

Week in China



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Our guide to the Pearl River Delta



With a population the size of the UK, southern China's PRD region is a \$1 trillion economic powerhouse – and its importance is only growing

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Our guide to the Pearl River Delta



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PEARL RIVER DELTA

(by population)



Guangzhou

13.1 million



Zhaoqing

4 million



Foshan

7.4 million



Jiangmen

4.5 million



Zhongshan

3.2 million



Zhuhai

1.6 million



Macau

0.6 million



Dongguan

8.3 million



Huizhou

4.7 million



Shenzhen

10.8 million



Hong Kong

7.2 million



PRD: your need-to-know guide



How much do you know about the Pearl River Delta? For many of us the short answer is 'not enough', especially for a region that is now a crucial contributor to global growth.

In the latest of its special Focus Issues Week in China looks at how the Pearl River Delta (usually abbreviated as the PRD) has emerged as an economic powerhouse – contributing about a tenth of China's GDP. We review its key cities and companies, and we outline some of its challenges and opportunities in the years ahead.

So what exactly is the PRD?

It is a term used to describe a geographical zone on China's southern coast. In it 11 key cities are clustered around the delta of the Pearl River, or Zhu Jiang, which feeds from a series of smaller tributaries before spilling out into the South China Sea.

Nine of those cities sit within Guangdong province. These PRD cities are home to about half of Guangdong's 106 million population and produce an outsized 85% of its gross domestic product (cities in the far west and east of the province are not usually considered part of the PRD zone).

The remaining two cities are Hong Kong and Macau, which technically form part of the 'Greater Pearl River Delta' because unlike the other nine they are not part of mainland China. Instead they enjoy separate political status

8%

Guangdong's population is 106 million (8% of China); the Pearl River Delta is 57 million (54% of Guangdong)

Note: as measured by the Chinese authorities, the Delta's population is greater than the number identified by the World Bank's study last year. Add Hong Kong and Macau, and it rises further to 65 million



Three new special zones (Hengqin, Nansha and Qianhai) will help to further drive the Pearl River Delta's growth

as special administrative regions.

It is this 'Greater Pearl River Delta' that we discuss in this report, because of the historical importance of Macau and particularly Hong Kong to the area as a whole, as well as their increasing interconnections with the rest of the region. Their inclusion adds another eight million people to the PRD.

Both are looking to deepen their commercial and infrastructural links with their neighbours to the north, and their futures depend in large degree on how successfully they are able to do so.

The region is the economic mainstay of Guangdong province, which generated just over \$1 trillion in gross domestic product in 2013, or about a tenth of China's total economic output, according to HSBC.

That's a bigger economy than Indonesia and not far behind Mexico. Guangdong ranks higher than both on trade flows, generating about a quarter of China's exports. In fact, only Germany and the United States are larger trading economies.

Another reason to know the region better is that it is changing so quickly. Li Keqiang, the Chinese premier, has described how his country is urbanising at speeds unprecedented in human history. Cityscapes have sprouted in a few years rather than decades, and nowhere has jammed its foot harder on the accelerator than the PRD, which – if viewed collectively as a continuing conurbation – overtook Tokyo as the world's largest megacity last year, according to a study by the World Bank.

Led by the prefectures of Guangzhou (the capital city of Guangdong province), Shenzhen, Dongguan and Foshan, is a region comprising of 11 sprawling cities.

It remains among the fastest growing too. Last year the key cities of Guangzhou and Shenzhen grew their GDPs by 8.3% and 8.9% respectively. With the recent creation of three new special zones in Hengqin, Nansha and Qianhai (see page 41 for more on these) the PRD looks set to enter a dynamic new growth phase as it moves up the manufacturing value chain and takes advantage of the internationalisation of the Chinese currency, the renminbi. ■

Key stats: the PRD's contribution to China

4.2%
of its population

9.1%
of its GDP

26.2%
of its exports

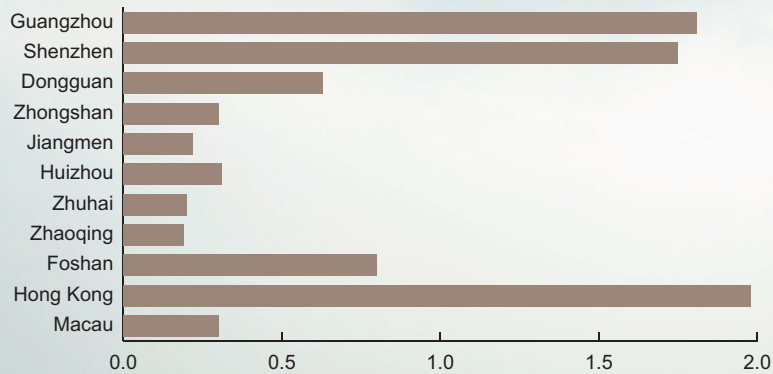
7.6%
of its retail sales

Source: Guangdong Statistical Yearbook 2015

2014 Greater PRD population (millions)

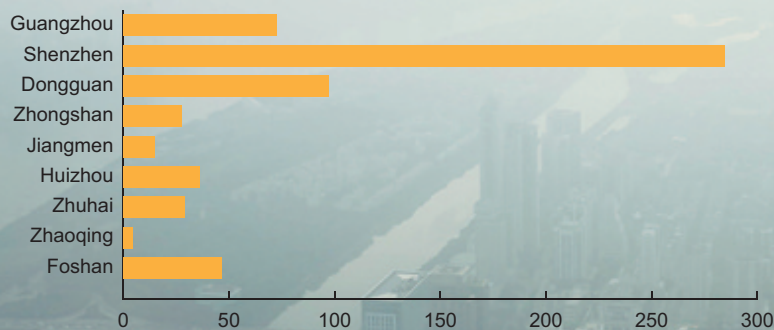


2015 Greater PRD GDP (Rmb trillion)



Note: Hong Kong and Macau GDP figures based on exchange rate in early March 2016

2014 PRD exports (billions of US dollars)



Why the Pearl River Delta matters



The Pearl River, stretching out beneath the Guangzhou Tower in Guangdong's provincial capital

China's better known cities, like Beijing, have hundreds of years of urban experience, and deep-rooted histories. The PRD's journey from rice field to economic powerhouse has been very different. Time-wise, the transition in the Pearl River Delta has been much more compressed, while geographically its urban area is more dispersed.

The end result is extraordinary, nonetheless. Many of the PRD's busiest districts were rural backwaters less than 50 years ago. Now, the region is home to 57 million people – which is to say it has almost the same population as the UK. As the World Bank reports, its urban area sprawls across a region more than twice as big as Shanghai, four times the size of Jakarta, and five times greater than Manila – all of which are regarded as huge cities in their own right. And there is little sign that the region's influence is fading – indeed, it's the opposite: the changes in the Pearl River Delta are harbingers of how China may change in the years ahead.

The PRD's trading history

For generations of foreign merchants wanting to do business with China, the only port of call was Guangzhou (known at the time by English-speakers as Canton). In the hundred years until the outbreak of the first of the Opium Wars in the mid-1800s, the city maintained a stranglehold over China's commerce with the outside world, with foreign merchants forced to live and trade from small islands like Shamian.

That exclusive position in the China trade diminished in the second half of the nineteenth century as other ports were opened to foreign business,

57 million

The PRD's population is almost the same size as that of the UK



Under Mao Zedong, Guangzhou regained its key role in trade, especially after the Canton Fair was launched in 1957

most notably Shanghai (as well as the likes of Xiamen and Qingdao).

In the years after Mao's rise to power, Guangzhou regained its historic role as the commercial contact point between China and the rest of the world, playing host to the China Import and Export Fair, or the Canton Fair as it is better known.

Launched in 1957, the Fair soon became a crucial source of foreign exchange earnings for the Chinese government and was important enough to be kept running through the tensest moments of the Cultural Revolution in the late 1960s. Visiting salesmen did their best to adjust to the fervour of the period, with Japanese executives incorporating "Long Live Chairman Mao" alongside their company brand names, and occasionally breaking into revolutionary song. Years later, state news agency Xinhua reported that a Japanese trade minister impressed his Chinese hosts with a rendition of Maoist verses remembered from his previous visits to the Fair.

Jürgen Kracht, who runs Fiducia, an advisory business for international firms with China operations, first went to the Fair in the 1970s, describing it as "the only window for foreign companies to do business". Back then it was held twice a year – for four weeks each time – but the exports on offer were pretty unimpressive, he recalls, including basic goods such as shirts and socks, simple wooden toys and firecrackers.

Until the 1980s the Fair was the only place where Chinese trade officials met foreign sellers to discuss the country's import needs. All of the negotiations between foreign firms and Chinese officialdom occurred there, brokering deals to import the likes of petrochemicals and machine tools.

"Based on 'end user' demands these guys put together a shopping list a few months before the Fair began," Kracht explains. "Then representatives from companies like ICI and BASF would come to China. They would each be given a table and the officials would move between them, looking for the best price for the items they wanted."

The people of the Pearl River



Hong Kong is home to one of China's most vibrant Cantonese-speaking communities

The Cantonese are said to be a mix of peoples who emigrated south and married with indigenous groups that originated from the Yue kingdom that once extended across much of southern China. Today the definition has narrowed to those born in Guangdong (additionally millions of overseas Chinese are ethnically Cantonese because of the long history of emigration from the province). The large numbers of Cantonese living outside China means that classics of their cuisine like sweet and sour pork, Cantonese fried rice, and beef with oyster sauce are more likely to be served up in restaurants around the globe than dishes from other regions of China.

However, the province's signature offering is its *dim sum* – bite-sized buns and dumplings, often served from small steamer baskets and washed down with cups of tea.

Guangdong's distance from the imperial capitals of the past has also bred its independent streak, which rears its head today in the debate over the future of its local tongue. Cantonese has been a culturally significant language for centuries, flourishing in the form of Cantonese opera, which dates back to the Song Dy-

nasty of the 13th century. More lately, the language has reasserted itself in the frenzied activity of Hong Kong's film industry, which trailed only Hollywood and Bollywood in movie output for much of the 1970s and 1980s. Later, Cantonese kept up its influence with the rise of Cantopop songs that ruled the roost across China for much of the 1990s.

Today the Cantonese feel a little threatened by the push to encourage more spoken Putonghua, the 'official' language (regarded as a unifying medium, and also referred to as Mandarin). Putonghua (literally: 'common speech') was enshrined as China's lingua franca in 1955 and is now spoken (not always very well) by about 70% of the population. Fans of Cantonese hit back that it's the mother tongue of at least 60 million people, and many resent the call for more Putonghua, seeing their own language as richer and more colloquial.

Hence some of the sensitivity in Hong Kong, where there was little interest in speaking Putonghua before the territory was returned to Chinese rule. Now Putonghua has overtaken English as the second-most spoken language, although

60 million

The estimate of Cantonese speakers in China, roughly equivalent to the number of people who speak Italian or Urdu

Cantonese remains dominant in daily conversation, the media and local commerce.

There's unease across the border in Guangdong too, where the massive influx of migrant workers from other parts of China has seen Cantonese become a secondary language in some cities. That's less the case in Guangzhou, the provincial capital, where there have been protests at efforts to replace Cantonese-language television with programming in Putonghua. Nonetheless policymakers from Beijing have argued that Cantonese is a dialect of an older form of Han Chinese, from which Putonghua derives.

Plenty of Cantonese disagree, claiming that Putonghua isn't even indigenous because it was modified from the Manchurian mother tongue of the Qing Dynasty, and assert the sanctity of Cantonese as a language in its own right and as a mainstay of their southern Chinese identity.

Initially much of the business was in industrial goods like specialist chemicals, dyestuffs and steel – items that the Chinese weren't able to produce themselves. The negotiations could be baffling, Kracht remembers. "Often the procurement people knew nothing about the purpose of the products they were trying to buy. We would ask them: 'Why do you need these dyes, what are they for?' But they wouldn't know, saying only that they had been instructed to get them!"

The international firms were rarely present for the haggling, choosing to be represented by specialist middlemen from Hong Kong, like Kracht's employer of the time. "It seems ironic from today's viewpoint, when China is regarded as a must-have market," he acknowledges. "But back in that era it was different. Most Western firms weren't very interested in China because the market was too small."

By the 1990s the Fair's popularity was growing fast and the trade officials began to be replaced by the actual manufacturers, who exhibited their goods. As China's economy opened up, international buyers started to come to Guangzhou in much greater numbers too. By now the event had moved into a purpose-built exhibition hall in the city.

Today the Fair's strategic importance is declining. Multinationals have their own operations in China and no longer rely on Hong Kong-based middlemen to help them do business. Commercial deals can be struck in hundreds of other towns and cities, and the rise of e-commerce (notably thanks to Hangzhou-based Alibaba) has bitten into the trade show business.

That said, Guangzhou's Fair has kept its position as China's largest trade exhibition, with an increasing share of visitors from emerging markets in Asia and Africa. But overall attendance numbers have been falling: the most recent session last November attracted 177,000 overseas customers, down from the record of 210,000 in 2012.

177,000

The number of overseas customers that attended last November's Canton Fair

A signpost for China as a whole: the PRD's role as a pioneer

The policy changes that helped the Pearl River Delta prosper over the last 35 years have now spread more widely, opening up trade and investment opportunities in other parts of China. But the region's special status hasn't disappeared entirely and it is well positioned to develop faster than other



Products at the Canton Fair, still China's largest trade exhibition



108 million

The number of smartphones that Shenzhen-based tech giant Huawei shipped last year

Photo Credit: Reuters

parts of the country because it was first to experience the dividends of the reform era.

These advantages are highlighted by Guangdong's reputation as a trend-setter for the rest of the country, with a pioneering ethos that stands out in broader trends like urbanisation, innovation and investment.

It extends too into specific initiatives, like the internationalisation of China's currency, the renminbi. Hong Kong has played a key role in the introduction of the renminbi into the international markets, for example, and trading companies from the PRD have been the leading beneficiaries of efforts to promote the currency's usage outside China.

One of the new special zones – in the Qianhai district of Shenzhen – is expected to launch another round of cross-border reforms in the capital markets in the coming years.

The situation is similar for some of the other trends set to shape China over the next generation, including the transition towards an economy driven by higher-value manufacturing and service industries. The first province to prosper from the economic model based on cheap land and labour, Guangdong is also the first to move away from it, ditching its oldest factories and replacing them with more sophisticated, sustainable businesses in sectors like information and communication technology, electrical machinery, chemicals and electric carmaking.

It's the same story with innovation, where company spending on research and development as a share of gross domestic product is greater in Guangdong than anywhere else in the country. Businesses in Shenzhen are investing the most of all at an estimated 4% of the city's GDP, a ratio that brings it close to tech leaders like South Korea and Israel.

Higher incomes also mean that the PRD's consumers will be at the forefront of China's push towards more of a consumption-driven economy. Guangdong as a whole has ambitions to become a 'moderately prosperous society by 2018', which is two years ahead of the national target.

And whereas the goal in the late 1970s was to attract capital and expertise from overseas, there is a new focus today on how homegrown companies are going to prosper in international markets.

Firms like Huawei and ZTE are already having a global impact in the telecoms industry; Tencent, a massive presence in social media across China, looks set to become a major player in mobile commerce; and brands like the battery and carmaker BYD, the drone producer DJI and the smartphone manufacturer OnePlus are all garnering international attention.



PRD veteran: Fiducia's Kracht

4%

The share of Shenzhen's GDP being invested in R&D



Photo Credit: Reuters

PRD economy is fast adapting to Li Keqiang's 'new normal'

The region's rivals

Other parts of the country might protest (notably, the metropolitan area surrounding Chongqing) but the Pearl River Delta only has two main challengers as China's foremost economic heavyweight.

The first is the Yangtze River Delta, an area in the east of the country concentrated around Shanghai but reaching out across the provinces of Jiangsu and Zhejiang.

The second is the Bohai Rim. Home to the capital city of Beijing and the municipality of Tianjin, it also extends into the provinces of Hebei, Shandong and Liaoning.

Traditionally the Yangtze River Delta has been richest, burnished by the halo effect of Shanghai, the country's de facto commercial capital. Shanghai was once the heart of Asia's international trade and commerce, and it is now trying to regain its title as the region's leading hub for trade and finance.

For most of the Mao era the Bohai Rim also did better economically than Guangdong, drawing on the more plentiful natural resources in the north of the country and hosting many of the heavy industries that were the focal point of national economic policy in the 1950s, 1960s and 1970s. Tianjin emerged as a leading centre for the petrochemical and metal industries, for instance, while Beijing got its boost as the political and cultural centre of the country, with industrial sectors and technology parks forged on the patronage of the leading think tanks and universities in the capital.

In contrast, Guangdong wasn't regarded by Mao's planners as a key player in the national economy. Too distant from the capital and China's industrial heartlands, it wasn't well linked to the interior and it lacked natural resources.

Admittedly, it enjoyed a disproportionate share of China's international trade because of its proximity to Hong Kong. But the province's reputation was more as an agricultural backwater, with an economy that wasn't strong enough to prevent many of its poorer residents from going overseas in search of better fortune (go to any major city in the world and you are likely

1979

The year that proposals for special economic zones in the PRD were formulated as part of Deng Xiaoping's Reform and Opening Up policy. Shenzhen's SEZ was established in May 1980



Photo Credit: Reuters

From an agricultural backwater to the ‘workshop of the world’

to find a Chinese restaurant serving Cantonese food, a reflection of the province’s vast diaspora).

The PRD’s moment

The region’s rebirth began in 1978 after Deng Xiaoping had consolidated his position as paramount leader in the years following Mao Zedong’s death in 1976.

Deng was desperate to revive China’s moribund economy and one of his starting points was a tour of Guangdong. During his visit local officials complained about shortages of the hard currency they needed to pay for foreign equipment.

He endorsed the idea of creating collection centres for surplus fruit and vegetables, which could then be sold to nearby Hong Kong and Macau. Soon the plan had grown to include factories that could make goods for export. This meant that investment and expertise was needed from outside China, and by 1979 the plan to create special economic zones was taking shape, with three of the four new zones to be located in Guangdong.

Suddenly the province’s former disadvantages were looking more like benefits. Deng and his fellow leaders didn’t want to risk disrupting more established industrial centres like Shanghai, but there was less to lose in Guangdong, where the economic base was more threadbare. Another plus point: the new zones were far enough away from the political heartlands of Beijing to be quarantined if the experimentation went awry.

Also, significantly, there was the realistic hope of attracting new investment from some of the wealthier overseas Cantonese business folk who had emigrated in the past, primarily to Hong Kong (such as billionaire Li Ka-shing) and to parts of Southeast Asia (like the father of Thai tycoon Dhanin Chearavanont of the CP Group).

“[The Party] has no money so we will give you a policy that allows you to charge ahead and cut through your own difficult road,” Deng told Xi Zhongxun, Guangdong’s governor of the time (Xi’s son Jinping is China’s current leader and his first official trip after getting the top job was – symbolically enough – to Shenzhen).

The two Party elders had just fired the starting gun for the PRD’s transformation into a modern economy, in which it would emerge as China’s new workshop of the world. ■



“I am of the view that we should allow some regions, some enterprises, some workers and farmers, who because of hard work and good results achieved, to be better rewarded and improve on their livelihood ... In this way, the national economy will, like a wave, surge forward, with all the people becoming relatively well off.”

Deng Xiaoping’s pivotal role in launching Guangdong’s market-driven economic reforms has been commemorated in a huge billboard of the former paramount leader in the heart of Shenzhen, which today is part-shrine and part-tourist attraction

Workshop of the world



Photo Credit: Reuters

Going global: the PRD was at the forefront of the Made in China boom

In the 1870s it was English towns like Birmingham and Manchester that described themselves as ‘workshops of the world’. British firms then accounted for a fifth of the world’s manufactured goods and a similar share of its exports. Later the mantle moved across the Atlantic where cities like Philadelphia and Scranton powered the American challenge. Businesses in the United States made up more than 40% of global manufacturing during the 1950s.

Today it’s China that is talked about in the same way. Critics of the label argue that China’s claim to workshop of the world status is complicated by the complexities of the global supply chain and that its manufacturers don’t have the same influence as their predecessors did in Britain and America. But the numbers make it hard to discount China’s role as a manufacturing giant. In 1990 its economy produced less than 3% of the world’s manufacturing output by value. Last year that share was about a quarter, and the PRD has been at the forefront of this transformation, reinventing itself as a vast manufacturing hub that shapes global trade, swallows huge amounts of investment, and generates the leading share of Chinese exports.

The export processors

The PRD’s transformation began when a Hong Kong businessman sent a letter to Chinese leader Deng Xiaoping asking for permission to set up a factory across the border. He passed it on to his colleagues. “As I see it, Guangdong should be given a free hand to try this sort of thing,” he instructed.

The region moved steadily to open up its economy and because of the low

80%

The global share of air conditioners made in China. For mobile phones the ratio is 70%, and for shoes 60%



Photo Credit: Reuters

costs in land and labour, would soon become incredibly competitive. But the problem at the outset was that the Chinese were at least a generation behind in factory technology, and they didn't have the foreign currency to buy the equipment that they needed to catch up.

The first solution was the "compensation trade": an arrangement in which local government firms would perform processing or assembly for foreign customers according to the specifications provided by the client, using equipment brought in from overseas.

The Chinese generated processing fees from the deal, and often they kept the imported equipment at the end of the contract.

"One of my first clients imported shoemaking equipment into Guangdong," recalls Jürgen Kracht, a German businessman who helped foreign businesses navigate the new PRD landscape. "He rented factory buildings and then he did a deal with the local mayor to provide 300 workers."

For many years customers wanting to buy finished goods from China had to deal with state-owned trade corporations rather than directly with the factories themselves, and Kracht's role was as middleman, helping both sides better understand the other.

Unsurprisingly, foreign firms were cautious about striking some of these deals, as most of the contact was limited to government officials more familiar with Marxist-Leninist dialectic than manufacturing speak.

"Often our clients would have little say in which factories would get the contracts and this made it a lot harder to maintain production quality," Kracht adds. "Much of our initial work was checking shipments before they left China to make sure that customers weren't being sent shoddy goods."

Later, more businesses adopted the contractual joint-venture model. Early examples included the Dajin Garment Manufacturing Factory in Shunde and the Taiping Handbag Plant in Dongguan. The work contracts became more sophisticated, and there was more stipulation for piece rates for the labour force, Kracht says. This improved the quality of the work being done as workers were only paid for the items that were made properly.

Hong Kong businesses took the lead with this business model, moving their factories from the British colony, where rising labour costs and land values had eroded their profits. In 1987 Hong Kong's governor David Wilson announced

Venturing forth

In *Breaking Through*, Li Lanqing's account of the beginnings of China's Reform and Opening Up policy, the cultural chasm between Chinese officials and their foreign suitors frequently stands out.

A Party senior who would go on to become a vice-premier, Li was tasked with talking to the carmaker General Motors about potential collaboration in 1978. The Americans proposed a joint venture. But the suggestion was met with silence, because the Chinese team had little idea what the term meant.

After a brief huddle, the Chinese asked the Americans for a definition. Think of joint ventures like marriages, GM's chief executive Thomas Murphy told them. The two sides put in cash together, and they make or lose their money as a couple.

Li remembers that his team was unconvinced, wondering whether communists could ever marry capitalists. But Deng Xiaoping wanted them to explore the idea further. To make the point, he scrawled: "Joint ventures are workable" on the notes of the meeting sent for his review.





Photo Credit: Reuters

On the move: China's migrant workers

that there were at least a million workers in Guangdong processing goods for Hong Kong firms, more than the entire manufacturing workforce in the colony. There was burgeoning interest from Taiwan as well, although Taiwanese businesses in the PRD were usually incorporated as subsidiaries in Hong Kong because they weren't allowed to invest directly in China.

That meant the transfer of overseas technology and know-how was increasing. But the flow of investment didn't really become a phenomenon until 1992, when it became clear from Deng's 'Southern Tour' that China wouldn't be turning back on the path of economic reform. Cities like Shenzhen and Dongguan boomed with hundreds of new factories making garments, shoes, toys, plastic goods and home appliances.

Most of these businesses were run on what became known in Hong Kong as the "shop-in-the-front [i.e. in Hong Kong], factory-in-the back [i.e. in the PRD]" approach. Marketing and design units in Hong Kong took orders for consumer goods from international clients. Their factories in China imported the raw materials to make the goods (for garments, things like fabrics, zippers and buttons, for instance), usually without need to pay import duties and VAT. As the goods were sold overseas, substantial tax breaks were granted too.

"Usually there wasn't much real tax in China. And because the finished products were re-exported to international customers, the Hong Kong companies claimed the trade as 'offshore', so there were no taxes in Hong Kong either," Kracht explains.

"This was the peak of the sweatshop era. As far as the factory owners were concerned, it was the best of both worlds. It was very, very profitable."

The migrant miracle

While Deng Xiaoping is lauded for launching the modernisation of the Chinese economy, the real heroes of the boom were the hundreds of millions of workers who traded the fields for the factory floor.

The great migration has been a defining feature of China's economic transformation: before 1978 less than a fifth of its people lived in big cities, but now more than half do.

For perspective: if this vast, floating population was to form its own coun-

"The sweatshop era – for factory owners it was very, very profitable"

Jürgen Kracht on the Pearl River Delta's 1990s boom

try, these ‘domestic immigrants’ would make up the world’s fourth most populous nation.

Many have headed for Guangdong, where the migrant population is one of the largest, numbering about 40 million people. These are the foot soldiers of China’s economic transformation – young and unskilled workers, many of them women, who arrived from poorer provinces like Henan, Anhui and Hubei.

Shenzhen and Dongguan, two of the epicentres of the boom, were the major beneficiaries of this human tidal wave. Neither had meaningful populations at the onset of the reform era. Today, they have the largest concentrations of outsiders.

Each year the migrant workers make headlines for swamping bus and railway stations on their annual exodus home for the Lunar New Year. Much of the rest of the coverage of the migrant phenomenon tends to be negative: how the villages they have departed are dying, populated only by the elderly and ‘left-behind’ children; how migrant workers are the catalysts for much of China’s labour unrest; and how many are driven to depression and even suicide by tyrannical conditions at their places of work.

Yet the freedom to leave their homes in search of employment has lifted millions of migrants out of poverty. Many of the rags-to-riches stories in WiC’s ‘Who’s Hu’ columns in its weekly magazine are about young men and women who turned up in the cities with nothing, but now boast fame and fortune.

Today the dynamic is changing, however, as China’s supply of cheap and unskilled labour, once seemingly limitless, has started to dry up.

Data from the National Bureau of Statistics suggests that migrant numbers fell by 5.68 million last year – the first decline in a generation – and the shortages have been felt first in provinces like Guangdong, where minimum wages have also been rising the fastest. Low-margin businesses warn that higher wages are making the province uncompetitive and some factories have already moved to cheaper parts of the country. Others are shifting offshore to lower-wage locations in Vietnam, Cambodia and Bangladesh, where hourly pay can be a quarter of Chinese levels.

Local officials counter that much of this exodus is by design, and that they want to clear out the weakest industries and replace them with higher-value

44%

The percentage of migrant workers who want to live permanently in their adopted cities, according to a survey from Nankai University



Photo Credit: Reuters

New employees of Foxconn wait for a bus in Shenzhen



Photo Credit: Reuters

Scene at a PRD railway station: placards contain names of new migrant workers

businesses. The firms that stay in Guangdong have to adapt to changes in migrant attitudes, too. The current generation isn't as happy as its predecessors to pick up blue-collar pay and its educational background has been improving: a Nankai University survey in seven cities indicated that half of the migrants hold a college degree. In fact, many of the migrants viewed the cities as their homes, not the towns and villages of their parents. A quarter of those in the Nankai survey had lived in the cities for over a decade, 44% wanted to settle permanently where they worked, and only 29% said they were considering a return to their birthplaces. A key complaint from the migrants is that they are treated as second-class citizens in the cities in which they work, because they lack the household registration permit (called a *hukou*) that gives access to basic services in healthcare, social security as well as education for their children.

Slowly this is changing. Shenzhen and Guangzhou operate a "points system" scheme that gives a few thousand migrants a local *hukou* each year, based on criteria such as job stability and length of stay, while Guangdong's authorities published guidelines last year committing to widening *hukou* registration to about 13 million migrants by 2020.

Commentators have been cautious about the timetable, noting that *hukou* reform has been under discussion for years. Others wonder how many migrant workers will take up the new rights. As businesses move inland in search of lower costs, better jobs are becoming available in rural provinces, reducing the need to travel for work. Holders of rural *hukou* also have rights to use local land, which is owned entirely by the state. Many migrants hope that these claims could become tradable financial assets if there are changes to the land laws, making them more reluctant to swap their rural *hukou* for urban ones.

The good news about the demographic shifts going on in China – and especially so the PRD – is that shortages of workers are driving up wages, which in turn means those individuals have more to spend. That is helping with the government's avowed goal of shifting China's economy away from a reliance on exports to one driven instead by rising domestic consumption. ■

40 million

Size of the migrant population in Guangdong province, the bulk of which works in the PRD



Taiwan's tour de force: Terry Gou's Foxconn

Founded by the outspoken Taiwanese businessman Terry Gou, Foxconn opened its first computer components factory in Shenzhen in 1988. It came to global attention because of its work as a contract manufacturer in consumer electronics, assembling products for the likes of Sony, Microsoft and Apple. At the height of the iPhone boom five years ago, it was said to be making 137,000 phones a day for the Californian tech giant – or about 90 a minute – at its main Shenzhen production base.

But Foxconn spurred more horrific headlines when 14 of its workers killed themselves in a short period, some of them jumping to their deaths from the factory roof. The tragedies stirred an international debate about its "military-style" management and long working hours, which were heavily criticised by labour groups. This also led to questions for its core customers, with Apple boss Steve Jobs defending Foxconn, pointing out that it employed hundreds of thousands of workers, and that suicide rates among its workforce were below China's national average.

"Foxconn is not a sweatshop," Jobs added. "They've got restaurants and swimming pools... For a factory, it's a pretty nice factory."

Occasionally, Gou hasn't helped matters with what sounds like a cavalier attitude towards his staff. For example, at one public event he quipped to an official from Taipei's zoo: "Hon Hai [Foxconn's holding company] has a workforce of over one million people worldwide and as human beings are also animals, to manage one million animals gives me a headache."

Foxconn says Gou is often quoted out of context, and it complained that the fatalities at its factories were sensationalised in the media.

It counters that it offers some of the best working conditions in China, which soon became apparent to the government when it

90

Foxconn's output per minute of iPhones at its peak production level five years ago

sent hundreds of officials to check Foxconn's production lines.

"They originally wanted to publish the investigation results, but a minister I won't name said they couldn't," Gou has insisted. "If they did, at least 95% of China's factories wouldn't have been able to reach the standards we met."

Like other contract manufacturers, Foxconn has been trying to shift away from assembling products that other companies design towards developing components and brands of its own. Analysts say that Gou is also keen to reduce its reliance on Apple, which accounts for as much as half of its revenues. The plan is an overhaul of the business to focus on areas like cloud computing, mobile devices, the Internet of Things and the production of smart robots.

Gigantic new factories like the one near Guiyang, the capital of Guizhou province, are another of Foxconn's models for its future, which will see more manufacturing activity outside Guangdong, and lower costs for land and labour.

Gou has promised that investors will start to see the results of Foxconn's transformation plan this year. And in the most visible sign of its quest to reinvent itself, Foxconn has also bid \$5.5 billion for the electronics group Sharp, which makes screens for iPhones. Analysts say that Gou wants Sharp's liquid-crystal display technology, and that a takeover of the struggling Japanese firm might give him more leverage in his contract negotiations with Apple.

How the PRD developed



Shenzhen's skyline is changing by the minute as new skyscrapers go up

Once its manufacturing economy started to pick up steam, the Pearl River Delta developed at different speeds.

As the provincial capital and political heart of the province, Guangzhou and its surrounding districts were home to most of Guangdong's manufacturing activity before the 1980s boom. But the city's factories then began to lose ground to Shenzhen, whose designation as a special economic zone gave it preferential policies unavailable to others in the PRD at the time.

While Shenzhen's factories prospered from making consumer goods for export, helped by a buoyant private sector, Guangzhou's economy was shaped by state-controlled firms in heavy industries like steel and petrochemicals. The trend has persisted today, although Guangzhou's planners are prioritising industrial sectors like carmaking, with plants from Honda, Toyota and Nissan turning the provincial capital into one of the national centres of the automotive industry. City bosses would also like to wrest back leadership of the region from Shenzhen by cementing Guangzhou's position at the heart of the Pearl River Delta. For instance, they have invested heavily in transport links to nearby Foshan, a focal point for appliance manufacturers and an up-and-coming hub for robotics firms (for more on Foshan, see page 26), and also strengthened Guangzhou's logistics network by developing the deepwater port of Nansha (see page 42) and increasing capacity at the city's airport Baiyun, the leading aviation hub in southern China.

To understand the PRD, you need to know Shenzhen's story

Shenzhen is the poster child for the Pearl River Delta's transformation. Its story is the best known – from the commonly described 'sleepy fishing village' of the late 1970s to today's trailblazing economy in not much more

Rmb72 million

Shenzhen's industrial output in 1978, prior to becoming a special economic zone. Last year its GDP surpassed Rmb1.75 trillion



Photo Credit: Imagine China

A cutting edge drone that was both designed and made in Shenzhen

than a generation. Shenzhen's position as a logistics centre, fostered by the growth of its port at Yantian, has been crucial. But so has the entrepreneurial spirit of its local officials and businesspeople, who seized the opportunities unleashed by Deng Xiaoping's reforms to develop the city into an iconic metropolis.

Shenzhen was such a novel idea in the early 1980s that there wasn't even a commonly accepted term for its special economic zone or the urban districts that sprang up around it.

The area that it grew from – Bao'an County – was rebranded as Shenzhen, a name meaning "deep drainage". It's said to have been chosen because of the trenches, or *zhen*, that funnelled water between local rice fields. *Feng shui* was another factor in the naming process – it was hoped that the water in the *zhen* denoted the wealth that would soon flow into Shenzhen.

Before it could prosper Shenzhen needed people. They came from across China and within 30 years its population had swelled to more than 10 million. About half are migrant workers – so it's a much younger place (the average age is low-thirties) and there's more Mandarin spoken.

'When you come to Shenzhen, you become a Shenzhener' was a common slogan on the city's buses, as municipal bosses welcomed the outsiders.

Another theme for Shenzhen is the city's can-do spirit, with businesses and buildings emerging at a pace that is described as 'Shenzhen speed'. But at the beginnings of the PRD's boom the rules and regulations for its new industries weren't clear. Overseas investors wanted ways to reduce their risk, so they looked to locate their factories in areas where they hoped to exert more influence. Many Hongkongers could trace their family heritage to districts around Shenzhen and nearby Dongguan, for instance, so it was an obvious choice to concentrate their investment there.

These geographical and ancestral ties meant that the eastern banks of the Pearl River Delta took the lion's share of the early investment and that it was businesses there that were soon producing more of the region's exports.

By the early 1990s, foreign-invested factories in Shenzhen were churning out goods in labour-intensive industries such as textiles, clothing, and plastic products. More far-sighted companies then started to move up the tech-

40%

Proportion of Shenzhen's local GDP that is now generated by innovative industries like biotech, new energy, internet and tech

nology ladder into higher-value exports like telecommunications equipment and electronics, with more investment arriving from Japan and Taiwan. More recently many of Shenzhen's lower-margin businesses in plastics and textiles have been moved out of the city to make space for more sophisticated manufacturers. The baton is passing to a newer generation of Chinese firms, which have increasingly developed their own businesses and brands.

Huawei, the world's largest telecommunications equipment manufacturer, epitomises the story of Shenzhen's evolution. Although it still gets the majority of its revenue from its original business (sales of telecoms networking equipment), Huawei has made a major push into smartphones, starting out by making budget handsets for others and now developing its own brands. Huawei has struggled to break into the US market – where regulators are cautious about its alleged links to the Chinese military – but it has been expanding quickly elsewhere, and it is now the number three smartphone vendor in the world by unit volumes, after Samsung and Apple (see page 50). Huawei has also invested in the industry supply chain, including its own chip producer HiSilicon, another Shenzhen-based unit, which has ambitions to be one of a select few global champions in chip design.

ZTE, another global leader in telecommunications equipment that's also headquartered in Shenzhen, has diversified into smartphones too and has a goal of becoming the world's second-biggest phone manufacturer within five years. It has been making progress, including the US market, where it is the fourth-biggest smartphone brand behind Samsung, LG and Apple.

Other local heavyweights include BGI, which accounts for half of the world's gene sequencing capacity, and BYD, a maker of rechargeable batteries and last year the world's biggest seller of electric vehicles.

This new breed is fuelling Shenzhen's transformation into arguably China's most developed economy. Last year's GDP growth was 8.9% (versus 6.9% nationwide) and much of it came from innovative industries like biotech, new energy, the internet and information technology, which accounted for 40% of the local economy. Incomes per capita in Shenzhen aren't much less than South Korea's, while research and development spending is at a similar level to the Koreans at about 4% of GDP (China's national average is 2.1%).



Photo Credit: Imagine China

One of the PRD's greatest advantages is its comprehensive highway network



Photo Credit: Reuters

Smart watches: Shenzhen's companies invest more in R&D than others in China

California dreaming?

Shenzhen's success has seen it start to draw comparisons with Silicon Valley. The city is home to Tencent, whose WeChat messaging app is used by hundreds of millions of people.

But Shenzhen doesn't bring ideas and investors together in quite the same way as its Californian equivalent. Indeed, the Zhongguancun district of Beijing probably has better claim to a direct comparison to the Valley – given its links to universities and research institutes, the local network of legal and accounting firms, and the expanding community of tried-and-tested tech entrepreneurs.

Shenzhen's fans say that it's not a question of modelling their city on Silicon Valley. Instead it offers something different to the American tech paradise: an ecosystem that draws on the expertise of thousands of seasoned engineers and factory bosses. Of course, Shenzhen has been a manufacturing heartland for years. But its new cohort of companies are developing home-grown ideas and building their own empires, with notable breakthroughs from firms like DJI, the drone maker, and OnePlus, a mobile phone brand that has built up a following with tech-savvy customers in Europe and the US.

DJI opened its first office in Shenzhen in 2006 and is now valued as an \$8-billion brand, leading the global market in sales of consumer drones. It's also a great example of how Shenzhen is showing its edge in making 'real' things like next-generation consumer electronics and wearable tech. These advantages are anchored in a local supply chain that's perfect for getting products from the drawing board to the production line in double-quick time.

What has evolved over the past three decades is a "makers' culture" that clusters together an ecosystem of suppliers and assemblers. (Apple boss Tim Cook was likely thinking of Shenzhen when he told analysts: "You can take every tool and die maker in the US and probably put them in a room that we're currently sitting in. In China you would have to have multiple football



OnePlus: another of Shenzhen's innovative new brands



fields.”) In its earlier incarnation that meant if you wanted to get something copied, there was nowhere better or faster at doing so than Shenzhen (the word for fake in Chinese is the somewhat similar sounding *shanzhai*). More recently this ecosystem has adapted to a new ethos: marrying an expertise in the making of hardware to collaborative work in design. Most of the new activity is based on local ingenuity rather than expertise parachuted in from overseas. Its proponents describe it as a process of experimentation, that usually tries to improve an existing product, instead of directly copying it. As such, it comes close to what tech insiders call ‘hacking’, a process in which manufacturing skill becomes a fundamental part of value-creation.

The maker culture is helping early-stage companies, since it offers shorter timeframes and lower costs in prototype design, and greater flexibility for production runs. Specialist incubators like HAX, a leading accelerator service for hardware and connected devices, are working with start-ups from around the world to help them prototype their products before they head into major funding rounds. Shenzhen is being promoted as the one-stop shop, where entrepreneurs can refine their product ideas, find suppliers and subcontractors, line up distributors and even respond to shifts in demand as the marketplace evolves.

Li Keqiang, the Chinese premier, has visited some of the workshops – known internationally as ‘hackerspaces’ – in the city. “Makers have revealed the incredible entrepreneurship and creativity of the people,” he applauded. “This kind of vitality and creativity will be an inexhaustible engine for China’s future economic growth.”

Difficulties for Dongguan

While Shenzhen is a shining example of success, nearby Dongguan is going through a more difficult transition. It has been slower than Shenzhen to move away from lower-end manufacturing, and its economy is more reliant on the kind of contracts that have started to shift to lower-cost locations in other parts of Asia. In the past Dongguan was reputed to make one in every four pair of shoes sold worldwide. But fewer of its companies have invested in scaling up their businesses, developing their own brands or establishing their own research and development expertise.



How Guangzhou looked in 1978 – not a skyscraper in sight...

The city also suffers from an image problem as the sin capital of China. Despite regular clampdowns on its red-light districts, the slur has been hard to shake off. “Many wives feel anxious when their husbands take business trips to Dongguan,” its deputy governor Liu Zhigeng admitted in 2009. “It’s disgraceful.”

Liu has been in the firing line since then for Dongguan’s failure to upgrade more of its industrial base. And the accusations took a nastier turn in February when he was reported to be the target of an anti-graft investigation himself. One of the key allegations in the local media was that his relatives had profited from the sex-trade business.

Journey to the West

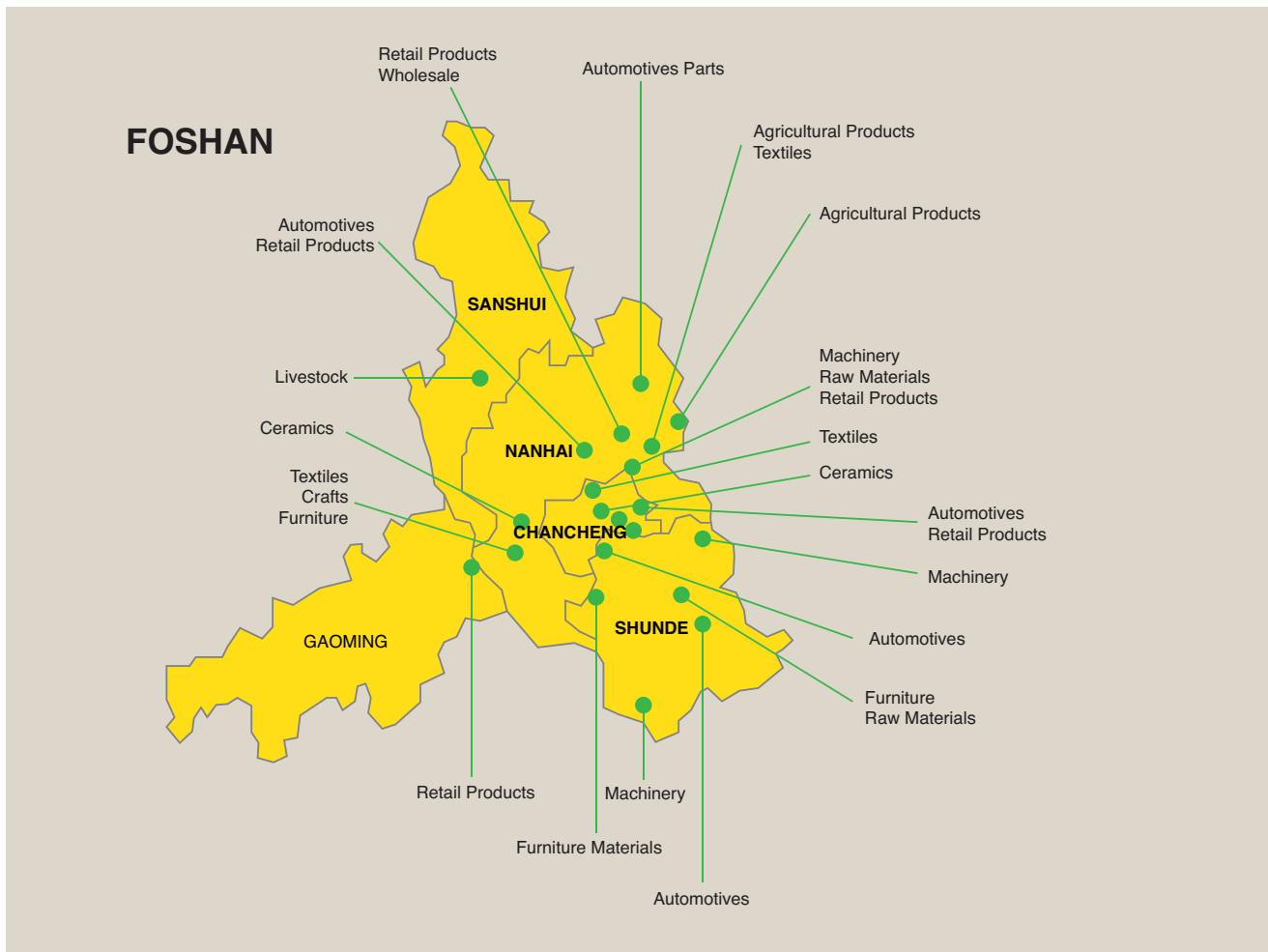
The story of how the western part of the PRD has developed is a little different. Encompassing the cities of Zhuhai, Zhongshan, Jiangmen and Foshan, the area didn’t grow quite as explosively as some of the cities in the east. The factories took longer to go international too, in part because they had more of an early focus on serving the domestic market. However, they too were exporting by the 1990s, led by appliance makers such as Midea, Kelon and Galanz (the world’s largest microwave oven manufacturer).

In general terms, the eastern region focuses on electronics and tech products while the west bank is better known for household appliances. Even today economic activity on the western side of the Pearl River is generally less advanced than in the east, although the cities there have been registering faster rates of growth than the provincial average for Guangdong.

Jiangmen and Foshan are large economies in their own right, for example. Specialisation in particular products is another feature of their success: Zhongshan started out with lighting and casual wear; Jiangmen in textiles, paper and batteries; and Foshan in ceramics, furniture and home appliances.

By developing their own clusters of component makers and assemblers, they have likewise created supply chains that help to reduce the costs of production. Factories pool purchases of raw materials and consolidate shipments of finished goods, and they can outsource work during the busiest periods, avoiding investment in capacity they wouldn’t use in quieter times.

The region is also poised to benefit from the opening of the Hong Kong-Zhuhai-Macau Bridge, which will provide the first direct road access between Hong Kong and the cities on the western side of the Pearl River.



The industrial clusters in Foshan, the manufacturing hub near Guangzhou

How Foshan prospered

Foshan may be the biggest city you've never heard of. Located in the southwest of the Pearl River Delta it houses more than seven million people. It already enjoys higher per capita GDP than Shanghai or Beijing, and its local economy has lifted it into the World Bank's high-income category.

Foshan's remarkable rise was the topic of a study by the Hong Kong-based Fung Global Institute last year. As with other cities in the region, entrepreneurs from Hong Kong played an important role in the beginnings of its market economy, drawing on family connections to the area. Foshan also benefited from the relaxation of *hukou* rules in the mid-1980s. By 2012 it was home to 3.7 million migrant workers and their families, or about half of its population.

But Foshan differs from its neighbours in important respects. As a city it had few of the special privileges afforded to Shenzhen and less of the political clout that helped businesses based in Guangzhou. That meant that more of the impetus for its economic acceleration has come from the grassroots, the Fung Institute report says.

Foshan is also unusually concentrated on light manufacturing, with far less of the heavy industry seen a half-hour's drive north in Guangzhou. Because it lacked larger, state-owned enterprises at the outset of the reform era, many of Foshan's new businesses originated from town and village enterprises instead. Smaller but nimbler, they were allowed to keep a larger share of their profits than state enterprises, and the successful ones grew into sub-



Photo Source: Imagine China

Midea: the best known brand from the Shunde district of Foshan

stantial businesses. The appliance manufacturer Midea (see page 50 for a company profile) is one of the best examples, rising from its origins as a township business to later list on the Shenzhen stock exchange.

The origins of Foshan’s industrial base have made the city’s private sector dominant in its economy. Another outcome is that the city boasts more business clusters than almost any other part of China (see map on page 26). With most of its original industries linked to townships or villages, there was less option for companies to move in search of improved prospects. That made clustering more inevitable and Foshan’s first-mover advantage has allowed the hubs to attract more investment, making it harder for others to break into the same business areas.

This has resulted in a roster of local companies, rather than relying too heavily on foreign-invested production (a common criticism of Dongguan, a city in Guangdong which has similar prefectural status). But municipal governments have also played their part in paving the way for Foshan’s future. For example, bureaucrats funded the first exhibition space for furniture in Lecong in the 1980s, and today there are three million square metres of showrooms in the same district. The Fung Institute study praises the local planners as “policy entrepreneurs” and highlights how Foshan’s rise to the top was both a bottom-up and a top-down process. True, there hasn’t been a centrally-imposed master plan, says the Hong Kong-based think tank. But the local officials have taken guidelines and incentives by the central government, which have then been implemented creatively and competitively, the study notes, through “push and pull, experimentation and evaluation, positioning and bargaining”.

Last year Foshan’s GDP grew 8.3%, handily beating the national average. ■

8.3%

**Foshan’s estimated GDP
growth rate last year**



Shunde: tasting success as it woos investors

In a region with a reputation for its contact with the wider world, the town of Shunde – now a district of the city of Foshan – stands out for its global reach. So says Michael Xie, formerly an executive at Nortel Networks and Dell, who now heads the Yuangfang Corporation, a social enterprise that promotes the PRD’s contact with the wider world.

Shunde’s historical reputation in China was as a horticultural centre but in the wake of the 1980s reforms, it emerged as one of the leading manufacturers of household appliances, furniture and jeans.

A vibrant urban district on the western banks of the Pearl River, Shunde also has a proudly international outlook, Xie explains. “Historically, many Shunde natives have gone abroad,” he says. “One of the most famous success stories is Liang Dunyan, who went to the United States in the 1870s as part of a programme that sent 30 children overseas to study. Later Liang went to Yale University, before returning to China to become a minister of foreign affairs. His story inspired many others to try their luck overseas.”

More recently, Shunde’s entrepreneurs have taken on the globalising mission. Xie says there were few state-owned enterprises in Shunde when Guangdong began its economic renaissance in the late 1970s, and that the firms that were owned by the state were some of the first to be privatised in China. That meant that Shunde’s entrepreneurs were some of the earliest to go overseas in search of customers and investors. “Most of the company founders in Shunde then sent their kids overseas for

their education, and more than half of these students have come back to take on key roles in their family businesses,” he explains. “This next generation is even more familiar with the wider world.”

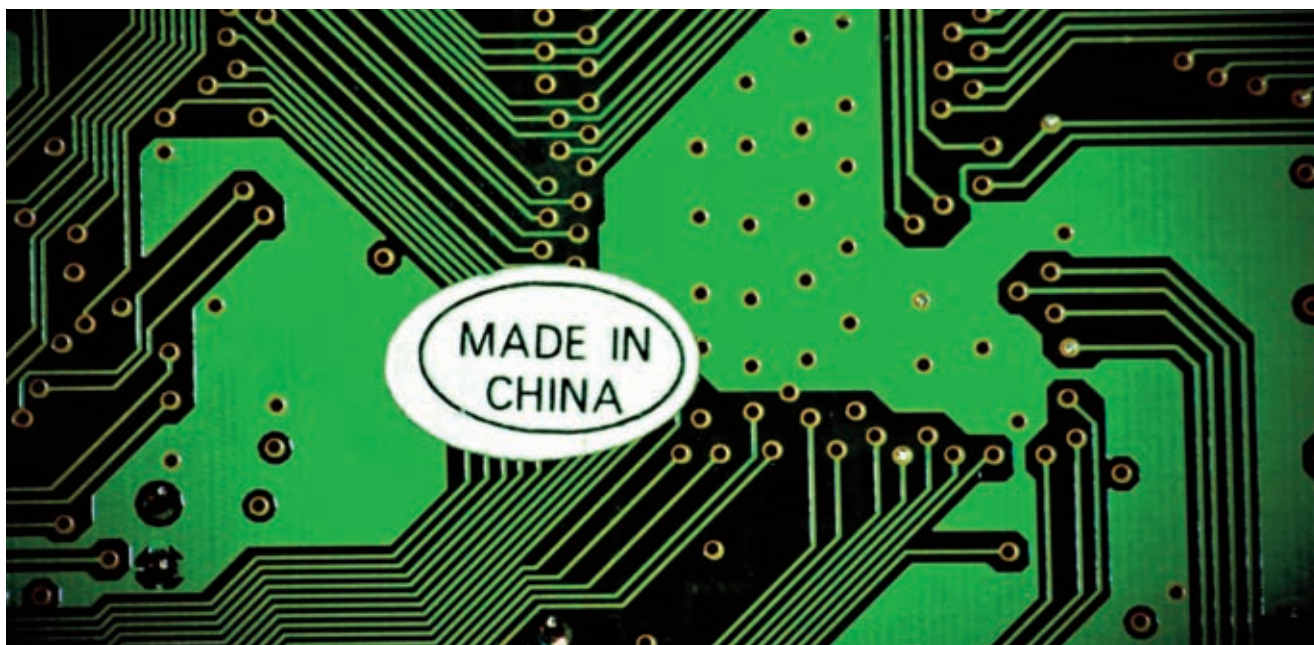
Despite its international instincts, Shunde has to battle for global attention: “Shunde is home to about two million people, which is hardly a trivial number compared to most cities in Europe and the US. But we aren’t a major city in Chinese terms and it can be a struggle to make the breakthrough with companies and investors overseas. For instance, Shunde generally doesn’t appear on English-language maps, which isn’t the easiest starting point!”

Xie and his colleagues promote Shunde’s commercial opportunities with foreign governments, international chambers of commerce and business associations, and try to find ways to describe the city in a manner that people will remember.

“We need to create an identity around Shunde and we use things like the local food,” he explains. “We have a UNESCO designation as a city of gastronomy, so we run cooking courses on some of our trips, or bring our guests to special tastings when they visit us.” One such event can be seen in the photo above.

Because Yuangfang’s shareholders have their strongest business networks in the United States, Xie has been concentrating most of his early focus there. But his organisation is also active in the EU and Russia, and he says that he will be travelling to other markets as well. “We will focus on cooperation with ‘One Belt, One Road’ countries in the future as they will become bigger export markets, and because this is being encouraged by government policies here in China,” he explains.

Time to transform



Less about cheap, and more about chips: the PRD needs a technology upgrade

Books proclaiming ‘the end of cheap China’ started to appear about five years ago. But the businessmen of the Pearl River Delta have been experiencing the trend for longer. The door had started to close on the first generation of the export-processing model in 2007, when the Ministry of Commerce announced that thousands of products would no longer be granted tax rebates. Plastics, textiles and furniture businesses were particular targets. Factory bosses already complaining about surges in wages in each of the previous three years were also saddled with new legislation guaranteeing overtime payments and mandating increases in social security contributions. Weaker demand in the wake of the global financial crisis made for the perfect storm. The newspapers began to report that thousands of factories were facing closure, with the Federation of Hong Kong Industries estimating that at least a quarter of the 70,000 Hong Kong-owned companies in the region would be gone by the following year.

The end of ‘cheap China’

The PRD’s export sector had specialised in the role of assemblers, exploiting its comparative advantage of low labour costs to dominate this part of the supply chain. For years wages were relatively stagnant, there was cheap land for factories, new roads and ports, and a constant stream of migrants looking for work. But when these conditions started to change, the profits of the golden era began to subside. Some of the drawbacks of the ‘made in China’ model were becoming more apparent too. Although Guangdong’s production lines had emerged as an integral part of the global supply chain, advances in technology and logistics had allowed their international customers to break down the manufacturing process into a series of sub-contracts, and put them out to tender to the lowest bidders.



Towering ambitions: Shenzhen's central business district

That meant that there was a race to the bottom as far as many of the PRD's factories were concerned. Contract prices were falling fast and much more of the value of the goods being made in China was captured by companies that owned the brands in Europe and the United States, or by suppliers of some of the more sophisticated parts from countries like Japan and South Korea. While the international firms feasted on the profits of the "China price", the China-based ones had to be content with the contractual crumbs.

With costs increasing, the Pearl River Delta's businesses haven't been able to keep growing at the same pace. Guangdong's economy has slowed from more than 12% growth in 2010 to less than 8% in 2015, its worst rate of growth for many years. Still, Guangdong performed better than China's national average last year. And despite the rises in labour costs and land prices, the industrial ecosystems of the PRD provide a competitive base. The various clusters of suppliers and assemblers, the massive investment in road and rail infrastructure, and the speedy access to ports and airports are hard to match anywhere else in the world.

Plus there is the proximity to the vast domestic market, which brings millions of consumers into easier reach for Chinese manufacturers versus those from other parts of Asia.

There's also been a sustained campaign from the local authorities to upgrade PRD businesses. The automotive and petrochemical sectors have taken the lead, with car plants from Honda, Nissan and Toyota in Guangzhou now joined in the PRD by the major auto parts manufacturers, such as Japan's biggest car parts maker, Denso. Further east in Huizhou the priority is petrochemicals, where Shell and the Chinese oil major CNOOC have invested in a massive new refining complex.

The upgrading plan is part of what Wang Yang, then Guangdong's Party Secretary, once described as "replacing the bird but keeping the cage" – or upgrading the more outdated parts of the economy to more modern and more profitable businesses. The intention is to put the PRD at the forefront of China's efforts to evade the "middle-income trap", in which rising labour costs cripple an economy's lower-end industries before it has the research and innovation base to move into more productive sectors.

German lessons

Last May there was a refocusing on the PRD's upgrade plan with the release of the 'Made in China 2025' blueprint, which promises special funds and tax incentives for 10 priority sectors, and sets goals for the share of made-in-China parts and materials that Chinese manufacturers are using.

"For the Pearl River Delta it means continuing with the process of trans-

12%

Guangdong province's growth rate in 2010.
It fell below 8% last year



Wang Yang: drove upgrading plan during his tenure as Guangdong boss

forming the local economy,” explains Peter Helis, founder of Helis & Associates, an investment advisory firm based in Guangdong.

Helis – who was born in Germany and runs his business from Foshan’s Sino-German Industrial Services Zone – says that parts of the ‘Made in China 2025’ plan seem to have been inspired by his home country’s “Industry 4.0” programme, which puts intelligent manufacturing at the heart of its growth campaign.

Older industries have already been moved into less-developed parts of the PRD, or even pushed out of it entirely, with sectors like steel and papermaking relocated to Zhanjiang in the west, and the metalworking industry to Jieyang in the east of Guangdong.

At the same time Helis has been working with the local governments of



Peter Helis: Guangdong’s local governments, he says, are more strategic in their investment focus



Photo Credit: Reuters

The core of the problem

For a case study of why the Pearl River Delta is trying to upgrade its manufacturing capacity, look no further than the Californian tech giant Apple.

More than a decade ago a team of academics at the University of California looked at the value-creation in the making of an iPod.

Their findings were that – while the iPod was assembled in China (by Foxconn, the Taiwanese contract manufacturer) – the lion’s share of the profits were earned in the United States.

The researchers estimated that retailers were adding \$75 in mark-up to the iPod’s \$224 wholesale price. The unit costs for the parts for the iPod were about \$144, paid mostly to Korean, American and Japanese suppliers. Apple was deriving the best returns with \$80 in gross profit on each unit. And the factories in China that put the iPods together were at the bottom of the pile, with no more than \$4 in contract fees.

Four years later the researchers ran the same exercise for the iPad and the iPhone. The results were similar: only a fraction of the final prices of Apple’s gadgets – less than \$10 – was paid to the firms assembling them in China.

Foxconn’s work for the Californian giant now includes the assembly of its most recent gadget – the Apple Watch.

And the British press has calculated that it would take almost three years for a Foxconn employee to save up for the most expensive version of the watch, assuming that none of the worker’s wages were spent on anything else, including income tax.

Made in China 2025: the priority industries

The 4 advantages



Market



Enterprises



Strategy



Talents

The 10 key sectors



New information technology



Numerical control tools



Aerospace equipment



High-tech ships



Railway equipment



Energy saving



New materials



Medical devices



Agricultural machinery



Power equipment

Guangzhou and Foshan to attract the next generation of manufacturing investment, much of it from partnerships with German companies.

Prioritising the industries in the 'Made in China 2025' programme means that the charm offensive is different to the 1980s, however, when foreign investment was pursued more indiscriminately.

"The investment promotion teams are a lot more choosy than they used to be," Helis explains. "It is businesses from the targeted industries that they want the most. To attract new investment they might offer rental holidays on factory land or office space. Sometimes there are tax breaks or more direct financial incentives. But the selection process is much more strategic – the newcomers have to be bringing the right skills and technology."

Helis says that businesses with backgrounds in automation, smart manufacturing, energy efficiency and industrial services are particularly welcome. One of the early successes was investment by Volkswagen and its joint venture partner FAW Group in a huge factory in the Nanhai district of Foshan, which began operations three years ago with capacity for 300,000 vehicles a year. Other German companies have also invested in the area, including lighting manufacturer Osram, robot maker KUKA, recycling giant Remondis, and the industrial gas specialist Messer Group

Other Chinese cities are also trying to cultivate ties with German companies, Helis says. But Foshan's heavy concentration of private sector firms makes it a better fit with the medium-sized enterprises that make up Germany's *Mittelstand* economy. "This kind of industrial model applies better in Foshan than parts of northern China, where state-owned firms tend to be more dominant," he explains. "Many of the companies here operate from

300,000

Number of cars Volkswagen's factory in Foshan can make annually

business clusters too, which is another similarity with the *Mittelstand*.”

A third area where Germany is mentioned as a model is the training of a more skilled workforce, because local officials are realising that many of Guangdong’s university graduates aren’t the best fit for the newer industries that they want to encourage. “What’s needed is more vocational training, and we are helping our Chinese clients to partner with German technical colleges to produce more technically-skilled students,” Helis says.

Rise of the machines

If migrant workers were a defining feature of the PRD’s ‘boom 1.0’, the next ‘2.0 phase’ of its growth looks likely to have more of a role for workers of the non-human variety.

As labour markets have tightened, more factories have started to switch to automated production, even investing in companies that make robots for industrial applications.

While investment in fixed assets in general has slowed, interest in robots has been more buoyant, and sales to Chinese customers currently make up more than a quarter of the global market. China is in catch-up mode with 30 industrial robots for every 10,000 manufacturing workers, versus a global average of 62 (the ratio is 10 times below Germany’s and 15 times less than South Korea’s). The Chinese are expected to close this gap, following Japan’s experience during the 1980s when rising wages and the need for productivity gains saw policy support for companies that invested in automation.

The central government in Beijing has been cheerleading the change with Xi Jinping calling for an “industrial robot revolution” and backing it up with tax deductions for purchasers of advanced automation.

Guangdong’s provincial government has also been trumpeting a three-year programme to subsidise robot purchases at nearly 2,000 of its largest manufacturers.

It helps that the payback periods on these kinds of investment are shortening. Between 2004 and 2013, manufacturing wages grew at 14% a year, making robots a more attractive option. This should mean more cases like that of Changying Precision Technology, which shifted its plant for mobile phone parts to an all-robot operation last year. Less than a tenth of its Dongguan workforce of 650 remained in their roles, and the number was set to fall further to 20, the media has reported. Changying says the impact was dramatic. Operations ran round the clock, output tripled and product quality improved markedly.

30

The number of industrial robots for every 10,000 manufacturing workers in China. That’s less than half the global average



Photo Credit: Reuters

Expect PRD factories to use more robots



Photo Credit: Reuters

Gree has plans to diversify from air-con manufacturing to making robots

Another major investor in industrial automation is Gree, a leading manufacturer of air conditioners, headquartered in Zhuhai. It has been boosting productivity with more automation since 2012, including making its own robots and automated guided vehicles.

Industrial robots do the heavy lifting, welding and drilling, and apply coatings such as glue or paint. More advanced models can perform pressing, polishing and packaging work. Importantly, some of the PRD's key industries are well suited to automated production, with producers of carmaking and transportation equipment, electronics, computer components and electrical machinery all expected to benefit.

Multinational suppliers dominate robot sales in China, however, with ABB, KUKA, Yaskawa Electric and Fanuc commanding about 60% of the market, according to the Shenzhen-based consultancy MIR Industry. Shunde, part of Foshan, is one of the districts trying to establish homegrown capabilities, and it currently boasts more than 20 robotics companies. Shunde-based Midea Group is another of the pioneering customers, having introduced robotic assembly to its production lines for household appliances (see page 48 for more on Midea).

Industry analysts warn that most Chinese robot makers are some way behind their foreign rivals, however. Although government subsidies have triggered the creation of a wave of new robotics firms – from 200 to 815 in the two years to 2014 – only 30 of them had completed meaningful research and development, MIR Industry has reported. Of course, the rise of the robots also presents a dilemma for the Chinese leadership. If more factories buy into this kind of mechanised revolution, thousands of workers seem set to lose their livelihoods.

Many businesses must adapt or die. Hence Dongguan's authorities say they will sponsor more than 1,000 "Robots to Replace Humans" programmes by the end of this year, despite speculation that these efforts could put nearly a million people out of work. The central government seems to have come to a similar conclusion – that the robot revolution is coming regardless, so it's better that Chinese firms are using new technology, as well as making more of the robotic equipment that is going to be installed on the world's production lines.

That way, even if robots end up taking over from humans in factories, at least Chinese companies will profit from building, programming and servicing them. ■

1,000

The number of businesses being targeted in Dongguan's 'Robot Replace Human' programme

Profits in the Pearl River

HSBC's Helen Wong discusses the bank's long presence in the PRD



Helen Wong, leading HSBC's push into the Pearl River Delta

HSBC made headlines last year with an announcement that it will recruit 4,000 new employees in the Pearl River Delta as part of a plan to boost annual pre-tax profits in the region to \$1 billion within five years.

Week in China talked to Helen Wong Pik-kuen, chief executive for Greater China at HSBC, about the basis for the plan, and for more on her personal experience of doing business in the region.

Family ties

"Almost every business is looking at China as a growth market," Wong tells WiC. "But at HSBC we are particularly excited about Guangdong province and the Pearl River Delta region within it."

Wong says that HSBC has the advantage of having operated in the region for years and benefits from close cultural links between the Pearl River Delta and Hong Kong, another of its key markets.

Her own background is further testament to the long-term ties between Hong Kong and its neighbour a few miles to the north.

"I have strong family connections to Guangdong," Wong explains. "Although my parents met in Hong Kong, they came originally from two cities in the Pearl River Delta called Dongguan and Huizhou. Later, my grandmother travelled from Guangdong to Hong Kong to look after my siblings and

"Almost every business is looking at China as a growth market"

Helen Wong Pik-kuen, chief executive for Greater China at HSBC



Photo Credit: Reuters

One of HSBC's 50 branches in the PRD

me while our parents were working. That was very typical for my generation.”

Wong says she can recall her first trip to Guangdong as a young child. “The journey is one of the most vivid memories of my childhood as we travelled first by train, then by bus to the township, and finally by oxcart to our village. It felt like such an adventure. I remember that I was even carried in a wicker basket for part of the journey!”

When Wong opened HSBC's new outlet in Meizhou a couple of years ago, she took time to visit the local Hakka museum and recalled conversations in the Hakka language she had with her grandmother as a child. “There were exhibits on how the Hakka people had moved from the north into Guangdong and acquired their name, which means ‘visitors’ or ‘guest people’. When I saw them, I remembered the stories my father told me about our origins and history in Guangdong.”

How the economy has evolved

Parts of Wong's career have coincided with the emergence of the Pearl River Delta as an export economy. “I was involved in negotiations for the financing of projects between foreign interests and local governments,” she explains. “At the time I was quite junior so it was my first real taste of doing business in China, as well as an early glimpse of how the Pearl River region was starting to develop its manufacturing base.”

Businesses from Hong Kong were more likely to invest in industries like toys and textiles, she recalls, while for the Taiwanese there were big shoe factories working for global brands like Nike and Adidas.

By the mid-1990s Wong was running HSBC's capital markets desk, supporting larger clients that wanted to invest in Guangdong, including state-owned firms from China that had listed on the Hong Kong stock exchange.

“Many of these clients were ‘red-chip’ companies like Guangdong Enterprises, China Travel, COFCO and China Merchants,” she says. “They were already well established in Hong Kong but they wanted help with capital for their activities overseas, including some of their projects back in China”.

Later Wong's client base widened again, incorporating the next generation of Chinese entrepreneurs. “Gradually we established commercial relationships with some of the leading private enterprises from the region, including companies like Huawei,” she continues. “We had an advantage in Shenzhen, where many of the newer firms were based, because HSBC was one of the first foreign banks to set up a representative office in the special eco-

conomic zone there. The office was then formalised as a branch in 1985, our first in Guangdong.”

Given her long experience of operating in the region, Wong is also well positioned to review the latest round of special economic zones to be established there. “Qianhai is focusing more on financial innovation rather than manufacturing,” she explains. “That’s apparent in how the zone is taking shape. It’s a much smaller plot of land than the other zones, and they’re building office blocks rather than factories.”

In November last year HSBC announced that it would be partnering with Qianhai Financial Holdings in a new securities joint venture based in the zone. Wong says that it’s an exciting prospect, although still subject to regulatory approval: “We’ve known Qianhai Financial for a while as a client, including helping them to issue a *dim sum* bond. Now we are building a relationship with them to capitalise on the growth of domestic capital markets in China.”

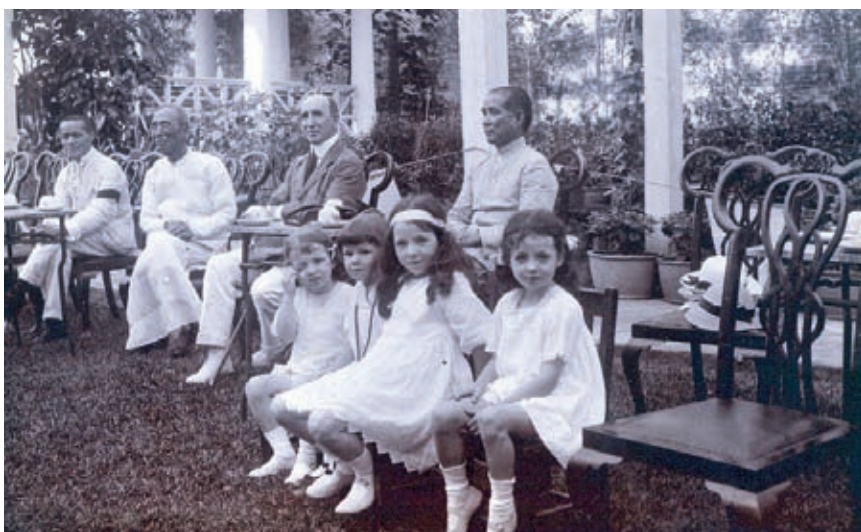
“What’s important for HSBC is that this could allow us to be involved in areas like capital raising, M&A activity, and research and sales onshore in China. That’s not just for our customers in Qianhai – the venture is applying for a national licence that will allow us to help clients in other parts of the country.”

The focal point of another of the new zones – Nansha, on the opposite side of the Pearl River – is going to be different, she says. “It looks very promising for maritime and logistics businesses. It’s a much bigger parcel of land with its own port and there’s plenty of space for warehousing. We think that Nansha will serve as one of the key entry points into the Delta.”

Over 150 years of history in the PRD region

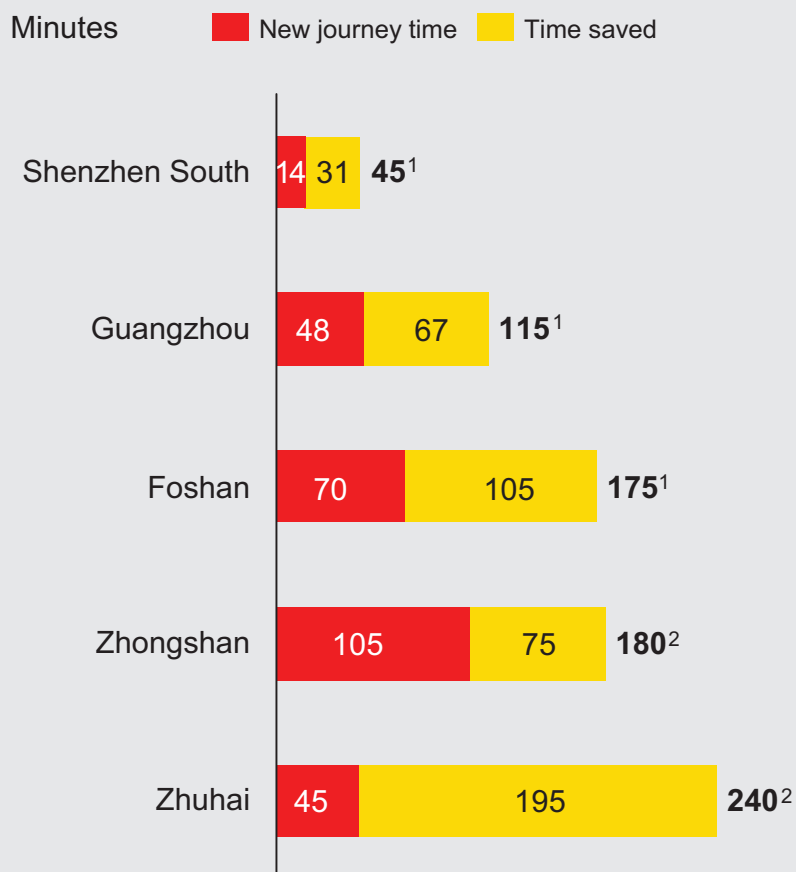
Wong is bullish about the bank’s broader ambitions in the region too. “One of our core competitive advantages is supporting cross-border business,” she explains. “As a privately owned company in the Pearl River Delta you may already be an exporter or perhaps you have aspirations to do more overseas. Our global footprint means that we can connect you with rest of the world, help you to set up in new markets, and even advise you on M&A options if they arise.”

HSBC also has high hopes for its retail business in Guangdong, leveraging the bank’s existing branch network to offer a wider range of consumer products such as insurance, credit cards and mortgages.



HSBC Canton branch manager with founder of modern China Sun Yat Sen in 1923

Current vs. new journey time to/ from Hong Kong after completion of infrastructure



Source: "The Greater Pearl River – 7th Edition" – Invest Hong Kong

1. Time saved based on train travel via new Express and Intercity Railway connections

2. Time saved based on car travel via new Hong Kong-Zhuhai-Macao bridge

"One of our targets is more customers for our wealth management businesses," Wong says. "In some cases it might be executives at the firms that we are already banking as corporate clients. But the opportunity is much bigger than that, especially as Guangdong's per capita income is about twice China's on a national basis."

In growing its share of the market, HSBC hopes to capitalise on the common culture across much of the region. "Some of that interconnectedness comes from the family ties that I mentioned earlier," Wong says. "But there are other ways that we are more connected. People in Guangdong tend to know the HSBC brand better than those in other parts of China, for instance. Its residents have access to Hong Kong's TV channels, which isn't the case for other provinces. And investment in new roads and railways is reducing travel times across the region. It could take many hours to get around the province in the past, but this is changing. I can already get from Shenzhen to Hong Kong in about 40 minutes – and this greater proximity between the Pearl River Delta's towns and cities will be another boost for business." ■

"Guangdong's per capita income is about twice China's on a national basis"

Facing the future

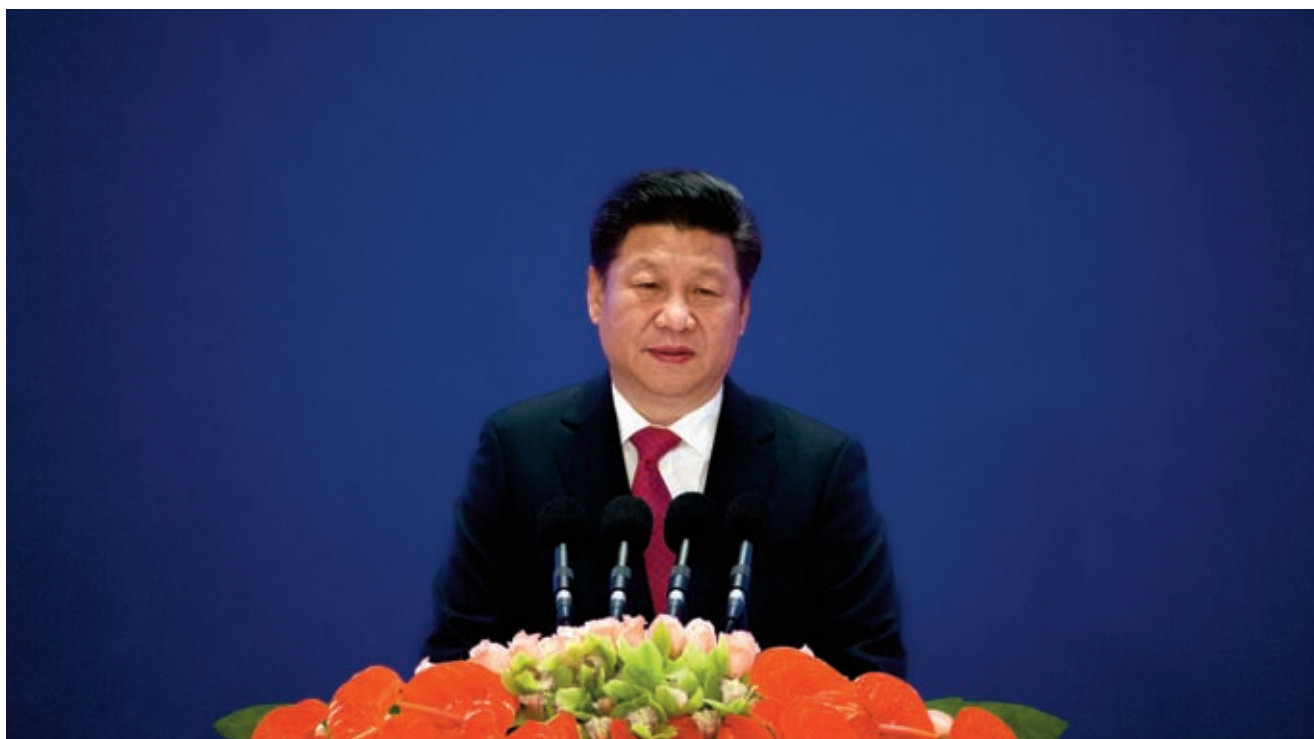


Photo Credit: Reuters

Xi Jinping: made the trip south from Beijing to Shenzhen on becoming Party head in 2012

Soon after becoming head of the Communist Party in late 2012, Xi Jinping made a tour of Guangdong, his first official business outside Beijing.

In Shenzhen he put flowers at the statue that commemorates Deng Xiaoping's visit to the city in 1992 and he planted a banyan tree, just as Deng had done during his visit 20 years before.

China's president has a powerful personal connection to Shenzhen: his father was Guangdong's governor during its early reforms, and one of the architects of Shenzhen's special economic zone.

Political analysts seized on the symbolism of Xi's visit, with some contrasting it to the first days in office of Hu Jintao – Xi's predecessor – who had travelled to a town in Hubei famous for its role in the Communist revolution, where he made a speech lauding Mao Zedong.

Almost 40 years after the PRD took on its pioneering role in the country's extraordinary transformation, Guangdong's economy no longer stands out from the rest of China quite as distinctly as it once did. Yet Xi's visit seemed to signal that Shenzhen and the region around it remain special. "We must keep to this correct path," China's leader told the media. "We must stay unwavering on the road to a prosperous country and people, and there must be new pioneering."

In this section we look at why the region is going to remain at the forefront of changes in China's economy, and outline some of the challenges that need to be overcome if the PRD is going to reach its full potential as the country adapts to a 'new normal'.



Photo Credit: Reuters

Manufacturing matters

Why ought we to worry about the Pearl River Delta's future as a workshop of the world when China is supposed to be 'rebalancing' away from an economy that's long been viewed as too dependent on industrial investment and manufacturing? That trend looks to be well-advanced: in January HSBC economist John Zhu reported in a research note that services had now surpassed industry as the main driver of Chinese economic growth.

But this surprising news was mainly due to weaker manufacturing data, Zhu said, and he warned that it would be a mistake for the authorities to shift the economy too far away from its industrial base. Eventually the economy will move towards a greater share for services and consumption, but it needs to go through an extended phase of industrial upgrading first, he posited.

The reasoning is straightforward: absolute levels of industrial investment are already high but investment in capital stock per individual worker is relatively low, so there is good reason to think that further investment will give productivity a significant boost.

It also means that manufacturing will continue to play a crucial role in generating growth. Investment in new technology for factories and better training for workers – precisely the kind of policies that are now being promoted in the PRD – is still expected to deliver meaningful returns.

Going global

Guangdong's factories have helped to forge its reputation as an export powerhouse. But until relatively recently they had done less to bring China's own brands to the wider world. Much of their commercial contact with global customers was controlled through middlemen in Hong Kong and Taiwan, and the majority of their goods were sold under foreign labels, not as domestic brands.

Today the role of the PRD is changing and so too are the aspirations of its leading firms. It helps that the 'Made in China' moniker has started to get a makeover, moving away from its low-cost, low-quality origins. At city level, reputations are being remade as well, like Shenzhen's newfound status as a hotbed for consumer hardware, where prototypes can be converted into mass-produced goods in record time. And the region's most influential companies are expanding in overseas markets too. Some of these firms are profiled in the next chapter as Pearl River Pioneers. Networking equipment from Huawei and ZTE provides the backbone for many of the world's telcos, and both firms are moving into consumer-facing businesses with smartphone, laptop and tablet brands of their own. White goods makers like Gree



Photo Credit: Reuters

Growth area: one of BYD's environment-friendly buses

and Midea are capturing global market share with their own brands of household appliances. DJI's consumer drone business is taking off overseas. BYD's electric buses are carrying passengers in North America, Brazil and Europe, and it hopes to sell more of its electric cars in foreign markets too.

Each of these companies is making a name for itself with its own products, rather than doing anonymous production for others. And despite their relative youth, they are already becoming global players. These new champions of the PRD are cost-competitive, especially with the economies of scale generated by China's domestic market. They are constantly improving their product quality and they are committed to spending more on branding, research and design.

Still feeling special

Another reason that the PRD will continue to prosper is that it still has a pioneering role as far as policymakers are concerned, as witnessed in the launch of another set of special zones.

Guangzhou-Nansha, Shenzhen-Qianhai-Shekou and Zhuhai-Hengqin New District will all play roles in fostering the next phase of growth in Guangdong, as well as shaping some of the wider changes in the national economy in the years that follow.

Like their predecessors in the late 1970s and 1980s, the zones are prioritising deeper cooperation with the rest of the world, and hope to encourage innovation and industrial transformation. But there is a basic split of duties between the three, shaped primarily by their locations.

Qianhai, with the greatest emphasis on upgrading China's financial services sector in its blueprint, seems likely to be the heaviest-hitter of the group, primarily because of its position between Hong Kong and Shenzhen, the most advanced cities in the region. The prediction is that businesses there will play a key role in deepening cross-border reforms in the capital markets, especially for renminbi liberalisation, which should strengthen Hong Kong's position as the leading offshore centre for the Chinese currency.

To the west of Qianhai is Hengqin, an island separated by a narrow waterway from the Cotai Strip, the centre of Macau's gaming activity. Macau has been one of world's worst performing economies over the past year and a half, following a dramatic downturn in high-stakes gambling in the city, although there's little prospect of its long-term position as Asia's casino king coming

Photo Source:



Photo Credit: Reuters

A high-speed train travelling to Guangzhou

under challenge. The problem is that space in the gaming hub is severely constrained, but officials in Hengqin say they can speed up the diversification of Macau's economy by providing new opportunities for a wider range of businesses. Although gambling won't be permitted on mainland Chinese soil, Hengqin plans to capitalise on its neighbour's reputation by picking up tourism projects of its own, and providing wider access to leisure and entertainment for the millions of people already visiting Macau.

Sitting a little further north is Nansha, the largest of the three new zones. Nansha's main advantage is its position at the heart of the Pearl River Delta, only a short drive from the provincial capital, Guangzhou. It seems most focused on capitalising on its port facilities by establishing itself as a new hub for maritime logistics, shipbuilding and ship insurance. Local planners are also wooing hi-tech electronics firms, medical device companies and car-makers, promoting the benefits of their heavy investment in road and rail links.

"We are building a 'one-hour life cycle' encompassing Nansha, Hong Kong and Macau," Guangzhou's then mayor, Chen Jianhua, explained to the China Daily last year. "Our goal is to make sure that it takes no more than one hour for people to commute to work within the region. They can leave their home in the morning and be back in the evening."

Roads and rivalries

An advanced network of roads and railways is a key feature of the PRD's economic heft. The transport infrastructure along Guangdong's coast is already some of the best in Asia, although the region continues to be even more knitted together as its urban area spreads.

There are seven international ports in the PRD, led by Shenzhen and Hong Kong, and plenty of international connections at airports in Hong Kong, Guangzhou, Shenzhen and Macau. Inside China, new bullet trains connect Guangzhou and Shenzhen with other cities on the eastern coast, while another high-speed line heads north through Hunan province and onwards all the way to Beijing.

The investment in new expressways and rail networks around the Pearl River has also been substantial, in pursuit of the policy goal of ensuring travel times between any of the major urban areas is less than an hour.

Shorter journey time is one of the main benefits envisaged for a new Express Rail Link between Hong Kong and Guangzhou. Designed to plug Hong Kong into China's national high-speed network, the much-discussed link will connect Hong Kong with Guangzhou in 48 minutes, with stops in Shenzhen and Dongguan along the way. But progress on Hong Kong's stretch of high-speed line has slowed to a crawl and it failed to meet its completion

48 minutes

The journey time between Hong Kong and Guangzhou, once Hong Kong's stretch of express rail is ready

Macau

The only game in town

Maybe Macau's luck is turning. How else to explain the relief at news that its casino industry shrank less than expected in February, amid hopes of an end to a slump that has lasted for almost two years? The former Portuguese colony said gambling revenue dropped 0.1% (year-on-year) in the month. Although it was the 21st consecutive fall, it was the smallest decline in 20 months.

Macau's garment manufacturers were some of the earliest investors in businesses in China in the late 1970s, but the city's contribution to the PRD was subdued, serving primarily as a destination for fun seekers from Hong Kong.

The mood changed on Macau's return to Chinese sovereignty in December 1999. As the only place in China where casinos are legal, the enclave was catapulted into the big league. Gross gaming income surged, topping \$46 billion in 2013. At the peak, punters were betting seven times as much as their counterparts in Las Vegas. As such, Macau's casino culture could be seen as a primary beneficiary of a wealthier PRD and as a leading indicator for the growth in services and consumer spending in the region. (Around a third of visitors are from Guangdong.)

But the city's success story was showing signs of sagging by the end of 2014, when full-year revenues at the casinos fell for the first time since liberalisation. Last year was much worse, with revenues dropping by more than a third to \$29 billion. One of the messages from the meltdown is the risk of relying on a single-track economy. Another is that what Beijing allows, it can also take away. Much of the current crunch stems from Xi Jinping's anti-corruption campaign, which has ravaged the VIP gambling underpinning the territory's gaming model. Many of the wealthiest gamblers have been scared off, and a more concerted effort to target money laundering and improper capital flows is making it harder for junket operators to finance those that do come to town.

Revenues have collapsed at a time when the casino operators have been launching a series of new projects. In fact, the new investment is an effort to reduce Macau's reliance on gaming, which makes up about 80% of its revenue. The new attractions are designed to lure visitors who want to shop, eat and go to a show, with a plan to steer the revenue mix closer towards



that of Las Vegas, which only derives a third of its income from gambling.

Before that can happen Macau's transport infrastructure needs more of an upgrade, including the border crossings with China, which regularly clog up with people. With 640,000 residents, the city is already one of the most densely populated places on earth. Add to that the 31 million visitors who arrived last year (slightly down on the year before), and Macau is bursting at the seams.

The city's authorities are pushing for a revamp of their economy and they say they will look at how the casinos have diversified their attractions when gaming licences come up for renewal. That hasn't prevented plain speaking about the commercial realities, including comments from Lawrence Ho, chairman of Melco Crown, at the opening of his new resort last year. "As bad as it sounds, I don't think there's a future for a pure non-gaming resort in Macau," he warned. "The truth is: gaming is really the financial engine. Yes, you can have these great integrated resorts, but without the gaming component the maths doesn't work."

Yet Macau's headiest days of relying on a relatively small group of fantastically wealthy players are surely behind it, especially with the Chinese government's more determined focus on preventing the misuse of public funds and reducing illicit capital flows. In the meantime the casino bosses are squinting at the slumping monthly take through their fingers, hoping for signs that the declines have bottomed out. But the real wager is a longer-sighted one: not just that more of the high rollers will return but that China's consumer revolution will bring millions more tourists to Macau, strengthening the foundations of its entertainment economy.

\$46 billion

Gaming revenues in 2013, Macau's best year on record. Betting in the former Portuguese colony was seven times greater than Las Vegas



Photo Credit: Reuters

Under construction: the new bridge between Hong Kong, Zhuhai and Macau

deadline at the end of last year. That's been embarrassing for the city's mass transit provider, which has a reputation for excellence in engineering. It now says the new link won't launch until the third quarter of 2018 at the earliest, amid political wrangling over the ballooning cost of the project.

Indeed, the politics of transport encapsulate some of the challenges facing the PRD, where any sense of communal identity must first overcome the competing ambitions of each of its individual cities.

Huge projects like the Hong Kong-Macau-Zhuhai Bridge – a 42km-combination of tunnels, bridges and man-made islands bringing Hong Kong and the western banks of the Pearl River Delta into road contact for the first time – offer an example. The project has taken years to come to fruition, with approvals needed from the governments of Hong Kong and Macau, the authorities in Zhuhai's special economic zone, Guangdong's provincial government and the central government in Beijing. With so many different interests and jurisdictions, the debate about how to finance the bridge has also been a difficult one. No wonder, perhaps, that Gordon Wu, the Hong Kong businessman who has championed the crossing for most of his career, once likened the project to "having five mothers-in-law".

Construction of the bridge is also behind schedule, but when it opens next year it will serve as the first of Hong Kong's road links into mainland China that doesn't run through Shenzhen.

Shenzhen's planners are pushing for a direct crossing to the western Pearl River Delta of their own (from near the city's international airport to the city of Zhongshan) just 20 miles north of the Hong Kong-Zhuhai-Macau link.

All of this new investment will be positive for transport times across the region. But it is also a symbol of the competitive instincts of the different cities, which all want to grab a larger share of the regional PRD economy.

Presumably the new Shenzhen link will alter the economics of the bridge connecting Hong Kong and Zhuhai, drawing some of its potential traffic further north. Even so, it was objections from Guangzhou that are said to have held up Shenzhen's plan, after concerns that the crossing would obstruct shipping on its way to Nansha, Guangzhou's preferred manufacturing and logistics hub.

The Shenzhen-Zhongshan project now has the go-ahead, although it seems likely to incorporate a sea tunnel as well as a bridge, perhaps to mollify some

of the opposition to the plan in the provincial capital.

In another sign of local rivalry, Guangzhou's policy chiefs were celebrating in February when the State Council approved their plans to cement the city's position as a trade centre and transportation hub, signing-off on its target to have a population of 18 million residents by the end of the decade. Local analysts described the announcement as a sign that Guangzhou will try to expand its influence over nearby cities, including Hong Kong. Previously, the call to develop Guangzhou's port and aviation facilities hadn't enjoyed Beijing's wholehearted support, partly due to concerns about the impact on public opinion in the former British colony. Now the mood seems to be shifting and Guangzhou may assert more of its political authority, wresting back some of the prestige and promoting itself as the leading city in the PRD.

Mind the gap

Other commentators have warned that the Qianhai financial zone in Shenzhen could challenge Hong Kong's regional role in financial services, especially if the new district secures special privileges in cross-border capital flows.

The counterargument is that Qianhai will take years to threaten Hong Kong and that it seems more likely to serve as a complementary financial hub, offering space for Hong Kong's financial services industry to expand.

The debate about the impact of regional integration is similar in the property sector, where critics of Hong Kong's sky-high property values contend that prices can only fall as the Pearl River Delta becomes a more integrated economy.

To some degree the gap with Hong Kong is already narrowing, especially in Shenzhen, where property prices have increased more than 500% over the past decade, surpassing Beijing and Shanghai as the most expensive place in China to buy real estate.

But homes and apartments in the rest of the Pearl River Delta still cost significantly less than in Hong Kong, prompting questions about what happens to the city's real estate once it gets easier to live and work in cheaper parts of Guangdong.

Might not some of Hong Kong's residential real estate fall in value when it becomes easier to commute over the bridge from nearby Zhuhai, for example? And as transport times to Guangzhou and Shenzhen are cut to less than an hour, why pay so much more for a tiny apartment in the former colony? For a Hong Kong middle class that has been priced out of the prop-

500%

Increase in Shenzhen property prices over the past 10 years



New bullet train could be catalyst for a fall in Hong Kong's property prices



Photo Credit: Reuters

Hong Kong

The trouble with tourists

Few cities have as much at stake in responding to the changes in the Pearl River Delta as Hong Kong. For years it was the dominant presence in the PRD – at least from an international perspective – and it profited hugely from its economic transformation. But its former success means that it has most to lose as the context changes. Giving up its role as the global gateway to the region, Hong Kong must now forge a new path.

China's boom is opening up new opportunities for Hong Kong to prosper. But the impact has sometimes been unsettling, depending how the city sees itself and its relations with its gigantic neighbour.

Take the loosening of visa regulations for visitors from mainland China after 2003, which allowed residents of Beijing, Shanghai and eight Guangdong cities to visit Hong Kong individually, rather than as part of tour groups. Designed to help Hong Kong recover from the virtual shutdown of the SARS epidemic, the new rules were a bonanza for the tourism and retail sectors. Further relaxation in visa restrictions saw arrivals from China increase more than three-fold to more than 46 million people by 2014, or about three quarters of Hong Kong's annual visitor total.

Yet some Hongkongers greeted the influx with growing irritation, annoyed that their local stores were being converted into outlets selling luxury goods to Chinese visitors and complaining that popular districts were swamped with tourists. Rising property prices were blamed on cash-rich buyers from the mainland too, while so-called parallel traders, who buy suitcases-full of goods like milk powder and toi-

leties to resell across the border, were targeted by angry protests.

Last year the visitation scheme was tightened a little and the total number of mainland tourists then fell for the first time since the city was returned to Chinese rule almost 20 years ago. Almost immediately, Hong Kong's retailers were bemoaning the drop-off in sales of jewellery and watches, while its tourism bosses expressed fears that Chinese spending was being lost to newer holiday choices in South Korea, Japan and Taiwan.

The situation underlined Hong Kong's dependence on China's economy for its tourism and trade. But the local debate about the tourist influx also stirred a reaction in China, where some have a sense that Hongkongers are unpatriotic and unappreciative, especially when the city makes so much money from its mainland visitors. This is the conundrum that Hong Kong has to solve: how to square its realisation that it can only prosper by integrating more deeply with the PRD with its deep-rooted psychology that it should somehow stand apart from its neighbour, separated by its laws and lifestyle.

46 million

Chinese tourist trips to Hong Kong in 2014;
last year visitor numbers fell slightly

erty market, a new option will be to buy a more reasonably priced apartment or house in Guangzhou and commute – much as a financial services worker might buy in Hertfordshire and travel to work in London.

On the flipside the richest people in the PRD may wish to have a base in Hong Kong. It's reckoned shorter transport times and smoother immigration processes will spur more southbound traffic as mainlanders come in and out of Hong Kong in greater numbers.

After all, living in Hong Kong – and sending your kids to an international school – appeals to many businesspeople from China. The city's real estate sector has been such a popular investment choice that the Hong Kong government imposes a 15% surcharge on property sales to non-residents. Buyers from mainland China accounted for as much as 40% of purchases of new property before the tax was levied, according to JLL, the real estate services specialist, although the share had fallen to about 10% last year, as the Chinese broadened their horizons to property markets in the UK, the US and Australia.

Closer connections with the mainland have spurred prices in commercial property in Hong Kong, JLL reports, and rents and values have spiked because of the influx of Chinese visitors. Hundreds of mainland corporates have been taking new office space in the city, while JLL is also predicting a boom in warehousing facilities, because Chinese companies will demand the higher quality of Hong Kong's logistics services as they move up the value chain.

Finding a role

Predicting exactly how the Pearl River Delta is going to change is no easy matter. An easier forecast is that change will happen quickly in a region where rice fields are already being replaced by robots, and sweatshops are giving way to smart manufacturing.

Simply put, the Pearl River Delta is undergoing its second great transformation (and in less than a lifetime). Partly that's because many of the forces that boosted its dramatic emergence – industrialisation, booming world trade, cheap labour and low-cost manufacturing – have been fading. Yet it's also a mark of the region's impressive achievements, as its best companies go global and its pillar industries undergo upgrading and new investment.

Trumping Tokyo as the world's biggest 'city' – to cite that World Bank study again – the PRD is already home to a vibrant generation of manufacturers and consumers. Boundaries will continue to blur across cities and industries as urbanisation increases. But a basic separation of duties might look something like this: Hong Kong holds on to its position as the region's financial and professional services hub, taking on the role of a London or New York; Macau's contribution is closer to that of Las Vegas, a leader in leisure and entertainment; Shenzhen stands out as the Silicon Valley, a launch-pad for the future generation of Chinese start-ups and a focal point for investment in tech and consumer hardware; Guangzhou exerts its influence as the political capital, regional transport hub and headquarters for the province's larger state-owned firms; and cities like Foshan take on the mantle of modern manufacturing by smaller firms, infused with the spirit of Germany's *Mittelstand*.

Just like today, competition between these cities will be constant and coordinating a common approach that benefits them all will be a challenge.

But policy guidelines will only get the PRD so far. It's just as likely that the animal spirits that generated Guangdong's first great boom will play their own role in stimulating its economy's second act, as this great sprawl of cities and sectors combines into something much greater than its constituent parts. ■



Photo Credit: Reuters

Imagining the future: an augmented-reality headset from a start-up in Shenzhen

PRD pioneers

No analysis of the PRD would be complete without a look at the companies that have transformed the region's prospects. It goes without saying that a lot of businesses have been founded in the PRD, particularly in Shenzhen in the years after it was designated as a special economic zone. Here we have chosen five of the firms that offer exemplary cases of pioneering business success.

Four of them hail from Shenzhen: Tencent, Huawei, BYD and DJI. They respectively dominate the internet, telecoms, electric carmaking and drone production. We chose DJI as an example of a younger firm, and a highly symbolic one: drones are the first category in consumer electronics to be invented and led by a Chinese brand. Tencent is a dominant internet and social media player, while BYD is well placed to take advantage of China's electric car revolution. Huawei has become one of the world's leading makers of telecoms infrastructure and is increasingly building its consumer brand via innovative smartphones and smart watches.

However, we begin with Midea, a firm founded earlier than the other four and one of the classic entrepreneurial success stories from the nascent days of Deng Xiaoping's Reform and Opening Up policy. Midea is an emblem of the PRD's rise as a manufacturing powerhouse. The home appliances maker also speaks to the evolution underway in the PRD's economy as it moves from cheap labour to smart manufacturing.

Midea

The home appliances star of Shunde is going global

Lower profile than most tycoons in China, He Xiangjian is the country's most generous businessman, according to the latest study from Harvard University's Kennedy School, which reports that the 73 year-old founder of Midea donated Rmb400 million (about \$63 million) last year, mostly to social welfare causes.

A business that started in Shunde in 1968 as a workshop making bottle tops, Midea is now a multinational home appliance manufacturer and one of China's most successful private firms.

By the early 1980s He's factory had diversified into making fan parts and then launched an electric fan of its own, called the Pearl. In 1981 the company was renamed and shortly afterwards it began to produce air-conditioners, registering the Midea brand in 1999. With sales of Rmb111 billion (\$17 billion) in the first three quarters of 2015 – its current financial year – Midea's business empire now encompasses refrigerators and washing machines too, as well as a range of smaller household appliances.

He Xiangjian retired from his role as chairman of Midea Group four years ago, breaking with local convention by handing his position to a non-family member and professional manager, Fang Hongbo. Midea has done things differently for decades, since becoming the first township enterprise to list on the Shenzhen stock exchange in 1993. In the years that followed, it was reshaped into a company controlled by its senior management rather than the

local government. There was a relisting in Shenzhen in 2013, crystallising the restructuring of He's personal stake and the handover of the reins to his senior executives.

HSBC's analysts say that this has helped Midea develop the best incentivised management team in the sector, which holds more than 9% of the company's shares through direct equity stakes and share option schemes.

HSBC also argues that China's white goods sector deserves more attention from investors because its companies are going to reap the financial returns of advances in smart appliances, while continuing to benefit from a level of industry consolidation that sees Midea, Gree and Haier control more than half of the market between them.

Midea's strategy has seen it steadily diversify its product portfolio and it now enjoys a leading market share in smaller appliances like microwave ovens and rice cookers. Most of its income continues to come from larger appliances, however, where it ranks number two in air conditioners and washing machines as well as in water heaters and number three in fridges.

It has also been reducing its reliance on original equipment manufacturing for other brands and moving towards selling more of its own products, says Kevin McGeary, corporate communications manager at Midea.

An early stage of this transition has focused on business-to-business sales, where Midea now offers its own air conditioning brands to commercial customers like airports, hotels and sports stadia. An example: under its own brand, Midea won the contract for commercial air conditioning at this year's Rio Olympics.

Building brands at consumer level is going to take longer, McGeary told WiC, but Midea is partnering with established players to deepen its experience in more developed markets, including a joint venture with German giant Bosch that started selling appliances in Europe this year.

Joint ventures in other markets, including Brazil and India, have also helped to introduce the Midea brand to new customers.

Midea took longer to turn to international markets than many of the foreign-invested manufacturers in cities such as Dongguan and Shenzhen. But it is staunchly global in its ambitions today, with more than a third of its revenues from exports last year. As it has grown, it has expanded its production from its home base in Guangdong into six other Chinese provinces, and

1968

The year that He Xiangjian founded his first factory, a bottle-top maker in Shunde



Midea's headquarters and its founder He Xiangjian

launched international bases in Vietnam, Russia, Egypt, Brazil, Argentina and India.

Currently, operations are strongest in Southeast Asia and the BRICS economies, McGeary says. Progress as an original brand manufacturer in the United States is at an earlier stage, although Midea has signalled its intent in the American market by launching a research and development facility in Kentucky. Recently it was reported to be in the running for General Electric's appliances business in the US, although the division was then sold to its local rival Haier, from Qingdao.

In the meantime Midea has been establishing itself as a likely leader in 'smart home' technology, as China's appliances firms explore alliances with the country's tech giants in pursuit of what promises to be a major market.

In March 2014 Midea signed a partnership deal with Alibaba Group to develop a smart air conditioner, and later in the year it sold 1.29% of its equity to the smartphone maker Xiaomi for Rmb1.3 billion as part of a plan to profit from the growing use of internet-connected mobile devices. To capitalise on the partnership, Midea launched its M-Smart smart home strategy, so as to enable 30 different product categories to become interoperable.

The deal with Alibaba draws on the Hangzhou-based company's cloud computing unit to allow customers to activate their appliances over the internet, with the additional benefit of a customised sales channel through Alibaba's TMall. The tie-up with Xiaomi aims to integrate a fuller range of Midea's products through customer smartphones, with the initial coverage focusing on smart rice cookers that remind their users to set timers, recommend quantities for meals and advise on sugar levels for diabetes sufferers.

The partnership has also produced an intelligent air conditioner that adjusts the ambient temperature to suit the body condition (as monitored by one of Xiaomi's wearable devices, an electronic bracelet that talks to Midea's iYouth air-con brand).

Another area where Midea is taking the lead is 'smart manufacturing', particularly the introduction of more automation to its production lines.

"Obviously, the days of cheap China and cheap manufacturing are disappearing fast," McGeary told WiC. "Midea has been responding to the changes for a while and coming into line with government policies that encourage investment in more automation."

Two joint ventures have been established with the Japanese robotic firm Yaskawa. "One is based around more automation in how Midea makes its products, while the other looks more at developing robots as products themselves," McGeary says.

Midea started to automate more of its air conditioner manufacturing in 2011 and it now has four unmanned production lines at its main air conditioning base. Total labour costs have fallen by 70% as a result, and the deployment of more than 800 robots across the production process for the group has also improved quality, guaranteeing a 99.9% pass rate.

Huawei Technologies

Is this Shenzhen-based firm China's foremost multinational?

Are you a striver or a labourer? That was the question being posed in the media three years ago following speculation that Huawei, a leading maker of telecoms infrastructure equipment, wanted its staff to sign a 'Striver Declaration'.

According to the reports, Huawei's managers were asking staff to choose between the two categories. Strivers were promising to give up paid leave and



Photo Credit: Reuters

Huawei's headquarters in Shenzhen and its hard-charging boss and founder Ren Zhengfei

overtime pay, but there was more likelihood of promotion and a better chance of a year-end bonus in return. Those who opted for labourer status (i.e. the wrong answer) would keep their holiday benefits, but their career prospects were likely to be viewed more dimly.

The news item seemed typical of the hard-charging style that had helped Huawei to grow rapidly since 1998, when Ren Zhengfei, a former engineer in the People's Liberation Army (PLA), started the company as a third-party reseller of telecom devices in Shenzhen.

Ren, who rarely grants media interviews, queries his enigmatic reputation. "I am not mysterious at all," he complained at a rare public appearance at Davos last year. "I know nothing about technology and I know nothing about finance. If you don't know much, you'd better not show up, otherwise people might see the back of your pants are dirty."

Ren's military background has also proved a hindrance in some of Huawei's overseas markets, especially the United States, where there are suspicions about its relationship with the Chinese military. Huawei refutes any link to the army but the allegations have been enough to stymie some of its commercial progress. Like ZTE, its Shenzhen-based rival, it has been blocked from selling its heavier-duty network equipment in the US since 2012, when the House Intelligence Committee accused both companies of spying for the Chinese authorities.

Huawei's response has been nimble-footed, focusing on selling networks, routers and switches in countries less concerned by the allegations of military ties, and moving into consumer products like smartphones, which have the benefit of avoiding similar scrutiny from regulators.

This dual-pronged strategy has helped Huawei to become one of the Pearl River Delta's great success stories and probably its most influential brand outside China. Revenues for its smartphone business grew by nearly 70% last year to more than \$20 billion, after shipments of 108 million phones. Huawei's network-building division is still the larger business, however, underpinning the company's plans for 'end-to-end' solutions for connected homes and offices via the so-called Internet of Things.

Huawei caters for more affluent customers with premium handsets that the Financial Times tech reviewer Jonathan Margolis has become a big fan

70%

Growth in Huawei's smartphone revenues last year

of. “Ten years ago, Huawei’s products were clunky and imitative. Now it’s a world player, making beautiful phones under its own name.” In March he tested the Huawei W1, a smart watch he described as “the most fun and – I think – stylish”.

Although it has yet to make more of a breakthrough in the American market, Huawei had climbed to third place in the global rankings by the end of last year in handset volumes, just behind Samsung and Apple. Despite being less than 20 years old, it earns revenues of just over \$60 billion, and reports a “solid increase in profits and cashflow” annually.

With its own designs in chipsets and handsets and network communication technology, Huawei seems set to mount a further challenge to its more recognised rivals. “Four years ago, no one knew who we were. Even in China”, Richard Yu, the head of Huawei’s mobile devices business, told an industry conference in February. Now it expects to become the number two smartphone seller by 2019 and the number one just two years later. “Before, we were taking share from smaller players, but with time, we will get market share from Apple and Samsung,” Yu promised.

Tencent

Also from Shenzhen, only Alibaba rivals it in online dominance

“In the south, you do your own thing” Tencent boss Pony Ma once told Bloomberg, the news agency. “You do your talking through your product.”

Ma, who was born in Shantou in eastern Guangdong, was responding to comparisons to some of the more flamboyant tech tycoons, like Jack Ma, the founder of Alibaba. Despite his lower-profile, the Tencent boss has built an equally impressive company to Alibaba, starting out from Shenzhen with an instant messaging platform called QQ in 1998. Later he diversified into online games, before introducing China’s first social networking site Qzone.

Tencent’s success has been driven by the mantra of ‘customer progression’: transporting hundreds of millions of its users through each new stop on the internet journey, based on the knowledge that its gigantic scale gives it a huge

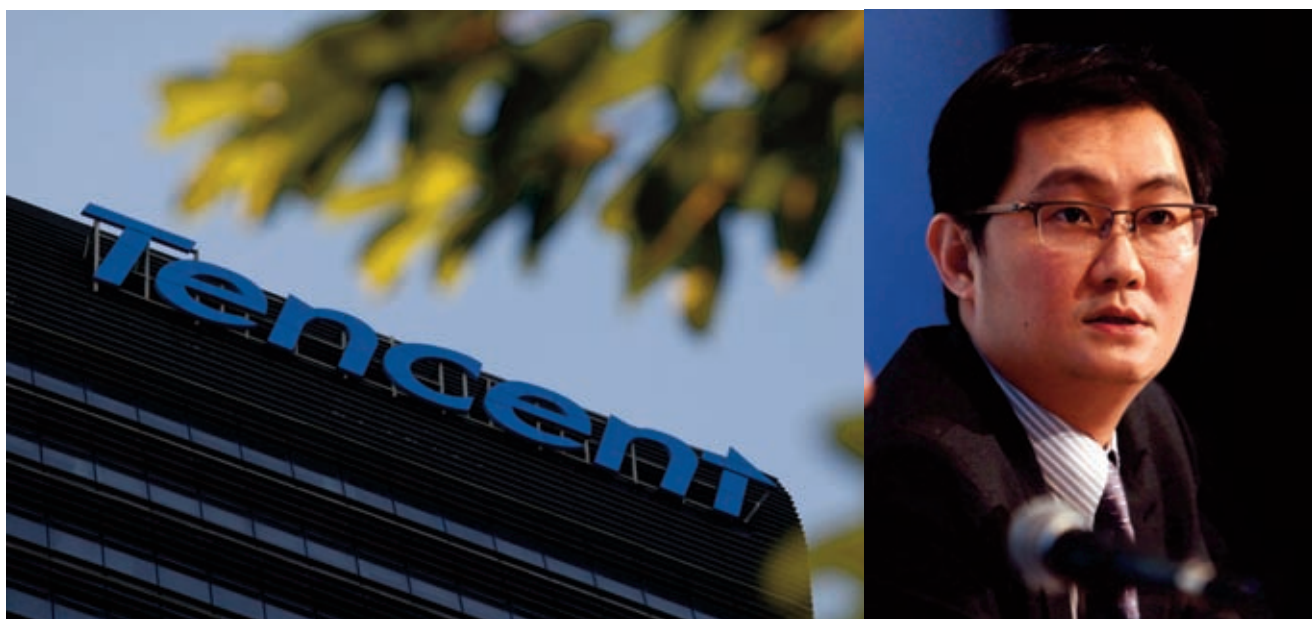


Photo Credit: Reuters

A titan of the Chinese internet, Tencent was founded by Pony Ma in Shenzhen in 1998



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competitive edge. But Ma's reputation is more as a man who delivers on the details, rather than waxing lyrical about the bigger picture. Or as he once told a tech conference in the United States: "Ideas are not as important in China – but execution is."

The jewel in Tencent's crown is WeChat, China's killer mobile app, which has about 650 million active customers, many of whom use it throughout the day. Comparisons of WeChat with the likes of WhatsApp and Facebook are difficult because it offers a range of services that far exceeds its international peers. The commercial model is also different, with advertising sales accounting for only a fifth of its revenues (Facebook relies almost entirely on income from ad sales, for instance). Traditionally, Tencent has drawn heavily on player payments for its online games, and the sale of online add-ons like emoticons and virtual gifts.

Ma's strategy is to make WeChat the dominant gateway for wider activity on the mobile phone, so that people choose it to talk to their friends, play games and watch videos, check out advertisements and even do their shopping. In fact Tencent's rise is bringing it into direct competition with China's king of e-commerce, Alibaba. The battle is going to be fiercest in mobile commerce, where WeChat is well positioned for the advent of the O2O (online-to-offline) era in which people use its payment tools to purchase goods and services. According to Tencent's own data, 420 million people sent each other lucky money with WeChat's payment service during this February's Chinese New Year celebrations. In total more than 8 billion 'red envelopes' were sent via WeChat, or eight times more than last year. To put this into context, PayPal reported 4.9 billion transactions over 2015, less than half of the monetary transactions made on WeChat in the one-week holiday period.

650 million

Number of users of Tencent's popular WeChat online service

BYD Auto

Forget Tesla, this PRD firm sold more electric cars last year

How do you get the attention of Warren Buffett, the world's most respected investor? For Wang Chuanfu, the founder of BYD Auto, one of China's leading car manufacturers, the tactic was to do something rather dramatic. Meeting with a team from Buffett's Berkshire Hathaway, Wang surprised his visitors with a demonstration of his green credentials. He took a glass of recycled electrolyte fluid from one of BYD's rechargeable batteries and drank it. Talk about faith in your own product!

Buffett's team turned down the suggestion of a sip themselves. But they bought 10% of BYD for \$230 million.

Initially known for making mobile phone batteries, BYD gave its investors a jolt when it announced that it would be moving into the electric car industry in 2003. But news of the backing from Buffett, as well as a policy context in which the Chinese authorities were set on promoting greener cars, buoyed stock market sentiment.

In 2008 BYD brought its first full plug-in electric vehicle to the Detroit auto show. Combining its green technology business with its investments in gasoline-powered cars, BYD's stock soared. Within a year Buffett had made more than a billion dollars on his stake.

Progress since then has been slower than Wang hoped and BYD's share price fell by more than 80% over 2010 and 2011 as its investments in new energy markets failed to pay off. The government's prediction of 500,000 new energy vehicles by 2011 fell flat (only 8,159 hybrid and electric cars were sold that year) and sales of BYD's gasoline-powered vehicles – still the dominant contributor to its business – tailed off.

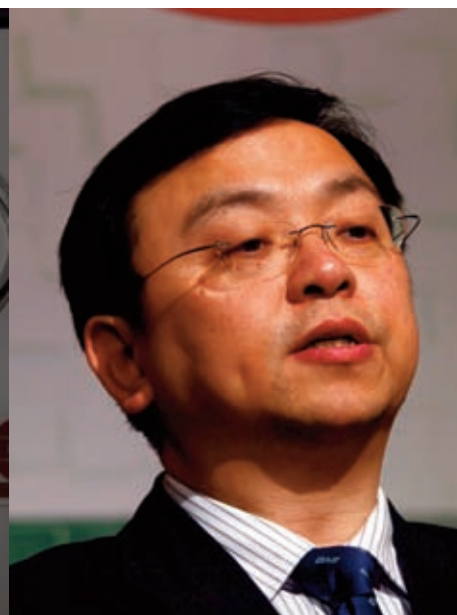


Photo Credit: Reuters

From batteries to electric cars, BYD's boss Wang Chuanfu has a bold vision

BYD had got too far ahead of the rest in predicting an explosion of electric car sales, while its critics carped that its electric cars were too expensive and that consumers needed more convincing about their reliability.

Nonetheless, BYD sold about 10,000 electric cars more than Tesla last year, delivering more than 61,000 vehicles, or three times the number for 2014.

The company's shares were also boosted in December when the central government announced a ten-fold increase in its targets for electric vehicles on the roads by 2020, plus new promises to speed up construction of the all-important battery-charging networks across the nation.

In the meantime BYD has been concentrating on sales of its greener vehicles to public transportation systems, doing best in its hometown of Shenzhen, where its electric-powered models have been adopted in the local taxi fleet.

It has also sold buses to cities around the world, including London, Amsterdam and Tokyo, and Wang has set goals of doubling its sales of electric buses in the next three years.

\$230 million

Price that Warren Buffett paid
for a 10% stake in BYD

DJI

An unlisted Shenzhen tech start-up with 'unicorn' status

Shenzhen-based DJI is reaching places that it could hardly have envisaged just a year or two ago. Last January one of its drones plunged into the White House lawn, prompting a security panic. And a few weeks later another of its drones was crash-landed onto the Tokyo office roof of Abe Shinzo, Japan's prime minister.

The company has responded by tweaking software that prevents its customers from guiding their machines into no-fly zones like airports (and now the White House, it seems), forcing them from the air if they cross certain GPS coordinates. But DJI continues to fly high itself, however, as the leading man-

manufacturer of commercial and recreational unmanned aerial vehicles (UAV) for photography and video. For the champions of a more integrated Pearl River Delta, the company is a vision of the region's future: its commercial success has been forged in the 'maker culture' of Shenzhen, but its origins were inspired across the border in Hong Kong.

Wang Tao founded the firm in 2006 while doing an electronic engineering degree at the Hong Kong University of Science and Technology. A class project in remote-control helicopters morphed into a small business after graduation, with Wang selling flight control systems to hobbyists. But the real breakthrough came three years ago with the release of the first of the Phantom series of drones. The easy-to-assemble quadcopters costing less than \$700 were so straightforward to fly that the market exploded beyond geeks and amateur enthusiasts. DJI drones are now flown by photographers and filmmakers, and have built up a following in industries like agriculture, energy and security.

DJI's drones are something of an industrial landmark: the first category in consumer electronics to be invented and dominated by a Chinese brand.

"Chinese people think imported products are good and made-in-China products are inferior. We're always second class," Wang complained to Fortune magazine last year. "I'm unsatisfied with this overall environment, and I want to do something to change it".

DJI's revenues have surged since the Phantom range was first introduced, rising from \$4.2 million in 2011 to sales estimated at about \$1 billion last year. Silicon Valley venture capitalist Accel Partners invested \$75 million in DJI last May, valuing Wang's business at about \$8 billion, according to press reports. ■

\$8 billion

Latest valuation of unlisted DJI placing it in the 'unicorn' category



Photo Credit: Reuters

A flight of fancy while studying in Hong Kong led Wang Tao to found drone firm DJI in Shenzhen

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