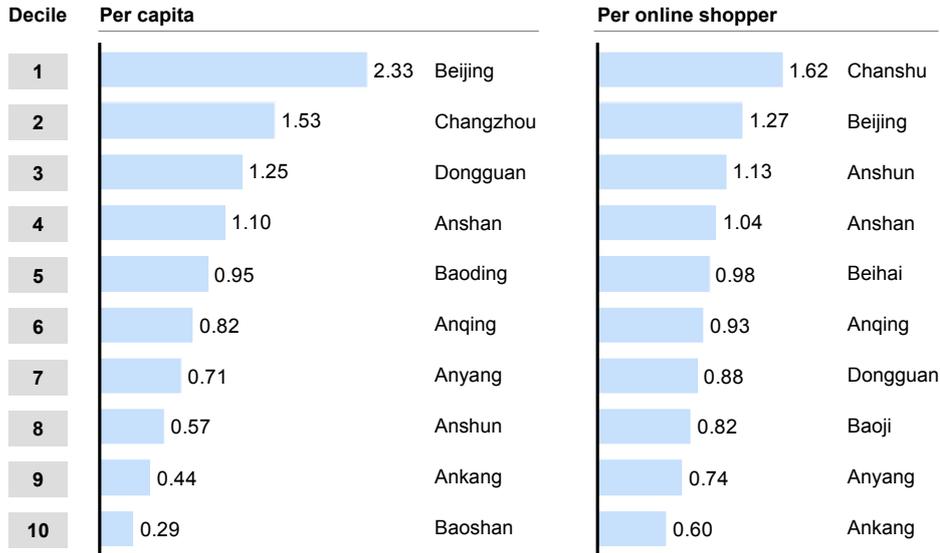
### Exhibit A7

#### Example cities by major e-tailing indicators

266 CITIES

#### E-tailing consumption

Multiple of average; example city



SOURCE: McKinsey Global Institute analysis

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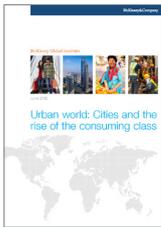
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