Managing Foreign R&D in China
Some Lessons

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EU, Brussels: Asian Rise in ICT R&D

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Global R&D Locations in 2000

Traditional Centers for R&D

GLORAD R&D Database
www.glorad.org
Foreign Companies Focus on R&D in China: > 1,200 in 2009

China-based R&D is increasingly value-adding, not just cost-oriented. More than 1,200 foreign R&D centers have been set up in China by 2009. Many aspire to become now global centers-of-excellence, i.e. leading domain-specific R&D worldwide.

Nokia: Moved core R&D for handset OS to Beijing R&D center. 5% of R&D engineers in China designed 40% of worldwide Nokia phones.

Microsoft: Research center as productive in terms of papers, patents as any other Microsoft R&D sites.

Motorola: So far, 19 R&D sites in China; finger-writing technology and “Ming” invented in China.

GE: Ultra-compact medical imaging technology developed in Beijing, pioneered the concept of “reverse innovation”.

New Foreign R&D Labs in China: Soon #1?

Most MNCs are now in China: Est. 1,200 foreign R&D facilities in China

Early entrants: ICT, telecoms, software firms

Next wave driven by:
- SMEs (following MNC customers)
- Pharma/Biotech (once IP concerns are relieved)
- Oil/Petrochemicals and other natural resources companies
- Industries in which China leads

Next focus
- Moving up the maturity curve
- More versatile development capabilities

How many foreign R&D centers are possible for China?

R&D Locations in China

All R&D Sites
N=495

Food R&D
N=8

Overseas R&D = 104

Status: Sep 2010, n=495

Pharma/Chem
N=81

GLORAD R&D Database
Growth of R&D Expenditures in China: 8x US

- China's R&D expenditures as a percentage of GDP:
  - 0.7% in 1985
  - 1.4% in 2008
  - 2.5% in 2020 (planned)

- Compare:
  - US: 2.8%
  - EU: 1.8%

If China continues to grow R&D expenditures at the same rate (21% pa) as it grew for the past twenty years, it will have passed the US level of 2010 ($390 bn) in 2020 ($454 bn).

Chinese Students Focus on Science & Engineering

- China:
  - Engineering + Sciences + Medicine + Agro = 50% of all students
  - Total of 30mn students (up from 5mn in 1998)
  - How far can it go? → 65mn

- In the US:
  - 17% of bachelor and 13% of master degrees in S&E
  - Total of 16mn students

- In Europe:
  - 40% in comparable fields, 15% in engineering
  - Total of 17mn students
## China vs Western Perceptions

<table>
<thead>
<tr>
<th>The Foreigners about Chinese Employees</th>
<th>The Chinese about Foreign Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Less effective unless clearly instructed</strong></td>
<td><strong>Short-term oriented</strong></td>
</tr>
<tr>
<td>• Lack of creativity</td>
<td>• In China to make money</td>
</tr>
<tr>
<td>• Lack of owning up</td>
<td>• No Guanxi potential as they go back home</td>
</tr>
<tr>
<td><strong>Employee turnover (30% p.a.)</strong></td>
<td><strong>Ignorant about China</strong></td>
</tr>
<tr>
<td>• Fear of IP loss</td>
<td>• Little understanding and appreciation of Chinese culture and heritage</td>
</tr>
<tr>
<td>• 9% salary increase in 2009</td>
<td>• Do not speak Chinese</td>
</tr>
<tr>
<td>20% increase for first salary of univ. grads</td>
<td><strong>Colonial attitude</strong></td>
</tr>
<tr>
<td><strong>Mismatch of expectations and demands</strong></td>
<td>• Used to boss employees around</td>
</tr>
<tr>
<td>• Fast career growth expectations</td>
<td>• Chinese glass ceiling: Do not allow Chinese to become managing directors or CEOs</td>
</tr>
<tr>
<td>• Demand for cutting-edge technologies, not me-too products</td>
<td>• Rich, live in beautiful and exclusive places</td>
</tr>
<tr>
<td>• Strong needs to train people</td>
<td><strong>Do not want China to become strong</strong></td>
</tr>
<tr>
<td><strong>Culture and communication problems</strong></td>
<td>• Secretive about their technologies</td>
</tr>
<tr>
<td>• Leading people, providing critique and rewards</td>
<td>• Think of China as a third-world country</td>
</tr>
<tr>
<td>• English ≠ Chinglish</td>
<td><strong>Why Turnover is a Problem</strong></td>
</tr>
<tr>
<td>• Tendency not to share information</td>
<td><strong>Why Turnover is a Problem</strong></td>
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</table>

### Why Turnover is a Problem

*"Chinese engineers leave the foreign MNC employer after 18 months for a competitor."*

**Why is this a problem?**

- It takes two years or more before an R&D engineer can lead work assignments and is fully trained
- Loss of know-how
- The investment has not been recouped
- Foreign R&D as the host country’s S&T training centers
- Other MNCs get now highly qualified engineers
- Upward salary spiral (+10-15% per annum)
Managing Turnover in Emerging Countries

<table>
<thead>
<tr>
<th>E.g., Problem</th>
<th>Solution</th>
</tr>
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<tbody>
<tr>
<td>High career ambitions not met</td>
<td>• Phantom promotions instill perceived career advancement and safe face</td>
</tr>
<tr>
<td>Work is not inspiring enough</td>
<td>• Assign “sexy” projects or work that is relevant to the local country</td>
</tr>
<tr>
<td>Poor communication, poor work climate</td>
<td>• A local senior manager understands needs and wants better</td>
</tr>
<tr>
<td>Salary too low given opportunities</td>
<td>• Move to less “distractive” location</td>
</tr>
<tr>
<td></td>
<td>• Offer int’l assignments</td>
</tr>
<tr>
<td></td>
<td>• Build/nurture non-monetary attraction</td>
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</tbody>
</table>

2010 Turnover in Shanghai: 27.2% of employees hired, 14.9% left
Labor costs: 98,500 RMN in Shanghai (83,100 RMB salary); 80,000 RMB in Suzhou; 98,000 RMB in Shenzhen

Leading Foreign Units as a Team

- President / CEO
  - Expatriate
  - Visionary
  - Big picture focus
  - Open minded and flexible
  - Manager who doesn’t manage
  - Leads by example
  - Perhaps has guru status

- COO / GM
  - Local senior manager
  - Goal & process oriented
  - Cultural interpreter

- Line Managers
  - Locals
  - Can rub shoulders with engineers
  - Internally groomed
  - Good project and engineering record
  - Trouble absorbers

- Other Expats
  - Advisors
  - Extra set of eyes
  - Add extra credibility

- HQ

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Comparison of R&D Salaries (SW Example)

<table>
<thead>
<tr>
<th>Silicon Valley</th>
<th>100%</th>
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<tbody>
<tr>
<td>Other US locations</td>
<td>90-100+%</td>
</tr>
<tr>
<td>Western Europe</td>
<td>80-90-100+%</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>50%</td>
</tr>
<tr>
<td>India/China/Russia</td>
<td>30%</td>
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</table>

- Home country usually has different staff structure
- Costs of training
- Costs of high turnover
- Costs of (lack of) quality
- Infrastructure costs higher than in the West and account on average for 50% of R&D spending

Lessons Learned For (and By) Foreign Firms in China

China will become more important as a **SOURCE** of technology

- Global R&D footprint increasingly includes China and India
- Each R&D center to play a designated role in a global network!

**R&D in China: Not just for tactical advantage!**

- Cost-savings are a short-time benefit
- What is your China strategy? Do you have a China R&D strategy?

**Your (Generic) R&D strategy in China:**

- Well connected to global efforts
- “Natural to do in China, and... difficult to do form the global.”

**What are unique Chinese sources of competitive advantage?**

- How can we (foreigners in China AND the Chinese themselves) use and develop them?