Innovation
China’s next advantage?
2012 China Innovation Survey

A Benelux Chamber of Commerce, China Europe International Business School (CEIBS), Wenzhou Chamber of Commerce and Booz & Company Joint Report
How new ideas and practices taking shape in China will change global approaches to innovation

One of China’s key objectives is to develop an innovation-based economy. Its leaders know that if their country is to make the transition from being a mid-level emerging economy to being an all-round developed economy its companies will have to move up the value chain – and this can only be achieved through developing new technologies and expertise inside China.

To realize this goal, the government has put a range of policies in place. A key priority of its current Five Year Plan (2011-15) is to transition the country from “Made in China” to “Created in China.” The state’s Science and Technology Development Plan calls for 2.5 percent of GDP to be spent on R&D by 2020. National level research programs, such as the State High-Tech Development Plan and the National Basic Research Program, support the development of new technologies across a wide range of fields. The government is strengthening measures to protect intellectual property and spending on education has risen by around 20 percent annually since 1999. Scientists working overseas are being encouraged to return to China via the “Thousand Talents” scheme, and universities are increasingly involved in knowledge exchange programs with companies.

Already officials can point to several major technology breakthroughs – in its space program, its high-speed trains, and – soon – in its commercial aircraft industry, which looks certain to start delivering its first regional jet in 2012, and likely to be delivering large aircraft by the end of the decade.

But how successful are all these policies where they matter most – in the innovation strategies and practices of companies based in China? To find out, the Benelux Chamber of Commerce, Wenzhou Chamber of Commerce, CEIBS and Booz & Company conducted the 2012 China Innovation Survey, interviewing more than 100 leading Chinese companies and multinational companies (MNCs) across five sectors – industrials, automotive, health/life sciences, consumer goods, and chemicals and energy.

The survey aimed at finding answers to some key questions about innovation in China. Are Chinese companies catching up with global competitors in their capacity to innovate? If so, how? Is China becoming a global hub for innovation? What are the key issues for innovation in China? Will the current barriers to innovation disappear? And what are the implications of the changes in China-based innovation for both Chinese companies and multinational companies?

The results were surprising – above all in their finding that many global companies already perceive Chinese companies as major innovation powers. Of the MNCs interviewed, 45 percent said some of their Chinese competitors were equally or more innovative than themselves (Exhibit 1).

In general, the MNCs saw Chinese companies as having key advantages in two separate areas: first, government support, and second, in their ability to deliver products rapidly to markets via their decisiveness, speed-of-action and proximity-to-market (Exhibit 2).

Exhibit 1
Almost half of the interviewed MNCs perceive Chinese competitors as equally or more innovative than themselves

Exhibit 2

<table>
<thead>
<tr>
<th>Chinese equally innovative or better</th>
<th>Chinese less innovative</th>
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</thead>
<tbody>
<tr>
<td>45%</td>
<td>55%</td>
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1. The State High-Tech Development Plan is often referred to as the “863 program” because of the date of its launch in March 1986, while the National Basic Research Program, launched in March 1997, is also known as the “973 program.”
2. For a detailed breakdown of the survey’s participants, see Appendix on page 11.
Both these factors are important for innovation. But while large-scale government R&D spending is helping many state-owned companies, particularly those operating in closed or restricted industries such as telecoms services, far more significant in determining the overall form of innovation in China is the business environment in liberalized sectors.

In household and consumer goods, electronics, food and drink, and a host of other industries, low barriers to entry, large but still relatively poor markets, and limited regulatory oversight have created the perfect conditions for intense competition. Margins are typically razor-thin – requiring volumes to be high – and the focus is on developing fit-for-purpose products – often starting from a copied good or service – that just meet the needs of consumers at a price they can just afford. To survive in such volatile conditions, companies must be able to act and change rapidly by constantly transforming their products and processes to market needs. From these tough conditions have emerged some of China’s leading brands: Wahaha, Kangshifu, Mengniu and Yili in food; Midea, Gree and Haier in consumer and household electronics, and Jahwa in cosmetics.

Even in more restricted sectors, companies have found ways of applying these techniques. Telecom equipment makers Huawei and ZTE, for example, while benefiting from government orders at home, and financial support for overseas business, have taken skills learned in China’s no-frills lower-tier markets to enter similar market overseas, then reinvested their profits in moving up the technology curve. Sany Heavy Machinery in industrials has followed a similar trajectory.
China’s intensely competitive business environment has led to many companies falling by the wayside. But a few have developed innovation skills that are allowing them continually to adapt themselves and their products. The best – companies such as Future Cola, which has become China’s third largest carbonated soft drinks firm, or mobile hand-set maker K-Touch – have over time become true innovators with their own technologies and practices, in turn able to collaborate closely with other innovative partners and in some cases creating R&D networks both in China and internationally.

This tough environment also has one other advantage – a significant number of Chinese companies use what Booz & Company believes is the most powerful of the various core innovation strategies businesses can adopt. According to its annual study of world innovation, *The Global Innovation 1,000*, all innovative companies fall into one of three categories:

1. Need Seekers – first movers who proactively discover their customer needs and then use this understanding to shape new products.
2. Market Readers – second movers who focus on incremental improvement in already existing products.
3. Technology Drivers – deliverers of new technological achievements, who realize both breakthrough and incremental change but have less direct contact with customers.

### Exhibit 3
The Global Innovation 1,000 study has identified three fundamental Innovation strategies

**Need Seekers**
Consistently strive to be first movers; Proactively engage customers to determine needs and shape new innovations; Determine new innovations by surfacing unarticulated needs

**Market Readers**
Adopt a second mover strategy; Focus on driving value through incremental change; New innovation efforts start from the market, with equal focus on competitors and customers

**Technology Drivers**
Drive innovation via new technological achievement; Leverage technology for both incremental and breakthrough change. The least proactive of the three strategies in directly contacting customers.

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At first glance, the majority of innovative Chinese companies, with their closeness to the domestic market, widespread use of products either directly or indirectly copied from other businesses, and reliance on emerging market technologies, would appear to be Market Readers. In reality, we find that there are far more Need Seekers (Exhibit 4) — companies which establish and keep a competitive advantage by proactively engaging with consumers to discover previously unknown needs. Once they discover a new need, they must be fast at developing a new good to meet it, and new processes that can produce those goods quickly and in volume.

This finding is interesting in itself. But of more significance is that Need Seekers are the most powerful of the three types of innovators, consistently outperforming Market Readers and Technology Drivers in both profitability and enterprise value. By circumstance rather than design, therefore, a high proportion of Chinese companies have found themselves in the most powerful category of innovators. Remarkably the only other place in the world with an above average number of Need Seekers is Silicon Valley, a region widely regarded as the paragon of innovation.

The extent to which Chinese companies grasp the strengths of the Need Seeker approach was not one of the subjects of the 2012 China Innovation Survey. We did discover, however, the extent to which they understood the importance of innovation for their business: 96 percent of the Chinese companies interviewed said they either believed or strongly believed that R&D was an important part of their business. They also saw their top advantage compared with MNCs, second only to better stakeholder inclusion, as having a better read of the market. And, overall, they said they were generally satisfied with their innovation capabilities (Exhibit 5).

Only a minority of MNCs have perceived China as an innovation location with distinctive strengths. Asked whether their innovation strategy in China was the same as in other parts of the world, 64 percent of the MNCs surveyed said yes, leaving just 36 percent running different innovation strategies in the country.

Those which have adapted their innovation programs for China, appear to have done so principally to reach local markets, but with an eye eventually to developing products that can be taken to other markets. “We are building up in China with a different innovation strategy which in due time may (have to) be rolled out to other parts of the world,” said an executive at an industrial goods MNC.
Innovation in China is moving up the value chain in all industries

Deeper and higher

Looking to the future, both MNCs and Chinese companies saw all types of R&D as both moving up the value chain and with a growing emphasis on fundamental research and idea generation.

Already innovation in China involves more than just market adaptation, with companies seeing their R&D work there as adding roughly the same amount of value as the average for all other regions worldwide (Exhibit 6).

All types of company expect an across-the-board rise in the quality of research produced in China. Applied research, fundamental research and ideation activities are all expected to become more prevalent in China in the next ten years.

Local companies said they foresaw an increase in their R&D activities in applied research, ideation and process improvement. For them, fundamental research and off-shoring/support of other R&D centers around the world will grow in importance, but remain of lesser significance overall (Exhibit 7).

Exhibit 6
Degree of value – add for R&D in China (for MNCs)

In comparison with R&D work performed worldwide, my company’s R&D work performed in China is:

1=Lower value added;
3=Equivalent;
5=Higher value-added

<table>
<thead>
<tr>
<th></th>
<th>Present</th>
<th>2022</th>
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<tbody>
<tr>
<td><strong>Total</strong></td>
<td>4.3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Average rating</strong></td>
<td>2.9</td>
<td>3</td>
</tr>
</tbody>
</table>

Exhibit 7
Applied research, fundamental research and ideation activities are all expected to become more prevalent in China

Chinese companies’ R&D activities

| Activity                  | % of respondents
<table>
<thead>
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<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Present</td>
</tr>
<tr>
<td>Applied research</td>
<td>51</td>
</tr>
<tr>
<td>Cost reduction</td>
<td>42</td>
</tr>
<tr>
<td>Ideation</td>
<td>44</td>
</tr>
<tr>
<td>Process improvement</td>
<td>33</td>
</tr>
<tr>
<td>Fundamental research</td>
<td>40</td>
</tr>
<tr>
<td>Off-shoring/support of R&amp;D centers</td>
<td>5</td>
</tr>
</tbody>
</table>

MNCs’ R&D activities in China

| Activity                  | % of respondents
<table>
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<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present</td>
</tr>
<tr>
<td>Applied research</td>
<td>56</td>
</tr>
<tr>
<td>Cost reduction</td>
<td>56</td>
</tr>
<tr>
<td>Ideation</td>
<td>63</td>
</tr>
<tr>
<td>Process improvement</td>
<td>75</td>
</tr>
<tr>
<td>Fundamental research</td>
<td>30</td>
</tr>
<tr>
<td>Off-shoring/support of R&amp;D centers</td>
<td>17</td>
</tr>
</tbody>
</table>
While Chinese companies see research into cost reduction as declining slightly in importance by 2022, MNCs see both cost reduction and process improvements as rising significantly. MNCs also see offshoring and support of other R&D centers as likely to see a big increase over the next decade. In contrast to Chinese companies, MNCs see ideation in China as a high priority now and in the future, ahead of cost reduction and applied research. These findings point to two conclusion: first, that despite cost increases for staff, land and other inputs, MNCs expect to maintain competitive manufacturing platforms in the country that can serve lower market segments in China and elsewhere; and second, that they envisage using China’s specific innovation skills to make sure this happens.

A global and regional R&D hub

The importance of China for companies as a regional and even global hub for innovation is clear. Some 40 percent of MNCs surveyed and 50 percent of Chinese companies already develop products in China for markets outside China. This trend is set to intensify, with the survey finding that by 2022, more than 60 percent of all MNCs and local companies expect to conduct R&D in China for global markets.

Despite differences in the current level of R&D conducted in China for the world, the trend across all the industries surveyed is consistent. Both MNCs and local companies expect an increased focus on R&D conducted in China developing goods and services for the world.

Currently, industrials are the most globally oriented of Chinese companies, with 83 percent of respondents saying they already conducted product development in China for foreign markets (Exhibit 8). That percentage, however, will...
remain unchanged over the coming decade, according to the survey. The one other industry with no rise in global orientation is consumer goods, with exactly half the companies we interviewed saying they would be doing global product research both now and in 2022. Health/life science is the sector with the fastest expected move towards carrying out product development for world markets, with the current 25 percent of companies set to rise to 67 percent by 2022.

Among MNCs, automotive is the only industry that expects no change in the amount of R&D conducted in China for the world over the next ten years – suggesting, unsurprisingly, that it will be the Chinese domestic market that preoccupies car and component makers. In chemicals and energy, by contrast, the share of companies conducting product development in China for overseas markets is expected to more than double by 2022, from 36 percent of to 73 percent.

MNCs with longer experience of China have higher expectations on expanding R&D in China-for-the-world than more recent arrivals. Whereas 50-55 percent companies which have been in China for up to ten years expect to be conducting R&D in China for foreign markets by 2022, that figure jumps to 67 percent for companies which have already been in China more than a decade.

Currently, most of the research that MNCs conduct in China is focused on the Chinese market. And that will be even more

Exhibit 9
The majority of the R&D in China-for-the-world is focused on Asia, and on developing markets

Relevance of R&D from China for different markets – for MNCs

My company’s R&D efforts in China contribute to developing products / services in:

<table>
<thead>
<tr>
<th>Market Type</th>
<th>Now</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese market</td>
<td>4.2</td>
<td>4.6</td>
</tr>
<tr>
<td>Developing markets</td>
<td>3.0</td>
<td>3.9</td>
</tr>
<tr>
<td>Developed Asia</td>
<td>2.9</td>
<td>3.7</td>
</tr>
<tr>
<td>Western markets</td>
<td>2.2</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Exhibit 10
Most of the Chinese companies are expanding their business abroad, and almost 70% plan to expand R&D abroad accordingly

Expansion plans abroad by Chinese companies

My company will extend its overall presence abroad in the next 10 years

- Agree 86%
- Neutral 7%
- Disagree 7%

My company will extend its R&D presence abroad in the next 10 years

- Agree 66%
- Neutral 10%
- Disagree 24%
the case in a decade’s time (Exhibit 9). But over the next ten years, more companies will also devote greater efforts to using China as a base for generating new goods for other developing markets, developed markets in Asia, and developed Western markets – clearly suggesting that MNCs already see China as a fast-growing global R&D base.

At the same time Chinese companies are broadening their R&D from China to the world- opening new R&D centers outside China. Almost 70% of all surveyed companies are planning to extend their R&D abroad in the next 10 years (Exhibit 10). Some 53 percent of Chinese companies said they saw themselves collaborating with foreign partners, though a large minority – 40 percent – envisaged setting up their own R&D operations. Only one in five companies said they expected to extend their overseas R&D through an acquisition or merger, indicating an ambition from Chinese companies to build their own innovation capabilities, not only in China, but also abroad.

Challenges – today and tomorrow

Asked what they saw as their key obstacles to conducting innovation in China, MNCs and Chinese companies gave broadly similar answers: talent, IP protection and cost are the challenges today; talent will remain the key issue in the future (Exhibit 11).

Domestic companies see IP protection as less of a problem now than do MNCs. But whereas MNCs expect IP protection to improve markedly over the next decade, Chinese companies expect it to remain as much of a problem then as it is now. This indicates the ambition of Chinese companies to develop truly new techniques of innovation, and their concern for protection of their investments in innovation in the future.
Interestingly, the longer MNCs have been present in China, the greater they rate IP protection as an issue, but the more they think it will decline in importance over time. This apparent paradox reflects other Booz & Company research which shows that more experienced companies express greater concern about IP risk than less experienced ones, and consequently set about finding ways to manage or alleviate this risk. For many companies, it may also be the case that innovating in China is now a sine qua non, so the associated risk just has to be accepted and managed.

Across the board, the MNCs interviewed anticipate IP risk being less of a problem in ten years than it now is. Many companies with global experience of protecting IP said the issue was no greater in China than in other locations.

MNCs are also confident that their ability to understand local markets will significantly improve over the next decade. Counter-intuitively, Chinese companies foresee the local market becoming marginally harder to understand in the same time period. This suggests that some domestic companies, maybe those selling solely into lower-tier segments, see difficulties in adapting themselves to market changes as a future obstacle to continuing growth.

The main reason why talent will remain a challenge is a continuing increase in the cost of, and demand for skilled scientists and research staff in both the private and public sectors. A separate Booz & Company study has found that if China’s R&D productivity does not improve rapidly, the country will face an acute shortage of R&D staff by around 2020.

Key take-aways

The 2012 China Innovation Survey points to different conclusions for MNCs and Chinese companies.

MNCs should be ready to face Chinese companies that possess strong – maybe even superior – innovation capabilities. Combined with the major cost advantages of these companies, and the way in which many are migrating upwards into higher market segments, MNCs will increasingly face these competitors not just in China, but also around the world – even in their home markets.

Consequently, MNCs should study how Chinese companies are using their own innovation techniques to find new ways of developing, manufacturing and marketing goods. They should look at how these companies have adopted Need Seeker techniques to create new businesses that use their closeness to consumers to drive new product ideas, and see how they too can find ways of listening closely to customers in order to identify un-fulfilled needs. They should also study the processes and organizations the best local companies use to accelerate the rate at which new products are developed and brought to market.

The knowledge gained can be applied in adapting and developing products for Chinese markets from within China, and in leveraging the country’s potential as an innovation engine for the world. Already, companies should be planning how to make their China-based innovation functions an integral part of their global R&D network.

Chinese companies, in contrast, should draw renewed confidence from the findings. Tempered in the country’s extreme business environment, their unique strengths offer them the potential to out-compete even the best of today’s leading MNCS, both within China and overseas.

They will have to continue to adapt and modify their innovation techniques as market demand changes. And doing so will require building on the differentiated aspects of their distinctive way of innovating – speed, decisiveness, and stakeholder-inclusion. They must also incorporate lessons from global best practices, and improve the planning, structure and organization of their innovation projects. Chinese companies should consider all possible options for expanding R&D abroad – establishment of their own operations, collaboration or acquisition – and incorporate these into a coherent and consistent strategy.

But they must also prepare to be challenged, even in the deepest reaches of their home market. More MNCs are beginning to understand the abilities of the emerging Chinese competitors; they will increasingly look for ways of emulating these strengths and incorporating them into their own proven ways of doing business. To remain competitive, Chinese companies must prioritize the retention of their innovation advantages as they mature, go through leadership and ownership transitions, and become established globally.

The one challenge that will be faced by MNCs and Chinese companies alike is a talent squeeze. All companies, regardless of their place of origin, must prepare for prolonged difficulties in attracting and retaining innovation talent. Incorporating this constraint into innovation and HR strategies – and finding ways of overcoming it – could well be what separates the global innovation winners from the losers over the next decade.
Appendix

Over 100 executives from leading MNCs and Chinese companies provided input to the study

Study Participants: Distribution out of the total 110 Participants

Participants by Company Type
Chinese vs. MNC

Participants by Industry

Participants by Time Spent in China

Note: 1 in 3 survey participants works in Global Fortune 500 companies

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