China’s Innovations are Going Global — New Emerging Business Models
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To have a holistic view of innovation in China, we have firstly analysed the country’s context and drivers of innovation in **Part 2 The China Context for Innovation**. We start with the mainstream Western understanding of innovation and suggest an alternative, broader definition of innovation, which is not limited to technological advancement or low-cost disruption.

We then scan the three layers of innovation in China – the people, the organisation, and the market – and explain how they interact with each other in the realm of innovation with the China context, one that can be described as a highly complex, diverse, dynamic and discontinuous environment accentuated by time-space compression.

Following this, we discuss the underlying drivers that are propelling China’s people, organisations and markets to innovate. The first is intensified competition and the second technological advancement, collectively leading to accelerated entrepreneurship and vibrant innovation in China.

**Part 3 Different Stages of Development for Chinese Companies** is where we attempt to classify Chinese innovators based on their soft power, influence and visibility outside China *en route* to becoming global players. They are unknown giants, new comers, global corporate citizens, and global attractors.

Building on this classification, in **Part 4 Types and Case Studies of Chinese Innovators**, we further analyse the five possible types of innovation along a given industry value chain: technology innovation, product innovation, process innovation, supply chain innovation and business model innovation. The section is supplemented by 18 brief case studies of Chinese innovators which have displayed different innovation capabilities and are at different stages of development.

**Part 5 The DNA of Chinese Innovators** summarises the ‘innovation DNA’ of a wide range of innovators, across all segments of a value chain in consideration of their respective stages of global development.

In particular many successful Chinese innovators demonstrated ‘boundary jumping’ behaviour in developing dynamic competences. Many of them went on to achieve exponential growth. These Chinese innovators share one commonality in that they have proved capable of building cross-industry ecosystems for collaborative innovation. These ecosystems come with great ‘biodiversity’, which has made an entire value chain more robust and sustainable businesswise.

In **Part 6 Implications for Finnish SMEs and Policy-makers**, we observe that as Chinese companies become global, they are in great need of capabilities from overseas partners for their expansion efforts. Finnish companies with complementary capabilities can thus plug into China’s innovation ecosystems and collaborate with Chinese companies.

We believe Finnish companies should recognise the growing importance of Chinese innovative multinational companies and learn how collaborate with the emerging set of Chinese entrepreneurs. A number of possibilities and recommendations are also explored in this section and **Part 7 Recommendations and Conclusion**.
When assessing China’s innovation landscape and capability, outsiders, particularly the Western media, often view the country as an innovation desert made up of copycat firms providing *shan zhai* (imitative and pirated) products. China is said to be lacking in innovativeness due to weak or non-existent intellectual property rights, a rote learning-based education system that does not encourage creativity and entrepreneurship, a monopoly of state-owned enterprises (SOEs), poor legal systems and so on.

Such a perception is a fallacy arising from expectation gaps. It is true that Chinese companies have yet to produce basic technological research comparable to that of advanced economies. They also have not yet had a product or service with the same impact or visibility worldwide as iPhone or Facebook. Nor have Chinese firms pioneered business processes like Japan’s just-in-time (JIT) production system which is widely accepted by Western firms. However, using these premises to conclude that China is not innovative misses the point entirely. Focusing on what has not happened in China is not seeing what has actually taken place and where this is headed.

The mainstream views often narrowly conceptualise innovation as either new and improved offerings that are drastically different from the previous ones, or low-cost, disruptive alternatives that satisfy the basic needs of consumers in entry segments/ emerging markets before threatening incumbent companies. Rapid technological advancement is central to innovation according to these views. However, understanding China’s innovation within its proper context requires a broader definition of innovation as ideas that add values to customers or businesses, which may be manifested in a variety of forms not limited to cost reduction or technological breakthrough.

Several contextual characteristics stand out in particular. China is moving faster than other economies in the world, and on a much larger scale. The transition to a market economy has led to a highly complex and diverse society, with many co-existing contradictions (eg. highly developed markets in top-tier cities versus emerging markets in rural areas; an affluent yet frugal society; global products yet local services; and traditional yet tech-savvy consumers). Innovative Chinese entrepreneurs are able to spot imperfections among these paradoxical situations, and identify consumer pain points and unmet demands, capitalising on those in search for entrepreneurial opportunities. These opportunities are often discontinuous (non-linear) and unplanned.

**Figure 1 – Common Growth Pattern of Successful Shan Zhai Companies**

<table>
<thead>
<tr>
<th>Break through in Shan Zhai Way</th>
<th>Upgrade Core Capabilities</th>
<th>Invest for Future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In-depth understanding of local needs / capturing window opportunities</strong></td>
<td><strong>Scaling up quickly / raising the barriers of entry</strong></td>
<td><strong>Further moving up in the value chain</strong></td>
</tr>
<tr>
<td>• Identify underserved market segments by incumbents</td>
<td>• Often start with mass segment to build up scale</td>
<td>• Enhance brand building efforts</td>
</tr>
<tr>
<td>• Understand real sources of competitive advantages</td>
<td>• Raise entry barriers through advantages such as cost / pricing / supply chain stickiness</td>
<td>• Move away from Shan Zhai image</td>
</tr>
<tr>
<td><strong>Developing a responsive and resilient business model</strong></td>
<td><strong>Upgrading core capabilities (esp. product design / R&amp;D)</strong></td>
<td><strong>Exploring next-wave growth opportunities</strong></td>
</tr>
<tr>
<td>• Rapid, flexible / localised products &amp; operations</td>
<td>• After initial emulation stage, start to invest or acquire key know-how</td>
<td>• Identify new growth opportunities with potential to duplicate or exceed past Shan Zhai success</td>
</tr>
<tr>
<td>• Innovative channel / sales strategies</td>
<td>• Move away from cheap copycat strategy to be more value-added or differentiated</td>
<td>• Invest to build the foundation</td>
</tr>
<tr>
<td>• Experiment-learn-adapt virtuous cycle</td>
<td><strong>Further moving up in the value chain</strong></td>
<td>• Enter in right stage in the S-curve</td>
</tr>
</tbody>
</table>

Source: Guo Feng Analysis
It is within such a complex, diverse and dynamic environment that Chinese companies develop unique capabilities that win the bases of competition through lower cost, better quality, and higher speed of execution. Due to contradictions and discontinuities which are transmitted and intensified through time-space compression, sparks of innovation are prone to yielding exponential growth opportunities. Using a ‘copy-to-China’ model, many Chinese companies evolved from copycat, disruptive and marginal shan zhai firms to innovative, sustainable and mainstream players (Figure 1). One should recognize the fact that successful shan zhai companies do not stay static in the changing environment but instead they upgrade their innovation capabilities aggressively with flexibility to win fierce competition.

There are three essential layers of innovation which are: people, organisation and environment and we can look at them as three concentric circles (Figure 2).

**Figure 2 – The Three Layers of Innovation**

First, the inner circle is **people**. Most studies on innovation have shown that it is usually more difficult for large corporations to maintain the same level of creativity and freedom – both of which are conducive to the innovation process – as start-ups. In China, due to the mass entrepreneurship strategy and growing innovation ecosystems, there are increasingly more start-ups which serve as the breeding ground for creative minds.

The ambitious ‘why-not-me’ mentality has motivated many aspiring entrepreneurs to take risk and make tough decisions. Not thwarted by the lack of support, they forge ahead and find ways to create success within an ever-changing and, at times, sub-optimal environment. Among the younger generations born after during the 1980s and 1990s, there is a sense of entrepreneurial zeal and optimism ignited by recent successful examples of grass-root entrepreneurs (Jack Ma, Lei Jun, Pony Ma, and many others) as well as fast-growing companies on the world stage.

Other favourable conditions are also at play. These include returnee entrepreneurs and talent with experience, expertise and access to resources gained from their exposure abroad. China has a large pool of relatively low-cost researchers, engineers and scientists. A large population base also helps – even if only 1% succeed, it is still a
large number of people compared with other countries. Equally important is that many entrepreneurs have their origin in the grassroots. They are flexible and well-positioned to spot the market imperfections and customer pain points. Lei Jun from Xiaomi is an excellent case in point. As Xiaomi does not have a deep pocket for detailed research, Lei chose to rely on customer feedback on what they wanted – and delivered exactly those. This is a completely different approach from Apple, where the late Steve Jobs did not believe in focus groups because he felt that he knew best.

Second, the middle layer is the organisation. Organisations tend to become reluctant to change as they become successful and established. As markets tend to mature over time, market leaders often begin to decline as they continue to bask in on the glory of yesteryear and miss the early signs of change. This is true of many organisations which were once market leaders in their respective industries on a global scale. China’s market is constantly changing. Many Chinese firms are very young and thus have a higher risk appetite for new opportunities and radical innovations. For example, Haier gained a significant market share when it introduced a washing machine capable of cleaning not only clothes but also potatoes. The development came from awareness of indigenous demand from a lower-tier city. It demonstrates Haier’s ‘customer centric’ management philosophy. Chinese organisations remain hungry, agile and nimble. They continue to push for growth precisely because there is no legacy success to fall back on. This explains why China is fast catching up on innovation and is even overtaking many countries in terms of patent activity and spending on research and development (R&D).

Third, the outermost circle is market. Critics often point to China’s market system when expressing concern about its future of innovation. The criticisms centre on the dominance of closed sectors by SOEs lacking in transparency; the abundance of government incentives to push for technological changes without the necessary oversight mechanisms; and the heavy presence of government entities in the market. To be sure, SOEs will continue to play a big part in China but much of the innovation going forward will come from private companies, including foreign entities operating in China. A large number of such private entities is already springing up across multiple sectors. Where sectors are open, the competition becomes intense as multinational corporations (MNCs), SOEs and local private companies aim for a piece of the pie. Over time, government involvement will decrease through consolidation and rationalisation, and normal market dynamics will follow. The Chinese Government is already pushing for more deregulations, and this will serve to foster innovation further.

On the plus side, China’s market is experiencing unprecedented economic growth not found anywhere else. The Chinese Government has also provided much top-down support at the national and provincial levels, as seen in the case of science and R&D parks as well as industry clusters. The supporting infrastructure is quickly falling into place, from fast adoption of the Internet and creation of incubators to the proliferation of venture capital, private equities and angle investors.
Two underlying drivers are propelling China’s people, organisations and markets to innovate. Both drivers are unique to China at its current stage of development. The first is **intensified competition**, which is, in turn, a product of economic liberalisation, SOE reform, burgeoning private-public partnerships, and increasingly sophisticated demand from the expanding middle class and digital natives.

The second driver is **technological advancement**. Both Chinese and MNCs are spending more and more on R&D. Talent acquisition in the form of professional returnees such as engineers and managers also boosts technological advancement. Additionally, there is an increasing penetration of smartphones and mobile Internet at the mass level. This makes it easier for customer to articulate their needs, which are then acted upon by companies and entrepreneurs seeking to improve their products and services through technological improvements.

The context for China’s innovation thus differs from that of the West, including Finland, on account of two features.

The first is constant redefinition of industry boundaries in a discontinuous fashion. Innovative Chinese companies often jump across industry boundaries and competency gaps in a discontinuous and unexpected manner, unlike the historically linear development in most Western companies. Instead of emphasising fierce competition and static competitive advantage like Western companies do, Chinese companies, especially the tech conglomerates, build ecosystems that dynamically balance competition and collaboration, and create entry barrier for new players. They often disrupt traditional value chains in a inter-industry manner, posing threats to established incumbents.

The second feature is the chaotic nature of change occurring in a very condensed period of time. China is huge and change is not only fast but complex. The fast-growing era has led to rapid development of some regions on the one hand but left others lagging behind on the other hand. Such changes and differences create opportunities for entrepreneurs to leapfrog their businesses. Chinese companies have to think creatively to ensure that they remain competitive, and often test the boundaries by going ahead of policy change. This is essentially very different from the developed economies in the West.
In a rapidly evolving national and regional context, Chinese companies are growing at different paces. Some companies took decades of development to grow into MNCs with significant global leadership, for example Huawei, BYD and Lenovo. Other emerging companies might be very young with little legacy but have experienced exponential growth in a short period of time. Examples of such firms include Xiaomi, Alibaba and DJI.

In any case, many Chinese companies have demonstrated varied extent of soft power development from the global perspective. For our study, we have defined four stages of global soft power development for Chinese companies, namely the ‘Unknown Giant’, ‘New Comer’, ‘Global Corporate Citizen’ and ‘Global Attractor’, each of which is elaborated upon as follows (Figure 3).

**Figure 3 – The Journey of Chinese Companies to Become New Global Attractors**

### Unknown Giant

- Initial focus on becoming large at home
- “Hidden Giant” when seen from overseas, but lacking soft power
- Taking first steps overseas
- First moves can go badly wrong or, if successful, provide a strong platform for future expansion
- A critical stage that can shape the direction and pace of future soft power and success

### New Comer

- Established multinationals fall into this category
- Operating effectively in many different countries with different stakeholders
- They neither shape the business environment nor project a distinctive influence on the world

### Global Corporate Citizen

- Companies realize the full potential of soft power
- They have become true global leaders
- They set the agenda for future generations
- Ability to influence far beyond their power base

### Global Attractor

An ‘unknown giant’ refers to a Chinese company that could be small or large at home, and is considered a hidden giant when seen from overseas due to the lack of global influence and presence.

However, it is worth noting some Chinese companies only focus on the domestic market and have no immediate plans for internationalisation. One such example is Dianping, a popular review portal with over 200 million monthly active users for restaurant ratings and other online-to-offline location-based services (similar to Yelp). Others were intentionally “born global” without tapping into the local market from the point of inception, for example Microduino, an open-source electronics chip manufacturer which leveraged the global crowd-funding platform, Kickstarter, to market and launch its products globally.

A ‘new comer’ refers to a Chinese company that is starting to take its first steps to go overseas. These first moves of internationalisation could go badly wrong. But if the paths are well chosen, these new comers would have a strong positive foundation for future expansion. As a result, it is a critical stage as it can shape the direction and pace of future soft power and success.
According to the Chinese Ministry of Commerce, China’s outbound direct investment (ODI) grew from USD2.7 billion in 2002 to a stunning USD102.9 billion in 2014 – a nearly 40-fold increase in only 12 years. Many emerging Chinese innovative companies, such as Xiaomi (smart devices), DJI (consumer drones), Alibaba (e-commerce) and Envision Energy (wind energy), are winning the local market and evolving into the “new comers” for globalisation.

A ‘global corporate citizen’ refers to an established Chinese multinational company. Examples of global corporate citizens include Huawei (network technologies), Hanergy (solar energy), Haier (white goods), and Sany (construction equipment).

As global corporate citizens, they understand how to operate effectively in many different countries and work with diverse groups of stakeholders. They are also gaining initial global success through effective localisation. While enjoying a certain degree of global market success, they neither shape the business environments in which they operate nor project a distinctive influence on the global industry.

‘Global attractors’ are the true Chinese global leaders that have realised the full potential of soft power from the global perspective. They are able to set agenda for future generations of services and proposition. In other words, they are the global industry trendsetters and command the world’s attention.

We believe that very little, if not none, Chinese companies have become successful global attractors. However, we are expecting some leading ‘global corporate citizens’ to develop as ‘global attractors’ in the near future.
In general, five types of innovation can be used for creating and capturing value along a given value chain:

- **Technology innovation** focuses on enhancing or developing the core technology-related process as well as enhancing the product’s performance through technological advancement.

- **Product innovation** seeks to enhance the value, features and quality of a product offering, be it through upgrades of existing products or introduction of new products.

- **Supply chain innovation** centres on improving the efficiency of value chain flows from the point of conceptualisation of a company’s core offerings and production by suppliers all the way down to distribution to and consumption by end users.

- **Process innovation** looks at improvement of efficiency in the actual business activities and operations (such as manufacturing procedures or organisational structures) in which a company’s core offerings are produced.

- **Business model innovation** involves a fundamental change that enhances the cost and profit model as well as alters the architecture of value creation and capture. Business model innovation typically manifests in increased sales revenue. It often helps consumers differentiate between a company’s offerings from those of its competitors through purposeful marketing of the added values to consumers. Values are also created in an improved buying process that serves consumers in a better way.

Most businesses usually deliver innovation in one or a few selected domains due to their limited range of capabilities as well as enormous resource requirements for innovation. The same is also true of Chinese companies [Figure 4].

**Figure 4 – Types of Innovation and Key Success Criteria for Chinese Companies**
By examining the innovation capabilities possessed by a number of Chinese firms, we suggest that innovative companies in China can be broadly divided into three categories.

The first category are innovators who are focused on one or a limited number of domains. This typically applies to most start-ups, especially during the initial stage of their business, as well as high-tech R&D companies. High-tech innovators often focus exclusively on technological R&D innovations. Some examples:

- **Kuang-Chi**, a high-tech space-related company, has developed a list of groundbreaking technologies that require further commercial testing, such as Meta-RF electromagnetic modulation, intelligent photonic technology, and meta-materials. Kuang-Chi is also developing an unmanned, helium-filled vehicle called the Cloud which provides integrated services including communication, Internet access, and big-data collection and analysis.

- **Hanergy**, a multinational clean energy company as well as the world’s leading photovoltaic (PV) producer, has developed an advanced thin-film technology for solar energy, as opposed to crystalline silicon cells. Hanergy has recently launched a global thin-film solar product innovation competition to explore the potential applications (commercialisation) of its thin-film technology. Winning teams will further incubate and co-develop their projects with Hanergy with financial and research support. Such open innovation enables Hanergy to crowd-source new ideas from more creative minds.

Other companies focus on commercialisation of high-tech R&D innovations through business model innovation, for instance:

- **Pujing Chemical Industry (PJCHEM)** focuses on identifying new technologies in domestic universities and scientific research institutions, and investing in pre-production pilot experiments and industrialisation tests, before eventually selling the commercialised technologies. Essentially, it identifies the niche gap between technology research and market commercialisation.

The second category are innovators seeking to build their own ecosystems or become part of other companies’ ecosystems. Starting from domain-specific innovations, these companies develop cross-industry capabilities, as shown in the case of Alibaba acquiring UCWeb (mobile browser), and Xiaomi collaborating with Li-Ning (sportswear retailer).

Some are building a vertically integrated ecosystem with a view to deepen their capabilities in their core industries. In some cases, a vertically integrated ecosystem is formed by bringing together the upstream and downstream players:

- **BGI Shenzhen**, a leading bio-tech company specialized in genome research, partners with the Chinese Government and many global research institutions (such as the Gates Foundation, GE Healthcare and many leading universities) to enhance both its upstream and downstream research capabilities.

- **Uber and BYD**, a leading Chinese electric car manufacturer, formed partnership in March 2015 that allows Uber drivers rent or lease BYD’s electric vehicles in the US, connecting the supply (BYD) and demand (Uber) sides of on-demand mobility.
Trina Solar started as a low-end PV system installation company in 1997. With strong support from the local Changzhou Government, downstream and upstream companies of its supply chain were brought into the city. Over time, they collectively formed a vertical ecosystem that is built around Trina Solar, which has since become fully vertically integrated in all 6 parts of a PV industry chain: silicon material processing, monocrystalline ingots, silicon wafering, battery manufacturing, assembly and system installation. Trina Solar is now the third largest solar module company in China and the fourth largest worldwide. It demonstrates the influential role of local government in developing the vertical ecosystem for an important company.

Others choose to build a horizontally integrated ecosystem to extend its capabilities in a trans-industry manner. This is particularly common among information and communication technology (ICT) companies which seek to become more sustainable through diversity. The ICT companies are well-positioned to do this because they are asset-light but data-heavy. This makes it possible for them to leverage their core competences and form collaborative partnerships across different industries and markets for synergy. Some relevant examples are:

- **LeTV**, a young Internet media company, established Le Vision Pictures for film distribution and “Super Electric Ecosystem” (SEE) Programme for smart car production.

- **Alibaba** has expanded its ecosystem with Cainiao, a smart logistics network, functioning as its logistics arm, Alibaba Pictures Group Limited as its entertainment arm, Ant Financial as its Internet finance arm and more recently, SAIC in a partnership to produce Internet-connected cars. In particular, Cainiao has incorporated players from e-commerce, retail, finance and express delivery to deliver online orders to customers in 2,000 cities within 24 hours.

The third category are innovators who exhibit a full range of innovation capabilities across different domains. The prime example in the West for this is Apple Inc, the leading example of globally innovative companies with the world’s highest market capitalization in recent years.

Apple has demonstrated innovations in all domains. For product innovation, Apple has moved from Macintosh to a series of new products such as iPod, iPhone and iPad, with an emphasis on design of quality products undertaken by world-class designers and engineers. For supply chain innovation, Apple under Tim Cook has applied inventory tracking mechanisms to ensure that Apple’s supplier prices are strictly contained and linked to actual costs. For business model innovation, Apple has created the App Store platform that offers online purchase of media contents and apps, and has linked its product offerings to the ecosystem supported by the same operating system.

In China, the closest example of this category of innovators is **SF Express**:

- For technology innovation, SF Express has used advanced big data analytics for route planning and enterprise resource planning software for logistic management.

- For product innovation, SF Express has adopted cross-platform customer relationship management, from website to mobile app and WeChat channel. It has
also launched a series of delivery modes for different needs (time-efficient, economy, international, and special express).

- For supply chain innovation, SF Express began buying air planes in 2009 and pioneered self-run air delivery for imported goods. Recently, it launched a pilot test of drone-based delivery.

- For process innovation, SF Express has continuously improved the logistics infrastructure with ICT. It has over the past 20 years enhanced supply chain efficiency through higher level of automation, improved reliability of cold chain logistics, route optimisation, end-to-end tracking, and better resource allocation system.

- For business model innovation, SF Express has successfully transformed from a franchise model to full ownership. It has expanded from basic parcel delivery to a one-stop services provider for high-end food delivery (SF Best), e-commerce, and online-to-offline (O2O) outlets (Heike) that achieve same-day delivery and zero inventory.

Of the three categories of Chinese innovators described above, the second category is becoming increasingly prominent. In the new era of connectivity, companies with dissimilar innovation profiles often collaborate in a platform ecosystem. Fuelled by ICT companies and supported by China’s latest ‘Internet Plus’ Strategy, ecosystems like that of Alibaba’s Cainiao will fuel disruptive innovation across many traditional sectors.

At the heart of this change is increasingly innovative applications of the Internet that disintermediate many traditional value chains, leading to new business models. Already, change is underway in the areas of ‘Internet Plus Finance’ (third party mobile payment, peer-to-peer lending, Bitcoin, microfinance, crowd-funding); ‘Internet Plus Automotive’ (connected mobility, electric car, O2O automotive services, smart auto devices); and ‘Internet Manufacturing’ (cyber-physical system in Industry 4.0, smart connected devices).

In the area of ‘Internet Plus Energy’, Envision Energy, a leading wind power Chinese manufacturer with global R&D centres and markets, is pioneering the concept of ‘Energy Internet’ in China. Envision Energy is positioning itself as the leading provider of energy Internet services. By using a ‘digital nervous system’ to make the energy grid responsive to supply and demand, ‘Energy Internet’ seeks to make renewable energy the main source of energy in the future.

In yet another example of how the Internet is leveraged for forming ecosystems that tackle customer pain points, WeChat has unveiled its Smart Life Solution, which allows its users to access services in eight areas (restaurant, hotel, ticketing for public transport, school, hospital, brick-and-mortar store, delivery, and tourism). For example, WeChat Smart Life Solution promises to resolve difficulty in scheduling appointments with doctors, long queues for making payment and collecting medical reports, and troublesome paperwork – the common pain points familiar to many hospital users – by helping them to schedule appointments with doctors, track queues and obtain digital prescriptions or reports.

Different types of Chinese innovators have varied major strengths and needs depending on their stage of development. Consequently, they present different collaboration opportunities for their potential partners and markets. We attempt to map...
these in Table 1 through Table 5. This is followed by 18 brief case studies on each type of Chinese innovators for illustration purposes.

### Table 1 – Technology Innovators: Strengths, Needs, Potential Partners

<table>
<thead>
<tr>
<th>Stage</th>
<th>Unknown Giant</th>
<th>New Comer</th>
<th>Global Corporate Citizen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phases of Internationalisation</td>
<td>No plan for internationalisation in near future</td>
<td>Internationalisation in progress / planned</td>
<td>Internationalisation in progress / planned</td>
</tr>
<tr>
<td>Examples</td>
<td>Megvii/Face++, Skyline Electric Car, Stonrobot … etc.</td>
<td>Hanergy, Goldwind, Kuang-Chi, Siasun Robotics, Sany, … etc.</td>
<td>Huawei, Envision Energy, BGI, BYD … etc.</td>
</tr>
</tbody>
</table>
| Major Strengths | • Retrume entrepreneurs who bring in overseas expertise and networks  
• Strong technological applications, converting technology into product innovation | • Cutting-edge technology developed by international experts in China  
• Established local market success | • Cutting edge technology with high international commercialisation |
| Major Needs | • Commercialisation (business model innovation) of technology  
• Investment for advanced R&D to keep the leader position | • International market development  
• Financial investment for overseas top technology transfer | • International R&D capabilities |
| Suitable Partners | Companies with strong financials to invest in Chinese companies and technology advantages to lead joint R&D projects | Companies with strong international technological capabilities that are able to be transferred and commercialised in China | Companies with strong international market success and cutting-edge R&D centre to partner with Chinese firms |

Notes: Internationalisation refers to expansion of Chinese companies to overseas market, near future refers to next 2 to 3 years

### Table 2 – Product Innovators: Strengths, Needs, Potential Partners

<table>
<thead>
<tr>
<th>Stage</th>
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<tr>
<td>Phases of Internationalisation</td>
<td>No plan for internationalisation in near future</td>
<td>Internationalisation in progress / planned</td>
</tr>
<tr>
<td>Examples</td>
<td>Apricot Forest, Zhongan Insurance, Dianping, Ctrip … etc.</td>
<td>DJI, OPPO, Microduino… etc</td>
</tr>
</tbody>
</table>
| Major Strengths | • Localised product based on good understanding of local consumers  
• Rapid prototyping and fast go-to-market | • Product differentiation through high quality product design  
• Competitive pricing based on low manufacturing cost |
| Major Needs | • Quick customer acquisition  
• Investment for continuous new product development and launch | • International branding and overseas marketing know-how  
• Localising product design in foreign markets |
| Suitable Partners | Companies with engaging products that are unique is Chinas and intend to expand to China via partnership and/or investment | Companies with established international brand awareness and leading product design capabilities |
### Table 3 – Process Innovators: Strengths, Needs, Potential Partners

<table>
<thead>
<tr>
<th>Stage</th>
<th>Unknown Giant</th>
<th>New Comer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phases of Internationalisation</td>
<td>No plan for internationalisation in near future</td>
<td>Internationalisation in progress / planned</td>
</tr>
<tr>
<td>Examples</td>
<td>Guangzhou Crane (single sided welding) ... etc.</td>
<td>Joyson Electronics, LeTV (super car), Anhui Effort Intelligent Equipment (industrial robots) ... etc.</td>
</tr>
<tr>
<td>Major Strengths</td>
<td>Incremental process improvement by applying new technologies that enhances efficiency</td>
<td>High level of automation - use of robotics to improve process productivity</td>
</tr>
<tr>
<td>Major Needs</td>
<td>Technical know-how of how to further optimise the process efficiency</td>
<td>Investment for further R&amp;D to compete globally</td>
</tr>
<tr>
<td>Suitable Partners</td>
<td>Companies with market-proven process technologies</td>
<td>Companies with market-proven world-leading process technologies</td>
</tr>
</tbody>
</table>

### Table 4 – Supply Chain Innovators: Strengths, Needs, Potential Partners

<table>
<thead>
<tr>
<th>Stage</th>
<th>Unknown Giant</th>
<th>New Comer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phases of Internationalisation</td>
<td>No plan for internationalisation in near future</td>
<td>Internationalisation in progress / planned</td>
</tr>
<tr>
<td>Examples</td>
<td>Caniao Smart Logistics Network, Ningbo Smarter Logistics, SF Express ... etc.</td>
<td>Jing Dong (JD)... etc.</td>
</tr>
<tr>
<td>Major Strengths</td>
<td>Use of big data analytics and connected devices for developing a highly automated supply chain management</td>
<td>World-leading manufacturing and supply chain management capabilities that attract many international electronics brands to integrate them into their own global supply chain</td>
</tr>
<tr>
<td></td>
<td>Application of technologies that simplify complex process in a supply chain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Some receives government support as a part of the smart city initiative</td>
<td></td>
</tr>
<tr>
<td>Major Needs</td>
<td>Investment for local market penetration</td>
<td>Investment for further R&amp;D and technology transfer in terms of world-leading supply chain intelligence and robotics</td>
</tr>
<tr>
<td>Suitable Partners</td>
<td>Companies with market-proven supply chain technologies</td>
<td>Companies with market-proven world-leading supply chain technologies</td>
</tr>
</tbody>
</table>

### Table 5 – Business Model Innovators: Strengths, Needs, Potential Partners

<table>
<thead>
<tr>
<th>Stage</th>
<th>Unknown Giant</th>
<th>New Comer</th>
<th>Global Corporate Citizen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phases of Internationalisation</td>
<td>No plan for internationalisation in near future</td>
<td>Internationalisation in progress / planned</td>
<td>Internationalisation in progress / planned</td>
</tr>
<tr>
<td>Examples</td>
<td>Meilishuo, Muogujie, Apricot Forest, YY,</td>
<td>Xiaomi, YY Inc., Baidu, Alibaba and UCWeb... etc.</td>
<td>Haier... etc.</td>
</tr>
</tbody>
</table>

Notes: Internationalisation refers to expansion of Chinese companies to overseas market, near future refers to next 2 to 3 years.
Pateo, Qihoo 360 … etc.

<table>
<thead>
<tr>
<th>Major Strengths</th>
<th>Major Needs</th>
<th>Suitable Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain-points oriented</td>
<td>Management know-how enhancement</td>
<td>Companies with market-proven business model and similar business portfolio</td>
</tr>
<tr>
<td>Rapid prototyping</td>
<td>Investment to developing a more</td>
<td>Established companies or start-ups that can plug into the Chinese ecosystem and fill up the missing gap of capabilities</td>
</tr>
<tr>
<td></td>
<td>diverse portfolio</td>
<td>Established companies or start-ups that can plug into the Chinese ecosystem and help further internationalisation</td>
</tr>
<tr>
<td>Locally market-proven business model</td>
<td>International experts to help overseas expansion</td>
<td>Notes: Internationalisation refers to expansion of Chinese companies to overseas market, near future refers to next 2 to 3 years</td>
</tr>
<tr>
<td>Internationally successful ecosystem</td>
<td>International partnership to enrich the diversity of ecosystem</td>
<td></td>
</tr>
</tbody>
</table>

**Case 1: Megvii**

**Technology Innovator and Unknown Giant**

Megvii is an emerging visual service firm that aims to build the ‘brain’ for next-generation visual recognition engine and to achieve a total ‘vision revolution’. It has developed leading core technology in human recognition, object recognition, face recognition, image search and text recognition. Its innovative products include Face++ (a face recognition solution now used by Alibaba for mobile payment) and Image++.

Megvii has its origin in world-class research. It was started in 2012 by three young graduates from Tsinghua University who studied computer vision and deep learning. The company has fewer than 50 employees, 40 of whom are engineers. Face++ has placed first in a number of tech evaluations and competitions. In November 2013, Megvii announced that it netted US$22 million of Series B funding valued at over US$100 million. Megvii is positioning itself as a ‘platform’ and extending the application of its technology to many different areas. In particular, Megvii focuses on commercialising its face recognition technology in the finance sector through collaboration with domestic business partners and key stakeholders such as the Ministry of Public Security, the Ministry of Industry and Information Technology and the People’s Bank of China. Megvii has built a high technical barrier for new entrant firms, with its advantages in algorithm logic, data storage and commercial applicability.

Megvii is focusing on China’s market. In 2015, it aims to extend its applications to banking and finance through commercialisation with the four big banks. Next year, it wants to focus on localisation as many low-end competitors are expected to emerge. Given its focus, Megvii is looking for domestic business partners with strong government relationships, expertise in resources integration, and access to a large user base. As such, there are little prospects of collaboration concerning Finnish small and medium-sized enterprises (SMEs). However, Finnish SMEs with the relevant expertise may learn from Megvii’s commercialisation strategy and catch up on its technology to gain a competitive position in Europe.
Riding on the construction boom in China, Sany has evolved into a global Chinese company in the construction machinery industry. Its vast product range includes concrete machinery, excavator, hoisting machinery, pile driving machinery, road construction machinery, port machinery and wind turbine.

Founded in 1989 as a small welding material factory, Sany has developed its innovation capabilities and has five industrial parks in China and multiple R&D and manufacturing facilities in Brazil, Germany, India, Indonesia and in the US. In 2011, Sany made it to the Financial Times Global 500 list, with a market cap of USD21.6 billion. To develop and manufacture quality and industry-leading products, Sany re-invests 5% to 7% of its annual sales revenue into R&D. After years of learning, Sany is able to innovate many core enabling technologies based on the Chinese market needs, reducing the dependence on foreign technology transfer.

Since 2002, Sany has been expanding overseas. For emerging markets, its strategy is to use India and Indonesia as manufacturing and assembly bases, and Brazil for production of construction machinery. For developed markets, Sany targets the US and Germany, both strongholds for R&D work, for technology R&D and talent acquisition. In 2006, Sany entered Germany and found a niche market in developing, producing and distributing mobile port machinery and other construction and lifting equipment to customers in Europe and surrounding markets. In 2012, Sany announced the acquisition of Putzmeister, the German leading manufacturer of high-tech concrete pump, for about USD470 million, the largest direct investment a Chinese company has made in the country. Sany has kept both the acquired premium brand and its own low-cost, less perceived brand to serve different price segments, reaching out to both upper and lower-end markets. Sany’s success in Germany is an example of Chinese companies gaining ground and reputation in Europe step by step.

Huawei is a leading Chinese multinational ICT solutions provider with intensive technological R&D. Founded in 1987, Huawei has over 150,000 employees, 45% of whom are engaged in R&D. Huawei has set up 23 R&D centres in China, the US, Germany, the UK, France, Italy, Russia, India, Sweden and some other countries, covering wireless, fixed, optical, future network, standard and chipset design technologies. With annual sales revenue of USD39.6 billion in 2013, Huawei ranked 285th on the Global Fortune 500.

Over the past 3 years, Huawei has invested over 10% of its annual revenue in R&D. Huawei is selected as the only Chinese firm in the Thomson Reuters 2014 Top 100 Global Innovators. On the technology front, Huawei seeks to develop, commercialise and lead 5G network technologies by 2020 and has invested in Long Term Evolution wireless high-speed data technologies. It has also partnered with a number of universities for joint research.

A number of its flagship products proved to be a success, such as the recently released Huawei Mate 7 and P7 phones. Mate 7 comes with precise single-touch fingerprint technology, utilising 508PPI ratio reader. P7 utilises an innovative 8 megapixel non-spherical lens front-facing camera equipped with panorama function for panoramic “selfie” shooting. Huawei has also tried to innovate at the management level: it implements the rotating CEO system, with three deputy chairmen taking turns to act as the Rotating and Acting CEO for a tenure of six months.
Huawei acknowledges Finland’s innovation capabilities and other advantages. In 2012, Huawei announced to invest €70 million over a five-year period to establish a R&D centre in Helsinki, which will serve as one of Huawei’s core centres for device R&D alongside the design centre in Sweden and a user interface research centre in the UK.

Huawei plans to recruit 30 employees for the centre, with the goal of hiring more than 100 employees over five years. In addition, Huawei will enforce collaboration projects with Finnish universities, such as Tampere University of Technology and Aalto University. Huawei has received help from Invest in Finland in collecting market information, organising its office rental, hiring staff, visa issues, company registration, and other aspects of setting up business in Finland. The China-Finland Golden Bridge Centre also facilitated the process of setting up Huawei’s R&D centre in Finland.

**Apricot Forest** is using the mobile Internet and digital technologies to seek the cure to overstressed doctors. Apricot Forest offers a suite of three apps that target some of the critical inefficiencies in China’s medical system. The primary app is MedClip, an all-in-one patient service system. Doctors can photograph, store, and organise patient records; dictate notes directly into a patient’s chart; send patients reminders and educational materials via China’s popular Weixin (aka WeChat) messaging system; and consult with other doctors on difficult cases. The second, e-Pocket, contains reference materials, such as drug formularies and specialised calculators. The third, Medical Journals, helps doctors stay up-to-date on the latest research literature.

DJI, the global leading drone maker, is one of the most successful examples of Chinese product innovations. In 2006, the founder Frank Wang studied drone suspension technologies as an engineering postgraduate student in Hong Kong and founded DJI with three others after graduation. In 2011, Wang came up with an idea to use camera drones to replace aerial photographers who had to use helicopters, after learning that Hollywood production companies usually hired helicopters at rates of around US$20,000 per hour for aerial filming.

For celebrity endorsement and media exposure, DJI teamed up with a US drone entrepreneur and reality show celebrity Colin Guinn, who remade the company’s motto from “Flight Control Experts” to “The Future of Possible”. It later appeared on several popular Chinese shows. DJI has grown from 90 employees in 2009 to 2,800 in 2014, and from zero to USD130 million in revenue in 2013. DJI now owns 70% of the global civilian-use small unmanned aerial systems (UAS)/drone market.

**Microduino** is an open-source electronics prototyping platform which enables a wide range of application innovations. Microduino is small, stackable and standardised. It is used for rapid prototyping of connected devices, small batch manufacturing, and multiple applications such as robotics, drones, connected clock, sensor-connected gateway, smart home appliances and IoT.

The founders are graduates from Peking University, Fudan University, USCD and other hacker communities. The initial prototype was developed in 2012. It raised USD130,000 on Kickstarter, the global crowd-funding platform. The company has grown from 2 to 16 members. Over 50 types of Microduino with different functions are

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**Case 4: Apricot Forest**

*Product Innovator and Unknown Giant*

**Case 5: DJI**

*Product Innovator and New Comer*

**Case 6: Microduino**

*Product Innovator and New Comer*
developed. Microduino continues to launch new projects on Kickstarter and is in talks with Chinese home appliance manufacturers for collaboration. It is also working Sino-Finnish Centre and Fablab at Tongji University.

Gartner predicts that IoT will reach 26 billion connected devices in 2020, with an exponential growth of 30 times the installed base in 2009. The size of the Chinese IoT market has soared from RMB 170 billion (around USD27 billion) in 2009 to RMB 365 billion in 2012, and exceeded RMB 500 billion in 2013 with annual compound growth of over 30%. Microduino is at the sweet spot of such unstoppable maker movement.

**Joyson Electronics** is a young and ambitious Chinese innovator in the intelligent automobile technology. Founded in 2004, Joyson has a two-step strategy to transform its core business-to-business (B2B) activity into a business-to-customer (B2C) connected mobility service platform. In the first step of consolidating B2B, Joyson has adopted the concept of synchronous design to keep in step with its customers and their needs. It has also pursued merger and acquisition (M&A) strategy to upgrade its product lines and to acquire top technologies. Leveraging its existing competitive advantages in auto parts and electronics, Joyson will further strengthen its B2B businesses.

In the second step of moving towards B2C, Joyson seeks to expand into B2C services and collect data through hardware devices. During the start-up years, Joyson offered products ranging from engine air intake manifold to air vent scrubbers. In 2008, Joyson qualified as a Tier 1 supplier to Volkswagen and became a global supplier to General Motors. In 2009, Joyson acquired Shanghai Huade, for the expansion and integration of domestic product lines. In 2011, Joyson acquired the Preh Group in Germany for the prestigious German automotive supplier’s innovation and production quality. Since December 2011, Joyson has been listed on the Shanghai Stock Exchange.

Joyson is very positive regarding potential collaboration with Finnish companies, for both global and China’s markets. For the global market, Joyson’s transformation to provide connected mobility services and globalisation strategy would require stronger software development capabilities and international collaboration. Many Finnish ICT companies are very strong in software development, and some are specialised in connected mobility technologies, such as autonomous driving. For China’s market, the development of ‘Industry 4.0’ at Joyson would require Finnish advanced automation technologies. Joyson can partner with Finnish companies to further penetrate the Chinese market together.

**LeTV** is reshaping the boundaries of media with its open and vertically-integrated ecosystem comprising devices, platforms, content, and applications. LeTV Super Car represents the next generation of super vehicle that is highly eco-friendly, intelligent and socially interactive.

As the process of making an electric vehicle is fundamentally different from that of a traditional vehicle, LeTV turns to unconventional ways of car making. There is no traditional huge team of marketing and sales staff. Instead, LeTV focuses on hiring the best Internet professionals from Silicon Valle. There is also no traditional organisational structure. LeTV vice-presidents are assigned to specialised technical functions such as mechanics, battery charging, safety system, and automation. The founder and CEO,
Jia Yueting, serves as the chief product engineer in the Super Car team and is eager to apply the “Internet mind-set” in every process of car making.

LeTV’s internationalisation strategy is to integrate top global resources in apps, innovation and entertainment from Beijing, Silicon Valley and Los Angeles, respectively. In Beijing, LeTC is hiring Chinese app developers for its apps and is creating a library of tailored Chinese media content. In Silicon Valley, LeTV is establishing its headquarters to acquire, produce and sell Internet technologies in the US, before scaling up sales in China. In Los Angeles, LeTV has set up a film production branch, LeVision Pictures, for production, financing and distribution of films.

China’s e-commerce market is highly competitive. In the second quarter of 2014, B2C transactions reached RMB 284.5 billion, accounting for China’s total online shopping transactions. Over 70% of that B2C e-commerce market share is shared by Alibaba and JingDong (JD).

Unlike Alibaba which has maintained a light e-commerce model by leveraging its Cainiao network, JD has opted to take ownership of its supply chain in a heavy e-commerce model. JD’s success is built on human capital, with an emphasis on talent acquisition, training, incentive schemes and employee development. Another key to JD’s success is its competence in supply chain management systems.

Leveraging its premium supply chain capabilities, JD is providing new distribution channels for hardware start-ups. JD aims to incubate and develop an ecosystem of new intelligent hardware and smart devices with many technology and internet companies across the country coming together on the same platform. More than just a product distribution platform for smart devices, it also provides cloud and data analytics services (JDCloud), WiFi or sensor solutions, software development services, marketing support and funding / crowd-funding. Products that come from the incubation programme will be branded under ’JD+‘.

Jingdong Mall’s English-language website, offering nearly 400,000 products, went online in October 2014. Supporting delivery to 35 countries, it attracts overseas customers from North America, Western Europe and Australia. JD is also working with a Russian company called Ozon, which is a Taobao-type of company in Russia. JD wants to build a partnership so that they can handle customer service, delivery, the last-mile delivery, even credit cards and payment.

Mogujie, a Chinese social shopping firm, emerged from Alibaba’s ecosystem as one of Taobao’s alliance partners. Originally intended to guide consumers on shopping and enhance conversion rates of online consumers, Mogujie gradually built its own online shopping city after Taobao started to tighten the control over its affiliated shopping guide websites.

Mogujie users interact with one another by creating photo collages of clothes, shoes and other items they like. Those items are available for purchases either from merchants hosted by Mogujie or through other e-commerce sites that pay referral commissions to Mogujie. As at end-2014, the online shopping value of Mogujie is around RMB 3.6 billion. Moguojie has around 85 million registered users.

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Case 9: JD  
Supply Chain Innovator and New Comer

Case 10: Mogujie  
Business Model Innovator and Unknown Giant
Meilishuo, another Chinese social e-commerce firm, is now creating a micro-community of consumers and fashion vendors. This is different from the traditional business model because it functions as a social community to meet the diversified and personalised demand for fashion. The company’s ultimate goal is to extend its services beyond fashion to satisfy demand in other areas, such as house renting and local travel guide.

For Meilishuo, the potential partners are overseas companies which have networks of leading European fashion designers, and which can help integrate these offline stores with Meilishuo’s community. Worldwide markets are converging into one single market under globalisation and Chinese business model innovators are in an advantageous position because of the huge market potential in China and their deep understanding of the Chinese consumers. The opportunity for Finnish SMEs depends on their ability to integrate with the ecosystems of Chinese business model innovators and add value from the supply side.

Pateo is currently one of the largest providers of products and services for connected cars in China. The founder and chairman, Ken Ying, established Energy Source in 2000, a leading auto digital marketing firm in China. In 2009, Energy Source pivoted and Pateo was founded. Pateo has over 400 employees, 45% of whom are involved in R&D. Pateo is the world's first provider of vehicle-mounted Android system solutions and the first telematics service provider (TSP) in China.

Pateo focuses on business model innovation, based on the big data collected from its hardware, software and service platforms. Its business is deployed across China with plans for development and assimilation of overseas technology. Pateo has set up an overseas office in Frankfurt and will establish the second one in Silicon Valley, focusing on Internet technology acquisition and assimilation for use in China’s market.

Pateo has debuted its intelligent concept car, Project N, at the 2015 Shanghai Auto Show. Project N is a super intelligent terminal developed by Pateo that is environmentally harmless and can interact with its users. It has several cutting-edge technologies such as natural human-computer interface, high intelligent artificial technology, driverless driving, big data cloud and new energy solution.

YY Inc is a social communication platform, providing large group voice and video sessions for concerts, education, fashion, sports streaming. YY started as a video-based social network in 2005, mainly enabling gamers to voice chat over the Internet and text chat in real-time while playing online games. YY derives its revenue mainly from the virtual transaction of its gaming platform. Another main source of revenue is the audience buying virtual ‘roses’ and giving them to performers who can cash them in for real money, as an incentive to encourage high quality performances. Top performers on YY could earn more than USD20,000 monthly.

YY is a technology company with over 50% employees working on the real-time video streaming technology, which can support more than 100,000 users at the same time on the same channel, said to be more powerful than Skype. Hubert Thieblot, the CEO of the US-based gaming business Curse, founded a business similar to YY and named it Curse Voice. Thieblot was inspired by YY’s business model after he met YY CEO
Case 14: Xiaomi
Business Model Innovator and New Comer

David Li at a gaming conference in China. Both YY and Curse Voice are funded by GGV Capital.

Xiaomi’s business model innovation involves the triangle of hardware, software and services. Xiaomi has sold its hardware devices at a low cost with razor-thin margin in order to reach the critical mass of users. On the software side, its MIUI operating system is not limited to smartphones but also other connected smart home devices. The software comes with a weekly update based on user feedback, and offers highly customisable user interface. Xiaomi also offers value-added services such as apps, Xiaomi Cloud, and e-commerce, in addition to merchandising products such as earphones.

Xiaomi experienced exponential growth since it was founded in 2010. It introduced three types of products – Miliao (App), MIUI (ROM system) and Xiaomi phone (device) – in August 2011. In the first half day when Xiaomi phones opened for online booking, some 300,000 units were booked. By 2012, Xiaomi was generating RMB 12.6 billion in sales revenue from 7.2 million units sold, making it the fastest growing smartphone supplier in China. The company’s market valuation was USD4 billion. In 2013, Xiaomi’s sales revenue rose to over RMB 30 billion, with 18.7 million units sold and a market valuation of over USD10 billion. Xiaomi achieved exponential growth due to its sense of engagement of users. Xiaomi founder Lei Jun effectively used crowdsourcing to collect customer feedback in product development. It created a sense of community and combined the social community with its online sales channels.

For overseas expansion, Xiaomi’s starts with emerging markets given their growth potential boosted by reduced prices and increasing Internet penetration. For example, India is the fastest growing smartphone market globally with smartphone shipments projected to increase to 156 million units by 2017, rising from 28 million in 2013. In emerging markets, Xiaomi faces less concerns about the negative image of being a Chinese brand. Similar to what it has done in China, Xiaomi opted for the online distribution model with an exclusive tie-up with Flipkart, the largest Indian e-commerce marketplace, to sell its smartphones to the Indian consumers.

At the same time, Xiaomi is actively acquiring technological know-how and talents from developed markets. Xiaomi hired Hugo Barra, a Brazilian national who was a former Google Android executive, as the Vice President of International for Xiaomi in September 2013 to strengthen the development of its MIUI operating system. Xiaomi is also aggressively investing in overseas start-ups to build a smart device ecosystem that includes wrist bands, mobile chargers, air purifiers, headsets, portable camera, and mobile health devices.
Case 15: Baidu

Business Model Innovator and New Comer

Baidu’s ecosystem involves series of product and technology innovations, and is aggressively expanding its boundaries. Innovative products in Baidu’s ecosystem include Nuomi (lifestyle), Baidu Tieba (social networking), Baidu Cloud (cloud storage), Baidu Wenku and Baidu Encyclopaedia (knowledge sharing), iQiyi and Baidu Music (entertainment), Baidu App store and 91 wireless (app distribution), and Baidu Wallet (mobile payment).

Baidu has announced several investments on connected mobility innovations, collectively forming an ecosystem. It has invested USD10 million in Indoor Atlas, a Finnish start-up firm specialising in map navigation technologies. With a leading position in map and navigation, Baidu announced in December 2014 a strategic investment partnership with Uber. Baidu is hoping to bring its location-based services global and capture the emerging connected mobility market, while Uber is hoping to localise further. Having seen the merger of Kuaidi and Didi Dache, Uber is recently reportedly in talks to merge with Yidao Yongche. The deal is facilitated by Baidu.

In September 2014, in Sept 2014, Baidu announced a strategic research agreement with BMW to foster joint research on driver-less cars. In October 2014, Baidu confirmed it is working with Tsinghua University on a smart bike that is built with connected sensors. In January 2015, Baidu released the telematics solution CarNet, with its original equipment manufacturer (OEM) partners Audi, General Motors and Hyundai. CarNet is an app that runs on Android or iOS devices and can be displayed on the car navigation screen, providing music and navigation information with voice control features.

Case 16: Alibaba

Business Model Innovator and New Comer

Alibaba’s thriving ecosystem has reconfigured many other traditional value chains in a cross-boundary manner. The ecosystem offers a wide range of Internet services, including shopping, payments, web browsing, search engine, O2O location-based services, entertainment, and social media networking. Alibaba has expanded the boundary of its inter-industry ecosystem through M&A, investment and strategic partnerships.

The ecosystem supports the development of its global marketplaces for overseas expansion. Ali Express, Alibaba’s international B2C and customer-to-customer (C2C) retail marketplace, is linking global consumers to Chinese wholesalers and individual sellers. It achieved a gross merchandise value of USD4.5 billion as at June 2014. Alibaba.com is already the largest international B2B wholesale marketplace in China, with over 128,000 paying customers.

Alibaba’s ecosystem creates synergies between the interconnected marketplaces, both wholesale and retail, locally and globally. Services are built on the core infrastructure of Alipay (payment), Aliyun (cloud computing and data), and its team. Alibaba has also incorporated other start-ups and technologies into the ecosystem through investment to enhance the network.
**Case 17: UCWeb**  
**Business Model Innovator and New Comer**

UCWeb is the No. 1 mobile browser in India and has been acquired by Alibaba to expand its international and mobile presence. UCWeb provides mobile Internet services including a browser, search engine, app store and gaming platform. UCWeb has a 65% market share for mobile browser in China.

After the acquisition in 2014, the new Ali UC mobile business group took charge of Alibaba’s browser, mobile search, location-based services, mobile gaming, app store and mobile reader operations. The deal combines Alibaba’s strengths in e-commerce, cloud computing and big data technology with UCWeb’s leading market position, technology in mobile and international branding. It builds up Alibaba’s mobile and internationalisation strategy, making it a formidable competitor against Baidu and Tencent.

**Case 18: Haier**  
**Business Model Innovator and Global Corporate Citizen**

Haier is an outstanding innovation-driven Chinese white goods manufacturer. Founded in 1984, Haier has gone through four strategic stages, namely Brand Building, Diversification, Internationalisation and Global Brand.

In 2013, Haier announced entrance into the fifth development stage: Networking Strategy Stage. The focus of the ongoing stage is to build a border-free enterprise, manager-free management and scale-free supply chains. Middle management has been eliminated to encourage workers to form self-managed teams, while incentives are provided for workers to engage customers and suppliers to develop new ideas. Looking forward, Haier will advance towards intelligent manufacturing and large-scale customisation to realize production as per demands and high-quality manufacture.

The Fast Company magazine picked Haier as one of the world’s most innovative companies in 2014 for its flat management innovation. To drive entrepreneurial innovation among employees and enable rapid adaptation to market changes, Haier encourages its staff to track evolving market trends and form autonomous project teams to address emerging opportunities. The recently launched Tianzun air conditioner was developed by a self-managing group that recognised growing customer demand for a more flexible and responsive air conditioning unit, through an online engagement program involving more than 670,000 Internet users.

As a traditional home appliance manufacturer, Haier launched the Haier Open Partnership Ecosystem (HOPE) platform to create an open innovation ecosystem, which is by far the largest in China. It enables communications and knowledge transfer between leading institutions such as MIT, Stanford and innovative companies such as 3M, Dow Chemical, BASF and many start-up makers on its HOPE community.

Haier also launched the “U+” platform to create an open innovation ecosystem. “U+” is a smart living platform that provides complete integration and enables consumers to manage the smart appliances from anywhere wirelessly. Nearly 300 companies, including Risco, Baidu Cloud, WeChat and JD have joined the U+ ecosystem.
The Chinese style of innovation is different from that of the Western world in three notable ways.

First, many of the Chinese privately owned companies are still in their first generation, which have owners functioning as managers. This makes them very hands-on, especially when it concerns ‘going to the market’. The companies are also able to turn customer understanding into innovation/product development in a very short cycle. There is a strong tendency towards experimentation; the market is often used as a test bed for learning, adapting, and refining. The companies are usually ‘in-born’ with knowledge and relationships, especially with the government, in their respective spaces.

Second, these companies are very good at knowing how to make the trade-offs between new opportunities and their own core competences. This is in contrast to most Western companies which believe in driving strategy from their own core competences and in the need for focus. Often, Chinese companies (especially their leaders) would go for opportunities and stretch their own capabilities, organically or through partnerships or both, because they are much more capable than their Western counterparts in appreciating market and deregulation opportunities. Third, Chinese companies typically are more willing to accept fluidity in defining the relevant boundaries of their business scope than their Western peers.

Consequently, business strategy in China’s context is dynamic and adaptive, as some MNCs have come to realise that they to develop a continuous rhythm of moves over time. Strategy in China is designed and executed in a highly fluid operating environment. The key challenge is to manage change, not just once or every now and then, but on a continuous basis in the interest of the company. Change often is not entirely predictable and in many situations, incremental and precision planning does not work. The process may seem inefficient, particularly in the short term, but it is justified by the value gained in a rapid and steady expansion of scale and reach. Strategising in China is proactive because opportunities can be created through demand, regulations, and partnerships. It is continuous, as opposed to a set of disjointed actions, but can be planned for with the right mind-set and method. It can be diverse since it involves making a number of calculated moves with varied scale and risk.

This approach can be somewhat uncomfortable for MNCs because it requires a different mind-set for both a phased view and a long(er) term view on progress and results; an understanding of trade-offs between new opportunities and current core competences; and the willingness to stretch one’s own capabilities to capture new (and often discontinuous) opportunities.

The Internet era is different from the industrial era in that consumers are now connected and value the user experience more than the products or services themselves. Due to digitalisation, the market that companies were once familiar with has become fast-changing and more unpredictable. Industry boundaries have become vague, and the definition of consumers has also evolved. These challenges create new opportunities.

However, to meet the demand of these new and changing consumers, companies need to develop new capabilities. Because it takes long time for internal training and development to fill the competence gap, some companies have opted to construct an
ecosystem to collaborate with companies with complementary capabilities. This changes company perspectives towards competition. Organisational structure is also evolving, with dynamic, nimble, interconnected and community-based structures gaining attention.

The Internet era has redrawn the rules of the game. Businesses must now become open platforms with extended branches that attract creative talent and generate enthusiasm. Traditional process-driven companies will have to evolve into interactive service-driven companies, where the emphasis is on collaboration and user experience. Data mining and analytics are key. And the room for inter-industry spill over, penetration and transformation has grown.

Haier is a good example of Chinese disruptive innovators that implement an open platform strategy and the concept of micro-organisations. In the innovative “inverted triangle” organisational structure, Haier puts consumers, instead of management, at the top as those who actually pay the employees their salary. There are over 100 micro-organisations internally. Executives are transformed into owners of their respective nimble and small-scale divisions, whereas the headquarters is transformed to be a service, supporting and management platform.

As shown in the case studies in the previous section, many successful Chinese companies understand the challenges in the Internet era and have used ‘ecosystem’ as a strategy to better fulfil a more personalised, complicated and diversified set of customer needs. Collaborative ecosystems allow the companies to expand their capabilities and offset their competence gaps in new areas. By leveraging platforms, social engagement and customer-centric business models, many innovative Chinese companies have generated exponential growth (Figure 5).

Figure 5 – Some Examples of Exponential Growth

One thing common to the companies is that they exhibited ‘boundary jumping’ in a non-linear fashion in development of their competences. Instead of being confined to their existing core competences, when faced with new opportunities, the firms always make a decision as to whether to jump over the gap. The jump is often achieved by turning to their ecosystems, which display the following features:

- Companies leverage their core competences to enter multiple, cross-boundary markets. The ecosystems quickly gather a large user base, build strong brand
loyalty, and deploy accurate data analytics technologies which enable their further expansion into other non-core businesses.

- Ecosystems are platform-based and different from industrial conglomerates in that they are asset-light. Although asset-light, these companies are information mammoths. Instead of competing on cost or product differentiation, these ecosystems co-opt firms to create additional values through symbiotic relationships and co-evolution.

- There is a high level of ‘biodiversity’ in the same ecosystem. Diversified business models of multiple firms co-exist in the same ecosystem, making it hard to be disrupted. Internal self-disruption among the multiple firms within the same ecosystem, ironically, ensures sustainability.

In essence, this ‘jump’ represents disruptive business model innovation which disrupts the traditional value chains [Figure 6]. Such a disruption often disintermediates the traditional players and brings non-traditional players into the value chain. As a result, an entirely new services-based ecosystem is formed, often altering the basic economics of an entire industry.

Figure 6 – Boundary-jumping behaviour for dynamic competency development

![Core Competencies vs Jumps Diagram](source: Gao Feng Analysis)
Part 6
Implications for Finnish SMEs and Policy-makers

Future trends of Sino-Finnish innovation

In the past 15 years, China’s economy has grown incredibly fast. Leading Chinese entrepreneurs are developing a global mind-set and Finnish SMEs should seize this opportunity.

Figure 7 – China’s Economic Growth 1999-2014

Frequent Sino-Finnish government partnerships have deepened bilateral collaboration in the area of innovation. President Xi Jinping of China met with President Sauli Niinistö of Finland in the Netherlands in March 2014 and in China in April 2013, facilitating China-Finland cooperation. Progress has been made, for example the Beautiful Beijing environmental protection project and the FinChi Innovation Centre in Shanghai. At a conference in November 2014, China’s Vice Premier Wang Yang had a meeting with the Finnish Prime Minister Alexander Stubb in Helsinki, and stated China as a “new continent for start-ups and innovations” with the likes of Alibaba, Baidu, Tencent and many other successful “Chinese stories”.

At the Slush 2014 conference in Helsinki, Wang together with Niinistö announced a national strategy to upgrade Sino-Finnish relations to a future-oriented new-type cooperative partnerships, with four proposals:

- To explore fresh potential of bilateral trade growth, and to broaden cooperation in fields including finance, education, culture and tourism.
- To promote cooperation in technological innovation to a higher level, making use of technological advantages to build a variety of innovation platforms and forming a cooperative pattern for joint technological research, market share, and brand co-building.
- To cultivate new bright spots in cooperation of saving energy and protecting environment, by building the eco-innovation park together, and pushing forward projects like Beautiful Beijing and Pure Finland, and to promote advanced green concepts, technologies and products.
- To seek a new phase of agricultural cooperation, expanding bilateral agricultural trade, building a platform for cooperation in agricultural development and innovation.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>GDP (8 B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Netherlands</td>
<td>800</td>
</tr>
<tr>
<td>19</td>
<td>Saudi Arabia</td>
<td>745</td>
</tr>
<tr>
<td>20</td>
<td>Switzerland</td>
<td>650</td>
</tr>
<tr>
<td>21</td>
<td>Argentina</td>
<td>611</td>
</tr>
<tr>
<td>22</td>
<td>Sweden</td>
<td>557</td>
</tr>
</tbody>
</table>

China incremental GDP (2012-2013) is $661B, approximately to Switzerland’s total GDP and 2.5x Finland’s total GDP.

*Growth% = Real CAGR
Note: GDP numbers are nominal, only compares current value, does not include inflation and other economic factors.
Opportunities and impulcations that concern Finnish SMEs

Deregulation and intense competition create a stronger pull for innovation in China. With proven entrepreneurial DNA, China’s complex and diverse consumer market will become the next fertile ground for innovation. Finland’s competitive advantage is built upon its technological capabilities, which are attractive to Chinese innovators. The opportunities and implications that concern Finnish SMEs are as follows.

Table 6 – Opportunities and Implications for Finnish SMEs

<table>
<thead>
<tr>
<th>Field</th>
<th>FINLAND</th>
<th>CHINA</th>
<th>Implications for Finnish SMEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Politics</td>
<td><strong>Stable political system with high degree of business freedom which provides a conducive environment for innovation</strong></td>
<td><strong>Economic reform and deregulation, although top-down government restrictions still exist (e.g. media restrictions, Great Firewall)</strong></td>
<td><strong>Safe environment in Finland that encourages innovation and entrepreneurship</strong></td>
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<td></td>
<td><strong>Distance from centre of Europe and relatively less geo-political power</strong></td>
<td><strong>New Chinese leaders with broader, open mind-set and strong ambition to bring China on to the global stage</strong></td>
<td><strong>Continual reform and deregulation over past 30 years, improving the environment for innovation at an unprecedented speed</strong></td>
</tr>
<tr>
<td>Economy</td>
<td><strong>Highly export-dependent and B2B focused industry structure; small-sized economy</strong></td>
<td><strong>Key player in the global economy, becoming the world’s 2nd largest economy</strong></td>
<td><strong>China is creating national strategies to encourage mass entrepreneurship and globalisation</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Highly dependent on external Europe and global economies</strong></td>
<td><strong>Diverse economic structure with many diverse industries</strong></td>
<td><strong>China is able to influence global trends with its economic performance</strong></td>
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<td></td>
<td></td>
<td></td>
<td><strong>In the integrated global supply chain, China is able to secure a strong position due to its large-scale consumer market</strong></td>
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<tr>
<td>Culture</td>
<td>Technology</td>
<td>Society</td>
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<tr>
<td>Relatively short history of national development; recently emerged as one of the most innovative nations in the world</td>
<td>Leading R&amp;D competencies in ICT, clean-tech and life science</td>
<td>Less than 6 million population, with high GDP per capita</td>
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<tr>
<td>Strong entrepreneurial spirit among universities and colleges, (e.g. Aalto University’s Entrepreneurship Society)</td>
<td>Highest no. of scientific and engineering researchers per capita in the world</td>
<td>Highly scalable market with 1.3 billion population, with more affluent coastal regions</td>
<td></td>
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<tr>
<td>3,000 years history of cultivating innovation e.g. The 4 Great Inventions: papermaking, typography, compass and powder</td>
<td>Leading technological and innovative capabilities with global impacts attract big companies to set up R&amp;D centres (e.g. Samsung and Huawei)</td>
<td>Much lesser-developed growth potential in Western China</td>
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<tr>
<td>Grassroots entrepreneurship now re-emerging - mainly driven by the success of big-name entrepreneurs such as Jack Ma and many other risk-taking post-90s innovators</td>
<td>Well-established international patenting system</td>
<td>Rapid urbanisation and adoption of digital technologies, even in inner cities</td>
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<tr>
<td>Innovation DNA of Chinese people is deeply rooted throughout history</td>
<td>Top-down support from the government to develop high-technology (e.g. high-speed railway, aerospace technologies... etc.)</td>
<td>Under an imperfect social system in China, people are forced to change and innovate for a better future, with stronger willingness and encouragement of trial-and-error</td>
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<tr>
<td>Multi-dimensional Chinese innovation from all social layers</td>
<td>Returnees from overseas market bring advanced technology and R&amp;D capabilities to China</td>
<td>A more diverse and complex consumer market in China that is still developing with unmet needs, which create opportunities for innovation</td>
<td></td>
</tr>
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<td>Opportunities for Finnish companies to bridge technological gaps of Chinese innovators through joint R&amp;D collaboration, partnership and/or M&amp;A</td>
<td>Strong manufacturing capability which now start to transform into intelligent manufacturing</td>
<td>Chinese companies are driven by the intense market competition to innovate – “In today’s China, you will die if you don’t innovate”</td>
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<td>Relative lack of social benefits, low environmental awareness and public trust, high concerns about food security and counterfeit goods</td>
<td>Poor IP protection system which must be improved</td>
<td>Well-established industry structure</td>
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<td>Rapid urbanisation and adoption of digital technologies, even in inner cities</td>
<td>Relative lack of social benefits, low environmental awareness and public trust, high concerns about food security and counterfeit goods</td>
<td>Mature economy with consolidated industry structure</td>
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Finnish companies face competition from both Chinese innovators and foreign innovators who work closely with China, and they pose direct and indirect threats to Finnish companies respectively.

Essentially, Chinese innovators that are going global have the following needs and characteristics:

- Ambition to capture overseas markets, starting from emerging markets and then developed markets.
- Aspiration to develop a global value chain to include the world’s best innovation, going from “Made in China” to “Created in China”.
- High flexibility with acceptance of “good enough” standards that enables speed-to-market.
- Adopt micro-innovations to absorb the best Western innovations and eventually exceed them with improved performance and cost.
- Strong financial investment and government support.
- Chinese returnee entrepreneurs with top expertise.
- Trans-boundary business development.

Hence they pose direct threats to Finnish companies:

- Potential loss of global market share to Chinese innovators, with resulting loss of competitiveness and employment.
- Value chain disrupted by Chinese innovators going global.
- Loss of competitiveness as Chinese product quality is improving through continuous rapid prototyping.
- Lack of financial capacity to compete against China’s diverse R&D capabilities.
- Technological innovation being commercialised by Chinese companies that serve a more scalable market.

In comparison, more and more Western innovators, mainly European and American, have recognized the importance of Chinese emerging innovators and have started to work closely with China. They show the following characteristics:

- Providing a gateway for Chinese innovators to enter overseas market, demonstrated by some Scandinavian companies as market entry points for Chinese companies.
- Providing a gateway for Chinese innovators to acquire technological know-how from overseas market, through M&A.
- Aggressive R&D in world-leading technologies that match the needs of Chinese market, attracting funding from Chinese investors.
Chinese companies’ innovative ecosystems are incorporating more and more European companies to collaborate with its core businesses. And therefore they pose **indirect threats** to Finnish companies as well:

- The strengthened Sino-Foreign partnerships between Chinese innovators and American and European businesses can weaken Finnish home industries.
- Loss of geo-political influence and soft power as Chinese companies embrace collaboration with other Western nations.
- Loss of attractiveness to Chinese investors as other Western innovators invest in technologies that fit the Chinese market.
- Loss of competitiveness as Chinese companies initiate joint R&D projects with other foreign companies.
- Loss of competitiveness of Finnish start-ups as Chinese giants collaborate with other foreign start-up nations or businesses.

In the face of threats arising from disruption, Finnish companies have to ask themselves three big questions:

- **Should we change?** Are we ready to accept changes? Is it necessary to change? If not change, where are we heading?
- **Can we change?** Are we able to change? Do we have the necessary capabilities to innovate? Do we have the clear vision and determination to change?
- **How to change?** How are we going to change? What are the pathways of change? How do we assess the success and failure of change?
In the past 15 years, China’s economy has grown incredibly fast. Chinese companies are moving up the value chain and a growing number of innovative Chinese enterprises are emerging. The China context for innovation is a highly complex, diverse, dynamic and discontinuous environment accentuated by time-space compression. This context has led to many imperfections and customer pain points, which are often turned into opportunities by innovative entrepreneurs.

Successful Chinese companies are those able to integrate the complex factors and develop unique capabilities which yield exponential growth and provide competitive advantages on the basis of lower cost, better quality and higher speed of execution. Having evolved into a global breeding ground and accelerator for innovation, China is the birthplace for grassroots entrepreneurs such as Jack Ma and Lei Jun. Entrepreneurial success stories have ignited the entrepreneurial spirit of many, especially those born in the 1980s and the 1990s, who will likely be leaders of the next wave of China’s innovation.

China is entering a new era, transitioning from “made in China” to “created in China” and from the low-cost phase to the innovation-driven phase. Various types of innovators (technology innovators, product innovators, process innovators, supply chain innovators, and business model innovators) at different stages of global development (unknown giants, new comers, global corporate citizens, and global attractors) are emerging along the value chains.

Many young Chinese innovators have achieved exponential growth on the back of ‘boundary jumping’ in competence development, which creates dynamic capabilities that they themselves do not possess. These companies are also very good at knowing how to make the trade-offs between new opportunities and their own core competences. By building cross-industry ecosystems for collaborative innovation, Chinese innovators create a high level of ‘biodiversity’ which makes the whole system more robust and promotes business sustainability.

As Chinese innovators go through rapid development, they are now seeking:

- Aggressive overseas market expansion.
- Overseas advanced technology transfer.
- Global value chain integrating the world’s best resources.
- Global branding.
- Financial investment.
- Top talents of specialised field.
- A vibrant and sustainable ecosystem for trans-boundary business development.

Given China’s aspirations as well as Finland’s strengths, we believe Finland is well positioned to offer a number of possibilities to match the needs of Chinese innovators, including:

- Chinese companies can set up overseas branches and R&D centres in Finland as a gateway to tap into the European market.
- Sino-Finnish joint R&D programmes and M&A of Finnish firms for technology transfer.
- Strategic partnerships with Chinese companies to complement the missing capabilities in their value chains.
- M&A of Finnish companies for their brand assets in the European and global market.
- Strategic investment from Chinese investors in Finnish technologies for the China market.
- Talent exchange for innovation spill over.
- Finnish start-ups joining the ever-expanding ecosystems of Chinese innovators.

In conclusion, for Finnish companies confronting the both the direct and indirect threats from emerging Chinese innovators, the best recommended option is to embrace 'coopetition', as opposed to head-on competition.

Finnish companies should leverage their advantages to be part of the Chinese innovation ecosystems, through M&A, strategic partnership, joint R&D, and joint ventures. Even more, Finnish innovators should invest in R&D and technology that the fits the China market needs and context.

Internally, Finnish companies could also learn from the ‘boundary jumping’ behaviour and develop dynamic capabilities in order to gain new competitive capabilities and succeed in China’s rapidly changing market. Finnish companies should also develop a global mind-set. They would do well to integrate the best innovation resources from around the world, to adopt a more customer-centric mind-set which is increasingly important in this Internet era, and to implement a nimble and flat organisational structure that facilitates innovation and ‘intrapreneurship’.

For Finnish policymakers, they should take the lead to provide the network and resources for Finnish SMEs to connect with Chinese companies and investors. Government organizations could arrange frequent events and conferences for Sino-Finnish partner match-making and knowledge exchange. On the other hand, there should be more preferential policies to attract Chinese companies to work with Finnish companies and set up overseas branches and R&D centres in Finland. Last but not least, government-level, company-level and university-level Sino-Finnish collaboration should also be encouraged for long-term benefits.

All in all, the common goal for Finnish companies and policymakers should be to build symbiotic and win-win relationships with Chinese innovators, riding on China’s growing international success to win both global and China’s markets. We are positive towards the future development of both Finnish and Chinese innovation ecosystems and looking forward to seeing more successful Sino-Finnish collaborations in the near future.