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China – a tiger in the supply chain

Report of a Cambridge University research programme investigating China's developing role in the global supply chain

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Foreword

This report presents the findings of a two-week research visit to a wide range of manufacturing operations in China to investigate issues surrounding the role of China as a manufacturing base within a global supply chain. The authors of the report are MEng graduates from the University of Cambridge Manufacturing Engineering Tripos programme[1].

The report aims to provide a timely review of the key issues that impact this topic and it is based upon 25 manufacturing site visits in the areas including Shanghai, Suzhou, Beijing, Tianjin, Shenzhen, Dongguan, Zhuhai and Hong Kong in July 2005. Throughout the visits the authors of this report have tried to understand the key facts behind what was being presented to them. However, translation difficulties and corporate sensitivities have understandably prevented some questions from being answered fully, particularly with regards to awkward topics such as government influence, company profitability and sources of investment. Wherever possible, secondary sources of data have been used to verify these conclusions; other insights into business in China are presented on an "as seen" basis. Recommendations for additional sources of information for those seeking to know more about the topics presented in this report are given at the end of this document.

The researchers are extremely grateful to all of the firms who kindly acted as hosts throughout the duration of this project. The firms gave valuable insights into doing business in China and, through providing opportunities to question senior managers, made an extremely valuable contribution to the research.

Our gratitude is extended to all companies visited, to individuals who have given up their time to meet with the researchers, and to sponsors without whom this project could not have happened.

The opinions expressed in this report are those of the authors alone and do not necessarily reflect those that have provided support, guidance and advice in its preparation.

MET Overseas Study Tour Committee 2005

[1] www.ifm.eng.cam.ac.uk/met

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Executive summary

This report presents the findings of a two-week research visit to a wide range of manufacturing operations in China in July 2005 to investigate issues surrounding the role of China as a manufacturing base within a global supply chain[2]. The authors of the report are MEng graduates from the University of Cambridge Manufacturing Engineering Tripos programme. The key findings of the report, structured around seven key themes, are as follows:

1. Setting up a manufacturing base in China

Key issues investigated = What are the different cases for producing in China? What are the main driving forces? What are some of the opportunities and risks companies may face when moving into China?

Key conclusions = The main drivers for setting up in China are low labour costs and proximity to the Chinese market. If production moves, then suppliers may also need to follow. Products and processes particularly suited to the Chinese environment would seem to include: textile-based products, consumer electrical and electronics, plastic injection mouldings, metal stamping and pressing, and process industries. Knowledge transfer is a key issue, both positively (learning about the Chinese market by being 'on the ground') and negatively (loss of key value-adding know-how to local competitors).

2. Supply Chain Management

Key issues investigated = What are the cost savings which are possible from moving part of a global supply chain into China and through managing a modern and efficient supply chain based not only upon Chinese suppliers but also on imports from around the globe?

Key conclusions = The major cost benefit of operating in China comes from effective supply chain management, not just the use of low cost labour. This cost saving comes from both low unit cost and reduced supply chain management overheads. Many domestic Chinese businesses have developed advanced capabilities in Just-in-Time (JIT), Vendor Managed

[2] A separate report has also been produced based upon the combined findings from this and previous research programmes organised by the University of Cambridge Institute for Manufacturing Centre for International Manufacturing. This report, entitled "Growing with China: A report for multinational companies operating in China" is available from www.ifm.eng.cam.ac.uk/cim.

Inventory (VMI) and logistics and can respond well to the demands of modern production systems. Quality standards of simple components are very high and are improving for the more complicated, high tech parts. The key to operating an efficient supply chain is to build relationships with suppliers, customers, the Government and Customs. A company which is considering operating its supply chain in China needs to invest time and effort in understanding the Chinese business culture. Face to face interactions are very important in building trust, and if this is achieved, the rewards could be substantial.

3. Competition and intellectual property rights (IPR) within China

Key issues investigated = What are the issues surrounding China's accession to the World Trade Organisation (WTO)? What are the threats to a foreign firm in sharing intellectual property with Chinese suppliers? What are the risks to inexperienced firms moving into China and doing business in a Chinese context?

Key conclusions = There are many examples where foreign companies have managed IPR and competitive risks and are successfully doing business in China. Overall, the biggest risk to any firm producing in China is to fail to understand and develop the appropriate relationships with suppliers and government officials, relying upon western-style contracts rather than trust to relate to suppliers. The collaborative nature of many supply chains in China extends to the areas of competition and IPR. Introducing a supply chain into China requires sharing the knowledge of how to make a specific product with Chinese companies, either as joint ventures or as suppliers. If the relationship between supplier and customer is not effectively managed, then this knowledge could be used to compete either by counterfeiting, 'grey market' sales or by direct product competition.

As such it is extremely important to select carefully which products to introduce into China, where to source them, and to fully understand the role of the foreign parent operations: R&D, sales, marketing and distribution.

4. China as a centre for research and development

Key issues investigated = How can you assess both tangible and intangible benefits to performing R&D in China, as well as the risks associated with carrying out this type of work in an economy where protection of intellectual property is a major issue? What is the impact of global location upon the different types and degrees of R&D activity performed by firms? How can you determine the suitability of China as an R&D base for different types of firms?

Key conclusions = The Chinese market is different to that of other developed countries and in order to operate successfully, it is important to understand the Chinese culture. If the product is to be standardised for the Chinese market, it is important to have an R&D facility in China as this enables the company to design the correct product for the market.

Co-locating R&D with manufacturing is certainly beneficial. Most of the companies visited during this research project established a development centre in close proximity to their production facilities as this enabled them to decrease the cycle time of problem solving. This seemed to be especially important for new product introduction. For companies who had no R&D facilities at the manufacturing site, experts from their R&D facilities had to come and supervise the starting phase of the project.

During the visits it was observed that there was very little technology R&D being carried out in China. Most companies are reluctant to move their technology R&D to China, not because the Chinese science and technology researchers are any less able, but because of the researchers (perceived) lack of experience in commercial R&D. In order to be able to innovate, it is necessary for employees in R&D to have experience of the industry and have the appropriate knowledge and skills for that area of research. The majority of R&D facilities in China were found to be those carrying out product and process R&D activities, which need to be more closely coupled to manufacturing and the market.

The Chinese have the knowledge and capabilities to perform technology R&D – the problem is they do not have the necessary experience. This seems to be changing as multinationals have started increasing the training for their Chinese employees, creating the option of moving such R&D to China.

5. Human Resource Management in China

Key issues investigated = What are the different strategies adopted by different firms with regards to maintaining a Chinese workforce? How are firms overcoming the much discussed mobility of labour? What are the key issues relating to managerial competence available within China? What are the costs incurred in creating a Chinese facility as part of a multi-national company?

Key conclusions = Cultural differences can cause problems, but can be overcome. There are different types of management approaches that can be applied to different situations, and these were shown to be effective for companies at different stages of their evolution in China.

These approaches included: use of mainly expatriate managers; use of mainly local Chinese management, or mix of both. Workers can be motivated through training and benefits packages. Chinese workers can be harder-working and more focused than their Western counterparts if managed effectively. The brand of the company is important to workers in China, particularly for future career progression.

6. Creating differentiated Chinese products

Key issues investigated = Through analysis of the impact of brands within the marketplace, what opportunities exist for foreign firms to sell their products into the Chinese market? How can brands be developed in the marketplace? How can product differentiation be used as a means of competitive advantage within China and within more developed economies?

Key conclusions = The potential for branding to become a source of competitive advantage in China is huge as consumer tastes are maturing. One brand often does not fit all in China due to the massive income variations across the country – this must be reflected in company's brand strategy. Capturing the Chinese market requires heavy investment in the brand, tailoring the brand to the Chinese market, and increased spending on R&D to increase frequency of new product introductions.

The low end of the market (the majority of the population) is dominated by local firms and is hard to enter without forming alliances, joint ventures or acquisitions.

Problems faced by a foreign company entering China include government restrictions and legislation, a language barrier, the lack of infrastructure which limits ease in distribution of product (and therefore brand), the overcapacity in many markets which are affecting profits, and the rise of counterfeiting and copying.

7. Opportunities and threats of producing in China

Key themes investigated = What will be the impact of new Government policies? What are the key economic issues that need to be considered in setting-up to China? What are the key cultural issues that need to be considered in setting-up in China?

Key conclusions = Government in China, both national and regional, has a strong influence on all business activities. For certain business sectors, there may also be influence exerted by the parent company's own national government and its relationship with the Chinese government.

The infrastructure is developing rapidly in many areas of China, but the quality of the transport, power and communications infrastructure cannot be guaranteed. The government, both regional and national, has been a strong influencing factor in the development of economic development zones which are in turn leading to the formation of strong clusters. These clusters often have not only sectoral strengths, but also often have national focus in that each one tends to attract investment from specific countries.

There are noted concerns in some regions at the very high levels of unskilled staff turnover, but in some regions there is strong loyalty to employers. The very high numbers of science and technology graduates entering the job market is making an impact, but the lack of industrial experience of many of these graduates puts a limitation on roles they can take on.

Cultural differences can hinder communication and cause misunderstanding between foreigners and the Chinese both on the personal as well as the company level when dealing business in China. The concept of *guanxi* (which can be described as an ongoing development of personal relationships or connections) is particularly relevant, and will impact the way in which non-Chinese firms form relationships with the government and other Chinese organisations.

Cultural understanding is an important aspect of a successful manager, and this is often achieved by creating a joint Chinese & foreign management team. This provides an opportunity to use the strengths of both to enable a successful operation. Expatriate managers often have more experience of setting up and operating production facilities, whilst local staff will relate better to the shop floor workers and are thus likely to gain cooperation and have more understanding of the issues they are managing.

Introduction

Since the end of the 'Cultural Revolution' under Deng Xiaoping, China has undertaken a dramatic period of growth and development, astounding many observers and changing the global business environment irreversibly.

The opening of China to foreign interests initially brought great opportunities for producing low value goods at extremely low cost. In certain areas, China remains a country for low cost production to this day. However, the development of businesses within China, both of local and foreign ownership, has meant that the manufacturing capabilities of China in certain regions are now of equivalent standard to other "industrialised" nations, and in many cases the capability exceeds that of countries formerly considered industrial leaders.

The purpose of this project is to investigate the issues surrounding using this production base within a global supply chain. Many foreign-owned companies have entered China and have had major problems. Such problems have included products being copied, unacceptable production quality, dealing with crippling bureaucracy and, on the whole, spending more money trying to overcome problems within China than the cost savings achievable by producing at a lower cost. However, there are many examples of companies who have risen to the challenge and are operating profitably in China, successfully including China as part of their global supply chains.

The aim of this project is to help dispel many of the myths and scare stories about operating in China by investigating the experiences of companies who are currently operating successfully in China. Overall, it is intended to be informative about the real risks of operating in China, and to aid the decision-making process for any firm considering production in China.

The authors are all recent MEng graduates from the Institute for Manufacturing of Cambridge University, having studied the Manufacturing Engineering Tripos[3], giving them a wide experience of visiting companies for learning purposes and affording and unbiased critical eye.

[3] www.ifm.eng.cam.ac.uk/met

The research project was grouped around seven themes. This allowed the researchers to work in small teams to focus on different aspects of business within China. Their findings are presented in the form of a mini-report, each compiled into a single chapter within this report.

The project starts with an analysis of the **Setting up a manufacturing base in China**. This topic analyses the business case for moving to China in a logical manner and presents different cases for producing in China, and concludes with the main driving forces for firms considering China as a production base, and a summary analysis of the opportunities and risks which a firm may expect to face when moving into China.

The second chapter on **Supply chain management and logistics** highlights the cost savings which are possible through moving part of a global supply chain into China, and managing a modern and efficient supply chain based not only upon Chinese suppliers but also in many cases on imports from around the globe. The purpose of this chapter is to demonstrate how companies investing in China can make use of the existing supplier base or can develop new Chinese suppliers to take advantage of cost savings throughout the supply chain, not just in the labour component at the final plant. Most importantly, this chapter also serves to highlight the quality of supply at low cost achievable by manufacturing in China.

Following on from this topic is **Competition and intellectual property rights within China**, a topic which is seen as a crucial part of China's accession to the World Trade Organisation. In this chapter, the threats to a foreign firm sharing IP with Chinese suppliers are analysed, and the risks to inexperienced firms moving into China and doing business 'the Chinese way' are identified. Case studies also highlight the extent to which IP fraud can cause problems for foreign businesses, and also what can be done to overcome these problems.

The fourth chapter investigates the possibilities for **China as a centre for research and development**, assessing both tangible and intangible benefits to performing R&D in China, as well as the risks associated with carrying out this type of work in an economy where protection of IP is a major issue. The chapter develops a model for R&D and assesses the impact of global location upon the different types of R&D activity performed by firms to varying degrees, and through this model creates a framework for determining the suitability of China as an R&D base for different firms.

The fifth chapter addresses issues relating to **Human resource management in China**, highlighting different strategies adopted by different firms with regards to maintaining a

Chinese workforce. There has been much press coverage about labour turnover in China being a major problem – this chapter discusses the issues relating to this and provides examples of how different firms overcome the mobility of labour. It also addresses issues relating to managerial competence available within China and answers questions relating to the costs incurred creating a Chinese facility as part of a multi-national company.

The sixth chapter is on **Creating differentiated Chinese products** and highlights the opportunities for foreign firms to sell their products into the Chinese market, through analysis of the impact of brands within the marketplace. The project focuses on ways in which brands can be developed in the marketplace, and the significance they hold to the population, making comparisons to the importance placed upon product differentiation as a means of competitive advantage within China and within more developed economies.

The final chapter on **Opportunities and threats of producing in China** acts as an insight into the business climate within China, assessing the impact of the government upon operations, highlighting the major threats to operating in China and the opportunities available to businesses with the correct attitude towards a Chinese production base.

Basic facts and figures on China

Since 1978, China has gradually introduced market-oriented economic reforms and by 2004 China's GDP had reached RMB¥13,650 billion (US$1,649 billion) with an average growth rate of more than 8 percent a year, as shown in Figure 1. China's accession to the WTO in 2001 has accelerated its integration into the global economy. It is forecasted that by 2008 China will be the world's third-largest exporter, and by the decade's end its economy will be larger than that of either France or the UK[4]. Basic facts and statistics of China and the UK are listed in Table 1.

Along with the rapid pace of economic growth, for much of the population in China, living standards have improved. As indicated in Table 2, continued growth in disposable income has contributed to the steady increase in retail sales.

[4] Pitsilis, E., *et al*., (2004), 'Checking China's vital signs', *The McKinsey Quarterly 2004 special edition*: *China Today*.

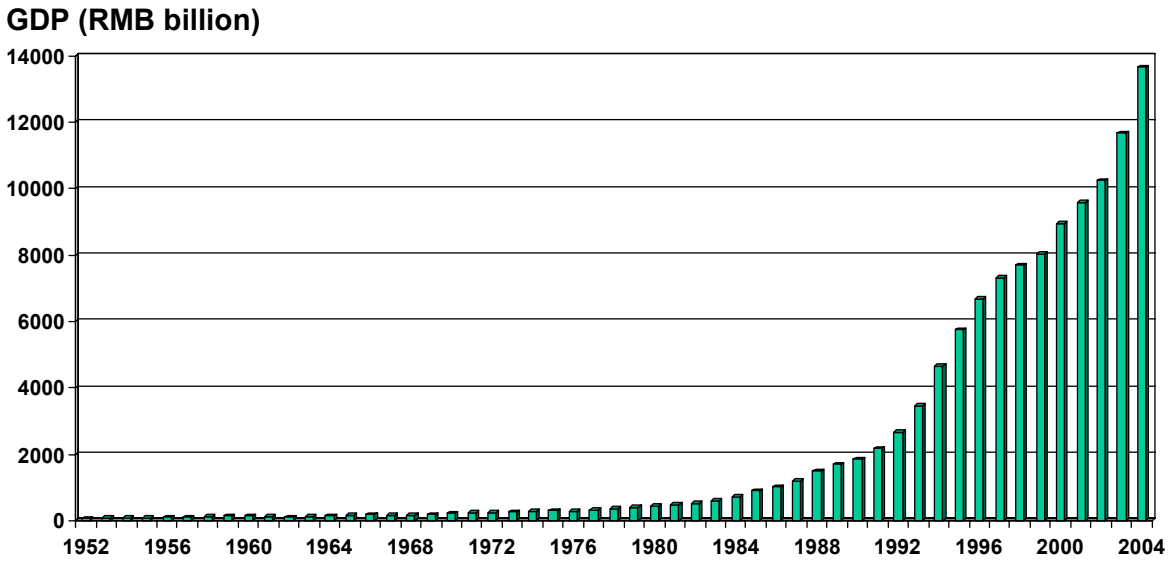


Figure 1: China's Real GDP (RMB billion), 1952-2004

The economic structure of China has also changed dramatically. As shown in Figure 2, China's non-state sector has expanded rapidly and has experienced healthy development in recent years.

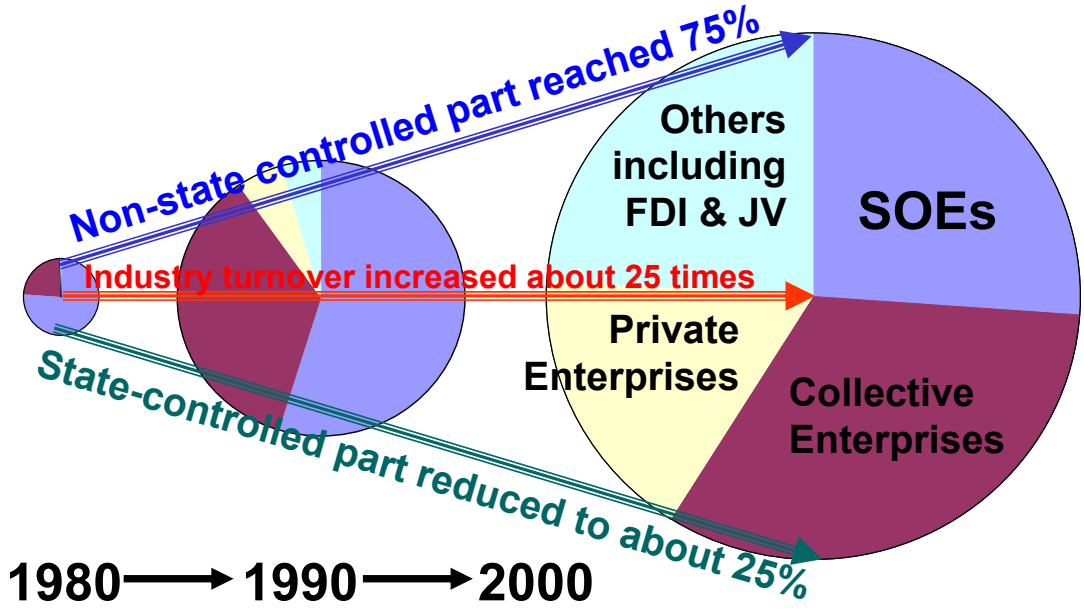


Figure 2: Economy structure of China, 1980-2000

Table 1: Facts and Figures of China and UK

	
Full country name: People's Republic of China **Capital city:** Beijing **Total area:** 9,596,960 sq km **Population 2005[a]:** 1.306 billion **Population growth rate 2005[a]:** 0.58% **Age structure, 2005[a]:** 0-14 years 21.4%, 15-64 years 71.0%, 65 years and over 7.6%. **Languages:** Mandarin-Chinese **Currency:** RMB ¥, Average exchange rates in 2004[a]: US$1: ¥8.3 **Religion:** Officially atheist; Confucianism, Buddhism, Taoism; Muslim, Christian **Real GDP 2004:** US$1,649 billion **Purchasing power parities (PPP) GDP 2004:** US$7,124 billion **GDP composition by Sectors 2004[a]:** Agriculture: 13.8%, Industry and construction: 52.9%, Services: 33.3% **GDP per capita at PPP 2003:** US$5,180 **Real GDP growth rate 2004:** 9.5% **Inflation 2000-04:** 1.1% **Employment structure 2003[a]:** Agriculture 49%, Industry 22%, Services 29%. **Unemployment 2004[a]:** Urban 9.8%, Total 20%. **Exports 2004:** US$593.6 billion, in which by FIE US$338.6 billion **Imports 2004:** US$560.8 billion, in which by FIE US$324.6 billion **Current-account balance/GDP 2000-03:** 2.10 **Foreign-exchange reserves 2004:** US$609.9 billion **Major industries:** iron and steel, coal, machine building, armaments, textiles and apparel, petroleum, consumer electronics, telecommunications **Major exports 2004:** Office machines & data-processing equipment, Telecommunications products, Apparel & clothing, Electrical machinery. **Major imports 2004:** Electrical machinery, Crude oil & fuels, Office machines & data-processing equipment, Machinery for particular industries. **Leading markets 2004:** US 22.8%, Hong Kong 16.2%, Japan 12.4%, South Korea 4.4%, Germany 4%. **Leading suppliers 2004:** Japan 16.1%, Taiwan 10.9%, South Korea 10.4%, US 7.7%, Hong Kong 7.4%, Germany 5.4%.	**Full country name:** United Kingdom of Great Britain and Northern Ireland **Capital city:** London **Total area:** 244,820 sq km **Population 2005[a]:** 60.4 million **Population growth rate 2005[a]:** 0.28% **Age structure, 2005[a]:** 0-14 years 17.7%, 15-64 years 66.5%, 65 years and over 15.8%. **Language:** English **Currency:** English Pound £ Average exchange rates in 2004: US$1.83:£1 **Religion:** Church of England, Methodist, Baptist, Catholic, Muslim, Hindu and Sikh **Real GDP 2004:** US$2,140 billion **Purchasing power parities (PPP) GDP 2004:** US$1,832 billion **GDP composition by Sectors 2004[a]:** Agriculture: 1%, Industry and construction: 26.3%, Services: 72.7% **GDP per capita at PPP 2004[a]:** US$29,600 **Real GDP growth rate 2004[a]:** 3.2% **Inflation:** 2.7% **Employment structure 2004:** Agriculture 1.5%, Industry 19.1%, Services 79.5%. **Unemployment 2004[a]:** Total 4.8%. **Exports 2004:** US$530.7 billion **Imports 2004:** US$601.0 billion **Current-account balance/GDP 2000-03:** – 1.44 **Foreign-exchange reserves 2003:** US$41.85 billion **Major industries:** Banking and finance, steel, machine tools, transport equipment, petroleum and gas, consumer goods, tourism **Major exports 2004:** Manufactured goods, Fuels, Chemicals; Food, Beverages, Tobacco. **Major imports 2004:** Manufactured goods, Machinery, Fuels; Foodstuffs. **Leading markets 2004:** US 15%, Germany 10.7%, France 9.2%, Ireland 6.8%, Netherlands 6.1%, Belgium 5.2%, Spain 4.5%, Italy 4.2%. **Leading suppliers 2004:** Germany 13%, US 9.2%, France 7.5%, Netherlands 6.6%, Belgium 5%, Italy 4.3%, China 4.2%.

[a] Estimated
Sources: China Statistics Yearbook 2004, United Kingdom Blue Book 2005, http://www.cia.gov, http://www.economist.com, http://www.worldbank.org

Table 2: Consumption related figures

	2004		Jan-Jun 2005	
	Value	Growth (%)	Value	Growth (%)
Urban Per Capita Disposable Income (RMB)	9,422	7.7	5,374	9.5
Rural Per Capita Disposable Income (RMB)	2,936	6.8	1,586	12.5
Consumer Goods Retail Sales (RMB billion)	5,395	13.3	2,961	13.2

Source: China's National Bureau of Statistics, Ministry of Commerce, and General Administration of Customs.

Outline of Visits

The researchers visited companies and organisations located in and around Shanghai, Suzhou, Beijing, Tianjin, Shenzhen, Dongguan, Zhuhai and Hong Kong, as detailed below in Figure 3 and in Appendix A.

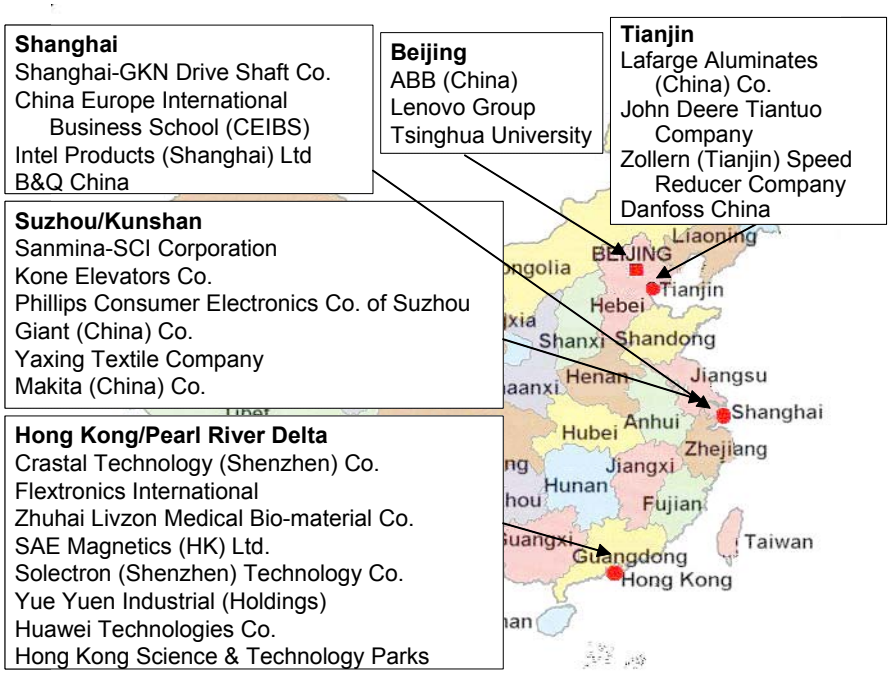


ABB	Power and automation technologies (Switzerland)	LaFarge	Cement producer (French)
B&Q	DIY retailer (UK)	Lenovo	IT (Chinese)
CEIBS	International business school (Chinese)	Livzon Pharma	Pharmaceutical manufacturer (Chinese)
Crastal	Contract manufacturer of domestic appliances (Chinese)	Makita	Power tool manufacturer (Japanese)
Danfoss	Refrigeration, heating and control (Danish).	Philips	Display manufacture (Dutch)
Flextronics	EMS (Singapore)	SAE (TDK)	Disk drive manufacture (SAE Magnetics (H.K.) Ltd. (TDK))
Giant	Bicycle manufacturer (Taiwanese)	Sanmina SCI	EMS (US)
GKN	Driveshafts (UK)	Solectron	EMS (US)
HK Science Park	R+D science park (Chinese)	Tsinghua University	One of China's leading universities.
Huawei	Comms/IT equipment (Chinese)	Tyco	Electronics (US)
Intel	IC manufacturer (US)	Yaxing Textile	Chinese owned textile company - supplier to MetersBonwe (Chinese)
John Deere	Tractor manufacturer (US)	Yue Yuen	Supplier of trainers to Western brands (Chinese)
KONE	Elevator and escalator manufacturer (Finnish)	Zollern	Speed reducers (gear boxes) for winches (German)

Figure 3: Companies and organisations visited 4th – 15th July 2005

The Researchers

The researchers involved in this project are grouped below under their research themes. (Names underlined indicate organisational committee members):

Setting up a manufacturing base in China

Colin Guttridge, Henry Rock-Evans

Supply chain management and logistics

Mohammed Ali, Janek Alles, Kathryn Horler, Joanna Patrick

Competition and IPR

Richard Davies, Susan Long, John Persaud

China as a centre for R&D

Sophie Crehan, Ken Ingram, David Morgan, Spyros Kallis, Will Tagoe

HRM in China

Zee Ashraf, Devdutt Jadeja, Alexandra Lloyd, Lucy Pallett

Creating differentiated Chinese products

Nick Friedrich, Chris Prest, David Sheen, Tanya Thompson

Opportunities & threats of producing in China

David Andrews. Kate Banyard, Jun Jhen Lew, Rachel Tomlinson

Also present were:

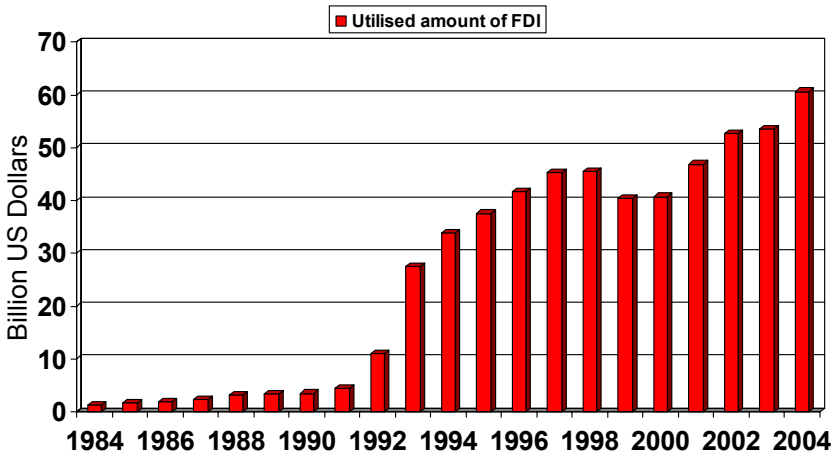
- Dr Tim Minshall, Centre for Technology Management,
  Institute for Manufacturing, University of Cambridge
- Dr Yong Jiang Shi, Centre for International Manufacturing
  Institute for Manufacturing, University of Cambridge
- Karen (Ruiyang) Li, PhD Student, Centre for International Manufacturing
  Institute for Manufacturing, University of Cambridge
- Guangjie Ren, PhD Student, Centre for International Manufacturing
  Institute for Manufacturing, University of Cambridge

Chapter 1: Setting up a manufacturing base in China

There are many reasons for setting up a manufacturing base in China including, but not limited to, the utilisation of the low cost labour market and the proximity to the Chinese market. Although it is generally thought that companies move to China almost exclusively for the labour savings, many of the companies visited during the tour have moved to China for access to these markets. For example, Lafarge have a process plant in Tianjin producing cement powder that actually has higher running costs than the equivalent plant in the UK, but needs to be located in China to serve the Chinese market.

To fully take advantage of this market it is almost essential to have a production base locally. This allows for idiosyncrasies of the market and import/export policies to be catered for, and also reduces the landed cost of production.

As more and more foreign companies have moved into China over the last 20 years (see Figure 4), their suppliers have tended to follow them. This is illustrated by GKN starting a joint venture in Shanghai to supply GM and VW car plants in the region, and Tyco electronics following Flextronics into the Pearl River Delta area.



Source: China's National Bureau of Statistics

Figure 4: Level of foreign direct investment in China

In many cases, the production output from Chinese factories is not wholly intended for the local market, and often the local market only makes up a small percentage of output. For example, Kone (a Finnish company specialising in elevators and escalators and the maintenance of automatic building doors), export 70% of their production. In almost all of

these cases the main reason for moving production to China was initially the availability of cheap labour, a factor which affects cost through the entire supply chain, not merely the finished product sold to the consumer. This aspect of China as a production base is not often considered as a tangible benefit, and is discussed further in the Supply Chain Management and Logistics section.

Suitability of product and process

The cost benefits of producing in China are clear and easily calculated using a detailed landed cost model, including estimates for expatriate involvement, costs of inventory buffers, and, if supplying for export, customs and logistics costs and the general increase in bureaucracy involved in sourcing from China. For many companies, the measurable reduction in costs at the factory gate often will not include any additional costs incurred further downstream in the supply chain to accommodate Chinese supply. It is extremely important to understand costs such as visits by staff to solve production/quality problems, new product introductions and communication misunderstandings, which must be carefully considered in relation to the products under consideration for offshore manufacturing.

It is a fallacy to assume that producing in China will automatically result in a lower cost product. A few companies visited actually find their manufacturing costs are higher in China. However in these cases the reason for relocation is strategic: to gain access to the market and be closer to customers rather than to reduce costs. In many cases, the predicted cost savings are almost totally eliminated by additional costs in the synchronisation and management of a supply chain originating in China. Setting up a plant in China regardless of ownership structure is undoubtedly a long-term investment with a relatively high risk, especially when compared to investment to create a lean supply chain for an existing plant. This is mainly due to the knowledge transfer that must occur (as is discussed in Chapter 3 on Competition and IPR). A new plant will nearly always cost more than the budget estimate regardless of location. It has been said that to setup in China, the calculated budget should be doubled and the timescales for the project tripled; anecdotal evidence from managers interviewed would seem to back up this crude rule of thumb.

However, there are certain products and processes which are particularly suited to manufacture within China; some of which outlined in the following sections.

- Textile-based products: E.g., shoes, bags, and clothes. This is due to the difficulty of automating the tasks and the fact that labour is a large cost component.
- Consumer electrical and electronic items: Product life-cycle issues mean that automated final assembly may not be cost-effective. Sub-assemblies such as PCBs are produced on flexible automated machinery.
- Plastic injection moulding: Although possible to fully automate, acceptable quality at reasonable cost can be achieved using machines unloaded and de-burred manually. Design and manufacture of moulds (tooling) is also very cheap due to high quantity of suppliers with experience.
- Metal stamping and pressing: Again, possible to fully automate, however there is little cost benefit in doing so. Tooling is cheaper than in many other countries due to the invested labour content.
- Process industries: China has a large capability for heavy manufacturing as a legacy of state-owned defence contractors, meaning that large process plant vessels can be made at a lower price than elsewhere in the world due to having no need to amortise the investment in large fabrication equipment.

Localisation of supply

Although, due to the rapidly increasing GDP and worker wages, there are some areas in the world that provide opportunities for lower cost wages than in China, these areas lack the supportive environment that is evident in China at present. For example, a company visited producing injection moulded parts in the Shenzhen area has over 1,000 potential suppliers of new mould tools should their in-house tooling facility not have the capacity. Therefore, although it may be beneficial for some large, self sufficient firms to locate to an area with a lower labour cost, and it is likely that in the next few years this will start occurring, for the majority of firms the stability and supportive environment provided by China would outweigh the advantage of lower cost labour elsewhere.

Knowledge transfer to China

Producing goods in-house as opposed to outsourcing adds value to a business by generating institutional knowledge through experience of setting up new production lines and supply chains, developing suppliers and the learning curve efficiencies associated with any

production line. To a manufacturing business, this knowledge is one source of competitive advantage. There may therefore be reticence to share this knowledge with any firm who may potentially become a competitor, including a joint venture firm based in China.

Porter[5] writes about production know-how as a barrier to entry; knowledge of any process is cumulative with volume, and for new competitors to reach an equivalent point know-how must be bought in from other firms. As an example of this, a domestic goods manufacturer visited produces both ODM products for companies to buy off-the-shelf as well as producing on an EMS basis. The company is very careful not to breach confidentiality agreements and IP ownership of the EMS customers. It cannot directly use knowledge gained from technology developed for its EMS customers in its own products. However, production know-how is the property of the company and the cumulative volume for both markets affords them good competitiveness in terms of production costs under either form of contract.

From the viewpoint of a Chinese firm wishing to form a joint venture with a foreign enterprise, the main aspiration is nearly always to learn modern production and management techniques from the foreign partner as well as gaining knowledge of new technology to enhance the non-JV part of the business, or simply to generate revenue.

This viewpoint can be detrimental to the success of a joint venture in China. However, it is the natural response of a national firm with little or no experience of multi-national or international sourcing.

> "Managers must be loyal to the company as a whole rather than to the country they operate in"
>
> **– General Manager, WFOE Tianjin**

All of the joint venture companies visited hold a key feature in common, namely that of unity between the Chinese joint venture company and the foreign firm. The joint venture is viewed as an integral part of the multi-national firm and as such is supported by other organisations within the business. The essence of the relationship is one of knowledge transfer to the Chinese economy either to take advantage of the lower cost base available or to access the Chinese market; in many cases both are equally applicable.

[5] Porter, M. (1980). *Competitive Strategy: Techniques for analyzing industries and competitors*. New York, The Free Press.

Chapter 2: Supply chain management and logistics

Introduction

The rationale for moving to China is to achieve cost-savings, predominantly achievable from effective supply chain management rather than the reduced labour costs. With a high density of suppliers who are rapidly developing in terms of quality and stability of supply, there is no 'legacy' way of doing business. Evidence gathered shows that, in many cases, domestic Chinese businesses, having developed rapidly in recent years, are using the most up-to-date information and logistics systems, and are not hampered by historic business processes. As a result, moving operations to China requires addressing a different set of issues to operating in the West. The following section will discuss these issues.

It is well established that low cost labour in China leads to some cost benefit. The majority of cost savings, however, come from localising an entire supply chain in China. This is because, firstly, unit cost of parts is generally lower for parts purchased in China due to lower costs throughout the supply chain. Secondly, and more significantly, large savings can be made in the logistics and supply chain overhead.

Structure of the Supply Chain

Most international business locating operations in China find that they initially need to source parts from their existing suppliers. As they develop their business presence in China, they develop relationships with local suppliers, and as such their supply chain can be localised around them. As a result, companies operating in China use a mix of local and international suppliers, each of which have to be handled differently. One way of describing this difference (as used by a number of the firms visited) is as follows:

- **Local Suppliers**: These are vendors situated close to the customer's site, with most operating on a delivery lead time of less than 5 hours. These businesses present the opportunity to develop JIT and VMI systems[6], as discussed below. This improved supply chain leads to a substantial portion of the cost benefit of operating in China. Product quality is one of the key concerns for many businesses hoping to develop a manufacturing base in China. Evidence gathered showed that, in general, the quality of

[6] JIT = Just In Time; VMI = Vendor Managed Inventory.

local suppliers equalled or, in some cases exceeded their Western equivalent. Close proximity to the supplier affords greater collaboration on developing product quality.

- **Asia Pacific Suppliers**: These are suppliers with a delivery time of up to 5 days, including Customs clearance based upon a pre-clearance system, whereby the goods are registered with Customs before arrival. This means that the goods will be processed faster, and more reliably.

- **Global Suppliers**: MNCs operating in China may prefer to use global suppliers, either because they haven't yet developed a local supply chain, or because they have long-term strategic justification for keeping production abroad. These may include protecting technologies or IPR, or for legislative reasons. (For further information on IPR please refer to Chapter 3).

Building Relationships in China

In China, face-to-face contact is the key to successful business relations. These relationships will be between suppliers, customers and other third parties (for example: local government officials, customs officers). In the West, suppliers and customers build confidence in each other through contracts. In China, while contracts are still an important framework, it is essential to build a relationship based on trust between parties as the legal system does not provide adequate financial recompense for contractual failures. Successfully building these relationships will lead to a better performing supply chain, and may exceed the performance seen in the West. Relationships in the supply chain are discussed further below.

It is important to build relationships with local authorities in China. As Chinese business culture is based more on relationship than contract, it may be mutually beneficial for companies to work closely with the authorities. One company visited indicated in discussions that the decision to locate in China was in part driven by a desire to influence new governmental building regulations which will help create a market for their products in China. In some industries, particularly those related to infrastructure, the Government will be a major customer and a good relationship is therefore essential.

For any company that imports components, it is crucial to have the right contacts and to have built good relationships with Customs. This helps ensure that goods are not delayed at border controls which could disturb the production schedule. A number of companies studied adopted a pre-clearance system, sending paper work in advance of the goods' arrival, to speed

up the release from Customs. One JV went as far as having 3 permanent employees in Customs, ensuring the smooth processing of paperwork and that good relationships were maintained.

Information flows and logistics

A key benefit of operating in China is the ability to significantly reduce overheads in the supply chain. The infrastructure exists, both in terms of information flow, and product logistics to make this possible. Information systems including ERP and MRP [7] are commonplace, although these are rarely integrated between customers and suppliers. Real benefits come in the use of JIT delivery and VMI systems, which are extremely well implemented by both domestic and international business in China.

Although MRP was rarely fully integrated with suppliers systems, weekly MRP reports and forecasts are often used as an input to VMI systems. When coupled with VMI, the factory is able to both reduce inventory and improve delivery accuracy. This was observed particularly in fast moving electronic assemblies such as mobile phones and digital cameras.

As with other world markets, the continuous advancement of IT means that companies operating in China continually have to update and expand their IT systems, and embrace new technologies. For example, an electronics JV was in the process of implementing an RFID system to track items at pallet level. This JV already used a GPS tracking system on their delivery network, to provide real time data on the location of their deliveries, along with an additional security aspect.

One of the concerns of Western industry is that building good distribution networks in China will be very difficult. None of the companies visited during research found this to be the case – indeed all operated advanced distribution and logistics systems. In many cases these were necessary in order to meet customer demands for JIT delivery.

In order to gain fast turnaround in distribution centres, several firms employed cross-docking and JIT hubs for both incoming and outgoing goods to reduce delivery times and reduce the amount of slow-moving stock. The firms studied doing this claim further reduced transport and logistics costs as a result.

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[7] ERP = Enterprise Resource Planning; MRP = Manufacturing Requirements Planning.

Many of the firms studied were found to have outsourced their distribution, including firms within the clothing, electronics, automotive, and white goods industries. This may allow a firm that has little experience of large distribution networks to focus on its core manufacturing competencies.

Other manufacturers used JVs with logistics firms (either foreign or state-owned) for their distribution operations because it allows them to retain a degree of control over their logistics function. This partnership with an external specialist firm enables them to collectively make ongoing improvements to realise cost savings. Some firms also encouraged their suppliers to collaborate on logistics, allowing them to consolidate containers, thus increasing the throughput per delivery.

JIT Hubs and VMI:

For JIT systems, customers often require suppliers to keep an appropriate level of stock on the customers' site. The stock becomes property of the customer at the point that they remove it from storage for use on the production line. Two methods of controlling this stock were seen in use by Chinese suppliers. The first is JIT hubs, where the customer specifies a stock level for each component, and the supplier is expected to maintain that stock level. This hub may be on the customer site, or at some mutually beneficial site. The second is the use of VMI, whereby the customer supplies a non-contractual forecast of their production needs. The supplier then uses this to decide the stock level in a warehouse. The warehouse can again be on the customer site, or a third party site. In order for either of these systems to be successful, strong relationships are essential including acceptance of liability for disrupting production and a level of trust, resulting in a degree of interdependency between the two parties.

Conclusions

The major cost benefit of operating in China comes from effective supply chain management, not just the use of low cost labour. This cost saving comes from both low unit cost and reduced supply chain management overheads. Many domestic Chinese businesses have developed advanced capabilities in JIT, VMI and logistics and can respond well to the demands of modern production systems. Quality standards of simple components are very high and are improving for the more complicated, high tech parts.

The key to operating an efficient supply chain is to build relationships with suppliers, customers, the regional and national government, and the Customs. A company which is considering operating its supply chain in China needs to invest time and effort in

understanding the Chinese business culture. Face to face interactions are very important in building trust, and if this is achieved, the rewards could be substantial.

Chapter 3: Competition and intellectual property rights

Introduction

There are many scare-stories in the Western press and business journals about the problems of intellectual property enforcement in China. There is also a fear of having to compete with firms controlled directly or indirectly by the state government.

Evidence from our interviews suggests these threats may be, in certain cases, over-stated. There is a desire by the Chinese Government, and domestic and foreign industry in China, to enforce international intellectual property laws (such as patents, copyrights and trademarks). We observed examples of counterfeiting ranging from consumer clothing and apparel to Business-to-Business (B2B) items such as valves. These examples, however, were not highlighted as posing a significant threat to the businesses involved. Some of these goods are direct counterfeits, in which a buyer believes they are buying the branded original, others are easily identified as counterfeit due to the sales location and price. It can be argued that sales are not lost through 'obvious fakes' as the domestic Chinese purchaser could not afford the branded original. This is discussed in great detail in the branding Chapter 6.

Legal Protection

Until recently the Chinese Court system was notoriously weak. It was once described as the "worst legal system in the world"[8]; however, this situation is rapidly changing. The legal system now has the desire to enforce international IP laws[9]. This improvement has been the result of the recognition by the Government that both domestic and international business needs good IP protection. There is, however, significant variation in both legislation and enforcement between provinces. As a whole the Chinese government is implementing an anti-counterfeiting initiative. In some cases, where the victim company has been proactive in gathering evidence, the government was swift and effective in closing down the counterfeiter and punishing the owner. However, this can only serve to discourage as it is extremely difficult for a business to get adequate financial compensation. In other situations, despite

[8] 'Of Laws and Men', *The Economist*, 5th April 2001.

[9] Bristows, Harvey I. and Westmacott P., 'Developments in Legal Issues in IP in China and Japan' Presentation, Wednesday 16th March 2005.

government action, the counterfeiters have quickly returned to the market with another factory in a different location.

Case Study – Legal Success: A multinational component supplier described being called to a customer site to deal with a performance-related issue with a supplied part. On initial investigation, the component appeared to be genuine however, on dismantling the part to identify the problem as part of their continuous improvement initiative, the manufacturer noticed the internal components were counterfeit. The company hired a private investigator in order to identify the counterfeiter and to gather evidence. On supplying this evidence to the authorities, the counterfeiting operation was quickly closed down and the owner jailed.	**Case Study – Legal Failure:** A UK engine manufacturer described a failed JV with a Chinese engine manufacturer. In 1996 the JV was established. However the contractual quality requirements of the UK partner could not be met, and thus in 2003 the UK firm withdrew from the venture. The Chinese firm, however, continued to produce engines illegally under the UK brand name, producing branded products which had never been listed in the official product line. In 2005, this infringement was still unresolved, with the case now being heard in international courts. The outcome of this process remains to be seen.

Prevention of counterfeit production

Due to the threat to brand-reputation, and long-term competitive advantage, *prevention* of counterfeiting is better than a cure. One possible defence against IPR violation is to distribute parts supply between different suppliers, and commercially sensitive parts as late as possible in the supply chain. This means that no single supplier can counterfeit the product. An example of this is mobile telephones produced in China by one global brand for the US market, where the firmware is not installed until arrival in the US, thus rendering them unusable until entering a secure market. A second method is to implement tight security procedures, including bag searches and camera bans for all employees, and multiple layers of restricted access to confidential information. One company used airport style metal detectors at each entrance to the shop floor. One employee caught stealing a product by hiding it in their shoe was made an example of by the local police, being brought back to the plant whilst under arrest to demonstrate the consequences of stealing. For many industries there are also collaborative efforts to lobby and assist the government in enforcing IP law.

Competition

China has long had a reputation in the West as a centre for low cost manufacturing. In the past, this was mainly for low cost, low value items. However, there is a growing supply of high quality Chinese manufacturing, matching world class quality standards. Through the years (whether by supplying foreign companies; counterfeiting their products or through more conventional process development techniques), Chinese companies and workers have grown considerable technical and business competencies. Most multi-national businesses involved in the research believe that other MNCs provide the majority of their competitive threat in B2B or government sales. Domestic producers provide are seen as providing more vigorous competition in addition to other MNCs wherever the product is sold directly to the consumer. The branding aspect of this is covered further in Chapter 6.

Chinese manufacturers can already produce at lower cost than a JV, creating the driving force to localise supply. The main reasons for this are:

- Good relationships with local suppliers
- Cheap management when compared with expatriate managers
- Autonomy of business unit allowing greater agility
- Lower worker wages[10]

As their competence develops, domestic suppliers will be able to produce similar quality goods to foreign enterprises, but at a lower price, and as such will be able to compete on a global scale. Examples of this include Huawei, rapidly growing from being a Chinese firm to a technologically leading MNC, and Lenovo computers with their $15.2bn 2004 acquisition of IBM's PC division.

Manufacturers who relocate to China expecting to exploit the domestic market will find additional challenges. The Chinese market consists of traditional Chinese businesses; modern or multi-national business; and end-consumers. The research shows that each of these groups demand different product qualities:

- **Traditional Chinese businesses:** The desire from some sectors of Chinese B2B sales are for "good enough" products, which are as cheap as possible. This can be a hazard

[10] Western companies tend to pay above the legally required minimum and benchmark extensively to ensure this is the case. See Chapter 5 for more information.

to a Western brand built on superlative quality. However, some sectors practically require a foreign brand as an order qualifying criteria. Where foreign part or full ownership does not generate competitive advantage, actions can be taken such as:

- Reducing functionality. E.g., a mechanical component manufacturer which now produces components with a lifetime comparable to the final product in order to be cost-competitive.
- A range of product qualities. This approach was taken by a cement manufacturer, who introduced a lower cost and specification substitute for their more specialised product, in order to compete with Chinese manufacturers in the domestic market.
- Market differentiation, into an area in which quality has more value to the consumer. This approach was used by a mechanical component manufacturer, who re-engineered their product into a market that required a longer product life.

- **Multinational and modern Chinese businesses:** Multi-national companies and many modern Chinese businesses have forged a reputation based on the high quality of their products. A company wishing to supply these companies will need to meet stringent quality requirements, similar to those in the rest of the world. It is worth noting that many WFOEs have difficulty finding sufficient quality supplies domestically, indicating a potential business opportunity. On a related point, anecdotal evidence was found of the ability to purchase forged documentation for ISO9000. As such, any prospective supplier should be fully investigated.
- **End users:** End users can, in some markets, be considered as fairly unsophisticated – if they find a brand that works, they will keep using it, without really shopping around. This was explained by a number of consumer goods manufacturers and retailers. For many manufacturers this could be considered an opportunity as well as a threat.

In infrastructure businesses, the state, as the customer demands very high quality. Two examples of infrastructure industries where this has been seen are telecommunications and power distribution.

Conclusions

In summary, competition and IPR issues are unavoidable when operating in China. However there are many examples where foreign companies have managed these risks and are successfully doing business in China.

Overall, the biggest risk to any firm producing in China is to fail to understand and develop the appropriate relationships with suppliers and government officials, relying upon Western-style contracts rather than trust to relate to suppliers. The previous Chapter outlines the collaborative nature of many supply chains in China, a mentality that extends to the areas of competition and IPR. Introducing a supply chain into China requires sharing the knowledge of how to make a specific product with Chinese companies, either as JVs or as suppliers. If the relationship between supplier and customer is not effectively managed, then this knowledge can be used to compete either by counterfeiting, 'grey market' sales or by direct product competition.

As such it is extremely important to carefully select which products to introduce into China, where to source them and to fully understand the role of the foreign parent operations (e.g., R&D, sales, marketing and distribution).

Chapter 4: China as a centre for research and development

Introduction

As has already been observed, many companies have relocated their manufacturing capabilities to China in order to take advantage of a lower cost base. In addition, some companies have also re-located their R&D centres to China. This section will investigate the reasons why a company might choose to locate an R&D facility in China, including the benefits of locating R&D close to its production capabilities or close to its market, and which areas of the R&D function may be more appropriate to co-locate than others. For the purposes of this report, "co-location" means in such close proximity that face-to-face meetings can be held regularly without incurring large costs.

Background[11]

China has attracted scores of foreign funded high tech investments from around the globe particularly in the information and communication technology sectors. For example, Intel has, to date, invested US$500 million in R&D in China. The government encourages foreign R&D investment particularly in information technology related industries through

- Tax rebates;
- Construction loans;
- Access to modern facilities.

For these reasons many foreign investors choose to locate their R&D centres in Beijing's high-tech Zhongguancun area, or in the Shangdi Information Industry Base near Tsinghua University ("China's MIT") and close to several state-run research institutes (See Figure 5).

[11] Walsh, K., (2003), 'Foreign High-Tech R&D in China: Risks, Rewards, and Implications for US-China Relations', Report from the Henry L. Stimson Center, www.stimson.org.

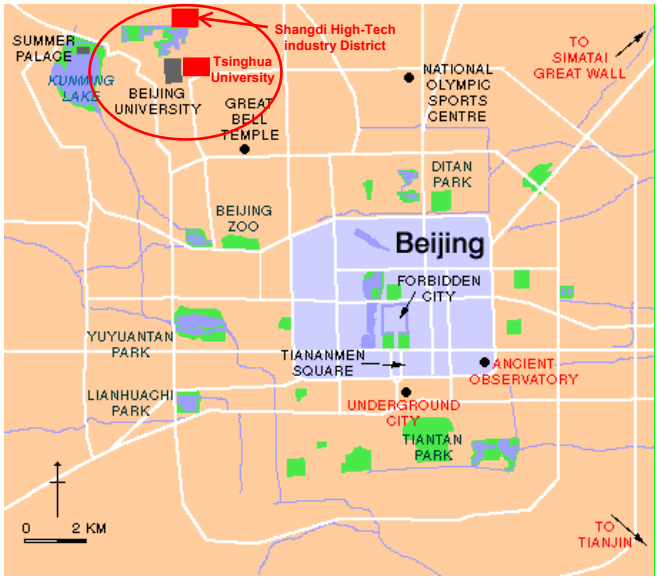

Figure 5: Beijing's high technology areas

In the computer and telecommunications sector foreign investors have established over 200 R&D centres, programs or laboratories in China in the period 1990-2002. There are large incentives available from the government to locate more R&D facilities in China as it is perceived as essential to sustain economic growth providing higher paid jobs for the growing number of 'middle class' Chinese. Some companies (for example in the automotive industry) are also subject to volume restrictions on what may be produced dependent on their R&D investment in China. In addition, the low cost of overheads and the increase in the number of key suppliers in China has also attracted R&D investment from multinationals.

"China's goal is to be among the top 10 most competitive science and technology nations by 2010"[12]. To achieve this, the Chinese government has been following the strategy below:

- Placing great emphasis on promoting high tech skills and education;
- Establishing new results-based incentive programs targeted at rewarding leading scientists and research institutes and providing more state funding for international scientific and technological exchanges;

[12] Larson, C., (2000), 'New National Innovation System Seen as Key to Transforming China into a Market Economy', Research Technology Management, Vol. 43, No. 2.

- Developing an incentive scheme to entice the tens of thousands of highly educated and skilled 1st or 2nd generation Chinese living and studying abroad to return to the mainland.

Definition of R&D

In order to assess the effects of co-locating R&D and manufacturing, the term "R&D" must first be defined. R&D may be performed at many different stages of the product lifecycle. Four main areas of R&D have been identified, each with sub-sets of their own, as shown in Figure 6. This section will set out the definitions of R&D in order to clarify what is meant by R&D for the purpose of this report.

The four areas of R&D are defined as:

- Technology
- Product (New products; and Localisation (customisation for local market))
- Process
- R&D Methodology

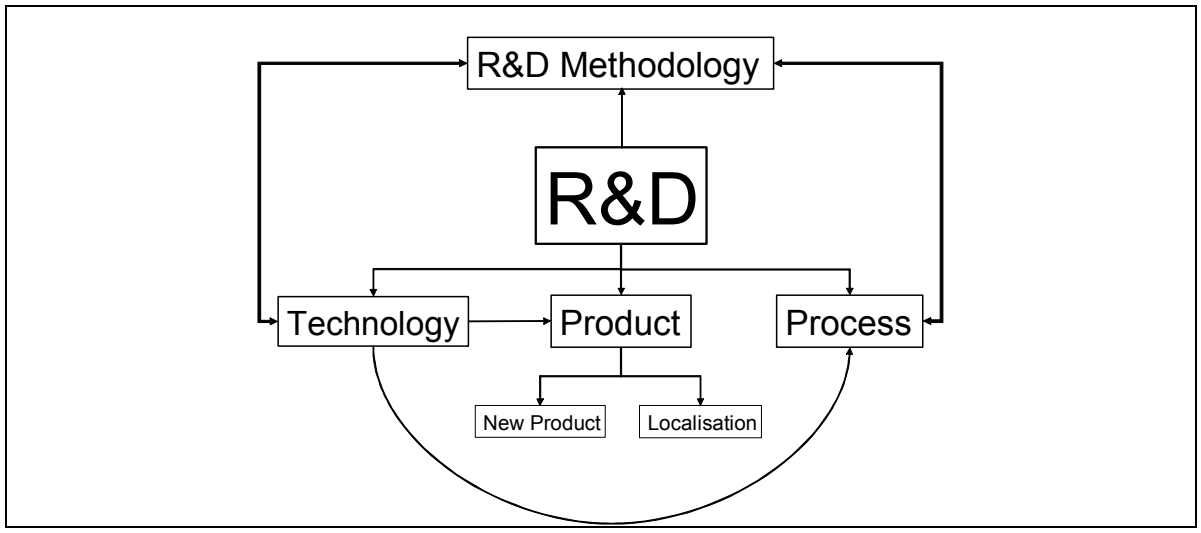

Figure 6: Types of R&D activity

Within this model, 'technology' is defined as any new discovery or information that feeds into next generation product or process development. This can include new materials, equipment or any type of technological innovation.

Product R&D can be split into two distinct types:

- new product R&D;
- localisation R&D.

New product R&D involves developing an entirely new product, whilst localisation R&D involves taking an existing product and modifying aspects of its design in order to best serve a local market. The technology that feeds into this new product does not need to be proprietary.

Process R&D function aims to improve the way the product is manufactured, either by continuous improvement (e.g. Kaizen improvements to the production layout), or by step improvements, for example through the implementation of new technologies.

A fourth type of R&D exists, which consists of research and development on the overall R&D methodology. Pharmaceuticals, for example, are constantly looking for methods of reducing the costs of R&D, moving the lower cost screening stages earlier in the new drug development process in order to reduce the sunk costs should the product not reach the screening stage:

"In effect, the strategy is to know more, sooner. The key to effective innovation funnel management is to design and place your strongest, quickest, least expensive screening processes as far upstream as possible. This seems like common sense, but it requires an acceptance of the importance of information, which pharmaceutical companies appear slow to demonstrate"[13]

Requirements for successful R&D

Prescott *et al.*[14] have shown that successful R&D requires a number of factors including:

- extensive information-sharing within the R&D team;
- communications across business units (to enhance global innovation and learning);
- socialization and face-to-face communications (to enhance a shared vision, values, norms and trust-building between members);
- mutual understanding, trust, interpersonal communications.

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[13] Nicolaides, D., (2001), 'The changing shape of pharmaceutical R&D' in *Chemical Innovation*, November 2001, Vol. 31, No. 11, 40–46.

[14] Prescott, J.E. et al., (2003), 'The global integration of business functions: a study of multinational businesses in integrated global industries', *Journal of International Business Studies* 34:327-344.

Why move R&D to China?

Manufacturing has been experiencing a phenomenal rate of growth in China for many reasons. This research looked at the emerging trends for R&D along with supporting evidence from large WFOEs representing their views on R&D in China, the benefits/disadvantages to setting up R&D in China, and how and why they chose their location. The literature combined with our investigations show that R&D in China has not enjoyed the same level of growth as manufacturing – especially when looking at high tech R&D. However, there are strong points for and against locating R&D in China. The main reasons for moving R&D to China are:

- co-locating R&D with the market;
- co-locating R&D with manufacturing;
- cost reduction.

Before discussing the above points it is necessary to understand the information flows between functions in the manufacturing organization. It has been shown that performance of multinational companies is significantly affected by the efficiency of coordination and control of R&D, manufacturing and marketing across borders[15]. As stated earlier, information sharing and communication between functions is essential for successful R&D. Figure 7 shows the information flows between manufacturing, R&D and the market.

[15] Ibid.

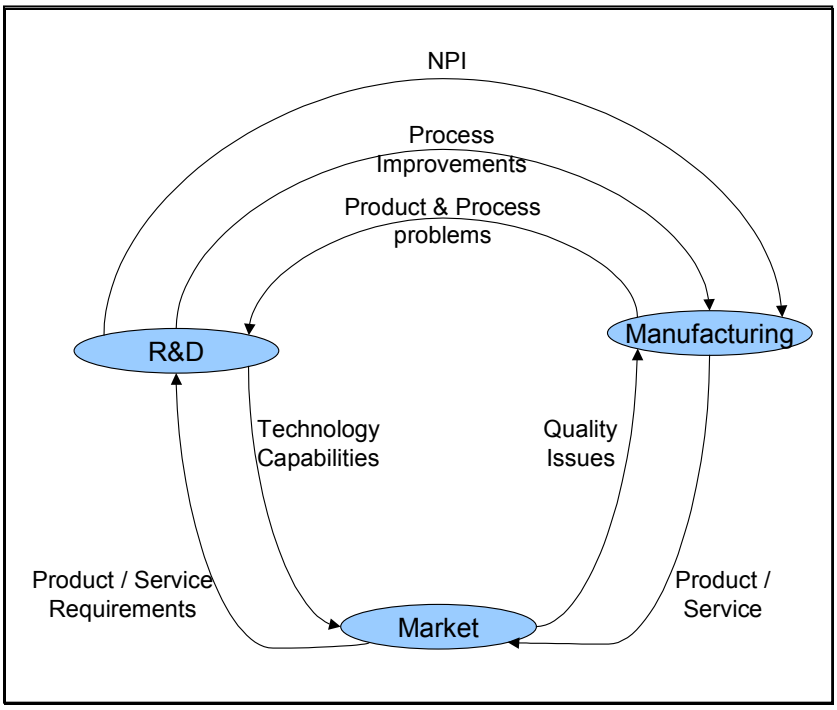

Figure 7: Information & communication between R&D, manufacturing & the market

This presents three areas where information sharing and communication must be able to occur:

- between R&D and manufacturing;
- between R&D and market;
- between manufacturing and market.

In some cases, co-location may allow more efficient and easier information sharing and communication, as well as other benefits. However, there may also be drawbacks. The benefits and drawbacks of each of these three areas are described in the following section.

Co-locating R&D with manufacturing

- **Benefits:**

  - Improved coordination between design and manufacturing can be facilitated if R&D and manufacturing are co-located[16]. For example, development engineers can move with a new manufacturing process from the development facility to the manufacturing facility. Having design and manufacturing departments nearby allows new product introduction (NPI) to be expedited, as problems can be quickly resolved. Further problems associated with the manufacturing process can be solved more quickly with an R&D centre co-located with manufacturing. A manager at one plant suggested that, although locating close to the market was important in order to get the right product for their customers, there is also a need to be close to manufacturing in order to be able to troubleshoot development and assembly.

> "Having the designer and the manufacturing together is a great advantage"
>
> - **Project Integration Manager, JV**

  - Communication between R&D and manufacturing teams is essential for successful operations. Co-location enables communication barriers to be reduced, aiding problem solving. For example, at Giant, when a problem arises on the line, industrial engineers working on process R&D can respond immediately and solve this problem. However, at one EMS studied, production in China is currently supported by the global R&D centre in San Jose. When problems arise in the process, support is only available initially via email, which gives rise to a long lead-time before problems are solved.

  - Co-location supports accurate and timely identification of design and manufacturability problem[17]. Inevitably, design problems occur during NPI and must be solved. Co-location can speed up the identification of these design problems and therefore allow them to be solved quicker. A large CMS company, which takes customers designs and develop them for manufacture and assembly

[16] Clark, K., and Fujimoto, T. , (1991), *Product development performance,* Harvard Business School Press.

[17] See, for example, Smith, P.G., & Reinertsen, D.G., (1991), *Developing products in half the time*, New York : Van Nostrand Reinhold

(DfX), has a design centre co-located with manufacturing, which concentrates on process R&D, working closely with the customer from the early design stage to ensure all problems with manufacturing process are quickly identified and solved.

- **Drawbacks:**
  - Copying remains a major risk all over China (see Chapter 3). Moving R&D to China may risk designs being copied and lack of knowledge retention. For example, a major consumer electronics manufacturer use their R&D product development centre for the design of second generation products, keeping their next generation designs to their centralised R&D centres in Taiwan.
  - Dispersed R&D may not be as effective as a centralised R&D function. The distinction between centralised and dispersed R&D is made by Rognes (2002)[18] who examines the tradeoffs between the two approaches. The benefits of centralised R&D include better group coherence, team communication and informal interaction. If manufacturing is dispersed, and R&D is co-located with manufacturing, these benefits may be lost.

Co-locating R&D with the market

- **Benefits:**
  - Many products require customisation to the Chinese market. For example, Giant have a local design facility dedicated to product R&D capable of modifying the materials in the product to make it cheaper and therefore affordable by the local market. A similar capability is also exercised by John Deere Tiantuo who tailor their US tractor designs to the local market and supply capability. Makita have a localised product design team that designs a lower cost product under a different brand name.

> "If you have serious business in China you have to have an R&D centre there"
>
> **- Manager, Foreign Owned R&D Facility**

  - In some industries, consumer preferences change rapidly. Therefore, by locating R&D close to the market, the evolving tastes can be detected in real-time and adopted into the R&D process. Examples of

[18] Rognes, J., (2002), 'Organising R&D in a Global Environment, Increasing Dispersed Co-operation Versus Continuous Centralisation', *SSE/EFI Working Paper Series in Business Administration* No 2002:3.

this include Motorola, who adapted mobile phones for the Chinese Police to be used as walkie-talkies. Intel changes the assembly packaging of chipsets in a localized R&D centre to meet the rapidly changing market requirements.

- The Chinese market has traditionally been very closed to NPI involving foreign investors. By locating R&D in China, foreign companies are able to forge links with the government by helping to develop Chinese R&D expertise. In turn, this may place the company in an advantageous position to overcome the bureaucracy surrounding importing and producing in China. Location of manufacturing and R&D facilities are determined to some extent by the market, for example Rolls-Royce has established both manufacturing and R&D capabilities in China to improve access to the valuable Chinese aviation market.
- By locating R&D functions in China, companies are able to influence decisions made by policy makers. An example of this is where the standards for wireless networking in China were different to the 802.11 global standards. Due to their R&D presence in China, Intel was able to access the high level policy makers to change this policy and enable Intel to standardise their product globally. Danfoss chose to locate in Tianjin to open up the market by developing the local expertise as a 'big fish in a small pond'. As a result, they are in the process of helping the government set standards for refrigeration products, thus creating a larger market for their product.

- **Drawbacks:**
  - Products that do not require localisation will not require any local knowledge input into the design. Locating R&D for these products in a country just to be near the market is not necessarily advantageous, although other benefits such as lower cost may be sufficient to make it worthwhile.
  - Radical solutions to problems often result from radically innovative thinking. By focusing on the current market preferences and designing according to the 'pull' from market research, opportunities for new designs that meet needs that are unknown to the market may be overlooked. In some industries a 'push' strategy may be more beneficial. At Apple, market research is neglected in favour of

designing products in the vision of their designers, and then convincing the market of the need for them.

Cost Reduction

R&D facilities located in China are likely to have significantly reduced overheads compared to similar facilities in the home nation. This is particularly the case with highly qualified graduates, who are paid a fraction of the cost of graduates working in companies in more developed countries. However, when relocating R&D to China, the initial cost needs to be justified, particularly in the case of high tech R&D where expensive equipment and state of the art facilities are needed. This initial cost can be reduced by locating the R&D function in a suitably supportive environment, such as that provided by Hong Kong Science and Technology Parks (HKSTP) where access to a wide range of specialised equipment is available at an hourly hire rate.

Will the Environment in China be conducive to successful R&D?

- Knowledge and experience
  - The success of an R&D function depends on the quality of the research employees and knowledge within the department. The development of Chinese manufacturers has been extremely rapid, but the widespread development of high quality commercially focused R&D has not reached similar levels. This lack of experience can sometimes provide barriers to recruitment.
- Universities and graduates
  - There is currently an abundance of engineering graduates who are willing to work hard and learn fast. As the manager of one MNC corporate research centre stated, "Transfer these guys to Europe with the same conditions (security, salary) as the Europeans and they will be much more efficient"[19]. Many companies work together with the Chinese universities such as Tsinghua, Hong Kong and Beijing in cutting edge research. E.g., Huawei hosts three institutes in collaboration with Chinese universities in order to develop technologies in their innovation focussed industry. The visits revealed that most R&D teams consist of Chinese graduates,

[19] Quote from senior expatriate manager.

as opposed to being heavily dependent on overseas graduates. Chinese employees working in the development team at Philips were cited as the most hard working and fast learning.

- Culture – control
  - When a foreign enterprise enters the Chinese market, either as a JV or a WFOE, there are many difficulties in aligning the culture of the newly established organization with that of the parent company. In addition, the R&D methodology of different countries and cultures may be different, which may bring about issues of controlling R&D. For example, Zollern, Solectron, Lafarge, Makita and Philips all send Chinese graduates for training at their global headquarters to embed the values and culture of their respective companies. This ensures that when the R&D centre is established in China, the international company's knowledge of R&D methodology is transferred.
- Government Regulations
  - Countries like the US and Japan are very protective of their sensitive cutting edge technology. Consequently they restrict use of next generation (n+1 technology) products in countries like China, in order to protect their national interests and security. For China to use the high end technology of Intel, they need to apply for license. At Sanmina-SCI, some high frequency communication technologies developed in the US were withheld from their Chinese facility.

Conclusions

The Chinese market is different to that of other developed countries and in order to operate successfully, it is important to understand the Chinese culture. If the product is to be standardised for the Chinese market, it is important to have an R&D facility in China as this enables the company to design the correct product for the market.

Co-locating R&D with manufacturing is certainly beneficial. Most of the companies established a development centre in close proximity to their manufacturing facilities as this enabled them to decrease the cycle time of problem solving. This seemed to be especially important for new product introduction. For companies who had no R&D facilities at the manufacturing site, experts from their R&D facilities had to come and supervise the starting phase of the project.

During the visits it was observed that there was very little technology R&D being carried out in China. Most companies are reluctant to move their technology R&D to China, not because the Chinese graduates are less able, but because of their lack of experience in commercial R&D. In order to be able to innovate, it is necessary for employees in R&D to have experience of the industry and have the appropriate knowledge and skills for that area of research. The majority of R&D facilities in China were found to be those carrying out product and process R&D, which need to be more closely coupled to production and the market.

The Chinese have the knowledge and capabilities to perform technology R&D – the problem is they do not have the necessary experience. This seems to be changing as multinationals have started training their Chinese employees to create the option of moving such R&D to China.

Chapter 5: Human resource management in China

Introduction

China is still widely thought of as simply being a low labour cost location. This is considered to be a real source of competitive advantage and may be one of the major influences that push companies to expand their operations to China. Some companies that decide to move operations to China could realise the competitive cost advantage and flourish. However, some companies may conceivably end up with a poorly managed, low cost team of workers who are unable to produce goods that meet the standards required by the company and, more importantly, by the customer. In these cases, it is clear that the labour-cost advantage of moving to China will not translate into profitability. It is therefore critical to consider the problems one may encounter related to managing the workforce effectively. This section of the report aims to look at HRM aspects of moving operations to China, including areas such as: management styles, motivation, training, employee recruitment and the issues one might face with workforce turnover.

Management styles in companies in China

The style of management used in a company in China will have an impact on the running of a company. The companies visited have a variety of management set-ups, as described below:

- Expatriate management seconded from within the same company. These companies mostly have Taiwanese, European or American owners and their attitudes are split into those who would like to see more local Chinese managers, such as Kone, and those who think expatriate management is essential, such as SAE.
- Local Chinese management was seen in many companies, particularly wholly owned organisations. Exclusive local management was found in Crastal and at Yaxing Textile.
- A mix of local and expatriate management is present in most of companies visited. The majority of companies visited had this set-up with expatriates occupying the more senior positions within the company. This was often with a shadowing/mentoring arrangement with the intention of eventually removing the expatriates where possible.
- At the process plant visited for this research, Lafarge, a single international plant manager headed the Chinese management staff.

The majority of the management styles within each set-up are in line with management methods that are considered 'Western' (i.e., hierarchical, Taylorist set-ups). This is even true for Chinese-managed companies such as Crastal. Motivation and training to get the desired performance from workers are seen as important aspects of management by all of the companies visited.

Motivation

In order for a company to achieve performance targets, the workers must be motivated and understand the importance of their work. Observations and discussions would seem to indicate that Chinese workers are given fewer motivational incentives than would be typical in, say, the U.S. In the factories visited, it was found that Chinese workers expect overtime work to be available to increase their take-home pay. While the government sets a standard work week of 40 hours, it is common to offer overtime of up to 4 hours per day. At a major electronics firm, the sales manager stated that if overtime were not provided for the workers they would leave, as it reduced their salary from around 900RMB to the basic 600RMB. One European MNC visited noted the contrast in motivation levels between Western and Chinese workers. In Europe, absence rates are usually at least 8%, whereas in China absenteeism is about a quarter of this rate

Not only is the attendance higher in China than in Europe, but the rate of working is also higher. In many companies, including Danfoss, SAE, Zollern and Intel, a higher level of motivation is attained by ensuring that their workers are provided with good working conditions and systems in place for feedback. In several companies, the quality of each workers production on a particular shift is recorded, and the information used to calculate bonuses and to identify when disciplinary action is required. The records are displayed by each workstation, so each worker can derive pride from good results. Motivational banners on the factory floor and close interaction between management and the workforce are both tools in widespread use.

Targets are a widely-used method, both in foreign and Chinese companies to ensure workers are aware of the rate at which they should be working. Most companies, including SAE, Shanghai-GKN Drive Shafts and Danfoss, provide bonuses to workers when targets are met. Although appraisal schemes varied across the companies investigated, it was found that team/group appraisals were mainly used for shop-floor workers whereas management levels were more individual performance based.

Career prospects within a company are perceived to be a major motivating factor for some workers. At Crastal, a proportion of the management staff has come up from the shop floor and, like Yue Yuen and Philips, they ensure that workers who perform well are trained in more than one operation to provide them with the opportunity to move up within the company to line supervisors or further. Training has a significant influence on how the company is perceived; companies with good training schemes are highly regarded and jobs with the company are consequently highly sought after.

Training

Training is an important aspect of management in China, just as in the rest of the world. It enables the company to produce better quality products and improves the perceived image of the company. Giant is one of many companies that are very conscious of the importance workers place on training provision - workers are very interested in gaining transferable skills that they can use in their future jobs, whether at the same company or elsewhere. Solectron and Intel both have 'universities' for employee development, whereas Yue Yuen offers English and IT lessons. These are all ways for the company to improve their reputation amongst workers and potential employees. In general, the perception amongst the low-skilled Chinese who travel from western China to earn money before marriage is that knowledge is vital to improve their quality of life, and hence training is widely appreciated.

Management training is a vital element of moving operations to China. Companies such as Intel offer high levels of training for all employees and allow them to develop their managerial skills. Management training often takes place abroad. For example, at Sanmina-SCI some employees are sent to the USA to undertake MBAs before returning to work for the company for a contractual minimum of two years. Zollern and SAE are further examples of companies that train managers in a similar way. This ensures that a multinational company can have coherency across global operations and is also an appealing feature for potential employees. To ensure local Chinese management are aware of company-wide procedures, most companies initially use expatriate management, who may then also be responsible for the training of local management teams. When Intel moved to China, they operated a '2-in-1-box' scheme where an expatriate and a local manager worked together in the same position for up to a year while the local manager gained the necessary experience. Philips and Kone also used expatriates to train future managers over a period of six months to a year.

Response of Workers to Management Styles

Chinese workers are generally very hard working and most management teams are very aware of this. Such motivation has enabled companies such as Danfoss to achieve company-leading quality in their Chinese facilities. As Western companies have moved into China, the Chinese desire to understand international business has also grown.

Workers who are treated well and have good training are likely to stay with the company. However, as the section below on retaining workers shows, management must be aware that staff turnover is higher than Western levels due to the fast-growth of industry in China and the number of jobs available to potential employees, who will inevitably shop around for the best offer.

General Issues

Misunderstanding of Chinese upbringing and cultural norms can cause problems for foreign managers. When moving to China in 1997, Zollern faced many communications and cultural problems in obtaining the people and equipment they required. It is generally felt that to setting-up in China has become easier due to the experience gained by both foreign companies and their Chinese counterparts, along with the emergence of industrial parks such as TEDA and associated development offices.

Non-Chinese who are not used to working with Chinese people often get frustrated by an apparent lack of intuition, or "common sense". In reality, this is more often than not a reflection of communications difficulties and a lack of cultural understanding as to the way things used to be under centrally-run state owned industry, whereby workers did not question instructions from their superiors.

> One Chinese worker was asked by a foreign manager of a WFOE to source some cheap pens for the office. The manager couldn't explain in Chinese what he wanted, so showed a pen on his desk. A few days later, the employee returned empty-handed and apologetic for not having been able to find an exact replica.

A new entrant to China is likely to encounter initial difficulties in coping with the level of bureaucracy. Danfoss initially found this a large obstacle to overcome. However, making significant efforts to build relationships with officials eased the situation. It is clear from the investigations that, as in any culture, an understanding of the language and the ability to work closely with local people can help to overcome such problems.

The attitudes of workers in China are also different to those of western workers and must be understood before a new company can effectively motivate their workers to work to the same standards that are expected in the west. Some companies have encountered initial difficulties due to a worker attitude that 'good enough' is acceptable. Zollern highlighted this attitude difference saying that some companies with Chinese procurement departments purchase very high quality machinery but use poor quality, cheap tools, resulting in low tolerance parts. Makita management underlined the importance of clearly defining working practices as "black (bad) or white (good), not grey". Both companies, however, felt that providing the right training and defining how to meet quality requirements can result in very high quality standards. For Danfoss, in particular, the factory was able to achieve a higher quality level than any of other Danfoss sites worldwide. This shows that, provided the time is taken to encourage understanding of the corporate ethos, the workforce can be motivated and trained to work to levels higher than those in existing factories.

Workers in China have grown up in a fundamentally different culture to that experienced by foreign managers. The Chinese have, until recently, been governed by administration where the workers will just follow orders and not try to analyse data, processes or actions[20]. Recently, however, a cultural shift to more analysis and fact-based decision-making has occurred. This is a new way of working for many Chinese people and so appropriate training must support them. Makita, a Japanese owned company, have found that Chinese workers are not as used to these concepts (i.e., analysis and fact-based decision-making) as the Japanese. The rapid growth in China's economy and the fact that many employees come from a rural background means that there is no legacy knowledge of such working methods. Companies setting up in China will need to overcome these problems by training workers adequately and reshaping their mindsets until the growth in China stabilises.

The 'Cultural Revolution' caused a generation of people, now in their late 40s and 50s, to miss out on a university education[21]. Thus, there is a lack of available Chinese managers with appropriate education and experience in this age group, resulting in local managers being

[20] Sprague, L., (2005), 'China's Evolving Supply Chain infrastructure: A Work in Progress', Presentation at the China Europe International Business School (www.ceibs.edu), 4th July 2005.

[21] Sprague, L., (2005), 'China's Evolving Supply Chain infrastructure: A Work in Progress', Presentation at the China Europe International Business School (www.ceibs.edu), 4th July 2005.

relatively young when they reach these levels of the organisation. The younger generations are more likely to be open to new working practices brought in by western companies, which is potentially a significant advantage to foreign firms. Generally companies looked to fill management positions with well-educated people who also had work experience. Obviously, the more youthful the management, the less experience the employee is likely to have. However, none of the companies visited voiced explicit problems with giving responsibility to younger management.

> A China Central TV documentary watched during the tour highlighted the case of a family from western China who were so keen for their son to go to university that both parents resorted to selling blood donations to pay the annual fees of $1200 US per year. This is very risky in rural China as often needles are not sterilised or are re-used, and AIDS is rife. However, without resorting to such measures it would not be possible to send their son to university as their normal disposable income totalled $90 per year. It is this determination to elevate their children beyond poverty that drives so many workers to move from the rural west of China to the developing East, taking any jobs which they can get.

One company pointed to an issue related employee turnover that was attributed to the 'one child' policy. The company felt that young Chinese workers brought up under the one child policy were more likely to be spoilt by their parents. As a consequence, if they find a job hard or unpleasant, their parents may encourage them to leave and offer to support them by any means possible. Just as with the potential concern of an overly youthful management team, employee turnover due to parental influence was not found to be a problem for other firms and is only likely to be a problem in a company with unpleasant working conditions.

Recruitment of workers in China

Blue-collar workers

In the companies studied, shop-floor workers were seen to be invariably Chinese. Companies aim to recruit young people who are very mobile and willing to work long hours, far away from their families[22]. In the companies visited in the developed east coast region, a large proportion of the lowest-level workers had migrated from the rural provinces in the West of the country. At Sanmina-SCI, approximately 70% of workforce were from the provinces, and

[22] Gross A. & Heinold L., (2005), '2005 Human Resources Trends in China', Pacific Bridge, Inc., China HR Publication, May 2005. http://www.pacificbridge.com/Publications/ChinaMay2005.htm

typically started work at age 18, with the aim of earning and saving before returning to the home village to build a family, having proved themselves capable of earning a living. They usually send 60-70% of wages back to their family, and as such, many are eager to work as much overtime as possible.

It was observed that in companies where the work requires high manual dexterity, particularly in the electronics sector, the workforce is likely to be almost entirely female. This is not a situation unique to China, but is more pronounced than in other countries where such tasks are often automated.

> "Most feel lucky to be employed at all, and luckier still to be working at a place that offers them the salary and benefits that (this company) does"
>
> **- Project Manager, JV**

Endemic mass unemployment in China, and the desire to move away from subsistence farming, results in an eagerness for factory jobs – even the most menial of tasks. Although an article in The Economist[23] indicates that despite China's vast pool of unskilled labour, firms in the south now complain that they cannot recruit enough cheap factory and manual workers, no evidence was seen of this. Factory managers asked about this seemed relatively unconcerned with shop-floor staff turnover, viewing it as an inevitable aspect of running a plant in China. The general impression was that blue-collar staff are easy to find, while specialist employees often need to be sourced from farther afield, as the number of Chinese with the required knowledge and experience are something of a rarity.

White-collar workers

Senior and middle management are often internationally educated Chinese, or from Taiwan, Hong Kong and Singapore, as they are likely to be more suitably educated and have relevant experience. In many companies Western expatriates are also brought in for the same reasons, but this is very expensive to the company due to the costs associated with relocating partners and families.

Cultural integration of expatriates is a challenge that many companies face. Often such employees chose to commute from major cities rather than live locally to the factory so as to be near to other expatriates for social and support purposes. This can cause difficulties in terms of building business relationships as in China inter-firm relationships often involve both

[23] 'China's people problem', *The Economist*, 14th April 2005

social and business aspects. On the flip-side, many expatriates are in senior management positions, and the community aspect can lead to prosperous relations with other multinational firms.

Sourcing talent

Workers are found through similar means to those employed in Europe, namely through advertisements in newspapers and journals, by using recruitment agencies, and through presence at job fairs, where potential employees meet a number of recruiting companies. Some government-backed development sites such as TEDA are also able to offer networking support to companies. Temporary workers are often used for unskilled, "common sense" work and a number of agencies are used to source these. There are also government agencies that deal with such labour. The skills gap for white-collar workers is being bridged in some cases by close liaisons with universities, both in China and abroad.

Influence of brand

Unsurprisingly, the reputation of a company can be a major lure for workers at all levels, as the "CV value" of working and training at a well-known enterprise can lead to higher-paid positions at other companies further down the line. The understanding of procedures, the working mindset and generally the atmosphere of empowerment found in many part or wholly foreign owned enterprises are perceived to be extremely valuable transferable skills. Many Chinese take a fairly short-term view of jobs, and so a year's experience at a reputable company is often seen as more desirable than taking up a position at a less well-known enterprise that offers better long-term career progression. This is partially because it is felt that changing jobs is more likely to result in quick promotion than staying with the same employer.

Retaining employees

Employee retention is becoming a significant issue for many companies as large numbers of manufacturing and R&D sites springing up in close proximity to one another. Companies must now address how an organisation can prevent trained employees moving on to 'greener' pastures. More importantly, it must be understood how this affects the organisation. Investigation into these issues highlighted disparities between the retention of white and blue-collar employees, which are examined below.

It was found that companies requiring large amounts of low skilled workers would fill these positions with workers predominantly from the western provinces of China, as opposed to the local area. Subsidised accommodation is often provided, such as that at Sanmina-SCI which provides ten bed dormitory rooms complete with recreational areas including a gym and multiple television rooms.

On-site accommodation was found in all companies where workers were not from the local area. There are government regulations relating to the provision of housing or housing benefits. Housing can be an incentive to remain with the current organisation in order to prevent upheaval and fosters the building of social relationships between employees, helping to add another layer of attachment to the firm.

Financial Incentives

Financial incentives, in the form of quarterly or bi-annual bonuses, were also utilised in most of the companies visited. One company that did not give out this type of incentive was Crastal. Here, housing was provided as the workforce was largely from the provinces, and exceptional employees had the chance of being promoted to a managerial role.

Working Environment

A wide variation in the quality of working environments was witnessed; however this appeared to have little impact on the turnover of the relevant workforce. Particularly where workers were housed on site, it would be unlikely that they would be aware of competing work environments due to social interaction being mainly with other employees of the same firm. A more prevalent cause for switching employers was found to be the brand of the company. Workers see certain brands, in particular Western ones, to be more desirable, even glamorous, places to be employed. It is therefore more likely that they would apply for roles at these firms and resign from their current employment.

Branding

Common sense may imply that if employees are attracted by Western or well known brand companies, retention of employees should be less difficult. In fact it was found that the opposite was more sometimes true. Although employees gain satisfaction from working for such a firm, it was also believed that doing so for a ‘significant’ amount of time (at least a year) would increase their resume standing enabling them to obtain a higher paid, more skilled job at a less well branded organization.

Government

The Chinese government require that companies provide their workers with the following five benefits:

- Health insurance;
- Compensation for unemployment;
- Maternity leave;
- Housing (subsidised or provided);
- Pensions.

However, many companies, particularly Chinese firms, do not adhere to all of these and they do not seem to be tightly regulated. It is likely that this will change and increasing pressure will be put on such organizations to ensure the welfare of the Chinese workforce. This will help to create a more level playing field in terms of retaining employees and enhancing the attraction of certain branded organizations.

White Collar Workers

All of the above methods of retaining employees apply to white-collar workers as well. However, it is also vital to consider additional factors that may encourage such an employee to stay, or leave, an organization. Of particular significance are the location and facilities provided by the company, as well as the career opportunities on offer. John Deere Tiantuo Company highlighted three ways they went about retaining employees:

- Improving packages – wage, bonus, etc;
- Providing personal development opportunities – career track;
- Maintaining Personal relationships – to create a feeling of community.

The location of the company is also vital. Higher paid employees generally have a desire to be close to a significant city, most commonly Shanghai or Beijing. In the case of Crastal, the Assistant General Manager declared that the only reason they were located in such proximity to the city of Shenzhen was to retain their management and design staff, despite the land prices forcing an un-optimised building layout when relocating two years earlier. Huawei is another good example where 85% of the 24,000 staff had a bachelors degree or higher. The facilities were set in a lavish campus, with modern, western style apartment blocks. There

were also tennis and basketball courts as well as drivers to transport employees around the site. It was also within one hour of the city of Shenzhen, itself very close to Hong Kong.

Does High Labour Turnover Matter?

Unlike recent reports stating that high staff turnover rates were leading to companies exploring relocation to even cheaper nations[24], our research found that in the case of blue collar workers, companies frequently accepted a significant turnover rate as unavoidable and not necessarily undesirable. Often the workers are only required for a few years before they pass their 'peak' according to one manager. Most of the work requires training of only 1-2 days and with the high level of unemployment in China, places can be readily filled. Enthusiasm to earn as much as possible in a short time period, as discussed earlier, and lower expectations regarding benefits are predominant in comparison to more developed nations.

In the case of higher value staff, where recruitment is more difficult and the skills possessed are specific to the organization, huge efforts are put toward preventing these employees moving on, to the point of investing thousands of dollars into improved facilities and locations with good proximity to cities. Potentially, more substantial links need to be made between universities and companies in order to enable recruitment of relevantly skilled workers.

Conclusions

The main conclusions that can be drawn from this chapter are:

- Cultural differences can cause problems, but can be overcome.
- There are different types of management approaches that can be applied to different situations, and these were shown to be effective for companies at different stages of their evolution in China. These approaches included: use of mainly expatriate managers; use of mainly local Chinese management, or mix of both.
- Workers can be motivated very effectively through training and benefits packages.
- The brand of the company is important to workers in China, particularly for future career progression.

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[24] "China's people problem", *The Economist*, 14th April 2005

Chapter 6: Creating differentiated Chinese products

Introduction

The Chinese market, in comparison to more developed markets, is more rational in economic terms and therefore less differentiated in terms of product. Market strategies propose that, as the market matures, branding of products will become an increasingly important form of competition. There is currently a trend for foreign firms to acquire Chinese brands to access the domestic market and benefit from the synergies of this relationship. Other possibilities include alliances and joint ventures with Chinese companies. Factors affecting brand success include government support/restrictions, legislation, the emergence of copycat, counterfeit and grey product markets, and access to distribution networks. This section of the report aims to assess the potential of branding in China, identify the synergies of alliances between foreign and domestic firms, and also the threats of creating and developing a brand in China from a perspective of a foreign company.

The Chinese market

China is currently experiencing an economic boom and this, coupled with its accession into the World Trade Organisation, makes it one of the most attractive destinations in the world for the expansion of many foreign brands[25]. However, a country of 1.3 billion people does not undergo growth and development uniformly, making China an unpredictable entity to focus on as a whole. There is a gulf between the disposable income of Chinese residents of big cities and those of rural areas. Add to this the cultural diversity and inadequate infrastructure in many parts of this huge country, and it seems obvious that China cannot be treated as a single market.

In China, the majority of big cities are concentrated in the eastern and southern regions. The disposable income of residents of these big cities such as Shanghai and Guangzhou is around $1500 US per year, while disposable income of rural areas can be less than $300 US per year[26]. A.T. Kearney conducted research on more than 600 cities in China in 2003 and

[25] China outranked the USA as the most attractive destination for foreign direct investment in A.T. Kearney's most recent Foreign Direct Investment Confidence Index.

[26] Kearney, A.T., (2003), 'Winning the China FMCG Market', www.atkearney.co.kr/leadership/download/China_FMCG_monograph_S.pdf

divided the country into rural area and four tiers of urban areas. These urban areas represent 43% of the total population, 58% of disposable income and a massive 84% of total GDP. If looking at Tier 1 and 2 cities only, the figures drop to 9%, 20% and 32%, respectively. This clearly identifies a massive market outside of Tier 1 and 2 cities; an area which has largely been untapped. It also reinforces the message that brands cannot be promoted in the same way across China, as price will become a more prominent factor the further west and north one travels. The annual growth rate of China was 8% between 1975 and 2000 and 9% between 1990 and 2000[27].

In addition to an uneven geographic distribution, it has been projected by Asian Demographics[28] that China's population by 2024 will shift dramatically. Currently, the number of people under 40 is thought to have peaked at 800m and is forecast to decline by 250m over the next 20 years. The over 40s, on the other hand, will grow by 270m, making up 58% of the population (currently 38%). By then, 75% of Chinese households may be childless. This demographic shift is important and must be incorporated into companies' long-term brand strategies. Giant bicycles, for example, aim to appeal to the 'young, fresh' market with sports bikes. This market segment may not be so attractive in 20 years time.

Branding to the diverse Chinese market

Market research is seldom carried out and there is little or no consumer data of the entire country. Companies rely on feedback from customers and historical data. However, this only provides a narrow view of the market. For example, Zollern had to change their market focus from construction winch equipment to harbour crane winch equipment when it became obvious that their reputation for quality was not a high priority to the Chinese construction market.

The importance of branding will grow as the market matures. As a result, companies need to start investing in their brand and finding out who their current and future customers are. It is clear that those that carry out market research will capture the largest market share and become the market leaders.

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[27] Data provided by Tsinghua University.

[28] 'China's Golden Oldies', *The Economist*, 24th February 2005.

Branding is considered as developing a relationship between the brand and the consumer - appealing to tangible and intangible aspects, and linking brand benefits to establishing a brand identity. In China, the concept of brand strategy is relatively new and attracting much interest.

Marketing seemed to be of low importance to many of the companies visited. The likely explanation for this is that the current market for many products in China is a fraction of its potential size. This leads to strong market growth in many companies even without a strong brand image. It is only when the market fulfils the majority of its potential and competition is strong that a comprehensive branding and marketing strategy will become important.

The following paragraphs will discuss the different facets of the Chinese market.

Rural vs. Urban

Many consumers in China have not yet become accustomed to having a number of choices and consequently demonstrate low brand loyalty. Nevertheless, things are changing. In upper-tier cities, new product innovation and improved marketing tactics are winning market share. Quality, reliability and performance are also playing larger roles in obtaining market share according to several of the companies visited.

The task of marketing to rural areas could not be more different, with rural areas and lower-tier cities responding well to low prices and effective channel management. Rural consumers are even less brand loyal than their urban counterparts and can be considered 'less sophisticated' as pricing, point-of-sale promotions and packaging all play a larger part in persuading them to buy[29]. Many firms are in the process of introducing cheaper brands specifically for the low end of the Chinese market, including Vokswagen's recently introducing the Skoda brand as they have done in Europe. The familiarity of local brands in rural areas must not be ignored. Unlike in cities, where global and national brands are household names, rural consumers are more likely to 'go with what they know' and use regional and local brands. Despite this, some campaigns have been successful such as that of P&G, which used a heavy TV and newspaper marketing campaign to persuade consumers to use shampoo rather than the traditional soap on their hair.

[29] Kearney, A.T., (2003), 'Winning the China FMCG Market', www.atkearney.co.kr/leadership/download/China_FMCG_monograph_S.pdf.

Young vs. Old

Research has shown that in the battle between the younger and older generation there are several key differentiators. The younger generation, although more price conscious, readily appreciate the appeal of brand names, especially foreign ones. The older generation, on the other hand, is not only still price conscious but is not as appreciative of branding.

Being a foreign brand appears to help in establishing a successful brand, especially amongst the younger generation. This is due to it being perceived as a better product, of higher quality and 'cool'. In a survey of 1,200 students in Shanghai and Beijing by Hill & Knowlton, a public relations firm, it was found that their favourite brands were foreign, led by Nike, Sony, Adidas and BMW[30]. City living in China exposes residents to many Western cultures. Coupled with the increase in TV and newspaper advertising in recent years, Chinese city dwellers are becoming more and more 'Western' in their habits, which might explain this trend amongst students. Many western brands actively encourage this viewpoint, using their foreign image to suggest to Chinese consumers that their quality is somehow better. B&Q promotes its European roots as a sign of the quality of its brand. Chinese companies are also trying to associate themselves with a foreign image as much as possible. For example, Lenovo have purchased IBM's PC business in a deal which permits them use of the IBM and "think..." name for desktop PCs and laptops for 5 years in order to enter foreign markets. Other Chinese companies have also gone to the extent of registering a trademark abroad as foreign names often sell three times better than local brands. However with high quality usually comes high price which limits where the brand is positioned.

> "Your brand represents your quality"
>
> **- Production Manager, JV**

The older population, especially the over-60s, is, in general, not appreciative of branding, and they are less likely to indulge themselves. Brands have had to play on financial insecurities, benefits for the family and safety in order to interest this older generation. For example, P&G successfully promoted Safeguard soap by promising the protection of a mother's family from germs. Low cost products are also likely to appeal to this older generation[31].

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[30] 'China's Golden Oldies', *The Economist*, 24th February 2005

[31] 'China's Golden Oldies', *The Economist*, 24th February 2005.

Cultural differences

Certain cultural differences between China and the rest of the world can often force western firms to completely re-invent their image when marketing to the Chinese population. Examples of this include B&Q, the European home improvement retailer, who have introduced a 'decoration service' to take into account the trend for Chinese consumers to hire cheap labour instead of doing it themselves. They also have incorporated a teaching facility of basic DIY principles in order to encourage the move towards DIY and therefore secure their position in the future. Ignorance of local culture can be extremely destructive to a brand. Nike, for example, recently featured a TV advert in which a basketball player defeated computer-generated dragons. The dragon is a sacred Chinese symbol and as a result, Nike was forced to pull the advert[32].

Branding Routes

For some groups, there is a perception that 'Made in China' is somehow synonymous with low quality. This perception is hard to distil and therefore it is incredibly important to educate consumers with indisputable facts about the quality of many goods produced in China. For example, Danfoss make sure that their brand is backed up by discussions to educate their customers, facts about the high quality of their Chinese-made products, and the visibility of high standards in their factory environment. It is equally important never to make claims about any aspect of production that cannot be substantiated as the repercussions can be substantial.

In order to establish a successful brand in China, the market has to be researched thoroughly, a brand and product must be developed specifically for the Chinese market, and then the brand must be promoted, invested in and nurtured. In order to nurture your brand, a Western approach is not appropriate.

Edwin Colyer writing for Brand Channel says "if you simply move in with your standard, one-size fits all branding then failure is almost inevitable"[33]. Business in China is still heavily based upon word of mouth and recommendation. Nevertheless there are several routes which some companies are pursuing, including:

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[32] 'China's Golden Oldies', *The Economist*, 24th February 2005.

[33] Colyer, E., (2005), 'Branding with Chinese Characteristics', 17th January 2005, www.brandchannel.com.

- Factory opening celebrations;
- TV, newspapers, billboards;
- Community projects;
- Environmental projects;
- Factory visits;
- Sponsorship;
- Links with education;
- Contributions to charities.

More specifically, Intel promotes its brand through contributions to education, community education for youth, outdoor and sporting events, donations and grants; B&Q promote their brand through community projects; and Philips use blood donation drives, education support, public affairs support, and environmental protection.

China as a whole has been the third biggest advertising market in the world, spending US$24 billion in 2002[34]. Spend on advertising can be as much as 15% of a company's annual turnover, if the company is aggressively trying to expand it's Chinese market segment. An example of heavy advertising spend is Lenovo who have allocated $200 million US, largely due to their position as a top sponsor of the Beijing 2008 Olympics. However, some companies spend much less, instead relying on word-of-mouth in the rapidly expanding Chinese market as a whole. In order to remain competitive, these companies will have to make big changes in their advertising allocation.

Promoting Brands in China

Most branding strategies of foreign companies entering China is to enter at the high end of the market. Entering at the low end is seldom considered[35]. However there are several cases of successful branding by initially focusing on the rural market as demonstrated by Nice, laundry powder manufacturer, and C-Bons, a national shampoo and skin-care company that is now a direct threat to P&G's range, since entering the market in the mid-90s. Entering lower

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[34] Roberts, D. (2004), 'China's Power Brands', *Business Week*, 8th November 2004, www.businessweek.com.

[35] Bowles, R., (1997), 'Food For Thought', www.chinabusinessreview.com/public/9707/bowles.html

tier consumer markets is incredibly difficult for a foreign producer due to the perception of foreign products being high quality and high cost, and due to the strong competition of local Chinese products.

When considering entry into the Chinese market, a foreign company should, amongst others, consider the following points:

- Government approval for market entry;
- Market entry and possible exit strategies;
- What quality of product is appropriate as an entry into the Chinese market;
- How to market the product in order to gain market share, including considering who may lose market share in the process;
- Which other market sectors are suitable to expand into to establish a strong presence.

The following section will identify the options available to enter this low end of the market and discuss the pros and cons of each.

Acquisitions

Acquisition of existing Chinese firms or a merger with them is often a favoured route for multinationals attempting to penetrate the Chinese market quickly. Examples of this include L'Oreal's acquisition of MiniNurse (low-end cosmetics) and Yue-Sai (well-positioned cosmetics brand with a manufacturing plant in Shanghai and a distribution network of 800 stores in 240 Chinese cities) in order to reach a large portion of the Chinese cosmetics market[36]. A further example is the acquisition of Yue Yuen shoe manufacturers by the Tsai family in order to allow rapid expansion of manufacturing facilities into China. China now accounts for over 50% of Yue Yuen's output of 160m pairs of shoes per year. Similarly, Sony's acquisition of Aiwa, and Danone's acquisition of a stake in Wahaha, a top Chinese beverage producer, enabled them to reach a broader section of the Chinese market

Although acquisition can often provide an easy route into the Chinese market, it requires considerable investment and is therefore often only an option for multinationals with significant capital available. Equally important is the handling of the acquisition. In the

[36] Fiducia Management Consultants, (2005), 'What Can Foreign Industrial-goods Suppliers Learn from Foreign Consumer Brands in China?', www.fiducia-china.com/2001-1605.html

Danone acquisition of Bright, the local brand was phased out in favour of one of Danone's international brands. However, a lack of success in the Chinese market forced Danone to maintain the local brand names of subsequent acquisitions in order to maintain its market share[37]. It seems that consumers wanted to stick with local products rather than multinational brands. An Investment Approval Authority (IAA) ruling now aims to ensure that multinationals maintain the local brand names of the companies that they acquire.

Further good examples of this are the foreign beer brands that are steadily moving into China to compete with state-owned beer producers and small-scale producers. Jinshi Group has signed an agreement with Interbrew (the world's largest beer group), Heineken has bought over 20% of shares in the Yuehai Beer Group, and Newcastle has purchased 50 million shares in state-owned of Chongqing Beer. Initial studies suggest that, rather than replacing these local beers with their own multinational brands, the foreign beer companies are increasing production to cope with increasing demand for these local brews. It seems that the thirst of the Chinese population for local products that are unique to China outweighs their interest in 'Westernising' many aspects of their culture. The multinationals have responded by gaining control of the industry whilst maintaining a seemingly 'local' product[38].

Production-distribution alliance

The option of allying a multinational with an established Chinese brand allows the foreign brand access to the distribution and production facilities already available within China. A good example of this is the above-mentioned agreement between Jinshi Group and Interbrew. Similarly, PepsiCo formed an alliance with Wang Wang (a market leader China's snack food sector) in which Wang Wang distributes Cheetos and other PepsiCo snack food brands in exchange for production of Wang Wang's Lonely God potato twists by PepsiCo[39].

The advantages of forming an alliance in this way is that a foreign brand can enter China and make use of existing infrastructure and local knowledge of the sometimes unreliable distribution network. This allows for fast entry of the foreign brand into stores across China. It is also a cheaper way of using the incumbent firm's knowledge than an acquisition.

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[37] Kearney, A.T., (2003), 'Winning the China FMCG Market', www.atkearney.co.kr/leadership/download/China_FMCG_monograph_S.pdf.

[38] TDC Trade, www.tdctrade.com.

[39] Bowles, R., (1997), 'Food For Thought', *China Business Review*, www.chinabusinessreview.com/public/9707/bowles.html

However, compromises on company secrecy policies must be made, which can be risky. The foreign brand must also trust the local firm to distribute or produce their goods to the appropriate standard.

Alliances between strong brands can also be effective in building both brands. A good example of this is B&Q, who use the Disney brand within their stores to increase the number of customers. In this way, the Disney brand gets promoted throughout B&Q stores, whilst the current popularity of Disney products helps to increase B&Q sales.

Joint Venture

Joint ventures are a further popular method of developing western brands in China by making use of local knowledge. Examples of these include United Biscuits, who invested in a joint venture factory in Shekou, Guangdong province, and reportedly turned a profit in its first year.

Self-Reliance

The alternative option for multinationals entering China is to set up their own distribution and production facilities without the help of incumbent Chinese firms. Wal-Mart have shown that this is possible, spending significant amounts of money on land purchases for stores and distribution centres around the major cities in China. However, doing business in China still relies heavily on making contacts and forging relationships with suppliers, customers and government. This is extremely difficult to do without local experience and knowledge and is also discouraged by Chinese authorities. Companies such as Wal-Mart and B&Q were already at an advantage in having a large Chinese supply base for their overseas stores before being permitted to operate in the Chinese retail sector, however, there was still a large learning curve.

Wal-Mart's first Chinese store:

Wal-Mart's move into China came fraught with difficulties for the US retail giant – when the first Wal-Mart in Beijing opened, Chinese people had simply never had the option for shopping for food, clothes, house wares etc in one shop, however the research suggested that they soon would if presented with the opportunity, moving trade from local market traders.

Walk into a Wal-Mart in China and there are many differences to a US store – live fish, turtles, shrimps can be found alongside skip-loads of rice and watermelons literally by the ton – one store can sell up to 15 tons of watermelons per day. The volumes of customers are also immense – up to 75,000-85,000 customers per day, on average spending US$6 as opposed to $34 in the US. The main difference is that the Chinese will visit the store more frequently, sometimes even twice a day.

Examples of problems faced include initially not selling any detergent – Wal-Mart originally only stocked detergent for machines, not realising that many Chinese people don't own their own machine. They got Procter & Gamble to develop a hand-washing detergent called Tide Wipe, which is now the best seller. Other items are clothing such as checked shirts – not popular with Chinese, and to the contrary, rotisserie chickens, of which an average Chinese store will sell 2,600 per day; during the first month of operation the glass on the ovens was broken 3 times by customers fighting to get to them!

Wal-Mart sees China as becoming its biggest market outside of the US, and already has 39 stores in the country. It already sources lots of its products such as toys and clothing from China, exporting an estimated US$25bn of goods each year.

Even for the World's largest company, the move into China was not an easy one; however the rewards are set to be huge, despite stiff competition from global competitors such as France's Auchan and Carrefour, and UK's Tesco.

Source: CNBC Documentary "The Age of Wal-Mart, 11/10/2004

The importance of cooperation with Chinese companies in creating a Chinese brand

Acquisition of these local brands by multinationals could be important in expanding brands into rural areas. This has been demonstrated by Danone, who had limited success when they attempted to market 'Evian' in China but were more successful once they had adapted their strategy to acquire smaller local competitors and maintaining their brands. Danone now has a combined market share of approximately 50% of the Chinese bottled water market[40].

The skills of a management team able to co-ordinate a number of simultaneous activities required to run a national company are important and an area where China has a distinct shortage. The local focus of many Chinese firms provides managers that are good in semi-entrepreneurial roles but are unsuited to big business management. It is therefore essential that the multinational company brings these skills to any alliance with a Chinese partner. This is also important to allow the multinational to maintain control of any joint venture or alliance with a Chinese firm. P&G allied itself with a weak Chinese partner that grew whilst P&G maintained control. Unilever, on the other hand, allied itself to a strong Chinese partner and

[40] Kearney, A.T., (2003), 'Winning the China FMCG Market', www.atkearney.co.kr/leadership/download/China_FMCG_monograph_S.pdf.

faced many issues and disagreements over management structure and business decisions. This prevented the venture from reaching its full potential.

Role of Government

There are many restrictions on foreign firms and their ability to do business within China. Many of these are licensing restrictions designed to protect the local firms from significant foreign competition. For example, beer imports are restricted to 30% of total beer sales in China. This has the effect of forcing foreign brands to takeover Chinese companies in order to gain control of the market, whilst maintaining economies of scale and brand presence. Another example is Yaxing who are finding it difficult to compete in the textile market as costs are rising due to import tariffs from various countries, including those in the EU, alongside expectations of improving working conditions.

One exception to this is where technology or capabilities are required but unavailable in China. The best way to combat legislation is to form an alliance with a local firm, allowing them to provide resources that are readily available in China, while the foreign firm provides the remaining capabilities required. For example, Intel has succeeded in promoting its product range largely due to the fact that China's government-supported wireless standard was not compatible with other international systems; the government has since adopted the 802.11 global wireless standard upon which Intel products are based.

Anti-dumping legislation is also having a huge effect on Chinese firms attempting to become multinational brands[41]. Strong laws in the EU and US that prevent the Chinese firm from selling at artificially low prices in order to increase market share must be adhered to as a result of China's entry into the WTO. These barriers give other western brands some 'breathing space' against the threat of Chinese firms entering international markets. However, the challenges Chinese firms face expanding into international markets cause them to focus primarily on the home market, leading to greater competition for multinationals trying to gain market share[42].

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[41] China Daily, (2004), 'Cosmetic Changes to Anti-dumping Rules', *China Daily*, 27th April 2004.

[42] Yinhua, M., (2000), 'Impact of Anti-Dumping measures on Chinese exports to EU', www.nus.edu.sg/NUSinfo/EAI/Trade.htm.

Laozihaos

In China, Chinese heritage brands are called 'Laozihaos' and they are strongly protected by the Chinese government. According to China's General Chamber of Commerce, over 1600 enterprises have been given Laozihaos status since 1990. One such brand is Zhang Xiaoquan. Zhang Xiaoquan is a brand of scissors, and relies heavily on the reputation of its brand and its association with the Imperial Palace. Another is White Rabbit brand candy, produced by the food manufacturer Guanshengyuan. White Rabbit candy was actually presented to President Nixon during his visit to China in 1972. Beijing Tongrentang is a Chinese pharmaceutical Laozihaos brand. For over 300 years medical remedies have been sold under this brand, with the production techniques changing very little over the years[43].

Despite the prestige that surrounds Laozihaos brands, many are struggling in the market. At present, 20 percent are facing the threat of bankruptcy, and only 10 percent are making profits[44]. Increased market competition, including that from western brands, is one of the key reasons, along with a lack of trademark protection. In fact, the recent bankruptcy of Laozihaos Wangmazi Scissors was attributed to this very idea. More than five million fake Wangmazi scissors used to appear on the market annually, which is three times more than the output of authentic Wangmazi scissors. ["We are being defeated by fake and inferior Wangmazi products" – Wangmazi Scissors Factory spokesperson in the Beijing Review (July 8th 2004).]

Language barriers

The language barrier is probably the first thing that a foreign company must overcome. Branding with Chinese characters is very important in order to cross the cultural divide. There are several translation options available: phonetically, literally or a combination of both. Phonetically translated brand names account for half of brand translations. Some successful examples of phonetically translated include Nokia (*nuo ji ya*) and Louis Vuitton (*lu yi wei den*). Literal translations include Shell (*bei ke* – a shell) and Nestle (*que chao* – a swallow's nest). The best approach may be to combine both methods as demonstrated by Coca Cola

[43] Ho, D., (2005), 'Can China's Heritage brands be saved?', 25th April 2005, www.brandchannel.com.

[44] *China Daily*, 10 August 2004, *Brand Channel*, www.brandchannel.com

whose Chinese name is *ke kou ke le* – 'permit the mouth to rejoice'[45]. B&Q also do this successfully with *bai an jua* meaning '100% safe home'.

Distribution

A key influence on the Chinese market is the current weak road infrastructure. Not only are there differences in income across China, but western and north-western China is not currently connected by the national highway system. The government started construction of its ambitious new highway system in 1992. When comparing road networks in China to the road networks in the USA or France this factor becomes very evident, as seen in Table 3.

Table 3: Assessment of Infrastructre in China[46]

	China	USA	France
Population density (people/km^2)	131	29	108
Railways (km) per 1000km^2	7	23	59
Highways (km) per 1000km^2	5.8	8.4	18.2

Nevertheless, the national highway system has grown from 652km in 1992 to 55,000 km in 2005. This rapid construction of roads will make it easier for products and brands to penetrate much of the west and north of the country.

Despite these improvements in the highway system, the distribution infrastructure in rural China is chronically underdeveloped, causing significant problems in 'getting the brand to the people'. Retail markets are fragmented as a result of this, and forming a national, recognised brand is difficult. However, there are a number of possible solutions to this problem. The first is to rely on the development by Chinese government of the national highway system, as explained above. The second option is to rely on the aggressive expansion strategies of a number of multinational retail chains. Wal-Mart and Carrefour are snapping up prime real estate across all of China's major cities, seeking to pre-empt retail rivals such as Costco,

[45] Colyer, E., (2005), 'Branding with Chinese Characteristics', 17th January 2005, www.brandchannel.com.

[46] Sprague, L., (2005), 'China's Evolving Supply Chain infrastructure: A Work in Progress', Presentation at the China Europe International Business School (www.ceibs.edu), 4th July 2005.

Kmart and Tesco[47]. Coupled with this expansion is the associated logistics infrastructure to allow large-scale product transportation between these sites, along with nationwide distribution agreements. This infrastructure will be extremely valuable to the FMCG industries whose products will be sold in these giant retail stores.

The final option would be to create alliances with local distributors. This seems to be the most attractive option, as the foreign company will retain greater control over its distribution than relying on the government-owned/large retail chains. Coca-Cola has used this strategy very successfully, teaming up with Wahaha, a top local beverage manufacturer with a strong presence in many rural areas of China. Use of local distributors to ensure a strong presence in rural areas before tackling the big cities has also been an effective method of gaining market share for some companies. Shampoo manufacturer C-Bon, which is now challenging P&G, demonstrates the success of this tactic. The importance of ensuring strong brand distribution in these rural areas through local alliances should therefore not be underestimated.

Spending on Innovation (NPI)

In addition to price, quality, reliability and functionality, it is important for any firm attempting to gain brand recognition in China to allocate sufficient resources to innovation. Product development to cater for the rapidly changing tastes and habits of these consumers is important to build up a reputation and brand image. Even more critical is the importance of developing products specifically for the Chinese market in order to satisfy market demands, which will help to develop consumer allegiance.

All too often, resources allocated to expansion of the Chinese market by multinationals fall far short of what is required. This means that investment is spread too thinly across a range of products or markets. If resources are limited, it seems that the best course of action would be to focus on a particular product range or market segment, rather than attempting to tackle the country as a whole. This strategy was demonstrated well by P&G in its battle with Unilever in China a few years ago. Unilever spread out its investment, offering a range of personal care and food items, whereas P&G initially focussed solely on shampoo. As a result, P&G gained the trust of the China market and substantial market share in the shampoo industry. This opened the doors, allowing them to expand into other products. The trust that P&G gained in

[47] Asian Wall Street Journal, 18th May 2005.

the shampoo industry also transferred to their other products and, as a result, P&G has ultimately been more successful in its product distribution[48]. Another example includes the TCL-Nokia battle for the Chinese market. Between 2000 and 2003, TCL and other local brands beat the global brands such as Nokia, gaining almost 50% of the Chinese market. Nokia's response to this was to invest in R&D and release several new phones with new functions, including Chinese handwriting. The result of this was that local brand sales dropped by 5% in the first half of 2004[49].

Competitive Crush

There is an overcapacity for many products in China, including white goods, cars, and TVs, reaching 30% in some industries. This leads to price wars and therefore reductions in margins. Home electronics prices have been decreasing by 10% annually and this has lead to extremely low profit growth for manufacturers in the industry. For example, Haier only managed 6% profit growth despite a sharp rise in sales[50].

It is evident that there are high levels of investment in the Chinese manufacturing industry, particularly in the textiles sector. In some cases this can lead to excess capacity and therefore equipment utilisation (across certain sectors) is often low. This can force costs to rise. Forward looking companies like Yaxing recognise that in situations such as these branding becomes increasingly important. This has influenced them to try to move from being a contract manufacturer to a brand holding company, however they are finding this difficult to do as they have no experience in sales and distribution.

Brand Copying, Counterfeiting and 'Grey Markets'

China produces more counterfeit products than any other country in the world, and Chinese consumers who are often obsessed with Western brands but unable to afford the real thing are fuelling the demand for copycat goods. In addition, tourists from all over the world who visit China also contribute to the demand for counterfeit products. Fake goods can be found carrying the logo of brands such as Coca Cola, Rolex, Duracell and Nike.

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[48] Kearney, A.T., (2003), 'Winning the China FMCG Market', www.atkearney.co.kr/leadership/download/China_FMCG_monograph_S.pdf.

[49] Roberts, D. (2004), 'China's Power Brands', *Business Week*, 8th November 2004, www.businessweek.com.

[50] Roberts, D. (2004), 'China's Power Brands', *Business Week*, 8th November 2004, www.businessweek.com.

Certain areas and local economies in China have become synonymous with bogus brands. Examples of this are the Kaihua district in Zhejiang province where fake Philips light bulbs are made and Yunxiao in the southern province of Fujian, which is known as 'Marlboro Country'. The problem with this is that if the government were to crack down on the manufacturers of these counterfeit goods then the economy, both locally and as a whole, would be harmed in the short term. Estimates in 2001 suggested that between 10-15% of China's manufacturing economy is dependent on counterfeiting and copying. However it is unclear as to how accurate this estimate is. This percentage is also the proportion of revenues Proctor & Gamble believe they lose each year in China due to bogus products. According to one conservative estimate at least US$16 billion worth of counterfeit goods are sold in China each year.

Some companies react to the counterfeiting problem by employing watchdogs to search the market for products that infringe on their IPR. Once they find a counterfeiter they collect information on their activities and decide accordingly how they will pursue the matter, whether it is in the courtroom or by redeveloping their product to keep one step ahead of the counterfeiters. Examples of companies that take this latter line of action include Philips, believing that rapid product innovation contributes to their brand image and is more cost effective than chasing counterfeiters.

The development of the counterfeiting industry in China can be divided into four stages:[51]

- The first stage was the copying of products made by other companies and was centred in East China the early 1980s. The products were copied from both foreign and domestic companies.
- In the mid 1980s came the second stage when more counterfeiters were drawn to the industry by the potentially high profits. This stage was more than merely copying products and involved actually impersonating well-known trademarks.
- During the third stage, counterfeiting became a rapidly expanding industry. This happened in the early 1990s when the Chinese economy was predominantly a buyers' market. There was excessive supply and increasingly fierce price competition as a

[51] Professor Guoxiong, The People's University of China.

result. Fake products began to appear in many industries and more worryingly, counterfeit alcohol and foodstuffs began to be discovered.

- The fourth stage of the counterfeiting industry started when other everyday foodstuffs, such as rice, flour, and tea, were found to have been altered, making them poisonous, alongside counterfeit pharmaceuticals.

The counterfeiting of food is a major issue in China but at the same time it is not necessarily a new problem. Consumers are already wary of fruits that carry certain brand names such as Sunkist and Cape. In many cases of food piracy the bogus product has been wrapped in authentic packaging, as has been the case with some Nestle products (according to a company spokesman). The Chinese Government is under increasing pressure to impose some kind of legislation to combat this but there are also ways in which the manufacturer can tackle the problem themselves, most obviously by increasing the safety of packaging.

One of the many packaging companies offering a solution to brand piracy and fake food is Germany-based Kurz. As such, the counterfeiting problem enables a whole new industry sector to evolve. It has developed a comprehensive brand protection product range with a selection of component combination possibilities, including a wide range of difficult-to-copy Optical Variable Devices such as holograms and the high-tech Trustseal security option. Kurz has also developed security features based on a complex, hard-to-imitate foil technology. Diffractive effects such as customised-design foils with continuous, ultra-fine geometric patterns, plain foils with multi-angle rainbow colour effects or single-image holograms are available from Kurz on transparent foil. The transparent foils are not only difficult to imitate but also serve as protection for important readable information against counterfeiting, such as use-by-dates and warranty codes.[52]

Other available methods of preventing counterfeiting include holograms, specialised inks and coatings and more technologically driven solutions such as radio tagging. Although these solutions have been restricted to food, there is no reason why, in the future, they cannot be transferred to other products on the market. Nevertheless, companies tend to spend up to 15% of their turnover on their brand but only spend 1% protecting it.[53] Therefore if the

[52] AP-Food Technology, (2004), 'China's Big Problem: Food Piracy', http://ap-foodtechnology.com/news, 19th May 2004.

[53] Haasler, H., (2002) 'Brands on the Move: Taking control of counterfeiting in outsourcing', www.brandchannel.com.

counterfeiters are to be beaten these companies are going to have to increase their protection spending, however given the technical growth of many counterfeiting companies it remains to see whether these security features will also be copied.

A major problem in battling counterfeiting and copying is that many countries have not managed to get their laws on Intellectual Property Rights up to date. By 2006, all members of the World Trade Organisation, bar the poorest, are meant to have implemented an international treaty on IPR, named TRIPS, which lays down basic laws for the protection of brands from counterfeiting. China, amongst other countries, has tidied up its legal codes so that, on paper at least, companies can protect their intellectual property. Unfortunately many companies such as Crastal, who have 10 global patents including ones covering China, still experience counterfeiting of their products. In reality these cases are often hard to bring to trial, in part due to reluctance of the legal system to pursue such cases, however more often than not due to the recompense not being worth the effort, and therefore counterfeiters are still getting away with it. An example of a counterfeit product that seems to slip through the net and is available in abundant quantities is the Rolex watch, which can be found on virtually every shopping street in the Tier 1 cities of Shanghai, Beijing and Hong Kong.

There have been many hotspots for copying and counterfeiting goods and brands over the years, beginning with Japan in the 1960s. As these countries have developed their own industries they have clamped down on copying through introducing laws and penalties in an attempt to eradicate the perpetrators. Today China is the counterfeiting centre of the world. At some point it will follow a similar route in order to combat the problem but for as long as there is demand for copycat products, the counterfeiters will never be completely eradicated.

'Grey market'

The 'grey market' could be defined as: the flow of goods through distribution channels other than those authorized by the manufacturer or producer. Grey market products are usually the genuine product or article, which have simply been purchased in a low price market (either at wholesale or retail prices) and then transported to a market where that same product is usually sold at a higher price. China is increasingly the source of such products especially in the cases where the article in question is a piece of electronic equipment. Grey markets exist

because of an economic practice called arbitrage, where there is a pricing imbalance set between different markets[54].

Grey markets are not always illegal, however it is likely that the end customer will not receive the guarantees and warranties that they would usually get had the product been purchased from an official distribution channel. Grey markets only become illegal when exporting the product is prohibited by customs and excise or the product is smuggled into a country to avoid paying duty charges, or when the goods are stolen at some point between production line and final distributor.

Many companies go to great lengths to prevent this from happening such as the example of mobile phones being unusable until they have reached the distributors' network in the US, cited in Chapter 2. Common practice for electronic devices is for outer packaging cases to be plain, not stating the product or part number to reduce the temptation to steal, either via hijack of the container or by theft from customs areas.

Conclusions

In conclusion, links with local Chinese firms are extremely important to the effective expansion of a multinational brand within China. Major cities, such as Hong Kong, are already saturated with advertising of multinational brands as western names are highly respected and quickly adopted by urban consumers. However, the remaining 90% of the population should not be forgotten, and building brands in rural areas can sometimes be an effective way of gaining national market share.

Consumers in rural areas usually spend less but are more easily persuaded by packaging and pricing, making it an attractive market for most firms. However, in order to gain market share in these rural areas, small-scale local brands must be displaced, and an effective distribution network must be established. The most effective way of doing these things is to create an alliance with, or to acquire, a local company. Local brands can be maintained and slowly replaced, once consumer trust has been gained. Local firms also have good knowledge of local infrastructure and can help with distribution.

It is important for the foreign investors to focus resources on particular brands or market segments rather than spreading them thinly and treating China as a single entity. Firms must

[54] Haasler, H., (2002) 'Brands on the Move: Taking control of counterfeiting in outsourcing', www.brandchannel.com.

also be prepared to change their strategy as the needs of Chinese consumers evolve. To do this requires an experienced management team that must be able to work closely with Chinese partners whilst maintaining overall control.

To summarise, conclusions that have come out of the research include:

- The potential for branding to become a source of competitive advantage in China is huge as consumer tastes are maturing.
- One brand often does not fit all in China due to the massive income variations across the country – this must be reflected in company's brand strategy.
- Capturing the Chinese market requires heavy investment in the brand, tailoring the brand to the Chinese market, and increased spending on R&D to increase frequency of NPIs.
- The low end of the market (the majority of the population) is dominated by local firms and is hard to enter without forming alliances, joint ventures or acquisitions.
- Problems faced by a foreign company entering China include government restrictions and legislation, a language barrier, the lack of infrastructure which limits ease in distribution of product and therefore brand, the overcapacity in many markets which are affecting profits, and the rise of counterfeiting and copying.

It is clear that China is a difficult market to capture. However, entered successfully, the rewards can be high.

Chapter 7: Opportunities and threats of producing in China

Introduction

A foreign company wishing to develop a production capability in China should evaluate its business strengths against the environment in which it wishes to operate and develop strategies for dealing with the challenges of operating in the Chinese culture and economy.

It is important to note that it is extremely difficult to obtain a quick return on investment in China – any investment must be made with the long term view. Observations of companies operating successfully in China suggest that the ability to be flexible in their business practices and adapt to the local conditions is extremely important. The challenges of operating in China allow a company to review its existing practices with fresh eyes, and could result in learning for the parent company.

Government Policy & Intervention

As a closely controlled one-party state, the government has influence on every aspect of a business. This influence can come from city, province or state level bodies, and may or may not be overt.

In many areas, there is a local plan that encourages investment from certain industries to a particular area. For example, the Kunshan area has been selected to receive additional help to attract foreign investment from the electronics sector. The incentives available may be a fast-track through the complex licensing and operating regulations, priority access to healthcare services for expatriate workers or tax breaks. There may also be more general schemes, such as the current "Go West" policy, which aims to spread investment more evenly across the country.

The government also influences the location of businesses indirectly via the provision of services and infrastructure. As the cities along the east coast have grown rapidly since the reforms of Deng Xiaoping brought greater economic openness, the rapid increase in demand for utilities and transport infrastructure has meant that provision has not quite kept pace. However, the situation is improving through heavy investment in infrastructure visible all over China. In particular, consistency and quality of the electricity supply can pose problems in some areas, with either planned or unplanned power cuts limiting the productivity of a site.

It is important to be aware that it is not just the Chinese government that exerts influence over a company locating facilities in China, but also the national government of the parent company. This is particularly true in the hi-tech sectors where the US government restricts the technologies that companies can divulge to their sites in China. Import and export tariffs are also used to control the flow of goods between China and other countries, and are often levied to provide some protection to the businesses remaining in the home nation, justified either by arguments centred around protection of national interests or political sensitivities.

As China implements more of its commitments to the World Trade Organisation, there will be many opportunities for new players to enter previously restricted sectors, in particular financial services and telecoms provision. It is also important to note that China is currently lagging behind on certain commitments, particularly those affecting the financial, defence and utility sectors.

One of the major threats faced by businesses operating in China is the lack of protection from the legal system. There are several levels of regulation in effect in each province in China, and these vary significantly between the regions. Enforcing contractual obligations can be challenging, and recourse to the law is not likely to result in an enforceable judgement due to (i) the diversity of laws, which occasionally are contradictory, and (ii) the lack of an independent judiciary. This can pose particular problems when dealing with firms in different provinces of China as it is notoriously difficult to get different provincial judiciaries to cooperate. In these cases, avoidance of the problem is preferable to litigation, and is one of the reasons why relationships between supplier and customer are so important in Chinese business. Likewise, prudent IP management is the most effective way to avoid IP theft.

There is also an impact of government regulation on day-to-day operation of the business, in particular through power supply restrictions and the requirement that non-air-conditioned plants must shut if the temperature exceeds 40^{o}C.

Economics

The most commonly cited fact about the Chinese economy is the high availability of low cost labour. In the West, this is often associated with poor quality goods and thus the general assumption that all products bearing the 'Made in China' label will show poor workmanship and evidence of cost-cutting measures. Many businesses are unable to see beyond this image of the Chinese workforce to the other opportunities in the Chinese economy.

Whilst it is true that both skilled and unskilled labour is much cheaper in China than in the more developed nations of Europe and North America, it is not true that the output is necessarily of inferior quality. Many companies choose to site their R&D facilities in China as the quality of graduates is not thought to be lower to those available in 'developed' countries, and there is certainly a larger pool of science & technology graduates to choose from. However, the lack of industrial experience has been cited as a weakness of many graduate applicants.

The labour market is both large and mobile, which is ideal for firms wishing to open new facilities. There are almost always more people qualified for a position than the number of jobs available, so companies need not worry about attracting employees to fill relatively low-skilled positions. The government sets minimum pay and benefits. However, it was reported that some Chinese companies do not adhere to all these requirements and hence the minimum requirements can often suffice for a foreign firm.

In most companies visited, it was noticeable that there was a very low average age, and a fairly high turnover of staff. This is especially true in businesses using a large number of unskilled or low-skilled manual workers who migrate from the west of the country for an average period of about 5 years, before returning to their homes. Several companies visited cited the Chinese New Year Holiday as the peak period for staff turnover, with many workers returning home for the holiday period and simply not returning afterwards.

The low cost of land and construction in most of China is another aspect that enables companies to compete on a cost basis. The cost of land does vary significantly between regions, and depends upon the reliability of utilities, proximity of other foreign enterprises (such as in industrial parks). However, in the lower cost areas it is more feasible for a company to build from scratch with an ideal workshop layout – a situation that is rare in the more densely populated countries of Europe and North America. Anecdotal evidence suggests that construction costs for a typical cladded portal frame industrial unit can be between 10-25% of the cost in the UK.

The availability of low cost land, as well as the sector-related incentives offered by the government, often results in a cluster phenomenon. Customer-supplier networks are found in a small area, and by their presence, attract further investment from related industries. This ability to locate in close proximity to customers or suppliers is a major driver for many

companies to move their operations to China, and as discussed in Chapter 2 can present major cost saving opportunities by developing lean and JIT practices.

Culture

Cultural differences can hinder communication and cause misunderstanding between non-Chinese and Chinese on both the personal and company level when dealing business in China. There are many points to be aware of, such as the concept of *guanxi* (which can be described as an ongoing development of personal relationships or connections). *Guanxi* is particularly relevant and will impact relationships with the government and other Chinese organisations. It is also worth noting that compared with European languages Chinese is very imprecise, with words often having several meanings, the intended one not always being translated by an interpreter.

As reported from the factory visits and interviews, it is always wise to establish and nurture a good *guanxi* with the government. This can earn the company preferential treatment by the government. This was even more important in a planned economy with a powerful government but is still very relevant today. What might seem to be very close to undue influence from government from the perspective of a Westerner is often seen as normal to the Chinese (and to some expatriates who have lived in China for a substantial period of time). To the inexperienced, this is often bewildering and can make China appear impenetrable at the first glance. Networking between expatriates can play a vital role in resolving this type of problem, and is the reason why many companies choose to locate near other foreign ventures.

It is important to bear in mind that the Chinese economy is still in the process of opening up, and the concepts and practices of free market behaviour are still relatively alien to many individuals and businesses. This means that time and effort must be allowed for developing suppliers to create a mutual understanding of mutual business needs, and care must be taken to ensure that this development continues as business needs evolve.

As the industrialisation of China has been relatively recent, and follows a long history of rural labour, the parents of the current workforce are not likely to have worked in manufacturing. According to one manufacturer visited most of their workforce has had to be "[..] taught how to work". Many shop floors were astounding to the researchers in the levels of discipline achieved, with people working almost silently together in an extremely orderly manner.

Chinese society is very hierarchical compared to the UK. Therefore Chinese bosses will usually have unquestionable authority over those beneath them. This authority requires discipline in the employee not to follow their own inclinations. A major difference between a Chinese and UK manufacturing facility is the absence of pictures, radios and other non-work items. It is important to the Chinese to always be (or at least look) busy to the extent that they will stare at visitors whilst continuing their work with their hands.

Cultural understanding is an important aspect of a successful manager, and this is often achieved by creating a joint Chinese & foreign management team. This provides an opportunity to use the strengths of both to enable a successful operation. Expatriate managers often have more experience of setting up and operating production facilities, whilst local staff will relate better to the shop floor workers and are thus likely to gain cooperation and have more understanding of the issues they are managing.

Conclusions

Government in China, both national and regional, has a strong influence on all business activities. For certain business sectors, there may also be influence exerted by the parent company's own national government and its relationship with the Chinese government.

The infrastructure is developing rapidly in many areas of China, but the quality of the transport, power and communications infrastructure cannot be guaranteed. The government, both regional and national, has been a strong influencing factor in the development of economic development zones which are in turn leading to the formation of strong clusters. These clusters often have not only sectoral strengths, but also often have national focus in that each one tends to attract investment from specific countries.

There are noted concerns in some regions at the very high levels of unskilled staff turnover, but in some regions there is strong loyalty to employers. The very high numbers of science and technology graduates entering the job market is making an impact, but the lack of industrial experience of many of these graduates puts a limitation on roles they can take on.

Cultural differences can hinder communication and cause misunderstanding between foreigners and the Chinese both on the personal as well as the company level when dealing business in China. The concept of *guanxi* (which can be described as an ongoing development of personal relationships or connections) is particularly relevant, and will impact the way in

which non-Chinese firms form relationships with the government and other Chinese organisations.

Cultural understanding is an important aspect of a successful manager, and this is often achieved by creating a joint Chinese & foreign management team. This provides an opportunity to use the strengths of both to enable a successful operation. Expatriate managers often have more experience of setting up and operating production facilities, whilst local staff will relate better to the shop floor workers and are thus likely to gain cooperation and have more understanding of the issues they are managing.

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Appendix A: Background on companies visited

ABB (China) Ltd

ABB (China) Ltd. is a Swiss-owned research centre that specializes in power and automation technologies. They aim to improve performance for utility and industry customers while lowering environmental impact. ABB has a total of US$21 billion sales worldwide (2004).

ABB (China) Ltd. has branch offices with dedicated engineering and service centres in over 30 cities across China, employing 8,000 people. The business's turnover was US$2.6 billion in 2004. They foresee this figure rising over the next few years. They also acknowledge the challenge that China's unparalleled growth is threatened by energy shortages.

B&Q China

B&Q is an international home improvement retailer. It was established in Southampton, England in 1969 and now is ranked No.1 in Europe and No.3 in terms of sales volume worldwide. B&Q is part of Kingfisher Plc, UK which is one of the global Fortune 500 companies.

B&Q excels by being a 'one-stop' shopping point. Its global purchasing network allows B&Q to offer home decoration products including building materials and tubing, timber, floor and ceramic tiles, paint and coating, decoration lamps, kitchenware, metals and tools, electrical ware, gardening articles, curtains and furniture under one roof.

B&Q is already established in Belgium, UK, Ireland, Canada, France, Spain, Italy, Turkey, Poland and Germany. It opened its first store in mainland China (Shanghai) in June 1999 and since then has set up 25 chain stores in Eastern, Southern, Northern and Central China.

Crastal Technology (Shenzhen) Co. Ltd

Crastal is a toasting appliance ODM that was established in 1989. The company is Canadian-owned but is registered in Hong Kong. The company manufactures toasters and their derivatives for customers including Kenwood, Morphy Richards, Breville, Russell Hobbs, Tefal, De Longhi, Rowenta, Sunbeam and Krups. In 2004 the company sold 3 million toasters, 500,000 kettles and 300,000 toaster ovens and hot plates.

The company operates using two business models which provide equal margins. The first business is the OEM business where one of the aforementioned customers approaches Crastal with a concept/design to be manufactured. The second model is the ODM model where Crastal shows designs to customers with the aim of achieving sales agreements with the brand name. Both models require some degree of innovation and product development skills. However, the introduction of new technologies is low.

Danfoss China

Danfoss is a Danish company that manufactures products in three broad divisions; Heating, Motion Control, and Refrigeration/Air Conditioning. 18,000 people are employed worldwide and the company had turnover of 2 billion (Euro) in 2004. Their vision is as follows: 'Danfoss will be a global leader within our core businesses, as a highly respected company, which improves quality of life by mastering advanced technologies in customer applications while creating value for all shareholders'.

The Tianjin plant was established in 1995 and is wholly Danish owned. It employed 631 people in 2004, achieving average yearly growth (2002-2005) of 76%. It provides manufacturing services to all Danfoss facilities worldwide and currently produces products for all three company divisions. To date $91 million has been invested in their Chinese operations.

Flextronics International

The Flextronics site visited is part of the international group based in San Jose, California. The site focuses on providing EMS services for telecoms, computer and consumer electronics products.

Flextronics occupies a large campus site at Doumen, Guangdong province, which includes PCB manufacture & assembly, ODM facilities, final product assembly and testing. The site also includes a "Supplier Mall" area, staff facilities, housing and recreation areas. The site employs approximately 19,000 people.

The Zhuhai Doumen site is one of three operated by the company in the province – the others are located at Dongguan and Xi Xiang near Shenzhen. The locations are favourable in terms of managing the global supply chain as there are 1 local and 4 international airports located nearby, as well as a similar number of ports.

The site is able to manufacture both the casings and the electronics for products as well as performing the assembly operations.

Flextronics also houses certain supplier facilities on campus. As part of the research, there was a brief visit to Tyco Electronics.

Giant (China) Co. Ltd

Giant Global was established in 1972, initially as Giant Taiwan, with the first Giant-branded sales in 1981. The company has now grown into a global bicycle manufacturer and retailer. Giant has 7 manufacturing sites worldwide and 10,000 sales outlets worldwide. The company has two product lines, bicycles and materials. The bicycle range includes many types of pedal bicycle, including: mountain, stunt, racing and folding designs. The product portfolio also includes electric-powered bicycles. Some products are Giant branded with others branded under a third party name. Materials used include aluminium alloys and carbon composites.

Giant (China) was founded in 1992, and started to manufacture in 1994. It a wholly owned foreign enterprise, owned by Giant Global (Taiwan). It has a registered capital of US$37.5 million, and total capital in excess of US$100 million. The company has total annual sales of about 3 million units, approximately half of which are sold abroad. Giant (China) has a substantial domestic sales network including nearly 1000 Giant brand stores, and 1000 third party brand stores. Giant sold 1.2m units in 2004, (valued at US$550 million).

Hong Kong Science & Technology Parks

HK Science Park was established in 2004. The vision of the HK Science Park is to play a reading role in Hong Kong to become a major centre of innovation and technology development in the focused clusters of information technology and communications, electronics, precision engineering and biotechnology. The HK Science Park strives to be a hub for high value-added, skill-intensive R&D, manufacturing and service industry capacities.

To date, one of three building phases has been completed. Phase 1 included a centre dedicated to providing a knowledge base and campus-like community of technology companies. Phase 2 and Phase 3 aim to further develop the facilities including leisure facilities to broaden the field of the site. Companies already situated at the Science Park include Philips Consumer Electronics, SAE and many more.

Huawei Technologies Co. Ltd

Huawei is a global telecoms infrastructure technology provider. It is a Chinese company succeeding in a global market.

The Shenzhen site is the global headquarters of the organisation. The R&D centre is located at this site, along with Marketing, Testing, Manufacture, Training, Data Storage, and Logistics functions. It has 24,000 staff globally of which 11,500 are R&D staff. It is engaged in joint labs with leading companies (e.g. Motorola, Intel, Sun, Qualcomm, Texas Instruments and more) and joint ventures (e.g. Siemens, 3COM). China also hosts a series of institutes (collaboration with universities) to support the R&D effort developing technologies in this innovation-intensive industry.

Intel Products (Shanghai) Ltd

Intel is an American company that was founded in 1968. The company designs and manufactures CPUs, flash and embedded memory products. 85,000 people are employed within its 294 offices/facilities worldwide. From the 450+ products and services offered, the company generated revenues of $34.2 billion in 2004. Its mission statement is: "Do a great job for our customers, employees and stockholders by a pre-eminent building block supplier to the worldwide digital economy".

Intel China was founded in 1985, and its first factory was opened in 1997. It performs assembly and test, R&D, sales and marketing, and back office functions. Intel-Pudong assembles and tests flash memory, chip sets and CPUs, producing approximately 200 billion units per year. The site employs approximately 3000 people. Intel-Pudong has won several awards, including 'China's Best Employer' (2003 & 2005), and the 'China Quality Management Award' (2004).

John Deere Tiantuo Company Ltd

A Joint Venture between: Tianjin Tractor Manufacturing Corporation Ltd and John Deere (51%). The joint venture was formed in about 5 years ago to produce wheel type tractors for the Chinese market (only 2-3% of the 8000 annual production is exported). John Deere is one of the top agricultural machinery producers in the world, and appears in the Fortune 500.

Tianjin Tractor Manufacturing Corporation Ltd (TTMC) is a State Owned Enterprise and has been operating for over 40 years.

As part of the joint venture agreement, TTMC no longer produces wheel type tractors other than as part of the joint venture. They still produce other agricultural equipment, e.g. harvesters. The joint venture structure has enabled significant investment in new technology to improve both product and process, for example the introduction of an ERP system and a new paint facility. Since the start of the joint venture, the employee headcount has been more than halved, whilst productivity has greatly increased.

The joint venture has benefited from the experience gained by John Deere's long history, in particular, the introduction of the DPS – a custom company-wide management system. The DPS manages areas including: equipment, safety, quality, marketing data, sourcing and factory system.

KONE Elevator Co. Ltd.

KONE manufactures elevators, escalators, auto-walk tracks, and automatic doors. It is a Finnish firm. The firm employs over 25,000 employees worldwide. 2004 sales exceeded €280 million. KONE exports its products to 34 countries, including ones in Europe and Asia.

In China KONE employs over 1,700 people, in two separate locations. The main factory in China is in Kunshan and is a replica of the company's plant in Finland, although work practices within the factories are said to be slightly different. The factory is a joint venture, with 95% being owned by KONE and the other 5% being owned by a local company. The factory in China output approximately 6,000 elevators per year, as well as 1,800 escalators. 70% of this output is produced for export, with the remaining 30% being for the Chinese market.

In addition to their manufacturing operations, KONE also provide maintenance and modernisation services. These only account for a very small proportion of the firm's operating profits however.

Lenovo Group Ltd

Lenovo was originally founded as Legend in 1984. The company manufactures desktop/notebook computers, printers, and other digital products. 10,000 people are currently employed worldwide. There are three R&D plants in China, located in Beijing, Shanghai and Guangdong as well as seven subsidiaries in America and Europe. Lenovo currently has 27% of the PC market share in China and has been the number leading PC manufacturer in the

country for the last eight consecutive years as well as being the third most valuable Chinese brand.

The company was founded in 1984 by 11 engineers from the Chinese Academy of Sciences with US$25,000 of initial investment. Twenty years later, Lenovo boasted a turnover of around US$3 billion. Lenovo recently acquired IBM's PC production capability in a US$1.25 billion deal. Lenovo is recognised by some as being one of the strongest brands in China, and the deal with IBM will help to raise the status of the brand globally.

Makita (China) Co. Ltd

Makita is a Japanese wholly foreign owned enterprise with two manufacturing locations in China; Guangzhou and Kunshan. Makita is among the top four power tool makers in the world, competing with the likes of Black & Decker, Bosch and TTI – a Chinese owned company. Overall, the company has 38 subsidiaries in 29 countries. To meet the increasing needs of varying consumers, more than 800 of the latest products have been developed by Makita for sale and use in over 160 countries across the world.

The Chinese operations began in December 1993 and the company currently has $171 million invested in China. They employ approximately 3,200 staff, producing 500,000 electric tools every month. The majority of their products are exported, with only 8% being sold in the local market. Amongst the accolades the company has received is "The First-Class Exported Industry Products Manufacturer" (2005).

Philips Consumer Electronics Co. of Suzhou

The Philips-Suzhou site was set up as a joint venture in 1992 with the first television set produced in 1995. The Phillips Group moved to 80% ownership of the JV in 2002.

Philips-Suzhou is a production site, with assembly facilities and support staff office space. It has departments specialising in Manufacturing, Supply Chain Management, and Engineering. The key markets addressed by the Suzhou operation are: home entertainment, multimedia, projection, business, and mainstream.

Production is split between own brand devices (40-50%) and OEMs (50-60%), with OEM customers including Dell, HP, Lenovo and IBM. Philips is the number two monitor and television set producer (by volume) in the world, behind Samsung.

SAE Magnetics (H.K.) Ltd.

SAE is wholly owned by the Japanese company TDK. The headquarters are based in Hong Kong and there are production facilities in Hong Kong, Japan, USA and China.

SAE is an electronics OEM producing magnetic heads for hard disk drives and optical units for communications. The company currently has a 75% worldwide market share in the magnetic heads industry (with the remaining share taken by the Alps). Customers include: Sony, Toshiba, HP, Panasonic, NEC, Dell, Phillips, IBM, Samsung, Hitachi, Microsoft, Apple, Gateway, Compaq, Sharp and Fujitsu.

Worldwide, the company employs 25,000 people and has enjoyed average annual revenues in the region of US$1 billion. Their facilities in China extend over 2.5 million square feet, with a capacity in excess of 35 million units per month.

Sanmina-SCI Corporation

Sanmina-SCI is an American-owned EMS provider. The company is headquartered in California and is one of the largest global EMS providers.

The site visited was located in Kunshan, and employed a total of around 1,900 employees. Most of these were shop floor workers who are migrants from the western provinces and are therefore housed on site. Many of the office-based roles were filled by expatriate employees, typically from Taiwan, Hong Kong and Singapore.

Shanghai GKN Drive Shaft Co. Ltd. (SDS)

The SDS factory opened in 1988 and was one of the first companies to be established in China as a JV for automotive components. The main shareholders are GKN (50%), SAIC (35%), BOCOM (Bank of Communication, Shanghai branch – 5%) and SDIC (State Development and Investment Company – 10%).

The company is a supplier of driveline components and systems for all automotive assemblers, performing manufacturing and testing operations. Customers include BMW, Nissan, Ford, Toyota, other large assemblers, and smaller Chinese-based car assemblers. Sales in 2003 were valued at RMB 1,280 million with RMB 1,700 million expected in 2006. The factory produces 7.5 million units a year for all product groups and has 50% market share of drive-shafts in car and light-vehicle markets.

Solectron (Shenzhen) Technology Co. Ltd

Solectron is an American owned (100%) company with headquarters in San Jose, California. The company is within the top five EMS providers globally, providing services to customers including: Apple, Philips, Sun Microsystems, BMW, Ericsson and Honeywell.

The Suzhou office was registered in 1996 and production began a year later. The plant was a contract manufacturer up until 1999 at which point it became an EMS provider. In 2001, the factory moved to offering 'Supply Chain Solutions' and continues to do so at present. Some of the competencies offered by the Suzhou factory are: NPI engineering, prototyping and circuit manufacturing/assembly.

Yaxing Textile Company

Yaxing Textile is a privately owned knitwear manufacturer for Meters Bowen located in Suzhou, founded in 1994 by Xu Jinliang with capital of RMB 30,000. The business is now worth approximately 45 million RMB and employs approximately 3,000 people across 7 sites, of which 6 are wholly owned and one is a joint venture with funding from ACP (Australian Capital Partners).

Yaxing Textile has benefited from the growth in clothing exports as government policy has opened up global markets. As the textile industry as a whole is growing, Yaxing is now looking for new ways to compete, and would like to develop its own brand name products to protect the company from the fierce competitiveness in the very-low cost market. By seeking to take a higher value product to market, the company will be in a better position in the future.

Yue Yuen Industrial (Holdings) Ltd

Pou Chen (PC) was founded in 1969 in Taiwan by the Tsai family, and started operating as a contract footwear manufacturer. In 1998, Yue Yuen (YY), a subsidiary of PC, was established and began operations in Hong Kong. Great expansion occurred throughout the 1990s into China, Indonesia, Vietnam the USA and Mexico. YY now produces 170 million pairs of shoes a year for 8 out of the 10 largest footwear brands in the world, including Nike and Adidas. It has an annual turnover of US$2.7 billion. Yue Yuen is, at the demand of its customers, organised into three completely separate business units, each servicing a particular major brand (and a number of smaller brands). Each business unit is still run by a member of the Tsai family.

Yue Yuen Business Unit II (YYII) provides 40% of Adidas's running, sandal and other sports shoes, exporting 100% of its products. They produce 3.5 million pairs of shoes per month, generating revenue of US$500 million a year. The group employs 260,000 people, 30,000 of which work at the Dongguan site, employed mainly in production.

Zhuhai Livzon Medical Bio-material Co. Ltd

Livzon is a pharmaceutical company established in 1985. In 2002, shares were acquired by TAITAI Pharmaceutical Co. Ltd. Livzon manufactures chemical, biotech and traditional pharmaceuticals. It also supplies raw material for other pharmaceutical companies.

Livzon Zuhai sells to pharmacies and hospitals across China. It currently has 2,200 customers of which the majority are in the southern and eastern regions of China. The site houses 70% of production capacity and accounts for 80% of sales and 70% of profits. They aim to be one of the top five pharmaceutical companies in China by 2008.

Zollern (Tianjin) Speed Reducer Company Ltd

Zollern began in Germany in 1708 as a producer of iron castings. Over time it has expanded into the areas of large gears, winches and handling systems as well as hydrodynamic and hydrostatic bearings for use on ship engines and generators and now employs 2,400 people worldwide.

Zollern expanded into China in 1997, providing winches and gears for cranes and excavators in the domestic Chinese market. A low initial investment of US$200,000 was used to begin assembly processes in China for existing Zollern customers with a base there. The current factory in China employs 70 people and is used to assemble parts from a mixture of German and local Chinese suppliers. There are also three sales offices located in Shanghai, Beijing and Shenzhen.

Appendix B: Suggested additional readings and websites

Books and reports

Goodman, D. and Segal, G., (1997), *China Rising - Nationalism and Interdependence,* Routledge.

Moore, T., (2002), *China in the World Market: Chinese Industry and International Sources of Reform in the Post-Mao Era*, Cambridge University Press.

Clissold, T., (2003), *The China Dream: The Quest for the Last Great Untapped Market on Earth*, Grove Press.

Yan, R. and Libeberthal, K., (2004), *Harvard Business Review on Doing Business in China*, Harvard Business School Press.

Websites

Cambridge Centre for International Manufacturing - www.ifm.eng.cam.ac.uk/cim

China-Britain Business Council - www.cbbc.org

UK Trade and Investment - www.uktradeinvest.gov.uk

Appendix C: Terms used in this report

CBBC	**C**hina-**B**ritain **B**usiness **C**ouncil Independent business advisory organisation with (Chinese) government contract to provide certain services.
CMS	**C**ontract **M**anufacturing **S**ervice This type of company "makes to print", where a drawing is sent and product is made based upon a contract. The owner of the drawing/IP does not own any of the production facility. This is often referred to as 'outsourced production'.
FICE	**F**oreign **I**nvested **C**ommercial **E**nterprise This structure was introduced in December 2004, and allows foreign companies to act as distributors in the Chinese marketplace. Prior to this either special exemption from national government was required to distribute products not made in China.
FIE	**F**oreign **I**nvested **E**nterprise The generic term for any enterprise in China this has foreign invested capital.
Guanxi	Chinese word for 'business networks'. Successful businesses in China rely upon forming good networks within the local business community and maintaining good relationships.
IPR	**I**ntellectual **P**roperty **R**ights Protected design features which, although protected under Chinese law, are a significant concern for some businesses wishing to move into China as the mechanisms for enforcing the law are not as effective as those in more developed nations.
JV	**J**oint **V**enture Prior to 1986 the only way for a foreign firm to invest capital in China is through formation of a joint venture with a Chinese partner. This remains common practice as the JV partner usually brings human resource and production capacity to the venture, while the foreign investor brings capital and IP. Firms retain some control over the venture, dependent on the level of investment. Nearly all foreign firms seek stakes of 51% or more to control the board. Stakes from 75%-90% usually indicate an intention to become a WFOE in the future.
Landed Cost Model	The landed cost model compares the costs of exporting a product into a foreign market compared to producing in the local market. The governing factors are generally the

	labour content, relating to the cost difference in producing in different countries, and the transportation cost. Examples to demonstrate include buildings – although the labour content is high, they are generally not transported!
Managed Outsourcing	An option whereby a Chinese agent or firm will source all the components required from the Chinese market and export them direct to the foreign customer. This option simplifies the involvement of the foreign firm and reduces the risk of sourcing entire kits of components from a single firm, with the potential therein for duplicate product to be manufactured.
OBM	**O**riginal **B**rand **M**anufacturer Exactly the same as an ODM except that the product is sold by the sales/marketing outfit under the brand name of the producer.
ODM	**O**riginal **D**esign **M**anufacturer Similar to CMS, except in that in an ODM the design/IP is owned by the manufacturing company, the contract is usually with a sales/marketing enterprise (such as Argos) which contracts to have their own brand name placed on the product.
PRC	**P**eople's **R**epublic of **C**hina The full title for the country of China.
SIP	China-Singapore **S**uzhou **I**ndustrial **P**ark Business Park in Suzhou, regarded as one of the best in China.
TEDA	**T**ianjin **E**conomic-Technological **D**evelopment **A**rea Business Park in Tianjin
Trade Fair	Trade Fairs operate in a similar way in China as to the UK, however the choice of suppliers is far greater and the value of goods often much lower than a trade fair would be held for in the UK. Trade Fairs give businesses a 'one-stop shop' to collect information on a vast range of suppliers and their products.
WFOE	**W**holly **F**oreign-**O**wned **E**nterprise Not permitted in China before 1986, the laws governing when a WFOE can be setup are strict. WFOEs are the preferred option for most foreign companies wishing to enter China due to control issues. However it is often easier and less risky to enter via a majority stake JV with a view to taking full control in the future.