

# *Supply chain strategies*



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## Observations

1. Rising productivity and moves inland are offsetting declining cost advantages.
2. Due to the country's size, proper location selection for your supply chain is critical for corporate strategies that position China as a key market.
3. China still boasts unsurpassed flexibility and robust infrastructure.
4. Product quality risks can stem from China's pricing pressures and low profit margins.
5. Lower costs, talent, incentives and proximity to market are compelling reasons to move research & development functions to China.

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## Recommendations

1. Make sure you balance your China cost considerations against other supply chain attributes such as asset performance, flexibility and responsiveness.
2. Align tax considerations with supply chain models such as SCOR to drive operational sustainability and cost savings.
3. Consider multiple manufacturing hubs as a potential solution, factoring in global logistics, transfer pricing and local incentives.
4. Work with your suppliers, and provide them with the tools to monitor the quality standards of their operations and that of their contractors.
5. Be prepared to make commitments to train new research staff on practical analysis, standard methods and processes.

*There are many opportunities for multinationals in China to reduce product cost and supply chain costs, as well as developing a strong base from which to compete with local companies in the Chinese market. Close cooperation amongst companies and supply chain partners can lead to savings and mutually beneficial outcomes.*

**Craig Kerr, PwC's Greater China Operations Leader**

In late 2011, PepsiCo sold its Chinese bottling operations to Tianjin-based Taiwanese beverage company, Tingyi Holding.<sup>1</sup> To some, the deal didn't look great on paper. PepsiCo gave up its bottling operation, valued at US\$600 million, and in return received a 5% indirect stake, worth US\$55 million, in Tingyi's affiliate bottling company – a US\$545-million loss on a single deal.

But this was a strategic sale for PepsiCo – which, after a couple of years of straight losses in its bottling business, had not been faring well in the Chinese market. By having a local Chinese partner take over its bottling services, PepsiCo gained Tingyi's well-established and extensive distribution channel. And with a new channel to sell more volume, PepsiCo gave itself a chance to get its China business back in order.

Prior to this joint venture announcement, PepsiCo had limited access to national distribution networks, a fairly rudimentary requirement for China's food-and-beverage market. But with the right distribution channels, PepsiCo could now restore its China growth strategy by improving on the strength and reach of its supply chain, and increasing the speed with which it brings its product innovations to market.

Supply chain performance in China is important to those who perceive China primarily as a low-cost sourcing or manufacturing region. But for those targeting the China market, getting your supply chain right can give you a competitive advantage. Not getting it right can be the difference between success and failure.

The following are top supply chain considerations for multinationals in China. We'll address each in turn.

1. Cost
2. Location
3. Flexibility
4. Quality and supply assurance
5. Sustainability
6. Research and development

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1. Zacks Investment Research. "Pepsi Partners Tingyi in China." *Zacks Equity Research Analyst Blog*, 7 November 2011

# Rationalising costs

For multinationals in China, cost is often a top consideration – and increasingly a top concern. Rising prices and shifting exchange rates are further eroding China's cost advantages. In a 2012 American Chamber of Commerce survey, 39% of foreign-invested enterprises ranked labour costs as the greatest risk for their China organisation.<sup>2</sup>

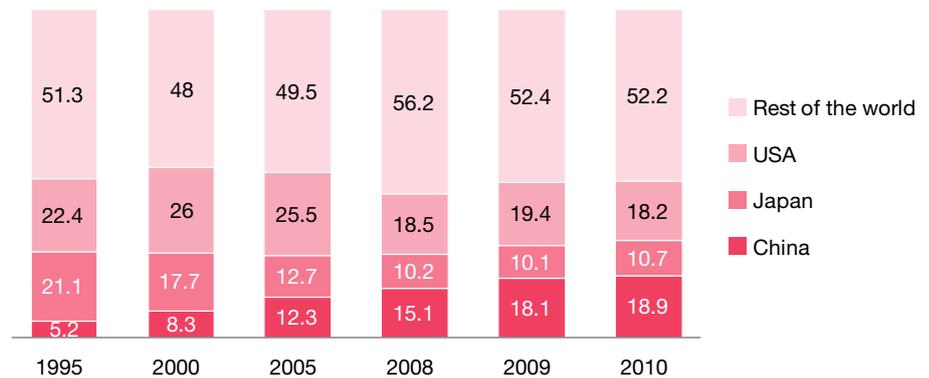
But in setting supply chain strategy, you'll need to look at three layers of cost:

1. Labour and material costs
2. Total supply chain costs
3. Taxation

Labour and material costs have been, for many multinationals, the initial driver of supply chain considerations in China. Yet these low-cost benefits are eroding through a combination of cost increases in China, particularly in the coastal areas (which are frequented more often by multinationals), as well as exchange rate migration.

But despite these rising costs, China remains competitive, illustrated by its ever-increasing share of global manufacturing. Costs are increasingly offset by moves inland, where labour costs are lower. Meanwhile, rapid growth in productivity has outpaced that of many emerging economies. As a result, labour costs should continue to remain a source of competitive advantage for China-based supply chains, and will help frame China's position in the value chain.

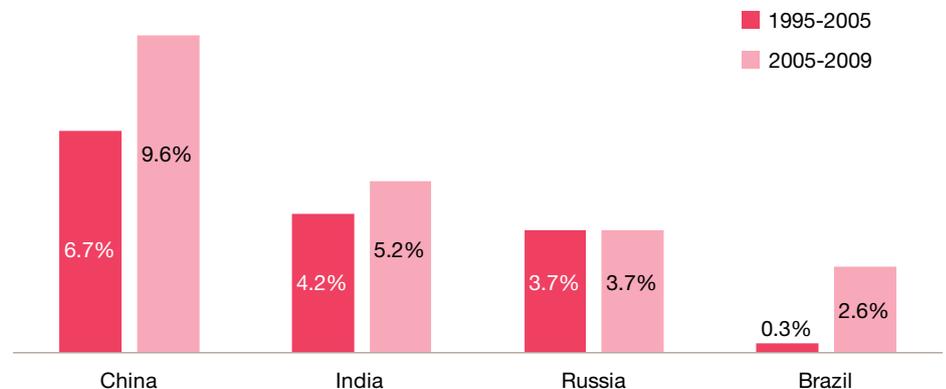
## Manufacturing output by country (%)



Source: UN National Accounts Database

## Labour productivity growth-emerging economies

GDP per persons employed, annual average



Source: The Conference Board Total Economy Database: Summary Statistics, Jan 2010

2. AmCham China. "2012 China Business Climate Survey Report." 2012



Multinationals are increasingly taking a more sophisticated approach. While the pursuit of lower-cost labour remains a priority (something we'll discuss in the next section), relative impact on profit can vary from industry to industry. Studies have shown that labour costs in China currently comprise 3% of cost of goods sold in the footwear industry and 4% in the heavy machinery industry, while accounting for 20% in the personal computers industry.<sup>3</sup> Equally important cost considerations include transportation, order management and sourcing costs. And as labour costs in China inch closer to parity with that of other economies, multinationals are starting to look more closely at other cost factors to arrive at an optimal supply chain footprint.

The impact of taxation on supply chains, for instance, is increasingly under the microscope. Such taxation considerations can range from localised or regional incentives for locating in Zone X, City Y or Region Z, to key cost efficiencies that arise from the strategic placement of different parts of the supply chain, from a global or regional perspective. Understanding your value chain, and how China fits into it, can lead to tremendous tax savings.

Finally, cost is not the only element of a supply chain's performance, as we'll discuss later. Other dimensions must be considered and balanced when designing the supply chain, including:

- Asset performance, especially in uncertain market conditions (important to CFOs)
- Delivery performance
- Flexibility (important to customers)

An optimised supply chain balances cost against these other attributes to support your overall business strategy, as illustrated in the earlier PepsiCo example.

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3. Accenture. "Wage increases in China: Should multinationals rethink their manufacturing and sourcing strategies?" 2011

## Value chain transformation

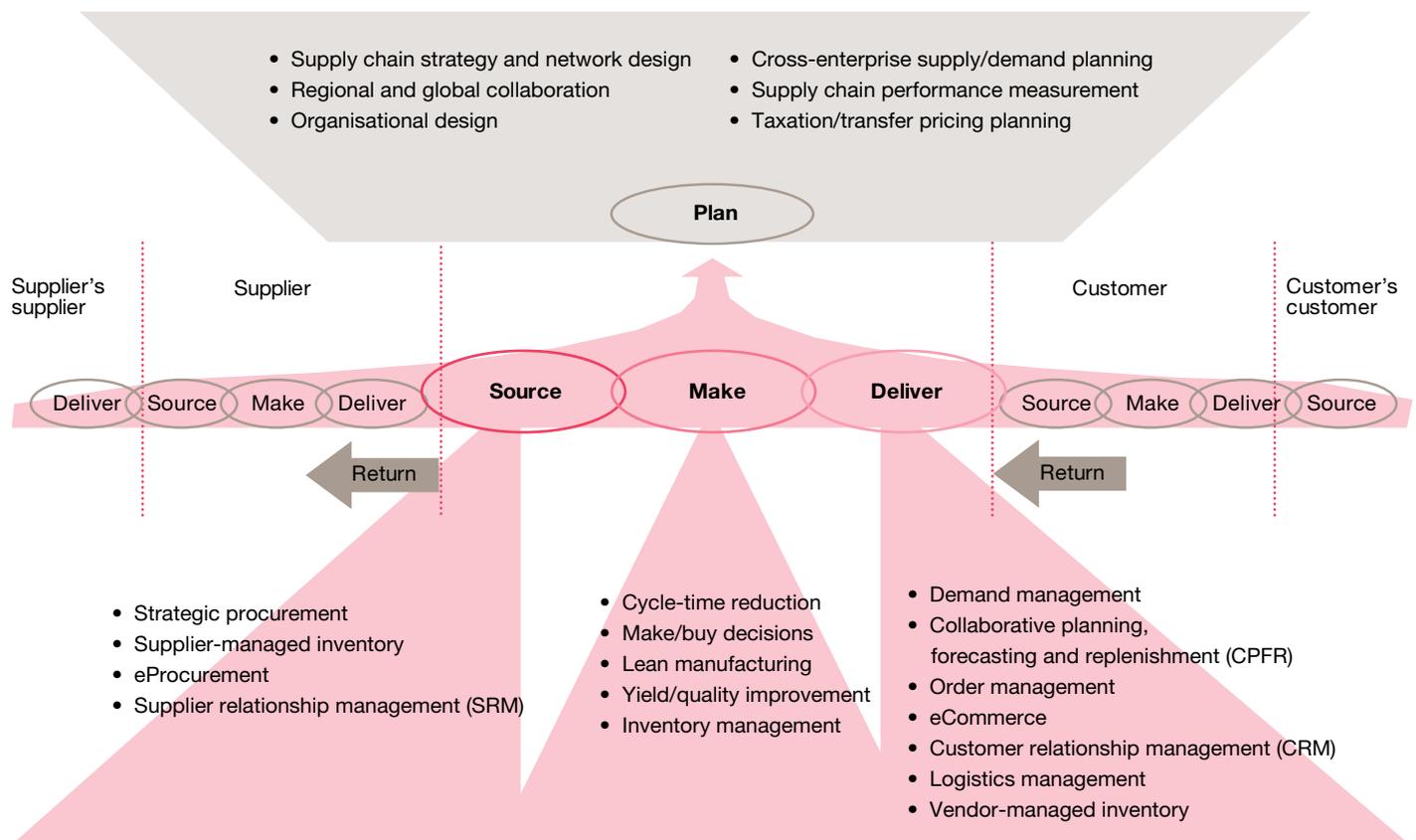
Taking advantage of cross-border tax implications can help optimise the way you set up your multinational operations, and transform your entire value chain. Key considerations include transfer pricing, a tax incurred when goods or services are moved across borders, based on the value added to the product. Value chain transformation (VCT) can help determine where key parts of your operations need to be located in China and globally to best serve the needs of both your management and your customers in the most efficient manner. This can be combined with tools such as the Supply Chain Management Council's SCOR model (based on the five management processes of plan, source, make, deliver and return), in helping to analyse and articulate an optimal solution.

Combining these models will help you understand how to consolidate products for different markets into a more efficient workflow. And by looking equally at both tax and operations, you'll find astute ways to save on tax payments.

Many supply chain management changes have historically placed emphasis on tax savings. VCT, however, aligns tax considerations with your operational and business goals, overall profitability and performance, to arrive at a more sustainable result. VCT will be of particular benefit to businesses that have or can anticipate the following:

- Recent acquisitions or mergers
- New lines of business or geographical expansion
- Significant investment in product research and development or IP
- New or updated technology systems
- Challenges in managing tax positions and an effective tax rate

### Supply chain planning encompasses a comprehensive perspective of business operations



Source: PwC's PRTM Management Consultants

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## *The right location*

China's geographical size requires that location take a front seat in your supply chain planning. As focus shifts towards the China market, multinationals tend to progress through familiar trajectories – starting from procurement offices or sourcing operations, then migrating into manufacturing and full-spectrum supply chains. Whether you're using China as a low-cost location for sourcing or manufacturing, or focused on serving the China market, choosing the right location(s) for your supply chain can mean major consequences for your strategy. Businesses should expect to spend a few years investing in setting up their supply chain in China.

### *China as a low-cost location*

According to PwC research, larger companies are more likely to employ their own in-house procurement staff, while smaller companies engage independent commercial agents for their sourcing activities in China.<sup>4</sup>

A number of factors come into play when choosing a manufacturing location. While the eastern seaboard generally has the strongest infrastructure, this advantage is qualified by high regional labour costs. Up until recently, the simple solution had been to move business further inland, where resources and the general cost of doing business

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4. PwC. "Sourcing and logistics in China." 2008



are lower than that of the coast. And while this differential remains, wage inflation and new social security requirements have also consistently entered the labour cost equation throughout the mainland. Further challenges can accompany moves to inland locations, including shortages in supply chain and management talent; inconsistent infrastructure and regulatory limitations across geographies; fragmented distribution systems; and underuse of technology in certain regions.

Companies are also focusing on enhancing productivity through improved process and automation so that the eastern seaboard remains a cost-effective location for higher value-add activities. So whereas a number of multinationals are moving inland, many are also looking to alternate locations within Asia. Some are even pulling final assembly and customisation processes closer to the regions in which their customers are located.

### *China as a market*

Should China be a key market for your business, proper location selection must play a decisive role in corporate strategies. In one case, a European car manufacturer had been looking for a new location for its distribution warehouse. Their preference would be for a single central distribution hub from which spare parts could be shipped to dealers throughout mainland China. However, with customers requiring a one-day turnaround in a country so large, and with infrastructure that varies widely across different locations, the solution had to factor in several layers of complexity.

While coastal logistics hubs have robust import and export capabilities, inland logistics infrastructure primarily serves growth in the domestic economy. Localised regulations also prevent regionally comprehensive logistics systems, and there are many small players. Currently, more than 700,000 logistics companies are registered in China, according to the State Administration for Industry of Commerce (SAIC).



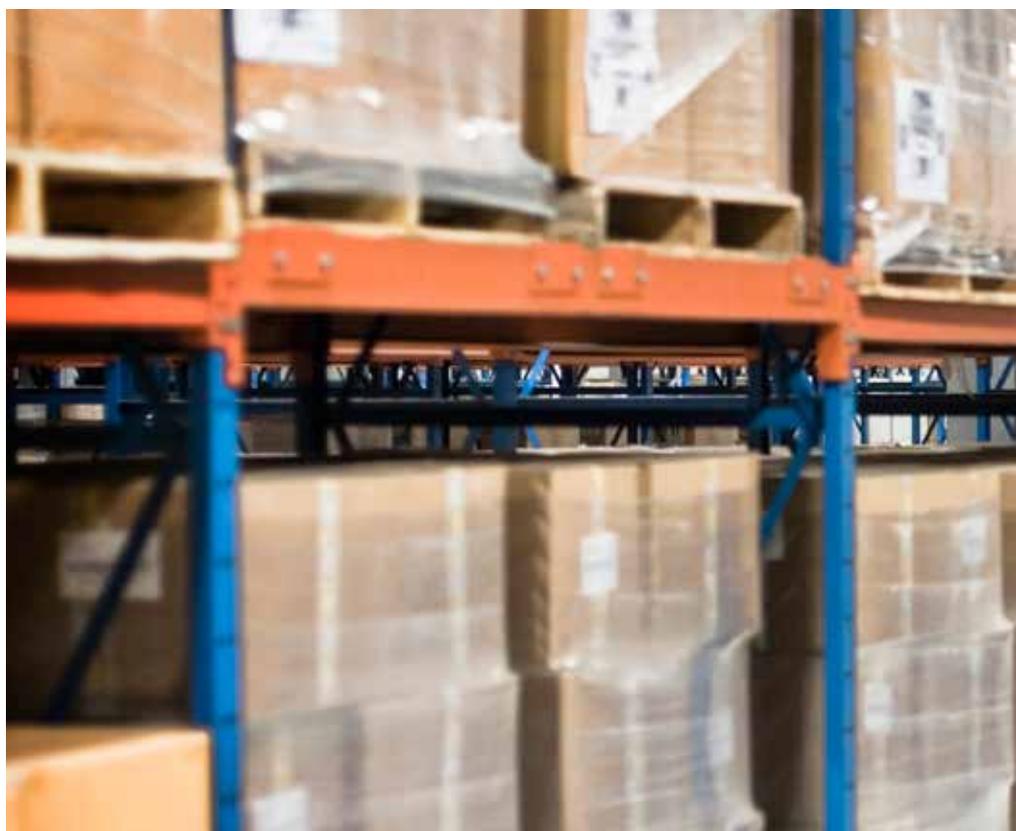
## *Maintaining flexibility*

Because of the mutual interdependency of supply chains globally, China's distance from major Western markets can pose a flexibility challenge. As a rule, shorter supply chains tend to be more responsive and carry less risk. Products manufactured in China take longer to deliver to overseas markets. With ocean freighters taking over a month to bring goods from China to North America, supply chain managers need to exercise care in inventory planning in order to get their timing right.

Moving quickly in response to market needs may be an even more important consideration than costs when fitting Chinese manufacturing into your global needs. With the unpredictability of the global climate, it has become much harder to forecast market trends. One may want the freedom to quickly scale up when market demand rises, and scale down when demand declines. Last-minute product changes to match customer needs may also call for speedy turnarounds. Having tight communication and reliable transfer of data are therefore key to maintaining flexibility and responsiveness in your supply chain.

*We publish in English and also in Mandarin and we find that the kind of products we need to build are completely different for the customer base which works in a bilingual environment, versus the customer base that's very local. So we're building many more local products now in China than, say, 10 years ago when it was pretty much focused on multinational companies trying to do business here.*

Nancy McKinstry, CEO and Chair of the Executive Board, Wolters Kluwer



5. PwC. "15th Annual Global CEO Survey." 2012

But while distances are great and labour and fuel costs continue to climb relentlessly, the Chinese manufacturing system is still reputed for its unparalleled flexibility. As Apple executives have pointed out, Chinese factories can scale up and down at a “China speed.” Chinese manufacturers are often still their best option when release dates are looming and last-minute changes are needed. When pressed to redesign iPhone screens at the last minute, Apple called on a Chinese factory to overhaul their assembly line. The plant was mobilised to pump out 10,000 new iPhones daily within 96 hours.<sup>6</sup>

And countries in Central and South America “don’t have the fabric-mill infrastructure in volume like China,” says John Singleton, senior vice president of supply chain for American retailer Abercrombie & Fitch (A&F).<sup>7</sup> A&F wanted to continue using China as part of their manufacturing hub and cut back costs in other ways. They now reduce costs on air delivery in favour of ocean freight. An entire supply chain can now be found in China.

Another consideration for multinationals doing business within China, of course, is proximity to the China market. And with China’s focus on domestic consumption, many multinationals have integrated their China supply chains as both a global sourcing centre and a supplier of local markets. For example, Walmart sources its local produce in China through a “direct farm programme,” developed with the Chinese government and farmers’ cooperatives. The company contracts farmers to grow the produce, and uses its logistics and transportation system to ensure fresh produce reaches its local supermarkets, while effectively eliminating one link in the supply chain.



6. Duhigg, Charles, and Keith Bradsher. “How the U.S. lost out on iPhone work.” *The New York Times*, 21 January 2012
7. Murphy, Maxwell. “Pitting costs against control.” *The Wall Street Journal*, February 28, 2012

## Optimising quality and supply assurance

Making sure data from your suppliers are reliable can have an impact on product quality. Companies are now looking for more quality reassurance from their suppliers for reliable work flows, quality of work, environmental and health standards, labour practices, and trust from their business partner.

A high degree of vigilance is needed both within China and foreign markets, and regular audits are recommended. As mentioned, the accuracy of the information provided by your suppliers cannot be compromised, and collaboration with suppliers is important to ensuring integrity. Levi Strauss, for instance, has “a zero-tolerance policy” for suppliers who provide inconsistent or false reporting. After two or three warnings, the apparel company would end their contract with the supplier. They do, however, offer its full support and cooperation to suppliers who flag their problems.<sup>8</sup>

Factory audits and inspections should also be thorough. High-profile cases in the past have involved public discoveries of numerous violations of ISO9001 standards, despite frequent audits by multinationals. However, primary suppliers often contract many sub-suppliers or parts suppliers, and periodic and snap inspections can only pick up on a certain amount of quality issues. And these issues may multiply in relation to the technological complexity of your product. Again, working with your supplier benefits both parties, and they should be encouraged and given tools with which to monitor the quality standards of their own contractors. Making quality demands and imposing sanctions may foster an environment of bad faith, and encourage suppliers to conceal and fudge data wherever possible.

Overall, it's now much easier to find a partner that can deliver quality than it had been 10 or 20 years ago, as markets gain greater transparency and efficiency. But concerns over the quality or standards of goods produced in China still loom large, as procurement departments demand faster turnaround times, lower prices and increasing volume. Cutting corners can be the result of the pressure of meeting demands in scaling up, accelerating production or cutting costs. More risks can also crop up over time, even for those with supplier relationships maintained over long periods. Ensuring there are plenty of backup suppliers can be critical in case quality problems need to be remedied on tight deadlines.



With food and drug safety concerns also trending high in China, consumers are increasingly looking to foreign multinationals for their perceived higher safety standards. Preserving consumer trust and confidence should take priority over price concerns in an environment in which safety and quality considerations are rising in tandem. But multinationals should be aware that many product quality risks are also linked to China's high-inflation environment.

8. MIT Sloan Management Review. “Improving environmental performance in your Chinese supply chain.” December 21, 2011



Consider the recent high-profile case of nine large domestic pharmaceuticals companies selling gel capsules made with industrial gelatin containing hazardous levels of chromium (instead of edible gelatin). The average profit margin of China's medical capsule sector before the scandal had been very low: between 3% and 5%.<sup>9</sup> And in the wake of the 2008 Chinese milk scandal, Stratfor Forecasting had determined that the act of adulterating milk and baby food also stemmed from pricing pressures: Rising milk costs (grain required to feed cows was getting more expensive) and price controls (government policies directed at the dairy sector to counteract inflation) acted together to clamp down on disappearing profits.<sup>10</sup>

Even large-scale suppliers are not immune when cost pressures bump up against high inflation. But particular care is needed in evaluating the merits and standards of small-scale suppliers in fragmented industries locked in aggressive competition and price wars. Keep in mind too that smaller suppliers may lack the finance and technology to meet proper quality management and supervision requirements themselves.

With this issue in mind, the government has made food safety a priority in its 12th Five-Year Plan. The plan includes ramping up China's cold chain infrastructure, for example, in order to lower the circulation decay and loss rates of fruits and vegetables by 15%, meat products by 8.5% and aquatic products by 10%, all by the end of 2015.<sup>11</sup> At the moment, there is still a lack of controlled temperature warehouses and talent in cold chain management. Companies with cold chains should ratchet up their management accordingly, as supply chains are still fragmented, and proper communication can suffer as a result. In one instance, a UK retailer lost thousands of dollars value of yogurt when their goods were shipped across China in trucks. The drivers did not see the point of the trucks' refrigeration capabilities, and therefore opted not to use them.

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9. Liu, Je. "Capsule safety scandal to put prices up." *China Daily*, May 14, 2012

10. Stratfor. "China: The economic roots of the milk scandal." 2008

11. Research in China. "China Cold Chain Logistics Industry Report, 2011-2012." 2011

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## Aligning suppliers with your sustainability agenda

As China becomes a major component of many global supply chains, ensuring that your China suppliers are aligned with your sustainability agenda can make a difference to your energy efficiency strategies and green reputation. According to Hewlett-Packard's supply chain policy, the company is prepared to terminate contracts with suppliers who do not comply with its corporate policies and code of conduct on energy efficiency and corporate footprint management.<sup>12</sup> It pioneered a China-specific energy efficiency initiative in 2010 to engage its major suppliers in developing their energy improvement plans and sharing best practices. Currently, 76% of its suppliers have greenhouse gas reduction goals, while close to 50% are looking at their own supply chains, an impressive achievement in this market.<sup>13</sup>

Fortunately, lowering greenhouse gas emissions and bolstering environmental records is still a comparatively easy win in China. A BSR Insight report estimates that Chinese factories use approximately 11 times more energy than their Japanese counterparts.<sup>14</sup> Moving operations to Leadership in Energy and Environmental Design (LEED)-certified premises could position you at the forefront of sustainable practices. The Ministry of Housing and Urban-Rural Development (MOHURD) is also promoting their own 3-Star system, which is quickly gaining momentum because of increased enforcement and 3-Star specific subsidies. However, according to the 2012 China Greentech Report, green building materials are often not available in China, and many products are prohibitively expensive.<sup>15</sup> Nevertheless, a focused energy and sustainable procurement programme could reduce costs and overall energy demand by a large margin, boosting the environmental sustainability of your supply chain practices, your bottom line and your relationship with the government.

Li & Fung, for example, installed upgrades to their lighting technology, ventilation, heating and air conditioning at factories where it does business, while implementing other energy efficient and water management measures. Carrefour China is also conscious of its sustainability practices, introducing recycled shopping bags, and adopting a new purchasing model for buying commodities directly from farmers.

China is central to Walmart's sustainability strategy, which it relies on to boost its reputation globally. Approximately 20,000 Chinese suppliers account for 70% of American-owned Walmart goods sold globally every year, and in 2002, the company moved its global sourcing headquarters from Hong Kong to Shenzhen in mainland China.<sup>16</sup> In 2008, Walmart announced that it would improve the energy efficiency of its top 200 Chinese suppliers by 20% by the year 2012. They would eventually require these suppliers to be subject to third party audits. In April 2011, it announced 119 factories had surpassed that target.<sup>17</sup>

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12. "Supply chain SER conformance." *HP.com*. <http://h41111.www4.hp.com/globalcitizenship/pl/pl/environment/supplychain/compliance.html> (accessed August 27, 2012)

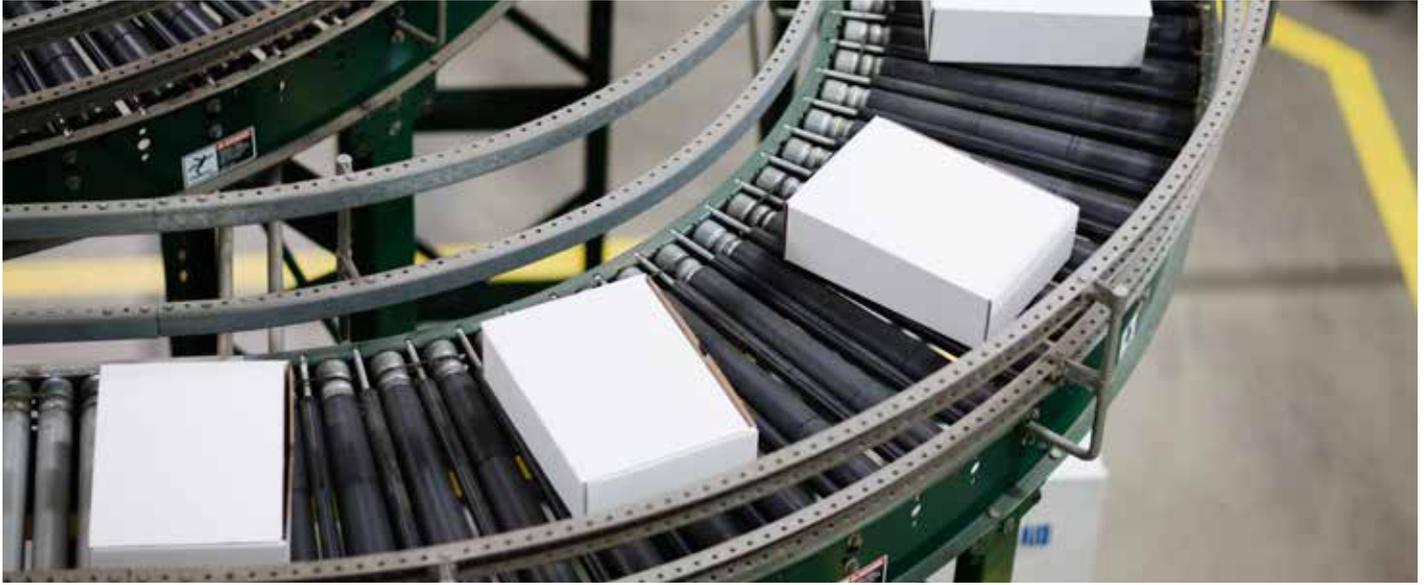
13. Hewlett-Packard. "HP Global Citizenship Report 2010." 2010

14. Schuchard, Ryan. *Getting started on supply chain efficiency in China*. BSR Insight Article, 2010

15. China Greentech Initiative. "The China Greentech Report." 2012

16. Schell, Orville. "How Walmart is changing China." *The Atlantic*, December 1, 2011

17. Walmart. "2011 Global Responsibility Report." 2011



Despite this, Walmart and many other companies still struggle to ensure factories of China suppliers meet its sustainability requirements. Companies are collaborating with other buyers to leverage their influence on suppliers to improve their environmental standards. In 2007, Nike began working with Levi Strauss and Adidas on environmental health and safety (EHS) audit report sharing, monitoring and removal of pollutants and contaminants at their common suppliers.

And because companies need to consider their actions in the context of China, initiatives must account for local conditions, leading to locally tailored sustainability programmes, particularly for worker health and safety issues. IKEA notes that full compliance with its standards will take longer in China, due to challenges related to the gap between legislated work hours and reality in China.<sup>18</sup> They've taken the pragmatic approach of first securing a maximum work week of 60 hours, plus a maximum of 36 overtime hours per month, by the end of fiscal 2012.

Regional variations and a dynamically changing economy have led to many challenges at the national level in monitoring and enforcing environmental compliance. The independence and quality of your third party EHS auditors is therefore vitally important in making sure your suppliers are in compliance with these environmental standards, to reduce the risk of plant shutdown and financial penalties.

Potential benefits to compliance can include better relations with monitoring bodies, regulatory enforcers and other government bodies. For instance, YiXing-Union Cogeneration Co. Ltd., a coal-fired cogeneration power plant in Jiangsu, became an early adopter of advanced emission-reduction technologies. This allowed the plant to meet China's mandates ahead of schedule, resulting in a positive relationship with local and provincial governments, with regulators now promoting the company's results as a showcase for other local power generators.<sup>19</sup>

With the Chinese government trying to ensure their food producers and factories keep from breaking environmental regulations, ensuring your suppliers keep in line with and surpass regulations can help align your interests with those of the government. Walmart, for instance, works closely with the Institute of Public and Environmental Affairs to identify factories violating China's environmental emissions regulations.

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18. IKEA. "IKEA Sustainability Report." 2010

19. China Greentech Initiative. "The China Greentech Report." 2012

# Research and development (R&D)

In certain industries, China is an increasingly ideal place for R&D. One particular global pharmaceuticals company has invested heavily in increasing product development in coastal China, and has chosen to move their product development operations, including records and material storage, to an inland location. Expanding their R&D capability, the company decided, was much more cost-effective in China than in any other international location.

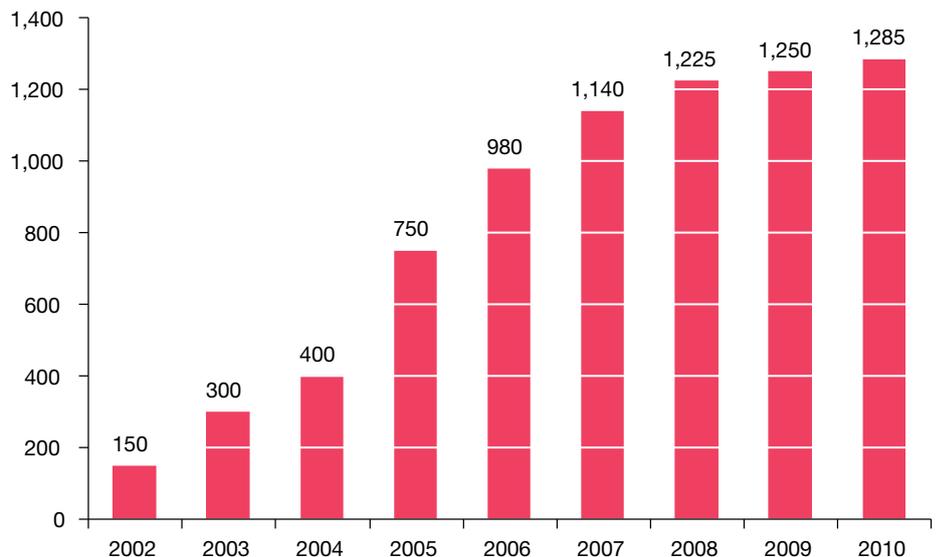
And there's a potent combination of reasons why a company would want to move research and development to China, including:

1. Proximity to manufacturing and supply chain
2. Lower costs
3. Tax incentives
4. R&D talent
5. Proximity to the Chinese market

There are clear benefits to close co-location of R&D with manufacturing and supply chain operations, which are now so commonly centred on China, leading to increased operational clockspeed. Getting products faster to market and to volume manufacturing can be a competitive differentiator.

While cost advantages diminish for manufacturing, cost efficiencies have become more pronounced in R&D, due to China's low setup costs. In addition, China's contract research organisations (CROs), which conduct studies and research for multiple clients, are experiencing a marked increase in standards and competitiveness over the last few years.

Number of registered foreign R&D centres in China



Source: Ministry of Commerce

But developing technology within the borders of mainland China is actively encouraged by the government, and there are numerous tax incentives available. The government is making a concerted push to encourage businesses with technology to bring to the table to come. Its priority on research is very clear: China's R&D expenditures are scheduled to reach 2.5% of GDP by 2020, and its share of the world's R&D expenditures has grown to 12.3% in 2010, from 5% in 2002.<sup>21</sup> One example of such of an incentive is the extra 50% expense reduction allowed to companies for eligible R&D costs, including:

- Expenses incurred through the development of new technology and products

- Salary expenses for R&D personnel
- The depreciation of instruments and equipment used for R&D purposes

Other technology incentives are available for government-assessed high/new technology enterprises (HNTEs), technology advanced service enterprises in one of 21 service outsourcing model cities in China, and companies in software and integrated circuit industries.<sup>22</sup>

21. UNESCO. "UNESCO Science Report 2010: The current status of science around the world." 2010

22. PwC. "Global R&D Tax News: Issue 5." 2011

Inexpensive technical and research talent is also becoming more abundant and increasingly sophisticated. China has the largest number of scientific research staff in the world,<sup>23</sup> though such professionals are more accustomed to theoretical research than practice. Businesses must be prepared to make training commitments to new hires on practical analysis, standard methods and processes, as well as management. Many multinationals have accordingly set up R&D “competence centres” in China to take advantage of this newly risen talent pool. Once such centres are set up, however, China heads are advised to spend time on internal marketing to ensure that global teams are aware of its competencies, to ensure a steady stream of work.

But arguably one of the most important advantages of setting up in China – the proximity to the local market, can be fully realised through the establishment of end-to-end “product centres.” Lifecycle research and development ranging from market feasibility to design, testing implementation and maintenance are all conducted in such centres, where localised staff research and develop products specifically for the China market.

And the trend now is for products developed for the China market to be introduced globally. US-based beauty company Estée Lauder has consistently

demonstrated its commitment to China, setting up an Asia Innovation Centre in Shanghai in June 2011 to develop products for Asian skin. It subsequently launched its Osiao skin care brand for Asian women in September 2012. Its Nutritious cosmetics brand, which it developed specifically for mainland Chinese women, is also being sold globally.<sup>24</sup>

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## China's future place in global supply chains

Despite rising fuel, labour and logistics costs, basing significant supply chain operations in China – even potentially at higher labour costs than emerging “low cost countries” – can help open doors to this large market. High productivity and the attractions of research and development are also distinct advantages. Many companies have therefore made a conscious strategic decision to maintain a supply chain

presence in China, guaranteeing the country a place in the global sourcing networks of many global multinationals for years to come. Make a critical review of your sourcing activities in China and other sourcing markets, and look for ways in which your sourcing partnerships can help realise additional cost-reduction potential.

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23. *China Daily*. “China plans to enlarge talent pool to 180 million by 2010.” 15 May 2012

24. PwC. “2012 outlook for the retail and consumer products sector in Asia.” 2012