

Examination of outsourcing of components and finished products from Australia to companies in China – inter-firm business problems, solutions and business success factors

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Abstract

Manufacturing structures have partly changed from high levels of vertical integration to outsourcing during the past twenty to thirty years. As a result, outsourcing has often become the preferred choice for labour intensive products. In Australia, many companies have increased their outsourcing of components and finished products to developing countries, particularly mainland China, primarily to take advantage of lower labour and other production costs. Thus decisions in outsourcing are fundamental to organisational restructuring. However, although outsourcing can achieve many significant benefits, it presents a variety of new risks and problems due to the extension of supply chains, and needs solutions.

In this thesis for Doctor of Business Administration (DBA), three theories comprising Manufacturing and Operations Strategies, Transaction Cost Economics and Management Control Systems are reviewed. In addition, current journal articles and business publications on offshore outsourcing studies are reviewed. Impetus for this study includes the dearth of research focusing on outsourcing management relationships between organisations in Australia and China; outsourcing risks of manufacturing products; and company-level management control systems for inter-firm outsourcing relationships and ongoing management. Based on the review and gaps found, three research questions are developed focusing on using a problem-solution approach to investigate: a range of inter-firm outsourcing problems associated with supply chain relationships; the methods that companies can use to solve problems arising from outsourcing processes; and the main business success factors used to improve management control systems for companies in Australia outsourcing to China.

The research is an empirical, organisational-level investigation on the actual management practices used by Australian-based manufacturers and importers who outsource their components and finished products. Research methodology includes a review of relevant literature to identify research gaps, and a questionnaire survey, and face-to-face focus interviews to compile case studies. The survey results were quantitatively analysed to determine respondents' preferences in outsourcing operations. Qualitative data analysis was carried out within and between each case. Similarities and differences between

companies reveal common themes focusing on the three research questions of this research.

The main problems identified in the analysis of both questionnaires and cases include: risk of loss of secret information and intellectual property; product quality defects, technological levels and quality standards are not high enough in China; high transaction costs and overload of management work in setting up and managing overseas production.

The main solutions to problems comprise increased communication levels and trust; increased management control; withholding of part payment until goods are received and product quality approved; and outsourcing of only non-core components while retaining core technologies.

The key business success factors found comprise the specification of quality and service standards in contracts and well-managed handover processes; sharing of information and transparency in policies and operations on both sides; achieving a strategic balance between trust and management control; establishing own offices or hiring staff in China; and measuring performance to evaluate the stability of offshore business relationships.

With these highly relevant findings, this research extends knowledge by using a problem-and-solution based approach that provides new evidence regarding the problems, solutions and business success factors found in outsourcing components and finished products to China. These results can serve as a useful reference for both researchers and managers, particularly in relation to companies involved in outsourcing to China.

Key words: outsourcing, Australia and China, problems, solutions, business success factors

Student Declaration

“I, Jeffrey Jian Wang, declare that the DBA thesis entitled *Examination of outsourcing of components and finished products from Australia to companies in China – inter-firm business problems, solutions and business success factors* is no more than 65,000 words in length including quotes and exclusive of tables, figures, appendices, references and footnotes. This thesis contains no material that has been submitted previously, in whole or part, for the award of any academic degree or diploma. Except where otherwise indicated, this thesis is my own work”.

Signature _____

Date _____

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Glossary of Acronyms

ACBC: Australia China Business Council
B/L: Bill of Lading
CEO: Chief Executive Officer
CIF: Cost, Insurance and Freight
DFAT: Department of Foreign Affairs and Trade (Australia)
FOB: Free On Board
FTA: Free Trade Agreement
GDP: Gross Domestic Product
HP: Hewlett Packard
HR: Human Resources
IBM: International Business Machines
ICT: Information and Communication Technology
IP: Intellectual Property
ISO: International Standards Organization
JV: Joint Venture
L/C: Letters of Credit
MCS: Management Control System
MP4: Multipurpose 4
R & D: Research and Development
RMB Ren Min Bi (Chinese currency)
SCM: Supply Chain Management
TCE: Transaction Cost Economics
TCF: Textiles, Clothing and Footwear
TCT: Transaction Cost Theory
T/T: Telegraphic Transfer
USB: Universal Serial Bus
WFOE: Wholly Foreign Owned Enterprise
WHO World Health Organization
WTO: World Trade Organization

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Chapter 1

Introduction and background to the thesis

1.1 Context of the research

A notable global trend in manufacturing strategies in the past twenty to thirty years has resulted in partial move away from high levels of vertically integrated manufacturing concentrating on core activities to outsourcing (Leavy, 2001). In Australia, many companies have increased their outsourcing of components and finished products to developing countries, particularly to Mainland China (hereafter referred to as China), where local companies in China primarily offer lower labour and other production costs (Harland, Knight, Lamming & Walker, 2005). However, this extension of supply chains has generated a variety of new business problems that require solutions (Beaumont & Sohal, 2004). Companies are now also looking for related business success factors that indicate correct strategies to achieve their business goals (Roth & Miller, 1992). In this context, this research adopts an organisational-level, empirical, applied research approach to investigating problems, and analyses a range of inter-firm business problems associated with sample companies in Australia outsourcing to China, the solutions that these companies have implemented, and the main business success factors for the practices. The problem-solution approach is a method of applied research. Applied research refers to answering research questions about specific problem or making particular decisions (Zikmund, 2003).

In this thesis, the three above-mentioned research variables were addressed by undertaking a review of relevant literature and detailed reference to business articles to identify the research gaps. Following this, questionnaires were distributed to collect data related to the outsourcing business from Australia to China. Then eight face-to-face interviews were conducted to gather detailed company experience of outsourcing. Spreadsheet statistical data analysis results from questionnaires and

results from cross-case analyses were provided evidence to answer the research questions.

This thesis argues that although the extension of supply chains to outsourcing from Australia to China is often expected to achieve significant results of cost savings on production and service, a range of unexpected business risks and problems are generated. Hence, less cost savings are achieved than were originally planned.

1.2 Aims and focuses of the research

This thesis for Doctor of Business Administration (DBA) is an empirical, organisational level study investigating the real management practices of both Australian-based manufacturers (including those businesses owned and run by foreigners in Australia) and overseas organisations registered in Australia (for example, Ford Motor Company Australia), (both hereafter referred to as companies in Australia) that outsource their manufactured components and finished products to China. These companies have extended their supply chains to China to increase their competitive capabilities through lower cost production. They benefit from reducing production costs by conducting manufacturing in China, or shipping components to Australia for assembly before selling them in Australia or elsewhere. However, whilst many companies in Australia achieve significant cost savings and other benefits from these practices, other companies cannot achieve their anticipated business goal of cost savings due to a number of problems (Beaumont & Sohal, 2004). There are such needs to investigate the management problems, solutions and main business success factors.

The aims of this study are to research the management processes in outsourcing to identify, investigate, and analyse:

- (1) the main inter-firm business problems associated with outsourcing relationships;
- (2) the methods that companies use to solve problems arising from outsourcing processes; and
- (3) the main business success factors used to improve management control

systems and inter-firm outsourcing performance management of companies in Australia outsourcing to China.

Based on studies addressing business problems and risks (for example, Gilley & Rasheed, 2000; Leavy, 2004; Yang & Huang, 2000), this research focuses on specific organisational levels of outsourcing relationships and management strategies used between companies in Australia and China. Therefore, working from the three aims of this study, the review of literature and the research gaps found, the three research questions are established in section 3.3. The first is about the main business problems resulting from the extension of supply chains when companies in Australia outsource their components and finished products to companies in China. The second examines solutions for the outsourcing problems. The third is about the main business success factors for improving the management control systems (MCS) for inter-firm performance management.

1.3 Defining outsourcing

This section and those following introduce the concept of outsourcing and its background, the relationship of manufacturing strategies and outsourcing, and the importance and development of outsourcing. In addition, the risks and problems of offshore outsourcing, the factors that influence outsourcing decisions and outsourcing success are presented. Three different ways of sourcing: ‘total outsourcing’, ‘selective outsourcing’ and ‘total insourcing’ are identified by Lacity and Hirschheim (1995). Outsourcing refers to the contracting of services or products to another independent supplier organisation (Ellram, Tate & Billington, 2008; Horngren, 2000; Langfield-Smith & Smith, 2003; Langfield-Smith, Smith & Stringer, 2000) as a way of achieving the desired supply or as a way of cutting costs (Ross, 2006). For the purposes of this study, however, two further types of outsourcing are considered. The first is ‘substitution-based outsourcing’ for own production, which refers to a move away from vertical integration. In this case, companies assign tasks formerly performed inside organisations to external ones (Beaumont & Sohal, 2004; Gilley & Rasheed, 2000). The second type is ‘abstention-based outsourcing’ in which companies purchase goods and services

that have never been produced by themselves (Beaumont & Sohal, 2004; Gilley & Rasheed, 2000; Young, 2000). A third related outsourcing classification has two generic types: ‘peripheral’ and ‘core’. The peripheral type refers to strategically less relevant activities, and the core refers to activities that are highly important for long-term success (Gilley & Rasheed, 2000).

In this study, there are two main parties in an outsourcing relationship: a purchaser and a supplier. According to the literature, there are also other names for the same parties listed in Table 1.1.

Table 1.1 Defining outsourcing parties

Party A	Party B
The one who assigns its own production and service tasks to external suppliers, or purchases goods and services from external sources, and pays for the products and services received	The one who provides products and services for others and collects money for the goods and services provided
purchaser or buyer	Supplier
Client	Vendor
Outsourcee	Outsourcer
In this study, a company registered and based in Australia	In this study, a company registered and based in China

Adopted from Beaumont and Sohal (2004), Harland et al. (2005) and Rohde, (2004)

Offshore outsourcing is defined as the procurement of goods and the movement of operations from a home country to another country or region (Garner, 2004). Such relocated operations can be found at either offshore offices or factories belonging to the same companies, or assigned to separate companies in other countries. While not all offshoring involves outsourcing, operations can involve different levels of outsourcing from home countries to host countries. Wholly foreign-owned enterprises (WFOE) usually use local contractors in host countries (Preston, 2004). In the case of US companies, offshore outsourcing means sending work outside of North America, whereas near sourcing or nearshoring is sending work to Canada or Mexico (Ellram et al., 2008). Compared to offshore outsourcing, which usually means outsourcing to remote countries, near sourcing, which is to closer-located countries has the advantage of avoiding additional costs incurred by language and cultural differences and transport (Bock, 2008). However, as this thesis focuses on

companies in Australia where the options for near sourcing are very limited, offshore outsourcing, especially to China, is the study subject. In addition, the concept of outsourcing is distinguished from retaining work in-house. It involves contracted production that is performed by independent parties who are not part of a firm's employee base, especially to suppliers in China.

The general objectives of outsourcing projects do not simply include the purchasing of products and services, as all organisations need to purchase things from external sources. Outsourcing can be an important strategic decision that entails a series of performance effects in different parts of an organisation. Quelin and Duhamel (2003) further point out that outsourcing can require top management decisions involving corporate policy and may change the boundaries of a company.

1.4 Literature review

In the literature review, the three theories of manufacturing strategies, Transaction Cost Economics (TCE) and management control systems (MCS) were discussed. Current journal articles on outsourcing studies were also reviewed to obtain information about the benefits, risks and problems, solutions to problems, and business success factors in the practice of outsourcing. The main gaps found for new research concerns include (1) the lack of focus on outsourcing management relationships between organisations in Australia and China; (2) the relative paucity of research on outsourcing risks of manufacturing outsourcing compared to research on information and communication technology (ICT) and other service outsourcing; and (3) company level management control systems for inter-firm outsourcing relationships and ongoing management. Limitations identified in the literature have led to the research foci and questions of this study which are outlined in Chapter 2. Background information regarding outsourcing is provided following.

1.4.1 Manufacturing strategies and outsourcing

Outsourcing research is a subset of the ‘make-or-buy’, ‘vertical integration’ and ‘firm boundary’ of manufacturing strategies (Canez, Platts & Robert, 2000). One of the most common forms of outsourcing is strategic alliances (long-term relationship outsourcing or strategic outsourcing). Another form is conducting one’s own offshore production in which companies build their factories in other countries (Preston, 2004).

For most US factories, purchased raw materials cost forty to sixty per cent of total production. For the auto industry, the value of components and parts outsourced may exceed fifty per cent of the production cost (Wadhwa & Ravindran, 2007). In the current competitive market, organisations in developed countries have increasingly adopted cost-driven manufacturing and used international outsourcing as a business strategy (Narayanan, Harrison & Schoch, 2004). Clearly, outsourcing has become a preferred choice and is most commonly applied to labour intensive products including textiles, clothing, footwear (TCF), toys, and household items (Hathcote & Nam, 1999). Much labour intensive production, therefore, is increasingly moving from industrialised countries to developing countries, including China, via sub-contracting at lower production costs.

High energy-consuming industries, such as aluminium smelters are more concerned with relocating overseas to save costs. In addition, due to the high cost of environmental control requirements in developed countries, production causing high levels of pollution is frequently relocated to developing countries that have lower levels of environmental control requirements and lower costs for setting up control facilities. These industries include petroleum, plastics, steel, chemicals and pharmaceuticals (Dean, 2002; Levine & Rothman, 2006; Rock, Angel & Lim, 2006).

In addition, a range of disadvantages of vertical integration, including high fixed costs, is recognised. Therefore, the significant differences in production costs between countries and the disadvantages of vertical integration have become the primary reasons for outsourcing from developed countries to developing countries (Alexander & Young, 1996; Benson & Ieronimo, 1996).

Currently, China is the preferred location because of its low production costs, investment of foreign technologies in China, and increased transport capacity since the 1980s (Buxey, 2005; Nassimbeni & Sartor, 2006; Ellram et al., 2008). Thus outsourcing to China has become an important cost-saving method for companies in developed countries (Corswant, 2002; Leavy, 2001; Li, Liu, Li & Wu, 2007).

1.4.2 Development of outsourcing

The main reasons for increases in offshore outsourcing since the early 1980s have been the business environment changes including free trade, reduction of tariffs and abolition of some import quotas due to globalisation. Added to these, technological improvements and increased transport capacity have led to huge increases in outsourced foreign clothing and other products being imported to Australia (CIE, 2008).

Changes in the international trade environment have formed the background for growth in international outsourcing (CIE, 2008). For example, the Australian tariff rates for manufacturing products dropped from an average of 23 per cent in 1970 to 4.8 per cent in 1996 (Buxey, 2000). As a result, one of the strategies in global competition for many Australian companies has been to outsource offshore in order to gain competitive advantage (Quinn & Hilmer, 1994).

Numerous types of components and goods are increasingly imported from China (Ross, 2006). For example, in 2005–6 merchandise shipped from China to Australia was valued at A\$23 billion, a 17 per cent increase compared to the year of 2004–5 (DFAT, 2007). Most of these products were labour intensive, including clothing, toys, footwear and household items (Beaumont & Sohal, 2004; Benson & Ieronimo, 1996). In 2008–9, China was the biggest source of imports into Australia with a total import of A\$37 billion, a 20 per cent increase on the previous year. Over the five years prior to 2008–9, the average imports from China increased by 18 per cent per year (DFAT, 2010).

1.4.3 Factors influencing outsourcing decisions

Outsourcing decisions including make or buy can be based on a single factor, such as the traditional criterion for the decision being price (Alexander & Young, 1996;

Benson & Ieronimo, 1996). However, other factors come into play depending on the organisation's needs and situation (Grover & Teng, 1993). These can include the quality of information available, costs and financial evaluation, lead-time and delivery reliability, cost capability, product quality, technical capability, and suppliers' financial stability (Tayles & Drury, 2001).

The total acquisition cost of international outsourcing is also an important factor. The costs include business search, supplier selection, contracting, and administration. These can significantly reduce the outsourcing cost-saving benefit (Song, Platts & Bance, 2007).

1.4.4 Risks of outsourcing

A main problem identified in the literature includes unexpectedly high transaction costs that can negate the benefits of labour and other production cost savings. These costs can be due to distance, inter-firm business relationships, cultural differences, bounded rationality and opportunism (McCarthy & Anagnostou, 2004; Ngwenyama & Bryson, 1999), and loss of intellectual property rights (Bettis, Bradley & Hamel, 1992; Ting, 2004). For example, Meixell and Gargeya (2005) state that it is more difficult to manage global rather than domestic supply chains, and it is more difficult to manage global work than intra-company work.

Outsourcing difficulties include factors of long geographical distances, long lead-time, cultural differences and language barriers, infrastructural deficiencies in transport and data transition, low-skilled workers in developing countries, poor product quality and management, and outdated equipment and technologies. Other risk factors include fluctuation of currency exchange, political and economic instability, and changes in the regulatory environment.

1.5 Need for research

The majority of previous research into outsourcing has covered domestic outsourcing in European countries and the USA, and offshore outsourcing from these countries to developing countries. Fewer articles have focused on outsourcing relationships between organisations in Australia and China, despite the fact that China is Australia's largest trading partner with the largest labour force for labour intensive production and manufactured product export capacity in the world (Ross, 2006; Sachs, Yang & Zhang, 2000).

In addition, more articles in literature focus on outsourcing of ICT and other service trades (Gilley & Rasheed, 2000). However, manufacturing outsourcing is important. For example, surveys of manufacturing cost structures by Tayles and Drury (2001) found that materials and component costs an average of at least fifty per cent of total manufacturing costs.

Furthermore, as identified in the literature review, additional research into company level management control of inter-firm outsourcing relationships and case studies on ongoing management is demanded. More research focusing on outsourcing relationships and the processing procedures required to support it is needed from both purchasers and suppliers' perspectives (Langfield-Smith et al., 2000; Langfield-Smith & Smith, 2003). This should include an understanding of whether, and to what extent, outsourcing influences firm performance (Gilley & Rasheed, 2000). According to Meixell and Gargeya (2005), global supply chain models aimed at achieving strategic alignment, between internal manufacturing and external suppliers, are limited. Therefore, there is a need for suitable global supply chain models to be extended to cover both internal manufacturing and external supply chain areas. Clearly, detailed research to fill the gaps in knowledge of the aspects above is needed to help Australian manufacturers plan their outsourcing to China. Further discovery of gaps in the literature review is outlined in section 2.14.

1.6 Research questions

Based on the literature review and research gaps found, the three research questions of this thesis are:

- (1) What are the main business problems due to extension of supply chains when companies in Australia outsource their components and finished products to companies in China?*
- (2) What solutions are available for the outsourcing problems of these companies?*
- (3) What are the main business success factors for improving the management control systems for inter-firm performance management when outsourcing from Australia to China?*

These three questions are further discussed in Chapter 3.

1.7 Scope and limitations of the study

Outsourcing involves high-level strategic decisions that may affect whole organisations (Gilley & Rasheed, 2000). Common forms include technological cooperation, manufacturing agreements, and management and distribution services both domestic and offshore (Li et al., 2007). The scope of this organisation-level study is limited to companies in Australia that outsource and import components and finished products from China comprising manufacturers and import/export. In understanding the business difficulties associated with these outsourcing practices, the research focuses on inter-firm business problems, solutions, and business success factors experienced by companies in Australia that have their manufacturing supply chain systems extended to business partners and suppliers in China.

Two case studies of import/export of merchandise are included because they have similar problems, solutions, and success factors. However, outsourcing of information and communication technology (ICT) and other services, domestic

outsourcing, and outsourcing to countries other than China, are not included. In addition, this study focuses on business problems of inter-firm outsourcing relationships and related solutions as well as related business success factors for improving outsourcing management. The foci of this study does not include non-business-related issues, improvements of internal supply chain management, company internal issues, or how to improve overall supply chains.

As this research covers only manufacturing and merchandise import/export international outsourcing to China, the findings may not be suitable for application to service trades, such as ICT, local outsourcing and trade with countries other than China.

1.8 Methodology

This research uses both quantitative and qualitative data analysis approaches. Original data have been collected by means of questionnaires and interviews. First, data on the completed questionnaires have been quantitatively analysed, then data from interview records have been written up case studies that qualitatively analysed. The research then uses these findings to validate the propositions, provide evidence to fulfil the research objectives, answer the research questions, and support the thesis arguments.

In details, after mailing questionnaires to 600 managers and officers of organisations in Australia, 51 completed questionnaires were returned representing a response rate of 8.5 per cent. An Excel spreadsheet has been used to compare numbers, and obtain the mean and percentages of responses to the questionnaires. Tables and bar graphs have been used to demonstrate the findings. Findings of outsourcing problems, solutions to the problems, business success factors, and percentage of cost savings have been analysed to find significant results.

Eight face-to-face interviews were conducted and eight case studies compiled based on questionnaire results, interview records and data from company websites. The eight cases have been divided into two groups. Six companies in the eight

case studies are manufacturers. The remaining two are import and export companies.

Drawing on suggestions by Langfield-Smith et al. (2000), eight case studies including within-case analyses were compiled. During the interviews with senior managers, discussions included company background information, outsourcing operations to China, key issues for managing offshore inter-firm outsourcing relationships, risks and problems of outsourcing, solutions to problems, key business success factors, cost savings achieved, and payment terms.

In the case studies, the main topics covered include background information, business with China, inter-firm outsourcing problems, solutions to the problems, and main business success factors. A within-case qualitative data analysis and a summary were included in each case. A qualitative analysis between the eight cases was conducted to identify the similarities and differences between outsourcing practices. This revealed some common themes. Then the findings were compared with other research in the literature.

1.9 Thesis outline

In order to meet the aims of this study, this DBA thesis is structured as follows:

Chapter 1, *introduction and background to the thesis*, defines outsourcing, the environment of outsourcing and the need for research. In addition, the significance of this study is also explained.

Chapter 2, *Literature review*, reviews literature related to supply chain management, manufacturing strategies, and transaction cost economics and management control systems. In addition, it examines some empirical study articles related to international outsourcing so as to identify gaps in the literature and provide a basis for a conceptual framework.

Chapter 3, *Conceptual framework*, establishes a conceptual framework within the current knowledge of outsourcing inter-firm problems, in order to develop the thesis arguments, research questions and supporting propositions.

Chapter 4, *Methodology and research design*, justifies the qualitative and quantitative research methods including questionnaires and case studies and explains the approach adopted to collect data.

Chapter 5, *Questionnaire data results and analysis*, records the results of data collection and analysis of the questionnaire data.

Chapter 6, *Case studies*, presents the interview records as a main source of the cases. Eight case studies are based on the interview records, completed questionnaires and information from the company web sites. Summaries and within- case analysis are also included in the case studies.

Chapter 7, *Case and questionnaire comparative data analysis*, compares the similarities and differences in these cases then derives common themes and differences from cross-case analysis.

Chapter 8, *Discussion of research results*, summarises and discusses the research results, answers the research questions, and supports the thesis arguments. Similarities and differences between the companies are described, followed by a summary of the questionnaire data and case study analysis. These findings are reviewed to distil common themes that occur in international outsourcing operations. In addition, the propositions are validated.

Chapter 9, *Research summary and conclusions*, provides the conclusion regarding the aims of this research. In addition, the limitations of this study are explained. Then the contribution to knowledge and practices is presented. And finally, the new knowledge areas sought for further study are indicated.

1.10 Statement of significance and contribution to knowledge

After reviewing the relevant literature on international outsourcing, this study uses questionnaire survey data analysis and multiple case studies to develop a suitable strategy for presenting and dealing with problems when outsourcing manufacturing to China. This study is significant because it can assist in avoiding the wrong decisions that can lead to failure of the practices. It provides a useful reference for managers, enabling them to make better decisions regarding problem solving and future plans.

This study is a component of an important research area of logistics and supply chain management that Western companies frequently face in achieving their anticipated cost savings and other business goals when outsourcing products to China (Beaumont & Costa, 2002; Glass, 2000). Therefore, this study aims to provide current information on what solutions to problems managers can adapt to achieve these business objectives. In addition, there is a need to identify what factors are necessary for successful company-level outsourcing relationships. Both managers and researchers in related areas can use this current knowledge addressing areas where not enough research has been undertaken. The Australian public may also benefit when the supply chain is improved, as low-cost products from China can result in significant retail cost savings.

1.11 Summary

This chapter has introduced the business backgrounds and problems that occur in outsourcing between Australia and China, and the major gaps in the literature. With these, the study has proceeded to a detailed description of the knowledge available in business. In order to gain a better view of outsourcing business and manufacturing strategies, the importance and development of outsourcing have been discussed. To address the research topics, problems of offshore outsourcing and factors influencing outsourcing decisions were presented. Further, the significance for research and the contribution to knowledge have been justified. As part of this research, literature on international outsourcing is reviewed in the next chapter.

Chapter 2

Literature review

2.1 Introduction

In order to better understand the outsourcing relationships between companies in Australia and China, this chapter reviews three related theories: manufacturing strategies; Transaction Cost Economics (TCE); and management control systems (MCS). In relation to manufacturing strategies, this review focuses on the choices made in a manufacturing structure, and the relationships between purchasers and suppliers. Following this, a review of TCE aims to examine the risks and problems encountered in international outsourcing. This is followed by a review of MCS related to performance management and relationships between control and trust in inter-company business transactions.

Outsourcing is an important part of manufacturing strategies, and is used in Australia mainly to reduce production costs. Decisions on whether to outsource or insource, which components and products can be outsourced, where to outsource, who to choose as business partners, and what kinds of relationships are to be formed, are all important choices in achieving business success. There is also a need to make adjustments based on evaluations of operational performance.

As transaction costs can significantly negate cost saving benefits, Transaction Cost Economics has become one of the few theories that can be used to explain why international outsourcing projects are frequently unable to fully achieve their initial cost-saving goals.

MCS are also the important key to the success of outsourcing operations. Lack of control can be a significant reason for failure in outsourcing projects. Therefore, the three above mentioned theories are strongly relevant to the aims of this study and are chosen for review in order to form a basis for the conceptual framework of

this research. In addition, current journal articles and business publications on outsourcing studies are reviewed to ensure that the most relevant research is included. The areas reviewed give priority to company-wide issues. These include trade contracts, technology transfer, decision to purchase, trust, and relationships established between Australian manufacturers and Chinese suppliers.

2.2 Structure of companies before outsourcing

In the past twenty years, outsourcing has become a necessary part of manufacturing strategies (Chen, Ishikawa & Yu, 2004; Sachs, Yang & Zhang, 2000). For example, in the study of companies in the USA, Ettlie and Sethuraman (2002) found that fifty per cent or more of the value of components and services of durable manufactured products were outsourced to developing countries. Similarly, outsourcing is also one of the major industry trends in Australia (Benson & Littler, 2002). As manufacturing contracting is important in the field of manufacturing strategies, there are major concerns regarding the strategies for decisions between vertical integration and outsourcing, what and where to outsource, with whom to collaborate, how to manage outsourcing operations, and how to solve problems and identify business success factors (Anderson & Parker, 2002; Young, 2000).

2.2.1 Manufacturing structure

In deciding manufacturing strategies that provide optimal performance, there exist available choices of structures of vertical integration, strategic alliances and arms-length. In order to understand the operations of long-term outsourcing contracts and to pursue the subject of this study, this literature review focuses on the outsourcing relationship of strategic alliances.

2.2.2 The disadvantages of vertical integration and the movement to outsourcing

Vertical integration or outsourcing decisions may be influenced by factors such as the capabilities and resources of purchasing companies (for example, companies in Australia), coordination requirements between purchasing and supply companies,

management control, and related risks. Many organisations find that there are increasingly high fixed costs associated with a traditional vertical integration structure in manufacturing (Humphreys, McIvor & Huang, 2002). Vertical integration is less flexible when fixed production lines have to be changed to suit new market conditions, and that this structure detracts from successful competition in the new global environment. Due to fixed production facilities, companies may also lack the ability to utilise new technologies and waste much time on non-core tasks. Organisations in developed countries therefore increasingly shift their manufacturing structures from vertical integration to outsourcing, ranging from components and partial production to finished products or entire production (Baden-Fuller, Targett & Hunt, 2000; Leavy, 2001).

2.2.3 Advantages and disadvantages of outsourcing

Outsourcing as a manufacturing strategy can improve supply chains in ways such as saving on production costs, leaner production lines, and concentration on core activities and competencies. The improved international trade environment provides good opportunities that make offshore outsourcing available to companies in Australia. Many companies have experienced the benefits of outsourcing manufacturing to China (Ettlie & Sethuraman, 2002; Gilley, Greer & Rasheed, 2004). However, although outsourcing provides many advantages, not every product is suited to this solution and there are many risks and problems associated with this practice (Liu & Roos, 2006). For example, when an outsourced product requires highly specific components and technologies, or when the environment in the host country is uncertain, the products are less likely to be outsourced (Ellram et al., 2008). In the case of outsourcing to China, generally labour intensive products are more suitable than products that require high technology and capital (Li et al., 2007). The quality of products and the protection of intellectual property are also major concerns when sending production tasks overseas (Bidanda, Arisoy & Shuman, 2006; Kennedy & Clark, 2006).

2.2.4 Choice of vertical integration or outsourcing

Frohlich and Westbrook (2001) further point out that vertical integration and outsourcing, or a combination of these two, has both benefits and risks. Some companies choose vertical integration to retain control and maintain consistency in

production, and others choose outsourcing mainly to reduce production costs. For example, when the choice is for full vertical integration, owners have high levels of control and information access in operations and logistics management. When the choice is arms-length short-term transactions, there is no common ownership between parties, so that management control and information access between business parties are restricted to operating on trust, business relationships and legally enforceable contracts.

2.2.5 International trade and outsourcing

Comparative advantages of production occur when the manufacturing capability and production efficiency in one country has absolute advantage over another. When each side restructures its production, both sides can achieve net benefits. For example, China has many low-cost and low-skilled labourers, and Australia has technologies and capital, so if Australian companies outsource their labour intensive products and services to China, both sides can benefit (Feenstra & Hanson, 1996; Rexha & Miyamoto, 2000). Lower production costs and product prices in developing countries thus become the main reason for huge increases in offshore outsourcing. With over 3000 Australian companies doing business in China in 2009, the products outsourced to China include many labour intensive products such as TCF, toys, shoes, as well as some high technology products such as traffic control systems and medical devices (Austrade, 2010).

2.2.6 Outsourcing strategies

A common strategy is that in attempting to have the correct outsourcing strategies pertinent to the level of production to outsource, purchasing companies should preferably only outsource peripheral components (Langfield-Smith et al., 2000; Li et al., 2007). In addition, only activities that are not critical to main strategic competencies of company maintenance and growth should be outsourced (Ellram et al., 2008; Gilley et al., 2004). That is, companies in developed countries should mainly focus on outsourcing their non-core, low technology, labour intensive components and products to a developing country such as China (Garner, 2004). Similarly, Gilley et al., (2004) explain that a Transaction Cost Economic perspective suggests that operations that do not belong to firm-specific areas are more likely to be outsourced. A resource-based perspective argues that operations

that are not critical to core competencies of the purchasing companies should be outsourced.

Activities critical to business performance through innovation and rejuvenation policies that are designed to create competitive advantage and future growth need to remain in-house in order to retain high technology, capital intensive and core production. In addition, when assets that are more specific are required to support an activity, the firm is less likely to outsource that activity. For these reasons, many Australian companies choose to avoid core component outsourcing; that is, retaining the core parts of design and production at their own sites rather than sending them to China where the technology is not highly developed enough to cope with quality and innovation requirements, and there is insufficient protection of intellectual property rights (Baden-Fuller et al., 2000).

2.3 Company aims of outsourcing

In outsourcing to China, reduction and control of production costs can achieve economy of scale by using large capacity suppliers, accessing specialised skills from suppliers, and reducing product delivery time by making and selling to local markets in China. In addition, by contracting out non-core activities and avoiding internal staff turnover, as well as maintaining the ability to switch suppliers when needed, financial uncertainty can be avoided (Corswant, 2002; Heikkila & Cordon, 2002; Lam & Han, 2005). These aspects are discussed in detail in section 2.5.

Apart from achieving cost savings, companies in Australia are involved in innovative and value-added activities, using knowledge integration and more effective management processes to improve productivity. For some companies, the outsourcing aims are to restructure manufacturing and achieve transformational outsourcing. These issues indicate that the aims of outsourcing operations are more than simply saving money but relate to building a stronger production basis (Kennedy & Clark, 2006). This point is further elaborated in section 2.4.3.

2.4 Outsourcing operations process

This section introduces the concept that in order to achieve strategic goals in offshore outsourcing, companies need to make important decisions about what to outsource and who their business partners will be. Other than manufacturing contracting, some companies further conduct transformational outsourcing. Solutions to inter-firm business problems include performance management, control systems and trust. Besides inter-firm outsourcing, some companies in developed countries choose to conduct their own offshore production for better control of production (Preston, 2004).

2.4.1 Selection decisions in outsourcing

Cao and Wang (2007) and Langfield-Smith et al. (2000) indicate certain criteria for outsourcing: whether the activities to be outsourced are core or non-core; the capabilities of suppliers; significant benefits for purchasing companies such as cost savings and other financial benefits; management control levels required; and environmental issues around the outsourcing operations. In addition, cost and cost reduction, employee transition, suppliers' offers in terms of price and quality, plans and billing management require consideration.

The correct selection of suppliers is an important step leading to success in outsourcing (Ghymn, Liesch & Mattsson, 1999; Wadhwa & Ravindran, 2007). Selection should take into account multi-objectives of the situation of suppliers' plans and the management of contracts, prices and product quality. Further considerations include whether different suppliers exist, the quality of suppliers, delivery procedures, and opportunities in the external market. The evaluation of outsourcing tenders includes the skills of suppliers, the cost of service, and the ability of suppliers to provide quality goods and delivery on time, for example, staff transition issues and the match with the strategic planning of purchasing companies (Chen, Paulraj & Lado, 2004).

2.4.2 Offshore production

In choosing to purchase or manufacture components overseas, some large companies choose to build their own factories offshore and relocate their

production while still maintaining ownership that is either wholly owned or in joint ventures with local companies. Such choice depends on the desired offshore outsourcing levels of companies, the complexity of their business, their delivery capabilities, and the economic effect on their projects (Tayles & Drury, 2001).

Apart from deciding whether to relocate production overseas, there is a need to identify what processes and activities can be moved offshore, thereby determining outsourcing implementation. There is also a need to identify the business terms of management resources, capital, capabilities and time for offshore production. There exist two related factors for setting up offshore production decisions: the company's ability to manage offshore transitions and the extent to which production is to be outsourced. The manager's task is to decide which parts of production should be outsourced, the scope of offshore processing related to subsequent operations, as well as to choose each alternative process and the most suitable model for managing resources including capital and time (Bidanda et al., 2006; Choy, Lee, Lau & Choy, 2005).

Offshore production has some advantages over offshore outsourcing. For example, companies operating their own offshore production can achieve better control of production and higher cash flow savings than offshore outsourcing projects. However, the problems of offshore production may include operations that are too complex and time consuming to be undertaken by company management (Preston, 2004).

2.4.3 Transformational outsourcing

As an alternative to offshore production, some companies aim to restructure their manufacturing by creating chains and transformational outsourcing networks in order to achieve low costs and effective production. There are four stages in the continuum of these outsourcing practices: temporary labour for in-house tasks; out-tasking; buy-sell outsourcing with audits and control; and the business process or transformational outsourcing. For the last stage, trust is required. However, the degree of control over the process and the level of investment in assets required are the lowest for purchase companies. Hence, transformational outsourcing is associated with the last stage. It is designed to relocate core business processes

and value chain activities to business partners to allow quick responses to changes in the business environment in host countries. As a result, important business benefits can accrue for transformational offshore outsourcing. The benefits include alliance with new suppliers as more cost effective technologies become available (Li et al., 2007).

Other cost reductions focus on business renewal and corporate transformation. Companies with transformational offshore outsourcing strategies have greater opportunities to achieve long-term competitive advantages than those only focusing on cost savings and concentrating on core competencies. By using suppliers' knowledge, integration and effective management processes, many of these companies begin outsourcing in order to obtain lower labour costs, but then stay on to develop innovations and higher value-added activities. Other than the traditional view of offshore outsourcing, such as doing outsourcing for cost reduction and focusing on core competence, such transformational offshore outsourcing further focuses on business renewal and corporate transformation. Practices of transformational outsourcing can also take advantage of suppliers' incremental and radical innovations. Here, incremental innovations refer to minor improvements or simple adjustments of existing technologies, including innovation in product appearance, improvement and exploitation of existing technologies. Radical innovations refer to fundamental changes in technologies, create radically new products based on new concepts and techniques (Fifarek, Veloso & Davidson, 2008; Glass & Saggi, 2001; Nassimbeni & Sartor, 2006).

Although many companies in China do not have high technologies, they desire to improve them in order to produce high value-added products. One way they can achieve this is by accepting outsourcing and offshore production contracts. Conversely, Western companies can achieve the benefits of lower costs for innovation by using Chinese engineers for their projects. For example, the Motorola Company has research and production facilities in China, uses Chinese engineers to produce up-to-date technology in mobile phones, and sells to markets in both China and in the USA. Motorola conducts the innovations in China for a lower cost compared to doing the same in the USA. Transformational offshore outsourcing, therefore, can generate long-term competitive advantage (Lei, 2007).

2.5 Transaction Cost Economics (TCE) and outsourcing risks

While achieving significant benefits in offshore outsourcing operations, purchase companies face some inter-firm business problems associated with the practice. Problems mainly include high transaction costs, more management work, poor product quality and leakage of intellectual property rights. Some problems are so significant that the companies desire to seek solutions.

2.5.1 TCE

Transaction costs are a significant issue for international outsourcing. In order to understand the barrier against cost saving achievement, the development of the theory and the relationship with outsourcing is reviewed.

2.5.1.1 Defining TCE

In TCE, transaction costs refer to all the costs associated with economic or business exchange activities between independent parties (Ettlie & Sethuraman, 2002; McCarthy & Anagnostou, 2004). Actual transaction costs include managing, such as monitoring and control of business transactions on both sides (Lacity & Hirschheim, 1993). Examples include set-up costs of a business (for example, search, negotiation and training), transactions (for example, delivery, marine or air cargo insurance, tariffs, letters of credit, bank fees and local government fees in host countries), and inter-firm governance (for example, data transmission and auditing) and termination of contracts (Ulset, 1996). In the case of outsourcing, net saving is less than gross saving due to transaction costs. The costs are mainly due to additional management work and inter-firm business relationships of distance, cultural differences, bounded rationality and opportunism.

2.5.1.2 Two basic assumptions of TCE

Aubert, Rivard and Patry (2004) state that transaction cost theory regarding inter-firm outsourcing relationships is based on two theoretical assumptions: bounded rationality and opportunism. The authors also emphasise the significance of institutional arrangements. For this purpose, bounded rationality refers to the limited ability of people to find or to handle all information during business activities and to evaluate the full consequences of all decisions (Bahli & Rivard,

2005; Ellram et al., 2008). People have limited memories and processing powers, and they assume that information from the other side of business partners is inherently imperfect (Williamson et al., 1999). In these situations there are too many issues for a person to comprehend and effectively handle.

Opportunism occurs when one side of a business party acts to cheat the other side for profit (Bahli & Rivard, 2005; Ettlie & Sethuraman, 2002). At the same time, there is a possibility that the other side of the partnership also acts opportunistically for profit when there is a lack of trust on both sides (Williamson et al., 1995).

2.5.1.3 Development of TCE

TCE was initially introduced by Coase (Coase, 1937; Grover & Malhotra, 2003). The theory was further developed by some researchers, including Williamson (Williamson, 1996; Williamson et al., 1999), and has become important for understanding and explaining inter-firm outsourcing problems (Williamson et al., 1999).

2.5.1.4 The importance of TCE

Transaction costs make a significant difference to cost savings in offshore outsourcing operations (Ankarloo & Palermo, 2004; Maki, 2004). Compared to service outsourcing, the costs are more significant in manufacturing outsourcing. For example, there are more transaction costs in product supply chains such as transport, warehousing, packing, marine, or air cargo insurance and product handling associated with the trade in materials (Ellram et al., 2008; Pratten, 1997). The difficulty of communication with foreign workers can also reduce productivity and increase transaction costs. This is a performance risk because purchasing firms do not directly hire the employees who work on the tasks. The employees are less loyal to purchasing firms and less likely to respond to special requests, as the commitment is lower.

2.5.1.5 TCE, outsourcing risks and problems

One of the factors for make-or-buy decisions is based on production and transaction costs (McCarthy & Anagnostou, 2004). Capital investment and transaction costs can be reduced after a certain period of inter-firm business (Williamson et al. 1999).

In outsourcing businesses, transaction costs can be classified into three types: compulsory, complementary, and win-win or lose-lose. Compulsory costs include set-up, operations and termination costs. Complementary costs refer to the costs where one side pays and the other side saves at the same time, for example, costs in shipment and insurance. Win-win or lose-lose cost is a saving or cost to both sides at the same time. For example, if there is a higher level of trust on both sides, less management control costs are needed; if there is no trust, both sides need to spend money for control or incur financial losses (Qu & Brocklehurst, 2003). Total economic and business costs include manufacturing costs plus transaction costs, or the sum of out-of-pocket costs, transaction costs and opportunity costs (Langfield-Smith & Smith, 2000). Dunn, Fernandes and Jog (2004) explain that transaction costs are the additional costs above manufacturing costs due to inherent imperfections and inefficiencies in inter-firm transactions, lack of information about suppliers or customers, or conflict in inter-firm relationships.

According to Williamson et al. (1999), three factors can influence transaction costs: degree of uncertainty, frequency and asset specificity. Uncertainty can be caused by the fast changes of technology and market conditions, contract complexity, and product quality. For example, opportunism can be caused by a high degree of uncertainty. Asset specificity is the level of assets specifically designed for particular purposes, without many alternative uses. Products with high levels of asset specificity are usually produced within the organisation.

2.5.2 Outsourcing risks

The conceptual framework for this study includes a method of viewing a company's management processes relating to outsourcing (see section 3.5) (McIvor, 2000; Vining & Globerman, 1999). In addition, identifying the outsourcing problems faced by companies in Australia when outsourcing to China is the first research question of this study (see section 1.6). Therefore, in order to build a foundation for the conceptual framework and lead to the first research question, some outsourcing problems in the literature review will now be discussed.

While outsourcing practices are increasing and many companies achieve significant benefits from the operations, the practices are frequently not perfect (Kennedy & Clark, 2006). For example, there are high transaction costs and other risks associated with the practices when compared to vertically integrated operations (Bidanda et al., 2006). There is also the risk of transferring main technologies to suppliers so that the purchasing companies lose their core competency and market positions (Leavy, 2004). The risks are higher in international outsourcing due to the complexity of overseas transactions and the problems of international inter-firm alliances (Glass, 2000), as well as the different business environments in different countries (Metters, 2007). Wrong decisions in outsourcing can also lead to higher product costs and wrong use of resources (Tayles & Drury, 2001) resulting in an industrial decline in some Western companies. Furthermore, some companies may end up hollowing out organisations, losing core production skills and expertise, and losing control over production (Langfield-Smith, Smith & Stringer, 2000).

Two industry examples are Ericsson and Nokia's outsourcing of their mobile phone manufacturing and network. Ericsson first outsourced its manufacturing operation to Flextronics; later it transferred the complete manufacturing division to its new joint venture named Sony-Ericsson. After the restructure, the remainder of Ericsson became a telephone network company. However, the company's analysis later found that the transaction costs including the transfer process were high. This increased total product cost and generated some negative results in production performance (Berggren & Bengtsson, 2004).

Nokia maintains manufacturing as its core competency, outsources about 15–20 per cent of its mobile phone production, and retains strategic components in-house. Partner companies perform some final assembly and testing, while Nokia still does random sample testing and maintains the main product-specific testing systems, which is the most expensive portion of their manufacturing equipment. Nokia finds that the cost of the testing system is so high that no significant production cost saving can be achieved. Another important problem is the high dependence on international business partners who sometimes have strategies unsuitable to Nokia. Nokia therefore finds that the disadvantages can outweigh the

gains and chooses to retain most of its own production without outsourcing (Berggren & Bengtsson, 2004).

Schoenherr, Tummala and Harrison (2008) have identified a series of supply chain risks associated with the offshore sourcing decisions. The risks are classified into three groups: products, business partners and environment. For products, there are risks related to quality and cost. When measuring costs other than product costs themselves, there are market costs that are the prices that competitors pay for the same kind of products. For risks associated with business partners, there are two concerns: service and management capabilities. For service, the main issue is the supplier fulfilment risk: that is, how suppliers fulfil contracts in terms of quality, quantity, and punctuality. In addition, there are risks for logistics operations. For management capabilities, there are risks of the wrong selection of business partners. There are concerns about the qualifications of suppliers. For international business there are also concerns about different cultures, politics, distance and language barriers. Environmental risks in host countries include natural and human disasters. Some major outsourcing problems found in the literature are as follows:

2.5.2.1 The unpredictability of transaction costs and hidden costs

According to Ellram et al. (2008), compared with the service trade, outsourcing of production has high variable transaction costs, for example, transport, handling and inventory charges. Beaumont and Sohal (2004) point out that it is too difficult to specify all final costs in advance when contracting to external suppliers. Benson and Littler (2002) further state that transaction costs such as legal fees, redundancy payouts, increased quality checks, and the cost of managing an outsourcing operation may outweigh any planned cost savings.

Furthermore, managing outsourcing operations requires several substantial task stages entailing additional costs. Examples of these stages include designing outsourcing tasks, processing and control (Beaumont & Sohal, 2004). As well, offshore outsourcing generates several types of inter-firm collaboration that requires considerable management work for both sides (Li et al., 2007).

Other risk factors associated with transactions include asset specificity, which refers to investments in physical or human assets that are dedicated to particular relationships and whose redeployment entails considerable switching costs. Risk of uncertainty includes bounded rationality and the degree of expertise, which is the special skill or knowledge acquired in training, study or practice. In this situation, a purchasing company's lack of expertise could lead to hidden costs and a loss of control over unplanned transactions and expenses. Other risks occur when suppliers are not able to respond to the rapid change of business conditions (Bahli & Rivard, 2005).

2.5.2.2 Defective quality problems

An outsourcing operation faces the risk of linking to a supplier with deficient capabilities (Earl, 1996; Quelin & Duhamel, 2003). This is due to some suppliers in developing countries lacking both capability and motivation to control and improve product quality (Leavy, 2004; Schoenherr et al., 2008). Many purchasing companies in developed countries find quality often does not meet the required standards in developed countries (Ting, 2004). Some suppliers accept low-price contracts, but then frequently use cheap materials, low technology and labour intensive production that lacks quality control (Aubert et al., 2004).

2.5.2.3 Loss of flexibility and problems of changing suppliers

Lock-in costs refer to the payments involved in switching business partners or suppliers (for example, contract cancelling fees, re-set-up fees) (Quelin & Duhamel, 2003). High costs may therefore become high exit barriers. Another problem is the possibility of being tied to obsolete technologies in host countries (Benson & Littler, 2002). This happens when technologies and products (for example, design of products) are changed during fixed outsourcing contract period, and suppliers cannot or are not willing to update their technologies (Grover & Teng, 1993). Other than changing suppliers, the other way is to bring back tasks in-house, which can also be expensive and difficult due to the needs to re-establish facilities, re-train staff (Metters, 2007).

Lock-in risks with suppliers refer to the lack of opportunities and the costs of changing to new suppliers once outsourcing companies have contracted with

suppliers. Some investments and facilities are specialised so that their physical assets are difficult to withdraw from outsourcing operations. For example, most manufacturing outsourcing contracts are long term. In addition, some contracts require outsourcing companies to invest in physical assets such as machines and other facilities for production. Some contracts require outsourcing companies to invest capital into joint ventures. These specialised physical assets and the investments may not be withdrawn during contract periods and facilities may be outdated after the contract periods (Alexander & Young, 1996).

2.5.2.4 Innovation and competitive advantage

Outsourcing may result in purchasing companies losing touch with the new technologies. Increasing reliance on outsourcing contracts and suppliers may lead to a decrease in the innovative capabilities of purchasing companies. An example is Microsoft, Motorola, Texas Instruments, HP and IBM have research and development facilities in China and their technologies are transferring to local facilities in China (Kennedy & Clark, 2006).

2.5.2.5 Loss of control

Outsourcing practices may result in loss of control. Willcocks, Lacity and Kern (1999) point out that some outsourcing relationships lack active management of suppliers on contract and relationship dimensions. This can result in the loss of control over suppliers' business and reduce purchasing companies' long-term competitive advantage (Gilley & Rasheed, 2000; Grover & Teng, 1993) because outsourcing practices need to share information and technologies with suppliers, and suppliers gain competitive strength from purchasing companies. This may also benefit other competitors who are related to the suppliers (Langfield-Smith et al., 2000).

2.5.2.6 Leakage of intellectual property

Bidanda et al., (2006) state that protection of intellectual property (IP) has become a major concern for outsourcing business. Leakage of intellectual property is a problem that is very hard to overcome. IP protection, security, business continuity and disaster recovery processes are major concerns for contracting out manufacturing. Kennedy and Clark (2006) also point out that outsourcing can lead

to loss or misappropriation of IP rights, for example, loss of patent rights, design and formula of products and trade secrets. Intellectual property protection is a major issue regarding outsourcing risks; suppliers may use technologies and copyright to reproduce their own products. In addition, it is difficult to prevent the diffusion of intellectual property especially when suppliers are also involved with the competitors of purchasing companies in the same industry. Research by Quelin and Duhamel (2003) found that suppliers might share or sell purchasing company information to competitors.

2.5.2.7 Loss of distinctive competencies and know-how

Metters (2007) argues that outsourcing practices might shift knowledge to suppliers and reduce long-term competitive advantage and loss of local and tacit knowledge. Purchasing companies provide technology and information for the production and start to lose the opportunity of developing new technology breakthroughs for new products. Many studies (for example, Bettis et al., 1992; Khosrowpour, Subramanian & Gunterman, 1995; Martinsons, 1993; Quinn & Hilmer, 1994) have found that outsourcing practices lead to the loss of know-how of the purchasing companies. Then suppliers develop and control the new technology and start to enter the markets in developed countries with their own brands. In this way, purchasing companies lose market share and distinctive competencies. Beaumont and Sohal (2004) and Willcocks et al. (1999) conclude that failure to build and retain requisite in-house capabilities and skills and lack of maturity and experience in contracting for and managing total outsourcing arrangements become problems and lead to the loss of distinctive competencies and reliance on suppliers in the long run. There is also a danger when the purchasing company's systems are replaced by the supplier's systems. For example, improper transfer of data may cause disruption. Leavy (2004) and Metters (2007) further point out that an outsourcing operation may lose skills that will be very important in future and make it hard for a firm to gain any competitive advantage from the process.

Metters (2007) further suggests that there is a risk of competitive mediocrity endemic in association with outsourcing. When tasks are outsourced, purchasing companies are at risk of loss of competitive advantage. In addition, the commitment of current workers in purchasing companies may decline. Once

a process is outsourced, it is difficult for purchasing companies to retain any competitive advantage. Therefore, in order to protect purchasing companies, outsourcing tasks should not be central to core competence nor central to the mission of the purchasing company.

2.5.2.8 Other outsourcing risks

Ellram et al., (2008) summarise business risks associated with outsourcing such as incomplete specifications or specifications needing constant updating. If purchasers were unclear about task specifications and unable to measure performance, and if the market was volatile, the risks for purchasing companies would be high. The more volatile the supply and market environment, the less likely the tasks should be outsourced.

Related risks include the inability to measure performance, and geographic and cultural differences that make the measurement of supplier performance difficult. Willcocks et al. (1999) add incomplete contracting and difficulties in manufacturing and adapting in the face of rapid business and technical change. Grover and Teng (1993) further state that there are risks in cost conversion and the management of alliance and involvement with a supplier's problems of finance and management. For example, suppliers might fail to commit to their own outsourcing contracts, or be slow in implementation of contracts so that promised features cannot be achieved. In addition, top management of a purchasing company might be required when there are inter-firm outsourcing relationships. Purchasing companies might also face supply restrictions and face being locked into obsolete technology.

Tayles and Drury (2001) state that some companies adopt an approach with an emphasis on short-term cost and profitability considerations. This operational cost-based approach may result in a failure to achieve both possible savings and the companies' manufacturing strategies. In addition, there are offshore and country risks such as communication (tasks requiring substantial interplay between customer and service provider), and cultural bias (cultural norms and mores that are in conflict with working Western corporations). Further risks include financial risk such as suppliers filing for bankruptcy. There is also a pricing

risk such as price increases or where supply organisations do not drop prices when market prices change (Li et al., 2007).

2.5.2.9 Specific problems when outsourcing to China

According to the literature, the specific problems for Western companies in conducting business with companies in China include:

- hidden costs which are unpredictable (for example, local government and bank fees in China) (Kennedy & Clark, 2006)
- overloaded bureaucracy, erratic government responses and unclear government policies (Li et al., 2007)
- violation of intellectual property rights in China (Ting, 2004)
- loss of an organisation's confidential information; and extra inter-firm business costs being too high (for example, travel, select locations, contracting, telecommunication and training costs) (Leavy, 2004).

2.6 Management control systems (MCS), trust and minimisation of risk in outsourcing

In order to solve the problems and achieve the outsourcing goals, companies seek solutions. The literature indicates that management control, trust and the balance of these two are important.

2.6.1 MCS and trust

In reviewing management control and trust, there is a lack of research in the field of inter-firm relationships in relation to outsourcing operations (Van der Meer-Kooistra & Vosselman, 2000). In addition, according to Langfield-Smith et al. (2000), there is a requirement for more case studies on ongoing management and control within outsourcing relationships to identify management issues.

Ellram et al. (2008) and Grover and Teng (1993) emphasise a high level of need for the monitoring and control of outsourcing systems in order for companies to attain their objectives. Because the relationships in outsourcing contracts involve high levels of uncertainty and risk for business partners on both sides, adequate

control is important. Purchasing firms cannot receive their desired products if there is no control or the control is below desired levels.

The design and control of inter-firm outsourcing systems require correct management control systems as well as operational implementation. This means that the design of management control for strategic alliance relationships between outsourcing companies and suppliers, both formal information systems and less formal management reviews, has become an important issue for purchasing firms (Das & Teng, 2001). Langfield-Smith et al. (2000) identify three inter-related elements for the extended make-or-buy decisions: the structural basis of insourcing or outsourcing; the nature of the contracted parties; and the design of internal management control systems and outsourcing relationships.

The purpose of a contract is to consider the nature of the relationship in the beginning, and specify some ground rules (Spekle, 2001). However, contracts cannot cover all contingencies during the whole contract period. Therefore, in addition to the contract, good protocols for communication, performance monitoring, including measures of operation performance in delivery responsiveness, product quality and production costs are needed (Shy & Stenbacka, 2003). Kamminga and Van der Meer-Kooistra (2007) argue that shared ownership of the business increases the complexities of control issues. Transactions between firms, relational characteristics and their interconnectedness are all-important. According to Langfield-Smith et al. (2000), inter-firm monitoring includes two forms of control: direct and indirect. Direct control includes direct supervision and overview of staff, and indirect control includes task delegation, reporting, and performance monitoring. In outsourcing, direct control by purchasing firms is usually not used because suppliers are performing outsourcing tasks. Each side of a partnership may not be able to access management information from the other side. Indirect control is also hard to enforce as inter-firm relationships face different levels of expertise, cultures, corporate values, strategies, goals and methods of operation.

Langfield-Smith et al., (2000) identify mechanisms to improve control such as key performance indicators and performance measures, coordinating production,

determining responsibility for costs and post-implementation reviews. Additional related issues also include stating the baseline level of service in contracts; verifying the cost of the baseline service; managing culture difference; and implementation of communication processes and building trust. Baseline service refers to the costs of maintaining all management systems at the levels contracted. Their further studies found that the following are relevant to the management of outsourcing: carrying out outsourcing tasks; handover to suppliers; contract specification; performance measurement and incentives; relationships between suppliers and internal customers; meetings; employee issues; and business alignment and trust. In addition, Beaumont and Sohal (2004) and Langfield-Smith and Smith (2003) introduce some stages of managing outsourcing processes which include defining scopes of service and products to be outsourced, measures of quality, internal transition arrangements, contracting, extension of the supply chain operation, monitoring, and renegotiating or terminating contracts.

Langfield-Smith and Smith (2003) provide a TCE-based model of markets, bureaucracy and trust-based patterns for inter-firm outsourcing relationships emphasising the importance of building high levels of trust. Here, in order to solve the problem of how business partners cooperate with each other with minimal outsourcing risk, contractual trust, competence trust and goodwill trust are needed.

In the case of outsourcing relationships between companies in Australia and China, a study is needed focusing on control and trust, because the balance of control and trust may be of significance in achieving success. Insufficient control can lead to quality problems and opportunism, whereas too much control may increase management costs and damage business relationships (Li et al, 2007). In this context, trust is highly important, whereas the control level is adjustable. This occurs because people prefer trust rather than control. If people do not feel they are being trusted then business relationships will suffer (Li et al., 2007; Qu & Brocklehurst, 2003).

Langfield-Smith and Smith (2003) and Sako (1992) state that trust plays an important role in outsourcing relationships. Incentives and trust are counted as two

related aspects of governance. Three kinds of trust are identified: contractual, competence and goodwill. Contractual trust is based on moral standards, and the more there is of this kind of trust, the less effort is needed to collect information for the prevention of opportunistic activities. Competence trust assumes that suppliers have enough technical and management competence to perform the contracts. Kamminga and Van der Meer-Kooistra (2007) point out that by the investment of contracting parties, competence trust can more readily be achieved in the relationship. Goodwill trust is based on the assumption that both sides have an open commitment to each other. Commitment here refers to a willingness of both parties to perform beyond the formal expectations being developed in their established contractual relationships. Das and Teng (2001) and Gulati and Singh (1998) state that when trust has a certain weight in transactional relationships, this means that both sides can make fewer assumptions about incorrect or incomplete information from the other side of the partnership. Trust is also an important mechanism in outsourcing networking to achieve the success of the contract aims.

A balance between control and trust is important for a successful outsourcing business. In fact, the balance between performance monitoring and trust is more important when outsourcing from Australia to China because of differences in culture, education levels, and business motivation between staff and companies in both countries. This coincides with the finding of Langfield-Smith and Smith (2003) that in order to facilitate a long-term relationship between purchasing companies and suppliers, a correct strategic balance between control and trust is necessary.

2.6.2 Other solutions to problems

The literature suggests some possible solutions for outsourcing problems (Benson & Ieronimo, 1996 Berman & Swani, 2010). Sample solutions include the development of specifications that are more complete, long-term contracts, and the development of strategic, trusting, and cooperative relationships. The solutions also include 'out-tasking' which consists of assigning operations tasks to business partners (for example, overseas call centres) or retaining own management overseas (for example, build own factories overseas). Other examples include improvement in planning, performance management, trust and communication. Further solutions

include changing suppliers in China, building new relationships in other countries, or returning to insourcing in own countries.

Performance management is usually required to control the outsourcing relationships. Such management is of benefit to both parties when operation processes are improved (Beaumont & Sohal, 2004; Langfield-Smith & Smith, 2003). Performance management refers to the technique of collecting and using information to coordinate processes, and controlling decisions in both the outsourcing process and the staff involved. It is a generic term referring to multiple functions encompassing multiple elements used for different objectives including international outsourcing (Langfield-Smith & Smith, 2003). The approach is important because it affects international outsourcing activities. Organisations are less likely to achieve their goals if they fail to control their outsourcing activities by managing performance (Covaleski et al., 2003; Narayanan et al., 2004).

Ellram et al., (2008) find that some ways to lessen risks are to develop measurable specifications, use random customer satisfaction surveys, and to use internal consultants and benchmarks to develop trust and cooperative relationships. The other way is to ignore risks when the cost difference caused by the risks is small. Additional ways of negating the risks are to follow others that are considered leaders, and to be cognizant of market risk, or retain production domestically or internally. Kennedy and Clark (2006) also argue that if there is inability to measure performance by purchasing companies (for example, geographic and cultural differences make measurement of supplier performance difficult) and there is under-delivery of produced goods (or provided service) and lack of communication, the purchasing companies need to maintain the security of their core technology in order to maintain their own competitive advantages.

2.7 Achievements from outsourcing and key success factors

After the development of outsourcing in international trade, although there are some problems associated with the outsourcing practices, companies have found

the overall results of the business are positive. In addition, companies look for the key success factors for the management control systems. A summary of the advantages and success factors found in the literature follows:

2.7.1 Achievements

As a widely used manufacturing strategy there are many advantages and benefits associated with outsourcing. Compared with traditional manufacturing strategies such as vertical integration, overseas outsourcing is relatively new, having grown rapidly in the past twenty years (Leavy, 2004). The reasons for its growth have become the subject of many published articles (Beaumont & Sohal, 2004; Lam & Han, 2005; Li et al., 2007).

Comparative production costs are the strongest predictor of make-or-buy decisions. Lower-cost labour, less-restrictive work rules and lower land and facility costs are the primary reasons for Western companies to outsource to developing countries (Ettlie & Sethuraman, 2002; Gilley et al., 2004). Two decades of outsourcing practice have proven that the results for businesses are a net benefit (Gilley & Rasheed, 2000; Jones, 2001; Quelin & Duhamel, 2003). In Australia, Beaumont and Sohal (2004) also point out that outsourcing has increased because of the benefit of cost savings.

Furthermore, Li et al. (2007), and Lam and Han (2005) find additional advantages in outsourcing such as achieving market development knowledge, learning of management skills, new product development knowledge and obtaining new and important information from suppliers. Other detailed examples include: reduction of spending in facilities (Heikkila & Cordon, 2002; Gilley et al., 2004), taking advantage of the supplier's expertise and technologies (Ellram et al., 2008; Kamminga & Van Meer-Kooistra, 2007), taking advantage of the supplier's economy of scale (Langfield-Smith et al., 2000), reducing own operation size (Yang & Huang, 2000; Jones, 2001; Munsch, 2004; Metters, 2007), increasing flexibility obtained by changing contracts and business partners (Quelin & Duhamel, 2003; Langfield-Smith et al., 2000; Metters, 2007), and concentration on core activities and competencies (Gilley et al., 2004; Quelin & Duhamel, 2003).

2.7.2 Key success factors

Grover, Chen and Teng (1996) conclude that outsourcing success can be measured by four dimensional factors consisting of strategic success, financial success, technological success and relationship satisfaction. Strategic success refers to an organisation's ability to focus on its core business. Measurements of the success include the ability to refocus on core business, enhance core competence and access updated technologies. Financial success refers to an organisation's ability to utilise the economies of scale of suppliers and reduce costs. Related measurements include increasing control over production expenses and achieving considerable financial benefits for purchasers. Technological success refers to the ability of organisations to gain access to manufacturing expertise and the latest developments in technologies. This success can be measured by less risk of technological obsolescence. Technologies and service from suppliers can be compatible with the organisation's in-house systems. Relationship satisfaction is the level of satisfaction of stakeholders with outsourcing relationships. This can be measured by the benefits derived from the outsourcing relationship, the information from suppliers, the interaction with suppliers, and overall benefits from outsourcing. It is necessary to provide better control and monitoring of outsourced operations (Ellram et al., 2008). For success in management control, Ellram et al. (2008) maintain that those purchasing companies must have their own control when they outsource production to offshore suppliers.

Langfield-Smith et al. (2000) summarise several key issues in managing outsourcing relationships. For example, adequately specified contracts are an important issue in managing outsourcing relationships. Companies should make contracts that can be revised over time, or develop a relationship that goes beyond contractual obligations. In the beginning, it is difficult to realise all the needs. However, it is necessary to recognise some specific needs and requirements after a certain period. New management skills need to be developed in many areas, such as communication, negotiation and inter-firm skills for outsourcing relationships. In addition, a high level of trust is an important element for a workable contract and cooperative outsourcing relationships. Effective communication has a positive effect on the development of trust by clarifying expectations and encouraging

positive interactions. Direct supervision over staff of business partners is usually not possible because management power cannot strongly affect the other side of a business partnership. Therefore, more reliance is necessary on formal and indirect control mechanisms. The possibility of loss of management control depends on the nature of business activities outsourced. Burdon and Bhalla (2005) further provide some factors indicating how managers can best achieve their benefits: designs of contract style and management control systems; and managing innovation, relationships and workforce.

Kennedy and Clark (2006) discuss other success factors including a good understanding of risks when high technologies are transferred, and the differences of the Chinese legal system. The key success factor is proper management of the legal risks. For offshore production, Preston (2004) provides some solutions including identifying processes and activities in host countries, a full range of alternatives for implementation and subsequent operations, and an objective evaluation for strategic, financial, and organisational criteria. Roth and Miller (1992) provide a model linking manufacturing strategy and management factors to manufacturing and managerial success. P A Consulting Group (1996) suggests that an outsourcing contract needs clear specifications so that activities are well defined. These include clear definitions of the roles and responsibilities of both sides, good relationships with suppliers, and effective monitoring of suppliers.

2.8 Summary of relevant literature

Many organisations consider that fixed costs are too high under the vertical integration manufacturing structure. In addition, this structure is inflexible and detracts from competition in the global environment. In order to remedy these disadvantages, changes in manufacturing strategies need to include the outsourcing of components and products overseas, and conducting offshore production and ceasing production. The general structures of manufacturing governance to choose from include vertical integration; strategic alliances and arms-length short-term contracts. Manufacturing vertical integration and outsourcing, as well as a combination of these two, have both benefits and risks.

Available knowledge shows that in choosing the correct level of production to outsource, purchasing companies should aim to carry out only peripheral outsourcing of activities that are not critical to the main strategic competence of company maintenance and growth. Companies in developed countries should mainly focus on outsourcing their non-core, low technology, labour intensive components and products to developing countries including China. The transaction cost economics' perspective and the resource-based perspective suggest that operations that do not belong to core technique areas and not critical to core competencies of purchasing companies are more likely to be outsourced. However, activities critical to business performance through innovation and rejuvenation policies that are designed to create competitive advantage and future growth need to remain in-house in order to retain high technology, as well as being capital intensive and retaining core production. In addition, if company assets are specific and specific technique support is required for production, the company is less likely to outsource the activity.

Correct selection of suppliers is an important step leading to success in outsourcing. This selection should take into account the multi-objectives of companies including whether activities to be outsourced are core or non-core. It also needs to determine the capabilities of suppliers, the significance of benefits for purchasing companies, the management control levels required and environmental issues around the outsourcing operations.

Offshore production can achieve better control of production and higher cash flow savings than offshore outsourcing projects. Some companies aim to restructure their manufacturing by creating a transformational outsourcing network in order to achieve low costs and effective production. Companies with transformational offshore outsourcing strategies have greater opportunities to achieve long-term competitive advantages compared to those which only focus on cost savings and concentrate on core competencies. Using suppliers' knowledge, integration and effective management processes, these companies initially start outsourcing to access lower labour costs but then stay on to develop innovations as their central activity, with more value-added components being possible.

Risks and problems associated with outsourcing include the difficulty of identifying reliable suppliers, high transaction costs, problems in quality, delivery and innovation, the incompatibility of business mechanisms, loss of management control, loss of an organisation's confidential information, leakages of intellectual property, and the loss of overall market performance. Some Western companies have not achieved their outsourcing goals, and either returned to sourcing in their home countries or insourcing within their own companies.

Adequate management control is important. Purchasing firms cannot receive their desired products if there is either no control or the control is below desired levels. Management control systems are used for collecting information to coordinate, plan and control decisions. The other side of control is trust for maintaining long-term relationships. When there is a high level of trust, less control is required and transaction costs can thus be reduced. Overall, in order to facilitate a long-term relationship between purchasers and suppliers, a correct strategic balance between control and trust is necessary.

Solutions to outsourcing problems include the development of more complete specifications and long-term contracts, and the development of strategic, trusting and cooperative relationships. The solutions also include the use of 'out-tasking', which consists of either assigning operational tasks to business partners or retaining own management overseas. Other examples include improvement in planning, performance management, trust, and communication. Further solutions include changing suppliers in China, building new relationships in other countries, and returning to insourcing in own countries.

Performance management is usually required to control outsourcing relationships. Ways to reduce risk include developing measurable specifications, using random customer satisfaction surveys, using internal consultants, and benchmarking to develop trust and cooperative relationships.

As outsourcing provides benefits for purchasing companies, this practice has grown considerably over the last twenty years. The benefits include achieving production cost savings, taking advantage of the supplier's expertise, technologies and

economy of scale, and concentrating on core activities and competencies. Outsourcing as a manufacturing strategy can improve supply chains in several ways including production cost savings, leaner production lines in-house and higher concentration on core activities and competencies. In outsourcing to China, reduction and control of production costs can be maintained through using large capacity suppliers, accessing specialised skills from suppliers, and reducing product recycle time by making and selling goods to local markets in China.

Outsourcing success comes from trust and mutual cooperation, which are critical. Effective communication has a positive effect on the development of trust by clarifying expectations and encouraging positive interactions. The key success factors for outsourcing are having proper management of all legal risks; good contract design and management control systems; managing product innovation, supplier relationships, and a superior workforce in-house. For offshore production, outsourcing contracts need clear specifications so that activities are well defined. These include clear definitions of the roles and responsibilities of both sides, good relationships with suppliers, and effective monitoring of suppliers.

The review of the literature has identified three gaps that have led to the development of the research questions used as the basis for this study. The gaps include research into outsourcing relationships between companies in Australia and China; research into manufacturing outsourcing; and research into company-level outsourcing relationships and the extent of control. These have also led to the research foci on the problems of outsourcing to China, the available solutions, and the business success factors that arise from the conceptual framework in the next chapter.

The literature reviewed is reliable and relevant to this study, providing a background for this study. For example, some articles provide theory of manufacturing strategies that form a basis for this study (for example, Bock, 2008; Buxey, 2000). Some provide examples of transaction cost economics (for example, Aubert et al., 2004). Some provide a framework of management control systems (for example, Langfield-Smith et al., 2000). Peer reviewed journal articles provide

empirical evidence for the research framework and the grounds for research questions.

However, some are general text books (for example, Hayes, Pisano, Upton & Wheelwright, 2005; Hayes, Pisano & Upton, 1996; Hayes & Wheelwright, 1984;) with not many detailed company business data regarding outsourcing, some have data about companies in Australia but not focusing on companies in China (for example, Beaumont & Sohal, 2004; Buxey, 2000; Langfield-Smith & Smith, 2003; Mayhew et al., 1997). Most available articles are examining European or American outsourcing (for example, van der Meer-Kooistra & Vosselman, 2000; Willcocks et al., 1999). Some research focuses on business in China, but not in Australia (for example, Lei, 2007; Li et al., 2007). There is very little research focusing on outsourcing relationships between companies in Australia and China.

2.9 Limitations in available literature and need for further development

As a result of the literature review, limitations regarding knowledge of the relationships between companies in Australia and China, the outsourcing of manufacturing products, and the management control of outsourcing relationships have been identified. These have led to the focus and development of this research as follows:

2.9.1 Research into outsourcing relationships between companies in Australia and China

While the majority of researchers have focused on domestic outsourcing within European countries and the United States, or outsourcing from these countries to developing countries, much less research has focused on the outsourcing relationships between companies in Australia and China. This is despite the fact that the latter has rapidly increased due to lower labour costs in China and the global strategies of companies in both countries (Liu & Brookfield, 2006; Ting, 2004). China and Australia have reciprocal trade relationships, and China has become Australia's largest trading partner (DFAT, 2010). Australia-China trade is

therefore very important to companies in Australia. Companies in China have the advantage of low-cost skilled labour, some manufacturing technologies, and huge production facilities for labour intensive products. Chinese ports have also improved their shipping capacity for their imports and exports (Kennedy & Clark, 2006; Nassimbeni & Sartor, 2006). Companies in Australia can reduce production costs by outsourcing to China, therefore increase their competitive advantage. As Australia has some of the advanced technologies, capital and mining resources needed by China, increasing demand for reciprocal business agreements has been created (Benson & Littler, 2002). As a result, Australia and China are currently negotiating a Free Trade Agreement that is expected to encourage more trade (DFAT, 2010). In addition, the shorter distance between Australia and China has given Australia a particular advantage over European and American countries in product shipments.

2.9.2 Research into manufacturing outsourcing

Much study has been undertaken in the area of information and communication technology (ICT) and other types of service trades (for example, recruitment, training, and call centres) (Costa, 2001; Barthelemy & Geyer, 2001; Lacity & Willcocks, 1995 & 1998). However, there is not enough research focusing on the outsourcing of manufactured components and products (Chen & Paulraj, 2004; Corswant, 2002; Ettlie & Sethuraman, 2002). This is despite the fact that China is currently the greatest exporter of labour intensive products in the world (Ross, 2006), and the nature of manufacturing production requires more complex technologies than service trades. For example, concerns of product quality, delivery, and innovation for production need to be addressed. These include some significant problems related to quality deficiency, delay of shipments, lack of up-to-date technologies, and the low motivation for innovation and solutions to trade problems encountered by offshore outsourcing. In addition, the intellectual property of products and management control problems are significantly in need of detailed analyses, as they may affect outsourcing goals (Hong, Chin & Liu, 2004; Qu & Brocklehurst, 2003).

2.9.3 Research into company-level outsourcing relationships and extent of control

There is not enough research identifying the management control of outsourcing relationships (Lamminmaki & Guilding, 2004; Langfield-Smith & Smith, 2003), and not enough empirical research on the design of company-level performance monitoring and the role of trust in inter-firm outsourcing relationships for manufacturers and their supply chains (Langfield-Smith et al., 2000). There is also not enough research into how performance management is suited to the stability of strategic alliances (Gilley & Rasheed, 2000). Moreover, there is still a need for governance structures for strategic alliances with overseas suppliers and measurements for the performance of operations (Langfield-Smith & Smith, 2003; Gilley & Rasheed, 2000; van der Meer-Kooistra & Vosselman, 2000). These outsourcing relationship management issues are in need of further research.

Available literature describes supply chain management theory in relation to outsourcing in general (Gunasekaran, Patel & Tirtiroglu, 2001; Petersen, Frayer & Scannell, 2000; Trent & Monczka, 2003). Compared to the trade by European and American companies, service trade and within-organisation management control, the detailed outcomes may be different for typical manufacturing outsourcing relationships between companies in Australia and China and their related performance management. These practices need more investigation. In addition, the reviewed articles do not provide enough detailed company-level research information for use in this research, as there are not enough details on actual company situations which discuss typical inter-firm business problems, solutions and business success factors that occur in the management of outsourcing manufactured products from Australia to China.

Chapter 3

Conceptual framework

3.1 Introduction

This chapter presents the thesis arguments, research questions, research propositions, and conceptual framework used in the research of outsourcing components and finished products, specifically from Australia to China. Following the literature review in Chapter 2, the thesis arguments are developed and used to explain the research areas or gaps in knowledge. These arguments lead to the development of the three research questions and, are answered by the data analyses, they help resolve the research questions. The identified gaps in knowledge addressed in Chapter 2 form the justification for the research questions which are the main objectives that the research will answer, and they translate business problems into specific needs for inquiry. These questions are then included into a framework aimed at collecting data and analysis. In conjunction with the research questions, three such propositions are derived. As research propositions are statements about relationships between the concepts in this study (Zikmund, 2003), testing them will assist in answering the research questions.

A research model is proposed in order to identify and clarify the research topic and questions (Croom, 2009; Gaviious & Rabinowitz, 2003). Hence the conceptual framework includes inter-firm relationships, risks and problems, and solutions and business success factors between purchasing companies and suppliers. The full epistemological basis for the study is explained in section 4.1. However, correct strategies of outsourcing for improved supply chains, as the study will show, imply a wider focus involving five stages of improvement in supply chain management. Discussion of the detailed conceptual framework is following.

3.2 Thesis arguments

Based on the literature review, this study argues that although companies face many business risks while outsourcing, as long as there are cheaper external sources including labour, materials and utilities for production needs, companies would generally be prepared to make the effort and take risks for these cost-saving opportunities. The outsourcing business has grown faster than many traditional businesses (Quinn & Hilmer, 1994; Ross, 2006). The major reason for this is that purchasing companies have achieved significant financial benefits; mainly production cost savings during the operations, even though there are many problems and risks associated with this practice. Other than cost saving, many purchasing companies aim to achieve benefits of quality, delivery and flexibility of production. However, in the case of outsourcing in China, there are higher risks and problems including transaction costs and production capacities reviewed in Chapter 2. Thus the first thesis argument is:

International outsourcing can achieve significant cost savings on production and service. However, new problems are generated from the inter-firm relationships. In addition, many companies achieve less cost savings than anticipated in their initial plans.

Given inter-firm business problems in outsourcing to China, different companies may have different solutions. In order to continue achieving significant cost savings and other benefits, solving product quality and delivery problems and protecting intellectual property and know-how skills, management control and communication have become the most significant techniques that those Australian companies need to develop. Thus the second thesis argument is:

The solutions for outsourcing problems include strong management control such as sending staff to visit factories of business partners, hiring third party quality inspection agents, and changing payment terms. The solutions also include improving communication levels such as setting up offices in China, employing bilingual staff, and having more transparency on company data for business partners.

Other than solving current business problems, companies also look for long-term strategies for success. Some business success factors may be important for conducting outsourcing in China. Thus the third thesis argument is:

To ensure the success in outsourcing to China, the important business success factors are specifying quality and service standards in contracts and managing the handover process well; achieving a proper strategic balance between trust and management; controlling one's business partners; reviewing and measuring performance to evaluate the stability of offshore business relationships.

These three arguments are addressed in section 8.4. From the arguments above, research questions are derived as follows.

3.3 Research questions

International outsourcing practices have grown rapidly over the last twenty to thirty years. Researchers and managers are greatly interested in understanding the performance outcomes and problems associated with these practices. Based on some studies that have addressed the business problems and risks (Gilley & Rasheed, 2000; Leavy, 2004; Yang & Huang, 2000), a further detailed study is developed to illuminate the specific organisational levels of manufacturing outsourcing relationships and management between companies in Australia and China. It is proposed that these relationships might have different problems compared to existing research. This possibility leads to the first research question of this thesis:

1) What are the main business problems due to extension of supply chains when companies in Australia outsource their components and finished products to companies in China?

In addition, managers need to find solutions for outsourcing problems, especially for new overseas operations. Outsourcing manufacturing structures are new compared to some traditional manufacturing structures such as internal vertical

integration. Given that, the practices under this new structure have a high level of uncertainty and risk, managers need to know how the problems can be solved and decide whether they should move from a general make/buy decision to the possibility of strategic sourcing (Tayles & Drury, 2001). This leads to the second research question of this thesis:

2) What solutions are available for the outsourcing problems of these companies?

Managers are concerned with an organisation's long-term strategy and vision, and performance measurement for improving management control systems. Accordingly, a multitude of business success factors at the organisational level should be considered. The financial and operational measurement and improvements in this study are measured from the organisational level. In addition, the situation of outsourcing may be different according to the local business and the selected countries. This leads to the third research question:

3) What are the main business success factors for improving the management control systems for inter-firm performance management when outsourcing from Australia to China?

These three questions are addressed by the research results in section 8.3. Three research propositions are derived from the literature review and these questions clarify the elements on which data will be collected.

3.4 Research propositions

Based on the literature review and research questions, three propositions related to the research topic are derived as follows:

1) There should be many business problems of outsourcing manufacturing from Australia to China. These should include unexpected high transaction costs in operations; overloaded bureaucracy in China; Australian companies' loss of key

capabilities, skills and intellectual property; and loss of management control (Qu & Brocklehurst, 2003; Young, 2000).

2) Companies in developed countries such as Australia should mainly outsource labour intensive, low technology and low capital manufactured components and finished products to developing countries, but retain the core parts of production, high technology and high capital intensive parts of manufacturing in their own domestic factories, or within their home countries (Li et al., 2007; Tayles & Drury, 2001).

3) The main business success factors for outsourcing to China should include good preparation, correct strategies and good operations management (Johnston, McCutcheon, Stuart & Kerwood, 2004).

These propositions are verified against findings in questionnaires and case studies, and discussed in sections 7.8.1 and 8.2.

3.5 Outsourcing procedures and conceptual framework

The conceptual framework is based on outsourcing characteristics, the theory of manufacturing strategies, TCE, MCS and information of other international outsourcing practices (Buxey, 2000 & 2005; Remenyi, Williams, Money & Swartz, 1998). This framework is based on using experience survey and case studies to obtain exploratory qualitative information about the present problem situation in manufacturing outsourcing overseas. In addition, one of the advantages of case studies is that company business information can be obtained in depth and details (Zikmund, 2003, p. 114 - 116). The aim of the conceptual framework is to investigate this outsourcing situation in depth and obtain qualitative information grounded in theory yet useful to practitioners' needs. In designing the framework, the sequential areas of logistic business positioning, outsourcing strategies, inter-firm performance management, performance measurement, and solutions to problems found are separated into five stages. This framework follows the sequence of outsourcing procedures in an organisation.

Figure 3.1 shows the stages of an outsourcing framework used for researching the current nature of the practices.

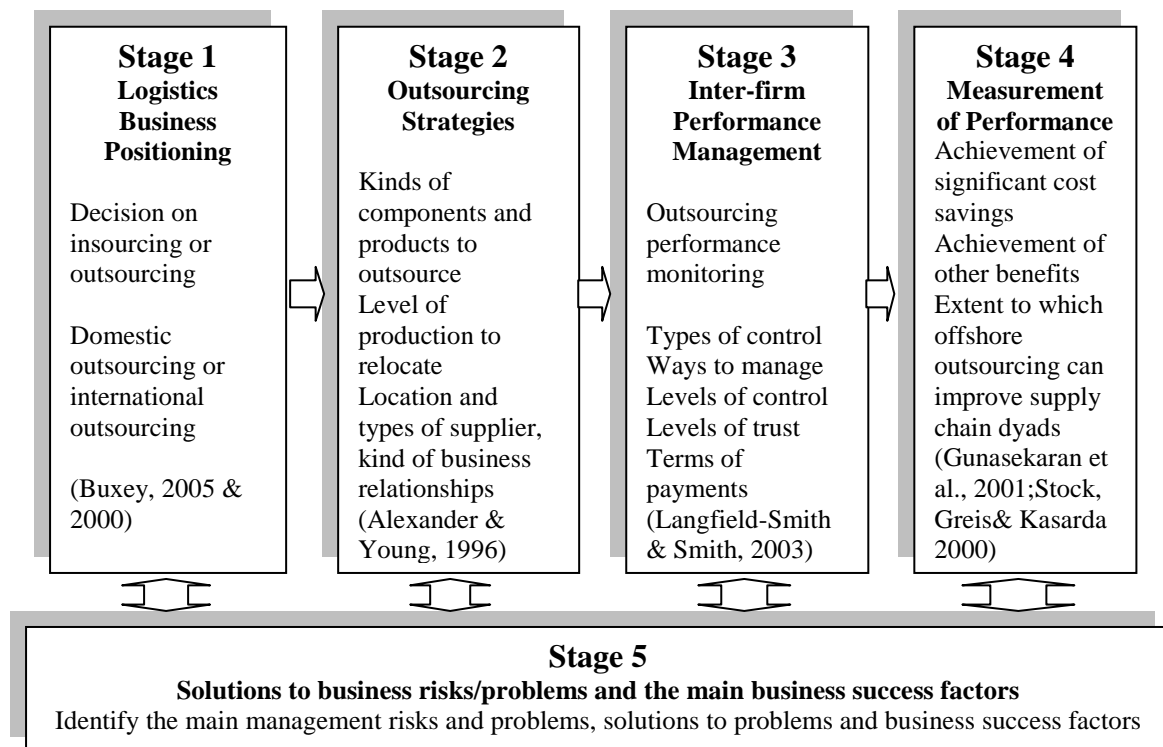


Figure 3.1 Process stages in an outsourcing framework

Source: adapted from Buxey (2005 & 2000), Alexander and Young (1996), Langfield-Smith and Smith (2003), Gunasekaran et al. (2001), and Stock et al. (2000).

The following paragraphs give details of the stages:

Stage 1 Logistic business positioning

Logistic business positioning is the first outsourcing stage. This includes strategic choices of either insourcing within own factories or outsourcing to external business partners, and choices of domestic outsourcing or to overseas suppliers (Buxey, 2005 & 2000). It involves major changes to supply chains.

Stage 2 Outsourcing strategies

Outsourcing strategies include decisions on the kinds of components and finished products suitable for outsourcing (for example, only low technology and labour intensive, or high technology and high capital required products); outsourcing of only some parts (for example, only some non-core parts) or the whole (including

core-part) production; where to outsource to; kinds of suppliers to contract with (for example, manufacturers or agents, large or small factories); and kinds of business relationships to be formed (Alexander & Young, 1996).

Stage 3 Inter-firm performance management

Inter-firm performance management determines the outsourcing management decisions. This includes types of control needed when companies in Australia outsource production to China (for example, production monitoring, reporting systems and quality inspection); ways to manage offshore inter-firm relationships (for example, audit, travel to or hire staff in China and provide training); levels of control needed for specific products and outsourcing operations (full or low-level control); and levels of trust suited to dealing with companies in China (levels of trust and control required) (Langfield-Smith & Smith, 2003).

Stage 4 Measurement of performance

Measurement of performance concerns the management required to measure performance of the whole outsourcing operation. It comprises performance planned, cost savings obtained, and other goals and benefits achieved when compared to initial plans. Australian companies also need to determine the extent to which offshore outsourcing can improve overall supply chains (for example, whether supply chain operations can gain significant improvements on cost, quality, flexibility, and delivery) (Gunasekaran et al., 2001; Stanley & Wisner, 2001; Stock et al., 2000).

Stage 5 Solutions to business risks/problems and the main business success factors

This interactive stage addresses the effectiveness of the previous parts in achieving the purchasing company's aims. The problems encountered during Stages 1 to 4 are enumerated, analysed and solved in Stage 5. This final stage identifies the major problems associated with outsourcing business to China that management needs to solve, and what solutions can be found. In order to achieve long-term success, managers also need to determine the main success factors.

This whole framework enables one to investigate the theory of outsourcing in-depth and in relation to the supply chain dyads of manufacturing companies. After reviewing Stages 1 to 5, the research questions of this study can then be answered. These stages form the conceptual framework design for this study.

3.6 Summary

This chapter introduces the thesis arguments, research questions and research propositions related to the research topic. These form the concept of outsourcing procedures and the conceptual framework. This work was built on the literature review and provides the basis on which the research is carried out. The next chapter introduces the methodology and research design showing the particular methods used to obtain and analyse data.

Chapter 4

Methodology and research design

4.1 Introduction

Lancaster (2005) and Remenyi et al. (1998) explain that the general steps of a research sequence include identification and delineation of the area of research; selection of a specific topic; choosing appropriate research methods; setting the research approach; formulation of a research plan; information and data collection; data analysis; and the discussion and conclusion of findings.

Following the conceptual framework presented for use in investigating companies outsourcing to China in Chapter 3, this chapter describes the methodology and design used to test the research propositions, answer the research questions and support the thesis arguments.

This DBA study is an empirical problem-centred research, primarily aiming to investigate the practical management issues faced by specific organisations with a view to investigating and resolving outsourcing problems and identifying success factors for real-life management. In order to do this, a mixed method approach is used, incorporating both quantitative and qualitative methodologies. Firstly, a questionnaire survey was designed based on secondary data was used to determine the main research issues. The main aim of the questionnaire was to collect business people's opinions about outsourcing from Australia to China. Their experience is a valuable contribution to the results of this research. After questionnaire data were collected, some quantitative statistical methods were used to analyse the data from the questionnaires. Next, face-to-face interviews were conducted with managers of Australian companies to gain more detailed personal opinions especially regarding the inter-firm business relationships. Based on the principles of case study (Yin, 2003), interviews were written up as case studies, with the addition of data from the corresponding surveys (for the same company) and company secondary data, in order to achieve the overviews of the outsourcing problems, solutions and business

success factors. A qualitative analytical method was then used in conjunction with the questionnaire findings to discover the research results. The methods include within and cross-case analyses, which are the major parts of this study providing evidence to answer the research questions. The reasons for choosing this mixed methodology and the processes involved in the research design are discussed in the following sections. This research is built on the existing knowledge of manufacturing strategies, TCE, MCS and journal articles regarding outsourcing. The practical information from Australian managers in questionnaire survey and interviews is also provided the base for this research.

4.2 Research approaches

Lancaster (2005) and Remenyi et al. (1998) provide the following general phases for the research process as including:

- literature review
- identification of the research questions and problems
- formalisation of methodology
- gathering of evidence (questionnaires and interviews)
- undertaking case studies
- analysis of data
- conclusion of research results
- indication of limitations and future research.

For this study, the choice of appropriate methods for investigating outsourcing problems is important. The reasons for choosing extraction of secondary data, a questionnaire survey, and interviews and case studies are because extraction of secondary data can cover a broad range of existing research results, some of which are significant for comparison with the results of this research. In addition, a questionnaire survey is the most practical way to reach a large number of potential participants. Names and addresses of the potential participants can be found in company sources that are available to the public. Interviews can offer detailed information about company background information and practices. Case studies can describe details of business practices. Cross-case analysis can compare outsourcing

issues of the research factors between companies. Because participants of this research were managers undertaking outsourcing and import/export business with companies in China, other possible methods, such as focus groups or deep studies of individual companies were not practicable for this university student research. Focus group interviews were not used as they usually require the participation of several people meeting together for one hour or more. A deep study of a company required conducting interviews with several people involved with the business in a company. For this research, business professionals would be unable or unwilling to make this kind of time commitment.

Therefore, the mix methods of quantitative and qualitative analysis research approaches of this study were devised as follows:

- Extraction of secondary data
- Questionnaire survey
- Questionnaire data analysis
- Face-to-face focus interviews
- Compilation of case studies
- Within and cross-case analysis
- Compare findings of this study with other research.

The main method of extraction of secondary data was a *literature review* that was undertaken to identify the problems and gaps for this research and provide evidence to support answers to the research questions in a conceptual framework. Another method was to extract information from the websites of companies. A *questionnaire survey* was used to reach a broad range of managers and officers in the field, and to collect data. *Questionnaire data analysis* was used to compare the results from the completed questionnaires and to identify significant issues. After the completed questionnaires were collected, some opportunities for face-to-face interviews were found. Most interview opportunities were found in this way. *Interviews* were then conducted to gather some details on company business information regarding their outsourcing business to China. *Case writing* combined information from completed questionnaires, interview records and company website information, and provided some within-case analysis. *Cross-case analysis* was used to identify significant

similarities and differences of inter-firm problems, solutions, and main business success factors between companies. Lastly, this research compared the findings of this study with other research in the literature to identify the similarities and differences in the research of problems, solutions, and business success factors for outsourcing to China.

4.2.1 Research scope and population identification

The scope of this thesis covers outsourcing for production cost savings along with other related manufacturing elements such as quality and delivery. It includes the data from the literature review, survey and interviews. For questionnaire mailing, names and addresses of companies carrying out manufacturing outsourcing business with China were selected from the website of the Australian Stock Exchange and the websites of some Australian companies. The sample size for mailing questionnaires was six hundred. The 51 questionnaires returned were considered to be representative and of credible size (Lancaster, 2005). The proportion returned was lower than one would prefer, but this was the number that could be obtained in this case.

End of each blank questionnaire, participants were asked if they would like to being contacted for interviews. In the completed questionnaires, six participants indicated that they were willing to be contacted for interviews, and provided their addresses and phone numbers. In addition, two interview opportunities were found from the members of the Australia China Business Council (ACBC). In this way, eight Australian companies were identified as the population for case studies. Managers in these 51 sample companies provided information that was both descriptive and detailed when answering the questionnaire and interview questions (Mauffette-Leenders, Erskine & Leenders, 1997). The process of this research was as follows in Figure 4.1.

The research procedure below led to the detailed data collection and analytic approaches for this research in the following sections including extraction of secondary data, survey questionnaire, analysis of questionnaire data, face-to-face focus interviews, case studies, case analysis and comparison of research findings with other research in the literature as follows:

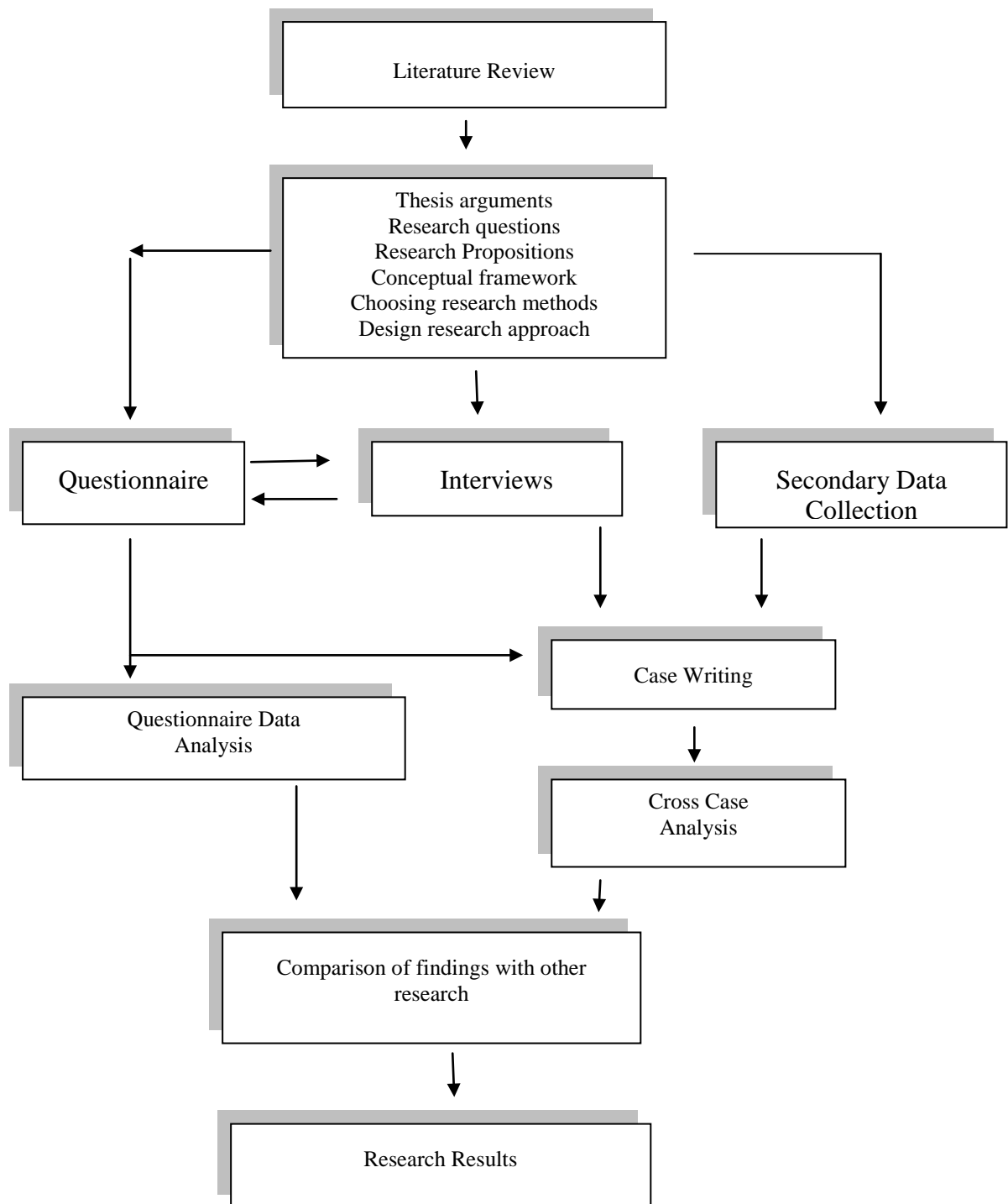


Figure 4.1 Research procedure – details of research approaches

4.2.2 Extraction of secondary data – literature review

The extraction of secondary data can set objectives, develop approaches to identify problems, and formulate appropriate research design. These data can provide useful information in seeking to resolve research problems (Lancaster, 2005; McCutcheon & Meredith, 1993).

In this study, the secondary data comprised documents and publications obtained from university databases including Science Direct, company reports and information on company websites, as well as relevant Australian and Chinese government open archival sources including the website of the Australian Department of Foreign Affairs and Trade (DFAT). At the end of this study, some of the findings from the review were used as a comparison with findings from the questionnaire survey and case studies in order to establish the similarities and differences between other research and this research.

4.2.3 Survey questionnaire

As questionnaire surveys could reach a large number of potential participants, a questionnaire was used as a valuable means for data collection (Croom, 2009; Lancaster, 2005). Most names and addresses could be found from public sources, and mailed questionnaires reached a large number of potential participants. In addition, the five-point Likert scale answers on the questionnaires could be converted into numerical values for quantitative testing.

The aim of the survey questionnaire was to collect qualitative and quantitative data including company demographics and information on cost, quality, delivery of products, problems, solutions, and business success factors. The data collected by the questionnaires can be used for the purposes of description, explanation, providing evidence to support the thesis arguments, testing the propositions and answering the research questions (Remenyi et al., 1998). Becker (1995) and Miles and Huberman (1994) also suggest that findings from the questionnaire data analysis can reveal significant results, and prove that this method can answer research questions.

A further objective was to collect management opinions that were not available in the literature and could not be obtained by observation. The opening questions in the questionnaire also aimed to capture participants' perspectives of their views in their outsourcing relationships.

Based on the review of textual data and feedback from pilot interviews with supervisors and other research students (knowledgeable in this area) at the school,

a questionnaire was then designed to collect data about the background and experiences of outsourcing. The questionnaire design clearly defined the manufacturers' objectives and business risks and problems with information concerning application, validity and reliability. There were also concerns of wording, number of questions, nature of questions, layout and format, length and time to answer (Remenyi et al., 1998). Most questions were multiple choice of ordinal data, using a 5-point Likert scale. The questionnaire was designed to be as short as possible in order to achieve a higher response rate, because the longer the questionnaire, the lower the response rate was likely to be (Lancaster, 2005). There were also open-ended questions designed to collect additional information relating to the research factors. The results from the open-ended questions were listed in appendix 4, and used in case studies. The structure of the questionnaire was logical and the language was simple, avoiding jargon, complex language and leading questions.

The scope of questions covers business background information and outsourcing operations. The questionnaire comprises forty-four questions that are divided into six parts: Part one of the questionnaire comprises four questions regarding the demographics and business practice information. Because some companies have more than one kind of product, and more than one type of outsourcing relationship, any one participant could provide more than one answer to questions 1.1 to 1.3. Part two comprises eighteen questions indicating the outsourcing problems encountered so as to provide some evidence to answer research question one. Additional comments or knowledge of other outsourcing problems is also invited. This is also the case in Part three to Part five. Part three contains six questions regarding solutions found to the problems indicated in Part two. Part four comprises eight questions seeking information on the key factors for success in the outsourcing business. Part five contains two questions regarding cost savings achieved and compares the initial plan and the actual cost savings achieved by outsourcing to China. Part six seeks additional comments regarding international outsourcing. At the end, participants were asked whether they would like to further participate in the research by offering the time for a face-to-face interview (see Appendix 1).

The main sources of participants' names and addresses were the lists of the Australian Stock Exchange and major company websites. Before the mailing, the questionnaire was first pilot tested with two school supervisors and two doctoral students in the same research area to ensure it was valid and refine to ensure that it was easily understood and could elicit enough required information. The format and time needed to reply were also considered in the pre-testing pilot study. According to the feedback, the questionnaire was amended. The questionnaire was made shorter, with more focus on the three research questions.

Six hundred questionnaires were posted or emailed to CEOs, purchasing managers, production managers, and operations managers of organisations in Australia. The selection criteria for the mailing list were managers and officers of organisations in Australia who were involved in outsourcing business with organisations in China. The mailing included first-time mailing, and second-time mailing to remind of 'non-return' to the chosen potential participants from the same mailing list. A covering letter was sent with each questionnaire, which informed the participants about the content of the study, the purpose of the questionnaire, its importance, the time needed to fill it in, and the benefit for participants. Ethical issues such as confidentiality of recipients' names and company names were also included (see Appendix 1).

4.2.4 Analysis of questionnaire data

The method of recording responses was to enter the data from the completed questionnaires into the Excel spreadsheet and then analyse them by comparing the means, and computing correlations, and testing the difference between means by t tests. Computing the correlation coefficient is to determine the correlative relationships between variables of business problems, possible solutions, and business success factors. The t test is to determine whether there are significant differences between answers to the questions in the questionnaire. In addition, it was important to compare the production cost savings initially planned and the actual cost saving results, thereby determining whether the companies had achieved their cost saving goal.

4.2.5 Face-to-face focus interviews

Face-to-face focus interviews can collect companies' detailed information about real business phenomena, and can provide opportunities for a protracted period for exploring topics, issues and responses in some depth, therefore are an effective means to collect a lot of evidence for a thesis (Lancaster, 2005; Remenyi et al., 1998). Open-ended and informal questions were designed to be answered in as much detail as possible and thus the answers achieved can be the essential evidence for case studies (Yin, 2003). The method of focused interviews provides more insight and detailed qualitative information, as well as the knowledge and opinions of the managers, who are guided to focus on discussions of the main topics (Robson, 1993).

In this study, the selection criteria for face-to-face interviews were key staff (for example, purchasing managers, operations managers) of organisations in Australia, who were undertaking outsourcing components and finished products to companies in China. Eight face-to-face interviews were conducted with managers from eight Australian companies in their offices (see Chapter 6). Each interview took about one to one-and-a-half hours. The processing steps of the questionnaire survey and interviews are shown in Figure 4.2.

The interviews focused on key topics and elicited further information through open-ended questions (Robson, 1993) (see Appendix 2). Additional comments not anticipated in the prepared list were noted. An audio-recorder was used for all eight interviews after permission was obtained from the interviewees. Data collected during the interviews included:

Part 1 General business background of manufacturing restructure and outsourcing

Part 2 Business with companies in China

Part 3 Performance results of outsourcing

Part 4 The business problems encountered with outsourcing to China

Part 5 The solutions to the problems

Part 6 Business success factors and plans

Part 7 Other information (see Appendix 2).

In particular, the three research questions (see section 3.3) were used as the interview questions to collect data for Parts 4 to 6 above. After collecting data from interviews, the case studies were written.

Table 4.1 Interviewee information

	Position title	a	b	Experience dealing with outsourcing in China
Case 1	Managing Director	18	18	Has 60 suppliers in China, produce electrical and household goods.
Case 2	Chief Marketing Officer	10	12	Has own factory in China produce auto components
Case 3	Manager, Global Procurement and Supplier Alliance	6	8	Components are made in China for sleep breathing equipment
Case 4	General Manager, Global Sales and marketing	11	11	Parts for package of microdots products made in China
Case 5	Operations Manager	5	7	Components for electrical control systems made in China
Case 6	Commercialisation Manager	6	8	Components for water treatment equipment & some final assembly
Case 7	Managing Director	5	7	Purchase gift items from China
Case 8	Director	33	33	Import from China

a: # of year in current position; b: # of year with the company

4.2.6 Case studies

This section includes the justification for why and how to adopt case studies, their design, and the analysis. One focus of the case studies is cross-case analysis of the process that each company used when solving problems that occur during outsourcing. It aims to collect evidence about how companies formulated and implemented inter-company business relationships. The eight case studies are based on questionnaire information, interview records and data including company descriptions, company annual reports and other publications extracted from the company websites.

4.2.6.1 Rationale for the case studies

Case study is suited to the description and explanation of complex phenomena of business, and is one of several important analytical strategies in business analysis (Van der Meer-Kooistra & Vosselman, 2000; Yin, 2003). It is a research method for establishing valid and reliable evidence, creating a narrative description of a situation, analysis and presenting a finding. It can be employed for the understanding of different situations and circumstances evolving over time, and it provides an explanation of business phenomena in its context and environment.

This research strategy is also used for developing a framework for the collection of evidence. Case study is a means of mixing action and knowledge, and adds value to the body of knowledge (Remenyi et al., 1998). It is an empirical inquiry, which investigates management problems and answers research questions (Yin, 2003).

The processes also include making comparisons and contrasts between identified variables in each case, and clarifying the propositions (McCutcheon & Meredith, 1993; Miles & Huberman, 1994). This evidence-collection approach concentrates on specific instances in an attempt to identify detailed interactive processes, explores the purchaser and supplier perspective, the behaviours, intentions, attitudes and reasons for behaviour between organisations (Yin, 2003, 1994).

Multiple case study design is a technique for exploratory study about similarities and differences across situations (Yin, 2003, 1994). Because the case study method allows the development of solutions through comparison, eight cases were written up to establish a pattern of replication logic (Yin, 2003, 1994). Multiple case studies were used in this study because the method is common for business and management studies, the method is more compelling, and the results are more robust. The method is more useful when prevalence of a phenomenon is measured (Remenyi et al., 1998) because the focus is on what and how to deal with inter-firm outsourcing problems between companies in Australia and China, which is still under research.

To meet the research objectives, multiple case studies were chosen as a logical method for this study because the focus is how to deal with outsourcing problems between companies in Australia and China. The multiple case study method was used to examine the relationship between attributes and outsourcing relationships and their perceived outcomes by purchasers and suppliers.

4.2.6.2 Case study design

The case study design is an exploratory analysis on the impact of the processes and attributes on international outsourcing relationships between firms. An applied research is used to outline the problematic issues around the outsourcing practices with companies in China.

To avoid the scope of this study being either too broad or too narrow, these case studies are mainly limited to companies in Australia that outsource the manufacturing of components and finished products to China. In addition, two of the cases involve companies conduct the import and export of merchandise with companies in China, without their own manufacturing. However, outsourcing of ICT and other services, domestic outsourcing, and outsourcing to countries other than China are not included. Because this study focused on problems of inter-firm outsourcing relationships, it does not include problems of internal company operations unless they are affected by the outsourcing process. For specific answers more than the context of the research design, there was no intention to analyse the text for deeper meanings or contradictions beyond the content of the research.

The materials for written up the case studies include the completed questionnaires (including the additional comments), information in their company websites and the interview records consist of the audio tape records and notes taken during interviews, which are unchecked statements by the participants. In addition, two participants provided the opportunity of reviewing the drafts of cases two and five respectively, to ensure correctness and confidentiality in the writing. The other six interviewees implied that they were not willing to spend more time to provide such an opportunity.

4.2.7 Case analysis

Both within-case and cross-case analyses have been used in the eight case studies. The qualitative data analysis involves describing and summarising information from questionnaires, interviews and text documents. It is interpreting raw data into logical interpretation and description of subjects, and is the examination and tabulation of the qualitative evidence to deal with research problems and questions (Thorne, 2000). The process of content or the steps of analysing include data reduction, data display, conclusion drawing and verification. Data reduction is the step to select, focus, simplify, abstract and transform qualitative data by identifying and organising the data into clear patterns. Data display presents qualitative data for assessing, interpreting and evaluating data interpretation and research results. It is in the formats of individual case study reports and matrices to provide evidence for answering the research questions. Conclusion drawing and verification are

recognising and evaluating the patterns and meanings in the data, in drawing definitive conclusions from the data and checking them against initial proposals (Lancaster, 2005; Miles & Huberman, 1994). Data evidence is gathered and analysis reports are organised and categorised in detail for supporting the eight case studies (Remenyi et al., 1998). This process helps validate the interview responses and provides further information for each case. According to the findings, the discussion and conclusions are then presented.

For within-case analysis, this study adopts the analytical strategies from Yin (2003) in each case. The analytic processes include making comparisons and contrasts between identified elements. These are to have a detailed description and a summary in each case study. Data evidence gathered and the analysis are the two parts organised and categorised in detail for each case study (Remenyi et al., 1998). Following this, two main strategies for cross-case analysis are: to categorise cases on research factors of the research questions and compare them for similarities and differences between companies, and secondly to break up the data-by-data sources from interviews, questionnaires, and documents (for example, information from company websites) (Eisenhardt, 1989). The data were then used for comparisons across the companies. Therefore, analysis of these results shows where similar and different phenomena occurred. Replications exist when similar results occur across the case studies (Yin, 2003). Tables were used for comparing data between cases in Chapter 7.

A summary of details from each of the cases is grouped into certain research areas. The areas include the inter-firm outsourcing problems, the solutions and the business success factors. After using pattern matching, the data analysis findings, discussions and conclusions are presented. This step develops some more systematic techniques, evolving from the analysis of definitive conclusions, after data reduction and display (Lancaster, 2005; Miles & Huberman, 1994). In this study, verification involves comparing propositions with the results of data analysis. The step categorises cases on research factors of the research questions, and then compares the similarities and differences between cases.

4.2.8 Comparison of research findings with other research in the literature

In order to test the answers to the research questions, there are comparisons of the main results of this research with some key points of other empirical research extracted from the literature in Chapter 2. This was used to identify the significant similarities and differences between this and other research.

Figure 4.2 below shows the process of data collection and analysis of this research.

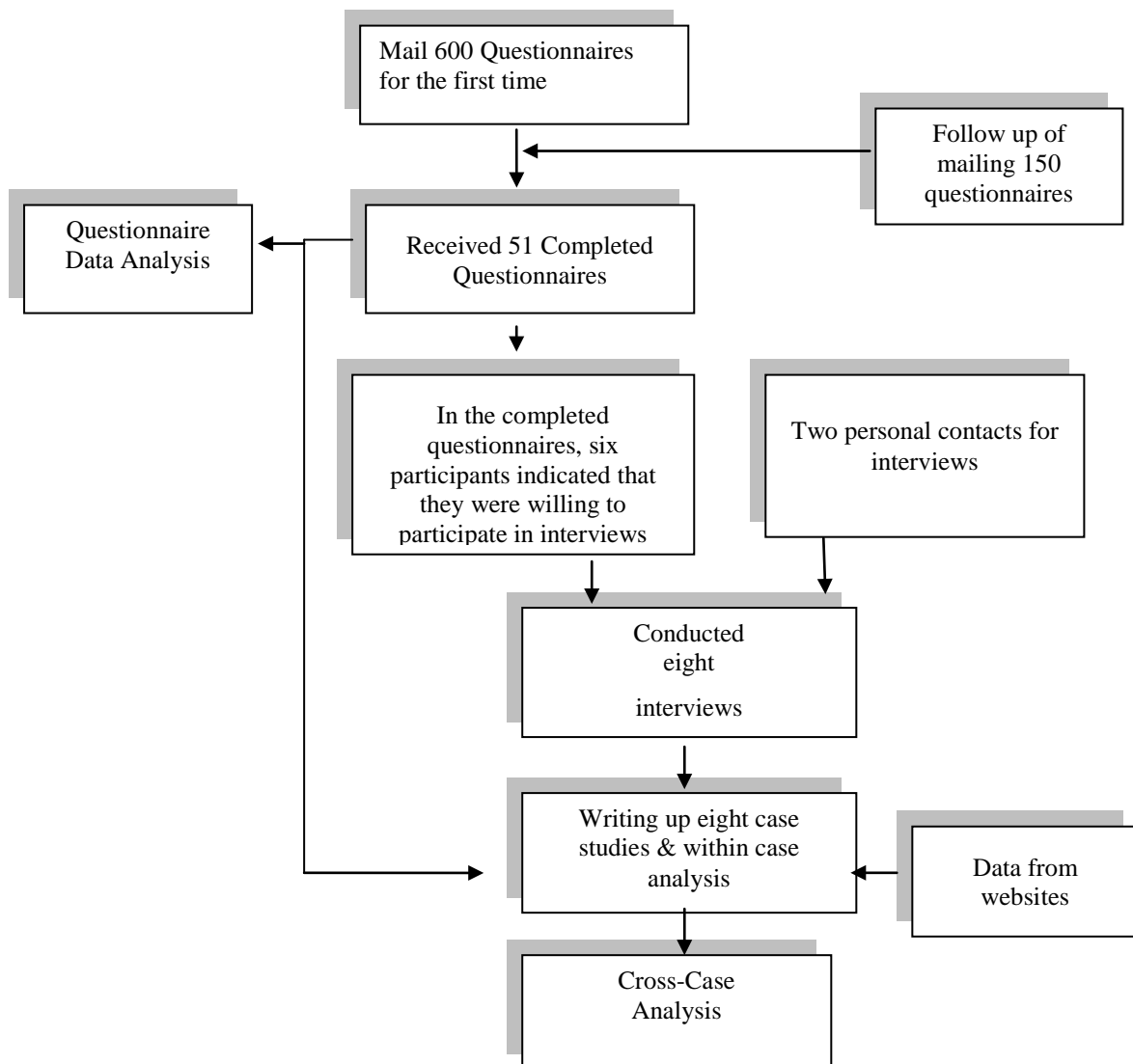


Figure 4.2 Questionnaire, interviews and case study procedure

4.3 University Ethics Committee approval

As the research project uses questionnaires and face-to-face interviews, in accordance with university requirements, Ethics Committee approval was obtained prior to conducting the questionnaire mailing and interviews. All guidelines were followed when mailing the questionnaires and conducting the interviews. Questionnaires received and interview records were kept confidential and stored in a secure place. Results of this research were reported only anonymously, and aggregated for questionnaire data. To protect the identity of the eight companies used in the case studies, each company is referred to by number. Information that would identify individual companies and participants is omitted to respect their confidentiality and the university research ethics requirements.

4.4 Summary

This research has adopted suitable approaches of extraction of secondary data, survey questionnaires, face-to-face focus interviews, case writing, case analysis and comparisons. Questionnaires and interviews with managers in purchasing companies were used to collect quantitative and qualitative data. The foci were the outsourcing problems, related solutions and business success factors in order to provide evidence to test the propositions, support or not support the thesis arguments and answer the research questions. Quantitative analysis was used to process the data from the questionnaires. Within and cross-case qualitative analyses were used to compare and summarise the qualitative data from the case studies.

Chapter 5

Questionnaire data results and analysis

5.1 Introduction

In order to provide evidence to answer the research questions, this chapter presents the results of the survey questionnaire, and the procedures for data entry and analysis. Data were entered into an Excel spreadsheet, and data analysis and findings are presented in tables and graphs. An analysis of cost savings comparing the companies' planned production cost savings with actual cost savings, is also made. These results are then used to provide evidence to verify the propositions, answer the research questions, and support the thesis arguments. The discussion of findings presents the significant results from the data analysis. After these, there are eight case studies in Chapter 6, which are the major part of this study providing main evidences to answer the research questions.

5.2 Data collection and entry

According to the mailing list, 600 survey questionnaires were posted or emailed. In response to the first round of mailing, 42 completed questionnaires were returned. Due to the low rate of return, one month later a second round was post mailed to 150 potential respondents selected from the same list. After that, the total number of completed questionnaires received was 51. According to statistical research methods, this number is considered a large sample (Healey, 1993; Mason, Lind & Marchal, 1999). The final response rate to the questionnaires was 8.5 per cent. Although this response rate was low, the sample was large enough for analysis. Data from these 51 completed questionnaires were then entered into Excel spreadsheet. Qualitative data answers (choices of a–e, or strongly disagree to strongly agree) in parts 1–5 of the questionnaire (see Appendix 1) were converted into numbers (see Appendix 3) as follows:

For part 1: Outsourcing information, three questions (1.1 products and/or services provided by your organisation, 1.2 what kinds of components/products have been imported by your organisation, or what service tasks have been assigned to companies in China and 1.3 type of outsourcing conducted by your organisation) require one or more answers from the seven choices from a to e. Some participants provided more than one answer because they had more than one kind of product, or more than one type of outsourcing. In this case, the scores for the answers were the total numbers. For example, participant one provided four answers (a, c, d and e) to question 1.1 because his company had four different kinds of products. Therefore, the score number for this participant is 4.

For question 1.4, years of outsourcing, the midpoint numbers used were: 0.5 for answer a (0–1 year), 3.0 for answer b (1–5 years), 8.0 for answer c (6–10 years), 13.0 for answer d (11–15 years), 18 for answer e (16–20 years), 23 for answer f (21–25 years), and the estimated average of 30 for answer g (more than 25 years) (see Appendixes 1 & 3).

For Part 2 (Possible inter-firm business problems encountered when doing business with companies in China), Part 3 (Ways of solving problems) and Part 4 (Key success factors in outsourcing to China), 1 was entered for the answer of a, 2 for answer of b, 3 for answer of c, 4 for answer of d, 5 for answer of e in the spreadsheet (see Appendixes 1 & 3).

For part 5, Performance outcome, question 5.1 (cost savings plan) and 5.2 (actual savings achieved), the percentages planned or achieved were entered (see Appendixes 1 & 3).

For part 6, the answers to the open-ended question that providing additional comments regarding problems, solutions and business success factors are listed in Appendix 4. The answers provided by the eight participants who later being interviewed are included into respective case studies.

5.3 Data analysis and findings

This section elaborates on the analytical procedures and findings for testing the propositions. Analysis was conducted by comparing the data in the Excel program. Because of $N = 51$, one decimal place is chosen for numbers. For percentage numbers, round to zero decimal point numbers. For all tables, the data are sorted by the answers (the last column) in descending order. This section is sequenced as follows: section 5.3.1 analyses the demographics and business information of the surveyed companies. The statistical measurements used were the mean, percentage and bar graph. Section 5.3.2 summarises the data from the questionnaire to provide evidence to answer the research questions.

5.3.1 Demographics and business information

Part 1 of the questionnaire included the demographics and business information of the companies surveyed, so as to provide an understanding of the types of businesses that choose to outsource their production to China. Tables 5.1–5.4 below show the answers, summaries and findings extracted from questions 1.1–1.4. table 5.1 below is the summary of responses to question 1.1:

Table 5.1 Frequency of responses to question 1.1 types of company products

1.1 Products and service provided by your organisation (could be more than one answer)	Numbers of answers
Other manufactured products (f)	19
Electrical items (d)	15
Household goods (e)	12
Textiles/clothing/garments (a)	11
Toys (c)	5
Footwear (b)	4
Non-manufactured products or services (g) (for example, logistics, insurance, finance, ICT, HRM)	4
Total	70

Note: The letters from a to e in column 1 refer to available choices in the question 1.1 (see Appendix 1).
Column 2 shows the numbers of answers that the participants made.
Data are sorted in column 2 in descending order.

Findings:

The survey data from question 1.1 indicates that purchasing companies have a wide range of products. Important single categories are electrical items (21% of

total answers), household goods (17%), and textiles/clothing/garments (16%), as well as a few toys (7%), non-manufactured products or services (6%), and footwear (6%). The higher response on other manufactured products (27%) is due to the inclusion of many different kinds of products such as chemicals, steel products, and aircraft and auto components (see Appendix 3). It is noticed that five per cent of the population is providing non-manufactured products or services such as import/export. However, this is considered not significant for the overall findings.

Table 5.2 Frequency of responses to question 1.2, types of products and services outsourced

1.2 Kinds of components and products that have been imported by your organisation, or service tasks which have been assigned to companies in China (could be more than one answer):	Number of answers
Labour intensive manufactured products (for example, clothing/footwear/toys) (a)	31
High technology manufactured products (for example, computers/cars) (b)	14
Others (details refer to Appendix 2) (g)	7
Capital intensive manufactured products (for example, airplanes) (c)	4
Delivery/logistics (f)	4
Information and communication technology (ICT) (d)	2
Accounting, finance, sales/marketing, call centres, human resources and other service tasks (e)	1
Total	63

Note: The letters from a to e in column 1 refer to available choices in the question 1.1 (see Appendix 1).
Column 2 shows the numbers of answers that the participants made.
Data are sorted in column 2 in descending order.

Findings:

Data from question 1.2 indicate that, in this sample, there are more labour intensive manufactured products (for example, clothing, footwear and toys) (49%) and high technology manufactured products (for example, computers and cars) (22%) outsourced to China. There are less capital intensive manufactured products (for example, airplanes) (6%) and also logistics (6%). Only a few ICT (4%) and management service tasks (2%) are outsourced. This study focuses on manufacturing products but also includes the service trade. Some manufacturing companies outsource both products and services (for example, logistics and ICT).

Table 5.3 Frequency of responses to question 1.3 kinds of outsourcing

1.3 Type of outsourcing conducted by your organisation (could be more than one answer):	Number of answers
Our organisation only purchases some materials, components or products from China (a)	19
Long-term (strategic alliance) relationships, partial production in China (c)	16
Offshore business in China (joint ventures built or own operations in China) (e)	11
Entire production tasks performed by suppliers in China. Our organisation conducts only sales distribution, service and/or management (f)	8
Short-term (less than one year) contracts only, partial production previously conducted by our company is now assigned to companies in China (b)	7
Others (g)	2
Service tasks (for example, accounting, marketing, human resources management, logistics) previously conducted by our company are now assigned to companies in China (d)	1
Total	64

Note: The letters from a to e in column 1 refer to available choices in the question 1.1 (see Appendix 1).
Column 2 shows the numbers of answers that the participants made.
Data are sorted in column 2 in descending order.

Table 5.4 Frequency of responses to question 1.4, time of sourcing business in China

1.4 Length of time your organisation has been conducting business with companies in China:	Number of answers
(a) Less than 1 year	3
(b) 1–5 years	16
(c) 6–10 years	17
(d) 11–15 years	8
(e) 16–20 years	3
(f) 21–25 years	1
(g) more than 25 years	3
Total	51

Note: The letters from a to e in column 1 refer to available choices in the question 1.1 (see Appendix 1).
Column 2 shows the numbers of answers that the participants made.
Rows in this table are sorted by column one, (a) – (g), the sequence of the year.

Findings from Table 5.3:

Data from question 1.3 indicate that, in this sample, there are more organisations in Australia that only purchase some materials, components or products from China without outsourcing their own production tasks (29%), or have long-term (alliance) relationships with partial production tasks

performed in China (25%). In addition, some have their own production operations in China (17%), or entire production tasks performed by suppliers in China (12%) and some have short-term (less than one year) outsourcing contracts (11%). Very few service tasks were outsourced (2%).

Findings from Table 5.4:

Sixty-four per cent of responses are b and c, indicating that most companies in the sample have outsourced to China for 1 to 10 years. Sixteen companies have outsourced for between eleven and fifteen years. Six companies have outsourced for more than 25 years. Only three companies have less than one-year's history of outsourcing to China. To estimate average years, the midpoints of the ranges were used. The approximate mean of years of all companies outsourcing to China is nine.

5.3.2 Possible inter-firm business problems

Part 2 of the questionnaire identified the possible business problems associated with outsourcing business to China. The responses to the eighteen questions in the questionnaires (see Appendix 1) are summarised into Table 5.5 on the next page. The findings include that statements with the mean higher than three (neutral) in the first eight rows are the most important possible problems when conducting outsourcing business with China. For example, there are more agreements than disagreements for the first question on Table 5.5 'Significantly high inter-company costs and additional work including quality control and conflict resolution involved in outsourcing', more participants (29) agree and strongly agree than those (13) who disagree and strongly disagree with the statement. The same applies to row 2 to 8 in Table 5.2 above.

For the next seven questions (rows 9–15 on Table 5.5), although the mean is lower than three, there are still certain numbers (12–18) of participants who agree that these seven possible problems are important for the outsourcing business for a minority number of companies.

Table 5.5 Frequency of possible inter-firm business problems encountered when doing business with companies in China

Please indicate your level of agreement with the following:

	Possible inter-firm business problems in the questionnaire	a strongly disagree	b disagree	c neutral	d agree	e strongly agree	N	Mean
1	Significantly high inter-company costs and additional work (2.10)	2	11	9	23	6	51	3.4
2	Product quality is poor and quality standard is too low in China (2.5)	2	17	8	10	13	50	3.3
3	Loss of companies' confidential information due to inter-firm business transactions (2.12)	1	14	10	22	4	51	3.3
4	Significant problems of opportunism in outsourcing relationships (2.7)	1	8	21	19	2	51	3.3
5	Too many hidden business costs in China (2.11)	2	12	17	15	5	51	3.2
6	Loss of own company competency and tacit knowledge (2.13)	1	19	8	20	3	51	3.1
7	There is a problem of violations of intellectual property rights (2.14)	1	9	25	16	0	51	3.1
8	Progress of business is difficult due to bureaucracy in China (2.2)	1	17	10	22	1	51	3.1
9	There is a contract enforcement problem (2.9)	1	23	7	16	2	49	2.9
10	Business partners have communication problems (2.3)	2	20	12	16	0	50	2.8
11	Too difficult to set up management control systems overseas (2.4)	2	17	19	13	0	51	2.8
12	Flexibility of changing suppliers is low due to high lock-in costs (2.16)	1	22	13	15	0	51	2.8
13	Dependable business partners are too difficult to find (2.1)	2	22	12	15	0	51	2.8
14	Poor management, unskilled labour and low productivity reduce the benefits of low-cost production (2.8)	2	22	13	14	0	51	2.8
15	Uncertainty, risks of outsourcing with companies in China are very high (2.18)	3	18	15	12	0	48	2.7
16	<i>Suppliers fail to produce goods, conduct delivery processes and/or shipments on time, thus delaying our work plans (2.6)</i>	<i>3</i>	<i>25</i>	<i>17</i>	<i>6</i>	<i>0</i>	<i>51</i>	<i>2.5</i>
17	<i>Too hard to overcome differences in business objectives, policies, laws & regulations(2.15)</i>	<i>1</i>	<i>28</i>	<i>17</i>	<i>5</i>	<i>0</i>	<i>51</i>	<i>2.5</i>
18	<i>Too hard to understand large amounts of business information and handle different operations involved in offshore business(2.17)</i>	<i>2</i>	<i>28</i>	<i>17</i>	<i>4</i>	<i>0</i>	<i>51</i>	<i>2.5</i>

Note: Column 1 shows the rank number of this table.

Column 2 is the number of questions in the questionnaire.

Columns 3 – 7 are numbers of answers to the questions in the questionnaires.

Column 8 is the total answers to the questions in each row (N).

Column 9 is the means of answers in each row.

Data are sorted by the mean in the last column in descending order.

For the rows where the mean is above three (agreements), it appears in bold font. For the last three rows, which have the lowest mean, italic font is used.. Data showing percentage in this table is in Appendix 5.

For the last three questions (rows 16–18), the mean is only 2.5. This indicates on average that the participants disagree and are neutral with the statements, indicating that these three are infrequent possible problems when conducting outsourcing business with China. For example, row 16, ‘Suppliers fail to produce goods, conduct delivery processes and shipments on time, thus delaying our work plans’, the majority of participants (28) disagree with the statement, only a few (6) agree with the statement.

5.3.3 Possible solutions to business problems

The solutions to the problems are indicated in the next section of questions (3.1–3.6). The numbers of answers and the means are entered into Table 5.6 in next page.

Table 5.6 Frequency of possible solution to outsourcing problems

To what extent do you agree or disagree with the following possible solutions?

	Solutions to the problems	A strongly disagree	b disagree	c neutral	d agree	e strongl y agree	Mean
1	Better understanding and connections with suppliers, for example, hiring liaison persons (3.3)	0	3	7	34	7	3.9
2	Emphasise administration on suppliers, for example, by monitoring production and/or hiring quality inspection agents (3.1)	0	3	9	37	2	3.7
3	More rely on suppliers, for example, giving more designs and technologies to suppliers (3.2)	0	6	13	31	1	3.5
4	Withhold part of the payment until we receive the goods and satisfy product quality(3.4)	0	4	18	20	6	3.4
5	Find better outsourcing deals and suppliers within China (3.5)	1	17	20	12	1	2.9
6	Look for more suitable locations for outsourcing in other countries such as India (3.6)	4	24	20	3	0	2.4

Note: For the rows where the mean is above three (agreements), it appears in bold font.

N = 51 for all rows.

Data showing percentages are in Appendix 6.

Findings:

Table 5.6 shows that for row 1, the agreement is 41 (only 3 disagreements). For row 2, the agreement is 39 (only 3 disagreements). For row 3, the agreement is 32 (6 disagreements). For row 4, there are 26 agreements (4 disagreements). The mean

higher than three indicating that these four solutions are the most common methods companies want to use. However, for the last two rows, there are more disagreements than agreements: For row 5, there are more disagreements (18), than agreements (13). The mean is below three. For row 6, there are more disagreements (28), than agreements (3). The mean is only 2.4. These indicate that these two solutions are not commonly used.

5.3.4 Key business success factors

The next group of questions focus on the key success factors in outsourcing to China to obtain participants' views of strategies for success. The responses to the eight questions are as follows:

Table 5.7 Frequency of key business success factors in outsourcing to China (strategies for success)

Please indicate your agreement or disagreement with the following:

	Key business success factors	a strongly disagree	b disagree	c neutral	d agree	e strongly agree	mean
1	Specify quality and service standards in contracts and manage the handover process well (4.1)	0	0	4	36	11	4.1
2	Share data information and have high level of transparency on policies and operations on both sides (4.3)	0	1	7	36	7	4.0
3	Achieve a proper relationship between delegation and administration with suppliers (4.4)	0	1	6	40	4	3.9
4	Establish own offices in China or hire local staff in China (4.2)	1	1	14	26	9	3.8
5	Review and measure performance to evaluate the stability of offshore business relationships (4.7)	0	2	14	32	3	3.7
6	Establish high-level network connections with senior Chinese business and government people (4.6)	5	18	9	16	3	2.9
7	Hire professional firms in China to monitor production and shipments (4.5)	6	20	8	14	3	2.8
8	Contract with small suppliers so that we appear as a large client to them, thus maintaining good leverage (4.8)	7	20	8	16	0	2.7

Note: For the rows where the mean is above three (agreements), bold font is used.

N=51 for all rows

Data showing percentages are in Appendix 6.

Findings:

There are high levels of agreement for the first five questions indicating that these are the five common strategies used by companies in Australia. For example, row 1,

‘Specify quality and service standards in contracts and manage the handover process well’, the sum of agree and strongly agree is 47 (zero disagreement). The mean is 4.1. For rows 6, 7 and 8, the mean is below three, but they do not have high percentages of agreement or disagreement compared to the above five questions. The sums of agree and strongly agree are 19, 17 and 16. The sums of disagree and strongly disagree are 23, 26 and 27. This indicates that some companies want to use these strategies but others do not (Data showing the individual percentage is in Appendix 6). The detailed percentages of disagreement over agreement are:

For row 6: $(23 - 19)/51 \times 100\% = 8\%$

For row 7: $(26 - 17)/51 \times 100\% = 18\%$

For row 8: $(27 - 16)/51 \times 100\% = 22\%$ (N = 51)

These indicate that disagreements are 8%, 18% and 22% more than agreements. These findings indicate that, for the question in row 6, the majority of companies do not agree that establishing high-level network connections with senior Chinese business or government officers is a key business success factor for sourcing business in China. Business can be successful without the network connections. This is more likely for larger companies. For the statement in row 7, hiring third party agents in China, there is the problem of loss of direct control, and some information may not be passed on to companies in Australia when using third party agents in China. For row 8, contracts with small suppliers to maintain good leverage, may only apply to small purchasing companies. For large purchasing companies, they may be at risk of not getting enough products when needed if using only small suppliers.

5.4 Analysis of cost savings

This section provides further analysis of some detailed results regarding production cost savings. Part 5 of the questionnaire elicits the percentage of planned production cost savings and actual cost savings achieved for the outsourcing practices. In order to better see the percentages of cost savings achieved, the percentage achievement are sorted in descending order in Table 5.8 column 6:

Table 5.8 Cost savings results (percentage)

(1) rank	(2) Company # in questionnaires	(3) Planned saving goals	(4) Actual savings	(5) Difference (4) – (3)	(6) Percentage achievement, (4) ÷ (3) X 100
1	18	30	40+	10+	133+
2	32	30+	40+	10+	133+
3	19	15	20	5	133
4	41	60	60+	0+	100+
5	7	40	40+	0	100+
6	8	10	10	0	100
7	11	20	20	0	100
8	12	20	20	0	100
9	29	30	30	0	100
10	31	8	8	0	100
11	46	30	30	0	100
12	35	35	32	-3	91
13	15	30	25	-5	83
14	20	30	25	-5	83
15	26	30	25	-5	83
16	37	30	25	-5	83
17	14	5	4	-1	80
18	39	25	20	-5	80
19	38	35	25	-10	71
20	28	30	20	-10	67
21	34	30	20	-10	67
22	43	30	20	-10	67
23	47	30	20	-10	67
24	5	30	20	-10	66
25	36	40	25	-15	63
26	44	40	25	-15	63
27	40	25	15	-10	60
28	51	25	15	-15	60
29	33	50	30	-20	60
30	17	30	15	-5	50
31	6	20	10	-10	50
32	22	20	10	-10	50
33	42	20	10	-10	50
34	48	20	10	-10	50
35	30	30	15	-15	50
36	45	30	15	-15	50
37	49	30	15	-15	50
38	16	50	25	-25	50
39	13	25	10	-15	40
40	25	25	10	-15	40
41	10	30	10	-20	33
42	27	40	10	-30	25
43	23	20	0	-20	0
44	21	30	TBD	N/A	N/A
Mean		28	20	71	

Note: Column (1) is the rank number of this analysis.

Column (2) is the company numbers in the questionnaires. Sample size is 44.

Column (3) is the percentage of planned cost saving.

Column (4) is the actual cost saving achieved.

Column (5) is the difference between planned and actual achieved results. (5) = (4) – (3).

Column (6) is the percentage of cost savings achieved: (6) = (4) / (3) X 100%. 'N/A = not available' and 'TBD = to be determined' refer to one participant did not provide an answer in the

questionnaire. For the companies achieving 100% or more of cost savings, bold font and italics are used; for achieving more than average cost savings goals (71%) but less than 100%, bold font is used; for 50% or more but less than 71%, italic font is used. Related figure is in Appendix 9.

The detailed findings are:

- Three companies (7%, rows 1–3 of all companies) achieved more (up to 133%) of production cost savings than they planned (see column 6 of Table 5.8 below).
- Eight companies (19%, rows 4–11) achieved just what they planned (100%) of their goals.
- Eight companies (19%, rows 12–19) achieved less than 100%, but more than or equal to 71% (average level) of their plans.
- Nineteen companies (44%, rows 20–38) achieved less than 71%, but more than or equal to 50% of their plans.
- Five companies (11% of all companies, rows 39–43) achieved only 0%–49% of their goals, much below the average achievement of 71%.

The average percentage of the planned cost savings goal is 28% (the mean of column 3). However, the average percentage of actual cost savings achieved is only 20% (the mean of column 4). The average percentage of cost savings achieved compared to planning is 71% (the mean of column 6).

26 percent of the companies achieved cost savings greater or equal to their planning. Forty-five per cent of the companies achieved more than average (71%) of cost savings across the whole sample (see Appendix 8).

To view more details of the results above, a bar graph using the data in column 3 (saving plans), column 4 (actual savings) and column 6 (percentage of achievement) is shown in Appendix 8.

Figure 5.5 shows the relationship between the percentage of cost saving and numbers of companies achieving this:

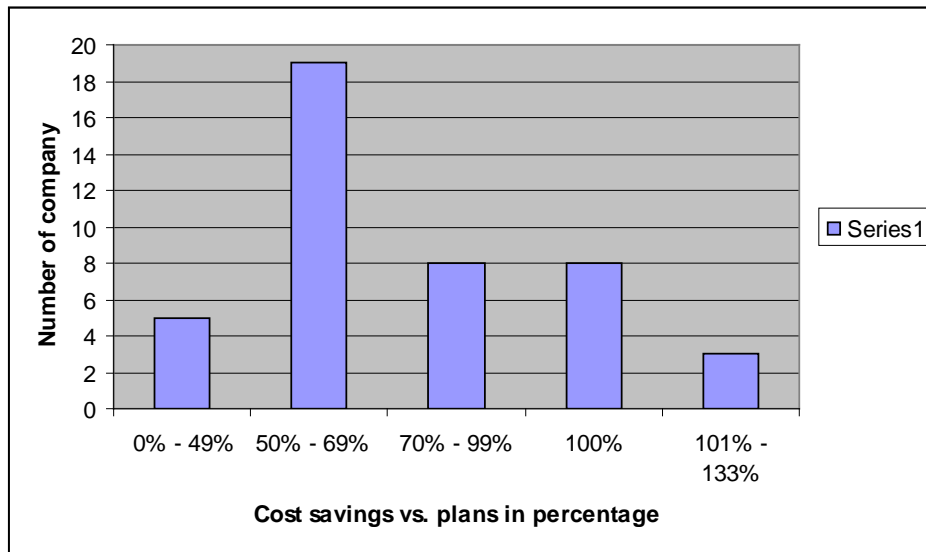


Figure 5.5 Cost savings results – number of companies versus achievements (percentage)

Note: The X-axis shows the cost savings in percentage.

The Y-axis shows the number of companies that achieve the cost savings.

The bar graph in Figure 5.5 shows that nineteen companies achieved 50%–69% cost savings compared to their initial plans. Then there are sixteen companies which achieved 70%–100%. The two ends (0%–49% and 101%–133%) have only eight companies.

5.5 Statistical analysis of data

In order to find more evidence to support the findings and answer the research questions, statistical analysis of data by correlation and t tests are conducted. These are to determine whether there are high correlations and significant differences between key variables. These include the inter-firm business problems, possible solutions and business success factors with means higher than 3.0.

5.5.1 Correlations between some variables

Correlation tests have been done to ascertain whether there is high correlation, and hence lack of independence, between key variables such as business problems. Firstly, following the analysis in Table 5.5, the first eight variables of business problems which have the means higher than 3.0 (more agreements than disagreements) are selected for correlation value tests in Table 5.9 below. The correlation r values are calculated by using the Excel program (see Appendix 10).

In Table 5.9, some correlation r coefficient levels are higher than 0.500 (marked in bold font and blue colour). This indicates that there are strong positive correlation relationships between these variables. When $r = 0.5 - 0.75$, there are moderate to good correlation relationships between variables (Mason et al., 1999, p 429).

Table 5.9 Paired sample correlations of eight business problems with means higher than 3.0

	Possible inter-firm business problems in the questionnaire	1	2	3	4	5	6	7	8
1	Significantly high inter-company costs and additional work (2.10) N=51	1.000							
2	Product quality is poor, quality standard is too low in China (2.5) N=50	0.535 0.000	1.000						
3	Loss of companies' confidential information due to inter-firm business transactions (2.12) N = 51	0.300 0.033	0.318 0.023	1.000					
4	Significant problems of opportunism (2.7) N=51	0.195 0.169	0.419 0.002	0.149 0.296	1.000				
5	Too many hidden business costs in China (2.11) N = 51	0.583 0.000	0.562 0.000	0.654 0.000	0.245 0.083	1.000			
6	Loss own company competency and tacit knowledge (2.13) N= 51	0.480 0.000	0.576 0.000	0.462 0.001	0.311 0.026	0.558 0.000	1.000		
7	There is a problems of violations of intellectual property rights (2.14) N= 51	0.197 0.165	0.131 0.361	0.509 0.000	0.085 0.551	0.285 0.043	0.317 0.023	1.000	
8	Bureaucracy in China (2.2) N = 51	0.116 0.417	0.412 0.003	0.256 0.069	0.141 0.325	0.343 0.014	0.209 0.142	0.261 0.064	1.000

Column 1: the series numbers of this test.

Column 2 is the variables (questions to be answered in the questionnaire)

Column 3 – 10 are: line 1: correlation coefficient r ; line 2: correlation significance level p value from the outcomes of the Excel program (see Appendix 10).

For $r > 0.5000$, bold font and blue colour are used.

For $p < 0.05$, bold font and red colour are used.

Hypothesis for paired samples correlation tests in Table 5.9 are:

$H_0: \rho = 0$ (The correlation in the population is zero.)

$H_a: p \neq 0$ (The correlation in the population is different from zero.)

Do not reject H_0 if $p \geq \alpha$, or reject H_0 and accept H_a if $p < \alpha$. ($\alpha = 0.05$, 95% significance level) (Mason et al. 1999, p 316, p 434).

In Table 5.9, for the data in bold font and red colour, because the $p < 0.05$, reject H_0 and accept H_a . This means these paired variables are significantly correlated.

The meaning of the significant correlations is now examined, firstly for the variable of business problems. The findings indicate that the following paired variables have strong correlation relationships because $p < 0.05$ and $r > 0.500$. These pairs of variables will be considered to be closely linked. When one occurs, the other is likely to occur as follows.

High correlations are found between series #2 in Table 5.9, 'Product quality is poor, quality standards are too low in China' and series #1, 'Significantly high inter-company costs and additional work' ($r = 0.535$, $p = 0.000$), this indicates that when product quality and quality standards do not meet the requirements of purchasing companies, more inter-company costs and additional work incur.

High correlations are found between series #5, 'Too many hidden business costs in China' and the three following variables of:

series #1, 'Significantly high inter-company costs and additional work' ($r = 0.583$ and $p = 0.000$),

series #2, 'Product quality is poor, quality standard is too low in China' ($r = 0.562$, $p = 0.000$),

series #3, 'Loss of organisation's confidential information' ($r = 0.654$, $p = 0.000$).

These three strong correlations indicate that, when there are high inter-company costs and additional work, hidden business costs are larger. Most hidden costs are part of inter-company costs. When product quality is poor, purchasing companies have to spend time and money to improve it. This effort increases costs. When an

organisation loses its confidential information, it needs to prevent future loss by, for example, increasing system security levels. This increases the costs of operations.

High correlations are found between series #6, 'Loss of own company competency and tacit knowledge' and series #2, 'Product quality is poor, quality standard is too low in China' ($r = 0.576$, $p = 0.000$), and series #5, 'Too many hidden business costs in China' ($r = 0.558$, $p = 0.000$). When product quality in China does not meet the requirements of purchasing companies, in order to continue outsourcing business, purchasing companies need to transfer their technologies to companies in China to produce the same products. This transfer increases the chance of companies in China using the same technologies to produce the same products in their own brands. Purchasing companies therefore lose their competitive advantages. During the long term, purchasing companies can lose their competency and tacit knowledge. Relying on suppliers can increase hidden costs.

High correlations are found between series #7, 'Violations of intellectual property rights' and series #3, 'Loss of organisation's confidential information' ($r = 0.509$, $p = 0.000$), these two are significantly related issues. Therefore, these two variables are combined into one in the later analysis.

In Table 5.9, nine paired variables have $p < 0.05$ but $r < 0.500$. These indicate that there are significant but not strong correlation relationships between the paired variables (Mason et al., 1999, p 429). However, the full implications of this combination of variables have not been worked through, since they would preferably require a repeat of the survey to be carried out, followed by repeat analysis.

Secondly, turning to business solutions using Table 5.6, the first four variables with means higher than 3.0 are selected to form the Table 5.10 below to test the correlation level between the variables:

Table 5.10 Paired sample correlations of four possible solution to business problems with means higher than 3.0

	Possible solutions to the problems	1	2	3	4
1	Better understanding and connections with suppliers, for example, hiring liaison persons (3.3)	1.000			
2	Emphasise administration on suppliers, for example, monitoring production and/or hiring quality inspection agents (3.1)	-0.067 0.639	1.000		
3	More rely on suppliers, for example, giving more designs and technologies to suppliers (3.2)	-0.032 0.825	-0.262 0.063	1.000	
4	Withhold part of the payment until we receive the goods and satisfy product quality(3.4)	0.029 0.839	-0.238 0.092	0.204 0.152	1.000

N = 51 for all variables.

Column 1: the series numbers of this test.

Column 2 is the variables (questions to be answered in the questionnaire)

Columns 3–6 are: line 1: correlation coefficient r; line 2: correlation significance level p value from the outcomes of the Excel program (see Appendix 10).

Data in Table 5.10 show that none of the variables have a significant ($p < 0.05$) nor high correlation relationship with each other ($r > 0.500$). These indicate that these four possible solutions are not highly correlated with each other. They are independent variables. The solutions to problems of companies are different. However, it is interesting to observe that increased trust has a negative correlation with increased management control, although this is only significant at $p = 0.064$.

Thirdly, turning next to business success factors shown in Table 5.7, the five variables with means higher than 3.0 are selected to form the Table 5.11 below to test the correlation level between them. Results show that there are six paired variables having $p < 0.05$. These six paired variables have significant correlation relationships. However, none of the variables has a high correlation relationship with the others ($r > 0.500$). They are significantly correlated but are not strong. The business success factors are related but are not highly correlated (Mason et al. 1999, p 429).

The paired variables with highest correlation ($r = 0.408$) are ‘Share data information and have high level of transparency on policies and operations on both sides’ and

‘Achieve a proper strategic balance between trust and management control with our business partners’. They are linked together in the later chapters.

Table 5.11 Paired sample correlations of five business success factors with means higher than 3.0

	Key business success factors	1	2	3	4	5
1	Specify quality and service standards in contracts and manage the handover process well (4.1)	1.000				
2	Share data information and have high level of transparency on policies and operations on both sides (4.3)	0.268 0.057	1.000			
3	Achieve a proper relationship between delegation and administration with suppliers (4.4)	0.168 0.239	0.408 0.003	1.000		
4	Establish own offices in China or hire staff in China (4.2)	0.382 0.006	0.268 0.058	0.312 0.026	1.000	
5	Review and measure performance to evaluate the stability of offshore business relationships (4.7)	0.360 0.010	0.282 0.045	0.380 0.006	0.267 0.059	1.000

N = 51 for all variables.

Column 1: the series numbers of this test.

Column 2 is the variables (questions to be answered in the questionnaire)

Columns 3–7 are: line 1: correlation coefficient r; line 2: correlation significance level p value from the outcomes of the Excel program (see Appendix 10).

For $p < 0.05$, bold font and red colour are used.

5.5.2 T tests between some variables

T tests have been carried out to see if there are significant differences between the means of related variables. Table 5.12 shows paired sample t tests for answers to the business problems in the questionnaire, comparing the computed t values (column 7) and critical t values (column 8). The computed t values are from the outputs of the Excel program (see Appendix 11). The critical t values are from the tables of the book (Mason et al. 1999, p 713).

The t test is performed to show which hypothesis is accepted:

Ho: $\mu_1 - \mu_2 = 0$. There is no significant difference in the answers provided between the paired samples.

Ha: $\mu_1 - \mu_2 \neq 0$. There is a significant difference in answers provided between the paired samples (The two populations are significantly different).

A two-tailed t test has been carried out to find the confidence interval that contains 95% of values. For large samples ($N > 30$), the test results are: do not reject H_0 if the absolute value of $| \text{computed } t | \leq \text{critical } t$; but reject H_0 and accept H_a if $| \text{computed } t | > \text{critical } t$ (Mason et al. 1999, p 365, p 713).

The other test is if $p < 0.05$, the difference is significant (Mason et al. 1999, p 316). Firstly, for business problems in Table 5.9, each pair of all eight variables is compared in Table 5.12 below.

Table 5.12 Paired sample t tests of eight business problems with means higher than 3.0

Variable of difference	Mean of difference s	Standard deviation of difference	Mean difference / standard error of mean	95% confidence interval of difference		Computed t value	Critical t value + or -	DF	p
				lower	upper				
2.5 - 2.10	-0.157	1.223	0.173	-0.504	0.191	-0.907	2.010	49	0.369
2.12-2.10	-0.118	1.243	0.174	-0.467	0.232	-0.676	2.009	50	0.502
2.12- 2.5	0.039	1.385	0.196	-0.354	0.433	0.200	2.010	49	0.842
2.7- 2.10	-0.137	1.233	0.173	-0.484	0.210	-0.795	2.009	50	0.430
2.7 - 2.5	0.020	1.393	0.195	-0.372	0.411	0.101	2.009	50	0.920
2.7- 2.12	0.078	1.163	0.163	-0.249	0.406	0.481	2.009	50	0.632
2.11- 2.10	-0.216	0.966	0.135	-0.487	0.056	-1.595	2.009	50	0.117
2.11- 2.5	-0.059	1.190	0.168	-0.397	0.279	-0.349	2.010	49	0.728
2.11-2.12	-0.098	0.855	0.120	-0.338	0.142	-0.819	2.009	50	0.416
2.11- 2.7	-0.078	1.163	0.163	-0.406	0.249	-0.481	2.009	50	0.632
2.13-2.10	-0.294	1.082	0.152	-0.599	0.010	-1.940	2.009	50	0.058
2.13- 2.5	-0.137	1.132	0.160	-0.459	0.184	-0.858	2.010	49	0.395
2.13- 2.12	-0.176	1.072	0.150	-0.478	0.125	-1.176	2.009	50	0.245
2.13- 2.7	-0.157	1.120	0.157	-0.472	0.158	-1.000	2.009	50	0.322
2.13-2.11	-0.078	0.977	0.137	-0.353	0.196	-0.574	2.009	50	0.569
2.14-2.10	-0.294	1.188	0.166	-0.628	0.040	-1.768	2.009	50	0.083
2.14- 2.5	-0.137	1.429	0.200	-0.539	0.265	-0.686	2.009	50	0.496
2.14-2.12	-0.176	0.910	0.127	-0.432	0.079	-1.385	2.009	50	0.172
2.14- 2.7	-0.157	1.084	0.152	-0.462	0.148	-1.033	2.009	50	0.306
2.14-2.11	-0.078	1.093	0.153	-0.386	0.229	-0.513	2.009	50	0.610
2.14- 2.13	0.000	1.077	0.151	-0.303	0.303	0.000	2.009	50	1.000
2.2- 2.10	-0.294	1.361	0.191	-0.677	0.089	-1.544	2.009	50	0.129
2.2 - 2.5	-0.137	1.327	0.188	-0.541	0.240	-0.731	2.010	49	0.468
2.2- 2.12	-0.176	1.212	0.170	-0.517	0.164	-1.040	2.009	50	0.303
2.2 - 2.7	-0.157	1.189	0.167	-0.491	0.178	-0.942	2.009	50	0.351
2.2- 2.11	-0.078	1.146	0.160	-0.401	0.244	-0.489	2.009	50	0.627
2.2- 2.13	0.000	1.265	0.177	-0.356	0.356	0.000	2.009	50	1.000
2.2-2.14	0.000	1.1058	0.148	-0.298	0.298	0.000	2.009	50	1.000

Column 1 is the two variables from the questionnaire to be tested for significant difference.

Column 2 is the difference of the two means of the two variables.

Column 3 is the difference of standard deviation.

Column 4 is the mean difference of standard error of means.

Columns 5 & 6 are the confidence interval of difference (lower & upper).

Column 7 is the computed t value.

Column 8 is the critical t value Mason et al. 1999, p 713.

Column 9 is the degree of freedom ($df = N - 1$). Column 10 is the p value (see Appendix 11).

The results in Table 12 show that none of the t test results are significantly different (rejects H_0). All computed t values are less than critical t values. In addition, all p values are greater than 0.05. This indicates that the participants did not provide significant different answers between the compared variables. However, the computed t values between variables #2.13, 'Loss own company competency and tacit knowledge' and #2.10, 'Significantly high inter-company costs and additional work, is larger ($t = 1.940$) (t value is close to the critical t value of 2.009). In addition, the p values = 0.0580 meaning the difference between these two variables is close to significance. More participants agree that 'Loss of own company competency and tacit knowledge' is a bigger problem than 'Significantly high inter-company costs and additional work'.

Secondly, for testing the possible solutions to business problems, all four variables from Table 5.10 were compared below:

Table 5.13 Paired sample t tests of four possible solutions to business problems with means higher than 3.0

Variable of difference	Mean of difference s	Standard deviation of difference	Mean difference / standard error of mean	95% confidence interval of difference		Computed t value	Critical t value + or -	DF	p
				lower	upper				
#31.-#3.3	-0.137	1.096	0.153	-0.445	0.171	-0.895	2.009	50	0.375
#3.2-#3.3	-0.353	1.036	0.145	-0.644	-0.062	-2.433	2.009	50	0.019
#3.2-#3.1	-0.216	0.923	0.129	-0.475	0.044	-1.668	2.009	50	0.102
#3.4-#3.3	-0.510	1.206	0.174	-0.860	-0.160	-2.928	2.012	47	0.005
#3.4-#3.1	-0.373	1.264	0.182	-0.740	-0.005	-2.040	2.012	47	0.047
#3.4-#3.2	-0.157	1.255	0.181	-0.521	0.208	-0.866	2.012	47	0.391

Column 1 is the two variables from the questionnaire to be tested for significant difference.

Column 2 is the difference of the two means of the two variables.

Column 3 is the difference of standard deviation.

Column 4 is the mean difference of standard error of means.

Columns 5 and 6 are the confidence interval of difference (lower & upper).

Column 7 is the computed t value (see Appendix 11). For computed t value > critical t value, or < then – critical t value, bold font and red colour are used.

Column 8 is the critical t value (Mason et al. 1999, p 713).

Column 9 is the degree of freedom ($df = N - 1$).

Column 10 is the significant p value. For $p < 0.05$, bold font and red colour are used.

In Table 5.13, results in rows 2, 4 and 5 reject H_0 and accept H_a . There are significant differences between the answers provided for these questions. In the cases of the mean differences being negative, more participants agreed that the last question compared to the first question in each pair of the samples is as follows:

For row 2, there is a significant difference between the paired samples of #3.2, 'Increased levels of trust with our business partners, for example, by giving more designs and technologies to business partners' and #3.3, 'Increase communication levels with business partners, for example, by hiring liaison persons and bilingual staff. More participants agreed #3.3 than #3.2. This means that increased communication is more important than increased trust. The difference is larger compared to the standard error. It is therefore concluded that there is no important message to change the variables being tested.

For row 4, there is a significant difference between paired samples of #3.4, 'Withhold part of the payment until we receive the goods and satisfy product quality' and #3.3, 'Increase communication levels with business partners, for example, by hiring liaison persons and bilingual staff'. More participants agreed #3.3 than #3.4. This means increasing communication levels is more important than withholding payments.

For row 5, there is a significant difference between paired samples of #3.4, 'Withhold part of the payment until we receive the goods and satisfy product quality' and #3.1, 'Increase management control over business partners, for example, by monitoring production and/or hiring quality inspection agents'. More participants agreed #3.1 than #3.4. This means increased management control is more important than withholding payments.

These also indicate that companies have different ways to solve problems because the participants provided significantly different answers to some of the questions.

Thirdly, for business success factors, all five variables in Table 5.11 are used to compare the pairs of variables on the next page:

Table 5.14 Paired sample t tests of five business success factors with means higher than 3.0

Variable of difference	Mean of difference s	Standard deviation of difference	Mean difference / standard error of mean	95% confidence interval of difference		Computed t value	Critical t value + or -	DF	p
				lower	upper				
#4.3-#4.1	-0.176	0.684	0.096	-0.369	0.016	-1.842	2.009	50	0.071
#4.4-#4.1	-0.216	0.702	0.098	-0.413	-0.018	-2.195	2.009	50	0.033
#4.4-#4.3	-0.039	0.631	0.088	-0.217	0.138	-0.444	2.009	50	0.659
#4.2-#4.1	-0.333	0.792	0.111	-0.556	-0.111	-3.007	2.009	50	0.004
#4.2-#4.3	-0.157	0.880	0.123	-0.404	0.091	-1.273	2.009	50	0.209
#4.2-#4.4	-0.118	0.840	0.118	-0.354	0.199	-1.000	2.009	50	0.322
#4.7-#4.1	-0.431	0.671	0.094	-0.620	-0.243	-4.591	2.009	50	0.000
#4.7-#4.3	-0.255	0.744	0.104	-0.464	-0.046	-2.446	2.009	50	0.018
#4.7-#4.4	-0.216	0.673	0.094	-0.405	-0.026	-2.290	2.009	50	0.026
#4.7-#4.2	-0.098	0.900	0.126	-0.351	0.155	-0.778	2.009	50	0.440

Column 1 is the two variables from the questionnaire to be tested for significant difference.

Column 2 is the difference of the two means of the two variables.

Column 3 is the difference of standard deviation.

Column 4 is the mean difference of standard error of means.

Columns 5 and 6 are the confidence interval of difference (lower & upper).

Column 7 is the computed t value (see Appendix 11). For computed t value > critical t value, or < - critical t value, bold font and red colour are used.

Column 8 is the critical t value from book (Mason et al. 1999, p 713).

Column 9 is the degree of freedom (df = N - 1).

Column 10 is the computed significant p value. For p < 0.05, bold font and red colour are used.

For Table 5.14, results in rows 2, 4, 7, 8 and 9 reject H_0 and accept H_a . There are significant differences between the paired samples. These indicate that companies have some different strategies for business success factors because the participants provided significantly different answers to the five pairs of samples. Significantly more participants agreed with #4.1, 'Specify quality and service standards in contracts and manage the handover process well' than with the two variables of #4.4, 'Achieve a proper strategic balance between trust and management control with our business partners' (row 2), and #4.2, 'Establish own offices in China or hire staff in China'. This means that the terms of contracts are very important (row 4).

Significantly more participants agreed with the three variables of #4.1, 'Specify quality and service standards in contracts and manage the handover process well' (row 7), #4.3, 'Share data information and have a high level of transparency on policies and operations on both sides' (row 8), and #4.4, 'Achieve a proper strategic balance between trust and management control with our business partners' (row 9) than with #4.7, 'Review and measure performance to evaluate

the stability of offshore business relationships'. This implies that performance review and measurement is not so important compared to the other three variables.

5.6 Summary and discussion of findings

In the fifty-one satisfactory questionnaires used for quantitative analysis, surveyed companies were found to produce a broad range of products. The largest group of these was household goods, the second was home electrical items, and the third was textiles, clothing and garments. The remaining manufacturing goods included aircraft and auto components, satellite communication products, chemicals, steel products, software, micro labels, plastics, glasses, and water treatment equipment.

Components and products outsourced such as household goods items, home electrical items and garments were mostly labour intensive, meaning that they have been outsourced to China mainly to realise the advantage of lower labour costs. Because suppliers include multinational companies located in China, outsourcing has also extended to high technology products such as auto components and satellite communication products, and capital-intensive products, including aircraft components.

Types of outsourcing include: purchase of some materials, components and products; long-term alliances; own operations in China; and entire production tasks performed by suppliers in China. These results indicated that companies in Australia conduct a wide range of outsourcing types.

Regarding length of time outsourcing to China, the majority of companies have outsourced for from one to ten years. The mean here was nine years.

With regard to possible outsourcing problems, significant results indicated that some problems were financial issues including additional work, significantly high inter-company costs and too many hidden business costs. Other problems were in the operational area including poor product quality and the quality standard being too low. Further problems were due to the different business environment including

significant problems of opportunism, bureaucracy, and unclear government policies in China. The remaining problems were the risks of inter-firm relationships including loss of an organisation's confidential information; loss of own company competency and tacit knowledge; and violations of intellectual property rights.

Transaction costs are the most significant problem for most sample companies. Most of the costs could not be accurately estimated until outsourcing operations started. It was difficult to find out the hidden costs before outsourcing operations started. Some hidden costs such as agent's fees and bank fees have been considered as part of the transaction costs. Poor product quality can be a big issue, especially when producing high technology products such as aircraft components. Some sample companies have complained that products received do not meet their required standards. Bureaucracy and unclear government policies were due to the different business environments in China. These could be significant in international business where the progress of outsourcing often became slow and difficult. Loss of an organisation's confidential information was a threat that could result in purchasing companies losing their competitive advantages, and opportunism could exist in international outsourcing, especially in new business relationships. Loss of own company competency and tacit knowledge might become significant after a period of outsourcing when production tasks were assigned to suppliers. Due to production tasks being undertaken by suppliers, purchasing companies could lose the opportunity of improving their production skills over time. Violations of intellectual property rights presented risks of suppliers producing the same products in their own brands and selling them to the same markets, or transferring designs and technologies to competitors.

With regard to possible solutions to problems, the strategic solutions included increasing management control over business partners, for example, monitoring production and hiring quality inspection agents; increasing levels of trust with business partners, for example, providing explicit designs and innovative technologies to business partners. Tactical solutions included increasing communication levels with business partners, for example, hiring liaison persons and bilingual staff.

Overall questionnaire results indicated that good communication with business partners is the most important solution. Outsourcing problems could be generated due to misunderstanding and lack of communication. Experience has proved that strong control over production processing is necessary for outsourcing contract enforcement. High levels of trust could reduce transaction costs on both sides. Management control and trust were both important for successful outsourcing relationships. Withholding part of the payments until receipt of goods and satisfaction with the product quality was a control tactic to secure product quality.

With regard to business success factors, strategies affecting manufacturing success included achieving a proper strategic balance between trust and management control with business partners. Implementation of manufacturing strategies included sharing data information, having high levels of transparency of policies and operations on both sides; hiring staff or establishing own offices in China; and reviewing and measuring performance to evaluate the stability of offshore business relationships. The factor of general management ability to exploit capability factors affecting managerial success included specifying quality and service standards in contracts and managing the handover process well.

Questionnaire analysis results showed that detailed management and processing in the initial stage of outsourcing was necessary for success. This formed the basis for long-term success. Better communication and knowing policies and operations of the other side were the effective strategies for carrying out outsourcing contracts. This could increase the level of communication and avoid misunderstandings. Successful management looked for a proper strategic balance between trust and management control with business partners. Trust and control were the two ends of an outsourcing relationship. By only emphasising trust but having a lack of control could lead to some problems such as defective quality and opportunism. Only emphasising control but lacking trust could lead to high transaction costs and the loss of business partners. The balance of trust and control formed the basis for the stability of outsourcing relationships. Hiring staff or establishing own offices in China was identified as one of the important ways of improving communication with local suppliers. This could highly improve the efficiency of outsourcing

operations. Performance measurement to evaluate outsourcing relationships could ensure outsourcing benefits and the stability of outsourcing relationships.

Comparing the results of planned production cost savings goals with actual cost savings achieved showed that on average, companies in Australia could not fully achieve their cost savings goals. Among the 43 surveyed companies, three (7% of all companies) achieved up to 133 per cent of their predicted production cost savings. Eight companies (19% of all companies) achieved just what they had planned (100%), and the remainder achieved less than planned (see Table 5.8).

On average, the surveyed companies initially planned to achieve 28 per cent of production cost savings by outsourcing to China. However, mainly due to transaction costs, additional work, product quality and opportunism, the companies were only able to achieve 20 per cent average savings in cost, which was a mean of 71 per cent of their plans. These companies indicated that the percentages of actual cost savings were calculated after deducting transaction costs. Transaction costs significantly reduced the benefit of cost savings from outsourcing.

After the statistical analysis, some significant results are found regarding outsourcing problems, solutions, and business success factors. The correlation analysis shows that there are significant, high positive correlations between the seven pairs of variables of outsourcing problems (both $p < 0.05$ and $r > 0.500$) including:

- ‘product quality is poor, quality standards are too low in China’ and ‘significantly high inter-company costs and additional work’;
- ‘too many hidden business costs in China’ and (1) ‘Significantly high inter-company costs and additional work’, (2) ‘Product quality is poor, quality standard is too low in China’, (3) ‘Loss of organisation’s confidential information’;
- ‘Loss of own company competency and tacit knowledge’ and ‘(1) Product quality is poor, quality standard is too low in China’, and (2) ‘Too many hidden business costs in China’.

- There is a high correlation between ‘Violations of intellectual property rights and ‘Loss of organisation’s confidential information’. This shows that these two variables are different aspects of the same problem. In the later sections of this thesis, these two variables are combined into one. If other research was to be conducted, there would be only one variable for these two questions. Other than the seven significant positive high correlations, there are another ten significant positive, but not highly correlative relationships ($p < 0.05$ but $r < 0.500$) (see Table 5.9).

For variables of possible solutions, four selected samples were tested. The results show that they are not highly correlated. They are independent variables (see Table 5.10). In addition, for business success factors, five selected sample variables were tested and the results show that there are six significant but not highly correlated relationships (see Table 5.11).

The t test was also conducted to examine the significant differences between variables. For business problems, eight variables with the means higher than 3.0 were selected to the paired sample t test. The results show that none of the tests rejected H_0 . This indicates that the participants did not provide significantly different answers between the selected variables (see Table 5.12).

For possible solutions to problems, the results of the paired sample t test show three rejections to H_0 and acceptance of H_a (Table 5.13). These indicate that there are significant differences between the answers provided for the questions of possible solutions to problems. Certain solutions are more strongly indicated than others are. Companies prefer certain ways of solving problems.

For business success factors, five pairs of samples have significantly different answers (Table 5.14). The participants provided more agreements to a variable in each of the sample pair. These indicate that companies have some different strategies for business success factors.

After analysing the questionnaire results, in order to provide more evidence to answer the research questions, eight face-to-face interviews were conducted for collecting qualitative data. Eight case studies are presented in the next chapter. The case studies describe general business background information, inter-firm outsourcing problems, solutions to the problems and the main business success factors for the eight companies, together with within-case analysis, which are the major part of this study providing main evidences to answer the research questions.

Chapter 6

Case studies

6.1 Introduction

Following the analysis of questionnaire data forming the basis for case studies of companies in Australia that outsource to China, this chapter presents eight case studies providing within-case qualitative data analysis. The cases are compiled based on questionnaire results, interview records, and data from company websites. According to Yin (2003), case studies can provide deeper and detailed information to support a research. Within and cross cases analysis can provide strong evidence to answer research questions. Therefore case studies are important to knowledge and commonly used in academic studies. Of the eight case studies, the first group of six companies are manufacturers, the second group including that the seventh is an importer, and the eighth conducts both importing and exporting. All eight companies are undertaking merchandise trade.

Earlier in this thesis (Chapter 1) it is indicated that the second type of outsourcing is ‘abstention-based outsourcing’ in which companies purchase goods and services that have never been produced in-house. This usually refers to goods and services not within the organisation’s capabilities. Although supply chain operations and internal business problems between manufacturing and import/export companies are somewhat different, this study focuses on inter-firm outsourcing business problems, related solutions and business success factors, but not on companies’ internal supply chain operations. The two import/export companies have similar significant issues related to the three research elements, and their answers are considered significant for this research. For both manufacturing and import/export companies, outsourcing decisions required include outsourcing location (within Australia or overseas), what to buy, when to buy, buy from whom, types of outsourcing (short or long-term), payment terms, shipping and insurance. The information from these two companies also provides important evidence for this

research. Both groups have the same outsourcing goal of cost saving. Both face problems such as transaction costs, communication, defective product quality, and delay of shipments. All eight companies look for similar solutions to the same problems. However, for manufacturing companies, additional outsourcing decisions include make-or-buy, which components to be outsourced, whether to provide full designs, tooling and training, quality control, and protection for intellectual property rights.

The main issues in the case studies are inter-firm business risks and problems (for example, high transaction costs), related solutions (for example, increase levels of communication) and business success factors (for example, balance of control and trust). The main topics of all cases include background information, outsourcing business with affiliated companies in China, inter-firm outsourcing risks and problems, solutions to the problems, and main business success factors. There are also within-case analysis and a summary in each case.

The objective of each case study is to provide an in-depth qualitative understanding of manufacturing outsourcing or import/export backgrounds, business problems associated with the extension of supply chains to China, solutions that these companies have used, and the main business success factors and outsourcing plans adopted.

6.2 Six case studies of manufacturing companies

The following is of the first group of case studies comprising six manufacturing companies outsourcing to China.

6.2.1 Case study one

Company One – electrical and household goods

Introduction

This case study researches the outsourcing of electrical and household goods to China. The study will focus on the company's outsourcing problems and solutions,

as well as its business success factors. Following the completion of a questionnaire and an interview with the managing director of the company, the data are analysed, together with information gathered from the company's website so as to provide evidence with which to apply the research questions.

Background information

Company One is a manufacturing, import, distribution, export and product-marketing company. It was initially established as an oil filter manufacturer in 1940 and then incorporated in Victoria in 1958. The company has been listed on the Australian Stock Exchange since 1959. It employs more than 1000 personnel in Australia. Its head office is located in Sunshine, Victoria and it is one of Australia's leading consumer and industrial product companies. Company One's principal activities include product design, product development, manufacturing, offshore sourcing, brand management and export. It manages several large subsidiary companies in Australia and New Zealand. The company develops, owns, and manages their premier brands in consumer and industrial markets of the Asia-Pacific region in the areas of electrical household goods, powered garden tools, automobile components, cleaning hardware, water equipment and security locks. Its customers include department stores, manufacturers, hardware outlets, specialist electrical retailers, automotive aftermarket wholesalers, water system dealers, builders and locksmiths.

Company One exports its own Australian-made water equipment and security lock products. Export markets include Europe, the Middle East, South East Asia and North America. Currently, the company produces 60 per cent of their water equipment and 50 per cent of their security lock products in Australia. However, the company is further looking for other suitable suppliers overseas who have the capability to fully satisfy their production needs as the company plans to further outsource up to one hundred of their products in future.

Company objectives and achievements

Company One's primary objectives aim to focus on product development and innovation in order to generate long-term, above average returns from its capital and maximise the value of its portfolio of brands for shareholders. The sales

revenue of the company's locking products (for example, padlocks) in the financial year of 2006/7 was A\$13.8 million with a six per cent growth compared to the previous year. The total revenue was A\$462.7 million, and net profit after tax was A\$40.2 million in 2006/7. The achieved sales revenue of consumer products in the Australian market was A\$312.5 million and the total of local and export sales reached A\$535 million in 2007/8.

Manufacturing restructuring and outsourcing

Company One has the ability to manage its own production and can make sufficient quality products to support the local market. However, like other Australian companies, the company faces the challenges of cost competitive markets and increasing pressure on in-house manufacturing costs. These have resulted in significant manufacturing restructuring, switching its production structure from vertically integrated manufacturing to mainly overseas outsourcing. The company aims to significantly reduce production costs in order to compete in the Australian market. In the last ten years, although it still designed and developed its own innovative products, rather than producing its products locally, the company restructured so as to outsource most products to China, Sri Lanka and Thailand. The value of imported products reached US\$70 million per year in 2009. As a result, its finished products are mainly procured overseas, with only some water equipment and security products still being produced in Australia.

Because of restructuring, the company mainly conducts finance, design, management of suppliers, planning and quality controls in Australia. Because most production tasks are performed overseas, the company is able to focus on new product development, managing the sourcing of products from quality conscious and cost competitive suppliers and building brands with consumers and professional tradesmen users. Consequently, their well-known Australian brands are highly trusted for quality, design and performance.

Business with China

During the last fifteen years, Company One has contracted 60 suppliers including twelve key suppliers in China. Most of these are located in Guangdong province. These suppliers make twenty different household electrical items under one brand

that includes microwave ovens, blenders, and coffee machines. Four million items of this brand are imported into Australia each year. However, the company does not make any sales in China.

Although the company has experienced some outsourcing problems, it believes that China is the best place for sourcing labour intensive products because there is low-cost production with good skilled labour, reasonable facilities, good shipping infrastructure, and a good understanding of product design and production requirements. As Chinese companies put their efforts towards long-term relationships, it is easy to communicate and work with most suppliers. Company One invests and owns tooling equipment in its business partners' factories to encourage long-term relationships. The main motivation and advantages of outsourcing include reducing the direct costs of labour and materials; avoiding the investment of hiring its own staff and setting up its own facilities; increasing the flexibility to change suppliers; and having a greater number of choices of components and suppliers to meet innovation needs. Although Company One has business relationships with other suppliers in other countries, the company does most of its outsourcing to China because other countries such as India and some south east Asian developing countries such as the Philippines and Malaysia do not have such good infrastructure for the international manufacturing business.

Results of outsourcing

Through outsourcing its products, Company One has achieved significant production cost savings when compared to producing them in Australia. This improves the profit for its shareholders. The company initially planned to achieve 30 per cent in production cost savings through outsourcing, but it has now gained a saving of up to 40 per cent over the past five years compared with producing the same in Australia.

Another result is that outsourcing practices have reduced the required number of company employees. Although experiencing objections from the unions and employees, the company was able to close down its two factories at Reservoir in Victoria and at Naval Base in Western Australia. Since 2007, Company One's net borrowings from banks is \$94 million mainly due to the costs of manufacturing

restructuring, such as building offices and facilities overseas. However, because of the benefits achieved, the company has recovered the cash spent. Overall, the company has experienced enormous benefits compared to only manufacturing in Australia as before.

Business problems and solutions

Although Company One has good relationships with most suppliers, it faces some inter-firm business problems in outsourcing. To solve these problems, the company has some related solutions for each of them as indicated below.

(1) Contract enforcement

The problem: Since 2007, some suppliers of Company One in China have continually increased product sales prices, claiming increasing costs in raw materials and labour, loss of export rebates from the Chinese government, and decreases in the US dollar compared to the Chinese Yuan (RMB). Shipping costs have also increased due to rising fuel costs. When Company One did not satisfy their claims for additional payments, these suppliers refused to make and ship their products. In reality, contracts may not bind suppliers in China; some suppliers keep asking for changes after signing contracts, or ignore contracts altogether.

Production and delivery schedules are also problems, as products sometimes cannot be made and shipped out on time in accordance with contracts. Lack of some raw materials and the production capabilities of some suppliers can also make production schedules difficult. However, compared to the benefits from cost savings, these are still small problems and Company One believes it is worth maintaining the relationship, and therefore makes a big effort to solve these problems with the suppliers.

The solution: Company One concludes that strong control is needed to ensure that products received can maintain an agreed quality and are delivered on time. Because contracts signed with companies in China are less likely worked out without outside oversight, push and control, Company One believes that Australian companies need to retain strong control on outsourcing projects. For example, as phone calls and emails may be ignored or misunderstood, face-to-face

communication is essential. Therefore, to negotiate and ensure that contracts are enforced, the managing director and his bilingual assistant visit the factories of suppliers in China two or three times a year. Production and purchasing managers and engineers of the company also visit to ensure timely process and quality control during production. Their tasks include negotiating with the Chinese managers, and training the factory foremen who then train their Chinese staff to ensure that production processes are correct.

In dealing with the poor management of some suppliers, in addition to training, Company One produces sample items, conducts on-site sample production demonstrations and quality control. These activities cost time and money, but the company found that it is worthwhile to do so. In this way, Company One can achieve better results in product quality, on-time production and shipping.

Company One believes that having a company registered in Hong Kong is less costly and more effective than in Mainland China. Having an office in Hong Kong helps the company doing production control, especially in the area of quality control. The company staff can travel faster and with less cost to Mainland China from Hong Kong compared with travelling from Australia. For small tasks, the company will continue to send their staff from their Hong Kong office to Mainland China, whereas for important issues the managing director will go to China from Australia.

(2) Product quality

The problem: Company One is satisfied with the product quality in general, but still experiences some problems, especially in relation to electrical items. The quality of goods from suppliers in China is usually better in the first shipment but deteriorates later on. For example, when technical specifications in contracts with suppliers promise to produce to a quality standard, this standard is not always met. At one time there was substitution of components when suppliers could not source the correct ones. To make matters worse, Company One usually did not get to know about the quality problem until it obtained negative feedback from the final users. This was because the incorrect electrical components (for example, resistors) were inside some of the electrical items and could not be found until used. As the volume

of the items imported was very high and the items were not high value-added products, Company One did not do a significant amount of testing. The quality problems could damage the company's brand names and reputation in the consumer market.

In addition, by the time feedback from customers arrived, Company One had already made payment for the goods and lost the opportunity to withhold payments. Generally, this kind of problem occurs due to poor management in factories in China, where component inventories are inadequately planned. For example, sometimes only 50 per cent of the inventory needed for production is prepared in advance. When suppliers run out of the components needed, these factories just substitute others from whatever components are available. This substitution problem can occur in both small and large factories in China.

The solution: In order to ensure continuing consistency of product quality, besides sending personnel to monitor production and provide training, Company One hires independent, licensed quality inspection agents in China to visit factory production lines and watch over production, carry out inspection tests, reject defective items, and issue quality inspection certificates with shipments. Even though most of Company One's outsourced products are low technology, they still need to be regularly inspected to ensure that quality is maintained. Hence, Company One believes that very strong control is absolutely needed in addition to sending personnel from their own company to China.

With regard to the previously mentioned quality problem caused by the substitution of different components, Company One recently had an occasion when it had to recall defective products from the Australian market. The company then demanded that the suppliers in China either replace or pay for the recalled products. This resulted in many disagreements and took several months to resolve. However, Company One did not need to go to the international court or arbitration, as the supplier later decided to cover the damage rather than lose the trade relationship which involved about US\$4 million of household electrical items contracted each year. Following this experience, for new or imperfect business relationships, Company One planned to retain part of the payments for goods until it received

them and was satisfied with their quality. This, together with other requirements such as the exclusion of unspecified components, was laid down in their later purchase contracts.

(3) Cost of tooling investment

The problem: There is a lack of specialised tools with some suppliers in China. With minimal funds and low technologies, these suppliers are less likely to invest in additional production facilities such as special tooling. Therefore, the suppliers are reluctant to take the risk of investing the tooling as it is used for specific products and may not be reusable in the future. However, some products cannot be made without such special tools, generating a problem in relation to who invests money and time to manufacture the tooling, the Chinese suppliers or Company One.

The solution: Because the tooling that some Chinese suppliers have is not always appropriate or is not always available, Company One has to invest and own some tooling in order to produce its outsourced goods. This is necessary for the purposes of current production and long-term relationships.

(4) Loss of suppliers

The problem: Company One also has a problem with loss of suppliers. Some Chinese factories, especially in Guangdong province, rely on export demand. Due to the world financial crisis in 2008–2010, the demand from Europe and the USA of manufactured product dropped significantly. For example, some big clients like Wal Mart contract for significantly less goods than previously, meaning that many factories in China do not have enough work, and can no longer afford the costs of factory labour and facilities. In addition, some Chinese factories lack working capital and the ability to source new capital, and only rely on sales revenue to cover their business loans. Hence these businesses run the risk of becoming bankrupt once their sales volumes drop. Company One therefore loses some of its suppliers.

The solution: For existing contracts, Company One helps suppliers to produce the products. For example, a supplier contracted by Company One to make electrical slow cookers was facing financial difficulties. In order to get the products made, Company One invested US\$250,000 to help the supplier buy raw materials and hire

labour to make the products. In accordance with their agreement, after the goods were made and shipped, Company One deducted this amount from the payment made for the slow cookers. Fortunately, the products arrived on time before the winter season started. Company One later switched to another supplier in China, who was able to provide new contracts for the same products. Because some contracted Chinese suppliers went out of business, Company One had to look for other suppliers to continue its outsourcing.

(5) Different costs in China

The problem: Company One started its outsourcing business in Guangdong province, located in the southern part of China, over fifteen years ago. Some of the other suppliers are in the Shanghai area; however, Company One finds that the cost of production in the southern areas and Shanghai is 30 per cent higher than in the northern parts of China. Shanghai and its surrounding areas are the most expensive, following by Guangdong province. The comparatively high production costs have recently been of concern to Company One as equivalent products can now be manufactured in the northern parts of China.

However, if Company One terminates its current outsourcing relationships in the south and seeks new suppliers in the north, there will be high transaction costs related to cancelling current contracts with companies in the south, establishing new contracts with new business partners, shipping arrangements, re-setting-up production facilities including tooling, and training costs in the north. These will be significant costs and new risks.

The solution: Due to the rising costs in southern areas, Company One has begun to search for new suppliers in Northern China because the new suppliers have significantly lower labour and other costs to produce the same goods to an acceptable quality. In addition, Northeast China is an old industrial area, has many old factories with good skilled labour and a good production background. However, the outsourcing relationships in the south will be kept until a full range of new outsourcing networks are established in the north.

Other solutions

Although the majority of suppliers need close monitoring, Company One has had four fully trusted suppliers for over ten years. In these cases, after contracts have been signed, Company One does not need to maintain strong control over them as goods ordered from these suppliers will arrive on time and will be of good quality. The company emphasises the importance of trust in the relationships as a general solution.

In addition, Company One believes that meaningful planning and cost and benefit analysis, good selection of business partners, and understanding and tolerating cultural and other differences are important avenues to successful outsourcing in China.

Business success factors and future plans

Company One works with both large and small suppliers, but prefers smaller suppliers who need to build up their business. By becoming an important purchaser for these small suppliers, the suppliers will try harder to perform well to keep the relationships strong. Company One intends to build on its past experience to keep up its good reputation and good relationships, sending designs to suppliers in advance, and paying for goods on time. Company One still will not pay any deposits when signing contracts, but will make payments against shipping documents, and continue to use open accounts, and transfers between accounts of buyers and sellers at the same bank. In this way, both buyers and sellers can avoid the high costs and complicated applications of letters of credit. For new suppliers or some imperfect business relationships, Company One withholds part payments until it receives satisfactory quality products.

However, in spite of emphasising face-to-face communication with suppliers in China, Company One still does not have a plan to establish its own office inside Mainland China, because if it is registered as a wholly foreign owned company in Mainland China, taxes and other costs will be high. Because a representative office has no legal entity status for doing business in Mainland China, the company has no plan to establish such an office there. Instead, it will continue to use its Hong Kong office that was set up in 2007.

Because Company One has gained significant production cost savings by outsourcing to China, it intends to continue to do so through ensuring strong control while finding ways to ensure consistent good quality, on-time production of low and middle to high technology products and shipping according to contracts. Meanwhile, the company will continue to do design work and other tasks that keep up the good relationship with suppliers.

In other words, as Company One wishes to continue sourcing low cost products to compete with other manufacturers in Australia, outsourcing to China will be a long-term strategy. Currently, the average labour cost in Australia is about A\$49,000 (wages plus benefits) per year, which is about fourteen times higher than the same level of labour in China. Therefore, even though the labour costs in China, especially in Shanghai and Guangdong areas continue to increase, and the value of Chinese currency has risen against the US dollar, Company One will still continue to invest and outsource to China in the future.

Analysis and summary

Overall, Company One has achieved good cost savings of up to 40 per cent in production over the past five years. The value of imported products reaches US\$70 million per year. Outsourcing production to developing countries such as China has been recognised as the correct manufacturing strategy. However, while achieving the benefits, the practices generate some new inter-firm business problems. These are shown in the areas of contract enforcement, product quality, tooling investment, loss of suppliers and different costs in different areas of China. The solutions to these problems include imposing strong management control on supplier's production, improving communication levels, having an office in Hong Kong, hiring quality inspection agents, retaining part payments until satisfaction with the products, investing in tooling, keeping own suppliers for production, seeking new suppliers in the same areas and other areas in China. Other important means for solving problems are improving trust levels, planning and cost/benefit analysis, correct selection of suppliers, and understanding and tolerating cultural and other differences.

For the outsourcing practice, the company identifies these business success factors: building strong relationships with small suppliers, strong management control to ensure product quality, on-time production and shipping, and providing design and technology to suppliers. Therefore, outsourcing manufacturing products and investing in China has become a long-term strategy for the company.

6.2.2 Case study two

Company Two – automobile seat systems and components

Introduction

The purpose of this case study is to present business company information in relation to the outsourcing of automobile seat systems and components to China. It focuses on the company's inter-firm business problems and solutions, and its business success factors. Following the completion of a questionnaire and an interview with the chief marketing officer of the organisation, the interview record together with information from the company's website is investigated to provide evidence with which to answer the research questions.

Background information

Company Two is a leading Australian automotive components manufacturer, being successful, innovative and versatile. Its parent company is listed on the Australian Stock Exchange. It has an international network of design, production, and shipping facilities in the emerging markets of developing countries as well as niche market products in Australia. Its headquarters are located in Port Melbourne with its factories in Campbellfield, Victoria, and Edinburgh Park, South Australia. It also has offices in Troy in the USA, Shanghai City and Changsha City in China. There is also a joint venture factory in Wuhu City, China. Globally, the business has four design and technical centres and nine manufacturing and logistics facilities, with a total of 1200 employees (as of April 2009). In addition, it has business partnerships with many other auto manufacturers and more than two hundred auto parts suppliers in Australia, China, Thailand, the USA, Europe and South Africa. Through its international business partnership networks the company has strong customer-focus solutions. Its business strategies include flexibility and closeness to

its customers' automobile factory locations: production of auto components at required quality standards, achievement of low costs, and fully sequenced delivery. Lean manufacturing and staff training are also important strategies for operational efficiency and quality. In addition, long-term strategic partnerships in other countries for production and marketing assist in excellent design services, engineering, manufacturing and supply solutions.

Company Two's approach to design, quality and business partnerships focuses on providing customer comfort, safety, convenience and low cost. Two of the company's core strengths are flexibility and agility. Its market position is protected by having strong partnerships, an innovative business model, good quality and low costs. For the whole development process, from concept design and raw materials to mass production, the company provides a total solution to customers. The company's culture reflects can-do attitudes including teamwork, innovation, quality, technical ability and competitiveness to develop innovative and sustainable products, and a commitment to supporting the local communities in Australia and China.

The products

Company Two produces full seating systems for many different vehicles produced in its customers' factories. The vehicles range from small economic cars in China to niche and luxury sports cars in Australia, all with the right products at the right costs and right quality. The company has fully integrated solutions for the design, development, and manufacturing of auto interior systems, with a focus on quality for drivers and passengers' comfort, safety, convenience and reliability. The company has the highest product standards and delivers fully in sequence to the assembly lines in Australia. With a growing international network of design and factories, its total sales revenue is in the order of A\$450 million per year (as of June 2009).

The company's original and aftermarket product range comprises seating systems, vehicle interior trims such as door trims, overhead modules, floor carpets and mats, trunk trims and luggage systems. Car control systems include steering, pedal and windows. Aftermarket products include electric safety devices, security, and DVD

entertainment systems. One of the best products is the new floor carpet for environmental protection and better use at lower cost. It is an innovation of polyester tufted carpet, which is one hundred per cent recyclable as an alternative to traditional nylon automotive carpets. All products are designed, developed and tested to the standards of safety and performance.

Other achievements

The company's products are renowned as some of the best in the world, achieving an award of Boston Strategies International in 2008 for excellence in synchronising supply. In 2009, Company Two's US subsidiary also received three PACE awards, the automotive industry's benchmark for 'best in industry' covering innovation and development. This award is a recognised worldwide automotive industry symbol and benchmark for innovation since 1995. It has become a leading vehicle interior trim supplier through success in quality, value, innovation and flexible supply solutions and long-term international partnerships.

Manufacturing restructuring and business with China

Company Two has provided total integrated solutions, covering sourcing raw materials, and concept designs for mass production for many years in Australia. However, the company has restructured its manufacturing and worked with more than two hundred suppliers. The company has several investments in China. Since 2005, the company has developed its regional headquarters in Shanghai for sales, business development, and procurement. Three Australian managers and some Chinese staff work in the office. There is another office in Hefei City for supporting the design of new seating systems. Furthermore, there is a joint venture office designing and manufacturing control systems in Changsha City.

In 2006, the company also established a 20,000 square metre joint venture factory in Wuhu City, Anhui province, located close to a Chinese major automobile manufacturer as a strategic supply partner for producing seating systems, making sales to the local market in China and exporting to Australia. In the joint venture, Company Two owns 70 per cent of the factory, the Chinese manufacturer owns twenty per cent, and the local government owns the remaining ten per cent. The first finished product from this joint venture was produced in April 2007, and now

the number of seat kits supplied has reached 100,000 (as of June 2009). Two Australian engineers work together with local experts in this factory, designing, testing, manufacturing and assembling seating and other interior systems.

The total number of staff in China has reached 300 (as of June 2009). So far, Company Two has four years of planning, searching, negotiating and setting up, plus two years of production history in China. It has achieved production cost savings of five to ten per cent as planned and expects more in the future. More importantly, it has entered China's auto market. The company has also established its website with both English and Chinese web pages. Overall, Company Two is comfortable using Chinese suppliers and joint ventures. Uncertainty and risks of outsourcing with companies in China are not very high. Management believes that after working hard in China, it can find good suppliers and get good results.

Support from the Australian Government

During the restructuring, Austrade and other government agencies provided important support to search for and select joint venture partners to build the factory in China. In 2009, a senior delegation from the Australian Government visited the joint venture factory in China to celebrate its success and demonstrate support for the company. The managing director of Company Two said during the worldwide financial crisis that China's auto market still keeps growing. The company fully intends to continue its growth and success in the market, pursuing a range of new business opportunities.

Business problems and solutions

While achieving good results in its business ventures with China, there are some business problems. This section explains the problems and Company Two's related solutions.

(1) Overload of management work in setting up and managing production

The problem: For complex production, Company Two had to invest much effort and time in setting up production facilities that satisfied their requirements of product quality, product delivery and performance reliability. For example, in setting up their manufacturing in China to produce car and truck seat complex

engineering systems, Australian managers had to travel to China many times searching for the right business partners, negotiating contracts, helping set up production facilities, training and resolving problems to ensure that the production was right. The work also included establishing good business relationships with local people, especially those in local government.

The solution: In order to cut time costs, Company Two decided to streamline their setting up of production in China. Because there were not enough opportunities to integrate with local Chinese suppliers and networks to ensure product quality, delivery, performance and reliability if it just kept sending managers to China, Company Two established a design office in Nanjing City, which was subsequently moved to Shanghai City for the bigger market and connection networks. The company employed Australian and Chinese staff in the office to conduct the supply management tasks including purchasing and quality inspection. As a result, managers in Australia needed to travel less than before, with much management work being handled by its office staff in China.

(2) High transaction costs

The problem: To establish and operate offshore outsourcing and production, Company Two faces many new transaction costs including costs for travel, communication (for example, translation of documents into Chinese), contract negotiation (for example, hiring lawyers), and managing suppliers (for example, hiring additional staff in the Shanghai office). The company finds that comparing outsourcing and offshore production in China with local production in Australia, the cost savings are only five to ten per cent after deducting transaction costs. If there were no transaction costs, the benefit would be higher than ten per cent. In the early stages of setting up production, the costs were even higher. If there were no cost savings, or not much saving, the production would have remained in Australia, or been outsourced elsewhere, for example, to Thailand.

The solution: In order to cut its transaction costs, Company Two constructed an outsourcing plan that included selecting correct business partners, making effective travel plans, deciding engineering and management processing, and establishing control. The company continues to monitor the cost savings gained in outsourcing

to China. After Company Two established the local infrastructure, and local staff had enough production experience in their factory, transaction costs had then reduced compared to the setting up stage. The company expects to continue improving on the current cost savings into the future.

(3) Language barrier and cultural variance

The problem: Although many local business people in China can speak basic English in large cities such as Shanghai, Company Two found the language barrier to be a significant problem when supervising its manufacture in the smaller city of Wuhu. Most staff in this joint venture factory had only a farming background and lacked education including the English language, making it extremely difficult for Australian managers to communicate with them. In addition, the original product designs and technical specifications were all in English. There were difficulties with correctly translating English into Chinese so that the Chinese staff could fully understand instructions. When there was a misunderstanding, it might not be known until the products were made, presenting a risk for production.

Company Two also faces some communication problems due to the different cultural environments. For example, some of the new staff at the office in Shanghai and the Wuhu joint venture factory believe that all office and production skills can be learned during actual working over time without having formal skill training, whereas Australian managers require skilled staff to have formal training and qualifications.

The solution: Company Two believes that the language problem can be reduced over time as the local staff keep learning both English and production skills. For international business, it is important to have an open mind, be flexible, and build trust. In the meantime, the company has increased communication levels with its staff and business partners by hiring bilingual personnel in both Australia and China. This has enabled better understanding of language and cultural differences. When selecting Australian employees to do business in China, the company has to ensure that the staff are able and prepared to travel and respect a different culture because there is no right or wrong answer for cultural differences.

(4) Inexperienced managers and unskilled labour

The problem: In China, large new factories cannot be built in urban areas because many of these are too expensive and lack manufacturing zones. Because most industries have moved out of the large cities such as Shanghai, Company Two had to look for smaller cities in which to build its factory. This led the company to build a joint venture factory in Wuhu City in 2007. Like many other new factory sites, land that was previously farming was acquired by a local economic development agency under the condition that those farmers relying on that land be given employment in the new factories. Therefore, when the joint venture factory was established, many local staff had no industrial experience. Because the factory was able to hire only limited number of managers and engineers from the same industry in the small city, it sought to hire some from university graduates and from other industries. This meant that not only the general staff were in need of training in the auto industry, but also some newly recruited managers and engineers.

The solution: As the staff were expected to make mistakes during training in the joint venture factory, they needed time to practise producing quality goods. However, they were fast learners, so after two years of operation they had learned most of the skills required for quality production. Although the joint venture was able to produce products of acceptable quality, to ensure that this is maintained, Company Two still sends its own staff from its Shanghai office to conduct quality inspection prior to shipment to Australia and to its customers in China.

(5) Technical level and quality standards are not high enough in China

The problem: The car seating system contains some middle-to-high technology components in which some parts are safety critical. In the event of a car crash, this system protects drivers and passengers to a certain extent. If the design and production are not performed correctly, or are changed to save production costs, or the quality does not reach the required standard, all the cars may have to be recalled. As some car parts made in China could not totally satisfy Australian safety requirements and other standards, the managers of Company Two visited numerous factories in China, including Hong Kong, for new production sources. However, they were unable to find all the parts they needed, for example, car seat recliners being made to Australian standards.

The solution: Company Two currently keeps some high technological parts (for example, car seat recliners) of its car seating systems for outsourcing to Germany where the production meets the quality standards required for Australian car markets. The car seat recliners made in China were only suitable for cars made under Chinese standards for domestic use in China. The solution is the recliners made in China are used for cars being produced in China, so that the costs of these seating systems are lower. On the other hand, the recliners made in Germany are used for cars made in Australia. For its existing production in China, Company Two provides technical help by sending engineers to the joint venture factory, or inviting Chinese managers and engineers to study in its production lines in Australia. However, these technical problems are rapidly diminishing as the capability of Chinese suppliers' increases. Company Two expects that the joint venture factory in China can produce all the required parts to an Australian standard within three years. This will further cut costs, as production in Germany is very expensive.

(6) Payment terms

The problem: When signing contracts with suppliers, Company Two uses the payment terms of telegraphic transfer (T/T) without deposit, making payments in full after receiving the goods. However, Company Two always faces long delays in receiving its payments both from automobile manufacturing customers in Australia and China for the seats and components sold. Sometimes, Company Two even faces the risk of no payment from its customers due to bad debts. In addition, some contracts with suppliers in China are in Chinese currency (RMB) payment terms so that there is a risk of foreign exchange rate deficits. Furthermore, because Company Two's payment is made upon receiving goods, when deficient product quality is identified at a late date, it is difficult to get compensation from Company Two's suppliers.

The solution: Because Company Two gets payment for its car seats sold from 60 to 90 days after delivery it has decided to change payment terms in new contracts that involves paying the suppliers in both Australia and China only after receiving payments from car manufacturers. This means that although at present Company Two pays suppliers on time according to current contract terms, in future the

company plans to only pay after receiving payments from its customers under the new contract terms.

In addition, for RMB payments, the company uses sales revenue in China for payment, without using Australian dollars. This can avoid the risk of changes in the foreign exchange rate. In addition, in the terms and conditions of contracts signed with suppliers in China, there is an adjustment term applied in the event that the exchange rate rises beyond or falls below certain levels. This can reduce the high risk of the changes in foreign exchange rates. Other than what is due to new business partners, Company Two uses very few letters of credit payment terms because these are complicated and expensive. To avoid the risk of deficient product quality, Company Two may withhold part of the payments until receipt of the goods and satisfaction with the product quality.

(7) Uncertainty in China

The problem: Some large suppliers in China do not want to maintain long-term relationships with Company Two. The reason is, compared to some large companies from the USA and Europe, Company Two is relatively small and the quantity of purchases are not sufficiently large for the larger Chinese suppliers to be motivated and to keep up the business relationship. When there is some uncertainty about continuity of production, the relationship may not be able to be continued unless Company Two keeps growing in China.

The solution: Company Two looks for win-win, long-term business relationships. Due to the limited amount of products Australian manufacturing needs, the company's purchasing orders for production in Australia are small. However, it also aims for the car market in China, which is big. If the suppliers can produce the right components and maintain the relationships, Company Two will offer further contracts for both Australian and Chinese markets. If the suppliers cannot do well now, the company will have to look for new suppliers.

Company Two provides most designs to its suppliers. However, in order to produce the same products at the same quality, the suppliers still need to learn 'know-how' production skills. This is because for the same materials and designs, different ways

of production processing can achieve different results. Due to the relationship uncertainty, Company Two has some control of know-how in order to retain intellectual property rights.

Business success factors and future plans

For business success in China, Company Two believes that there are several important business success factors as follows:

1) Specifying quality and service standards in contracts and good management of the handover process are very important. Car seating system quality is related to safety, so all technological specifications must be clearly written into contracts. Production costs are the main issue in China. In order to save some of the production costs, business partners may want to change the designs. However, if business partners want to change the designs, according to the contracts they must get written approval from Company Two before any changes are made.

2) Business partners need to share most data electronically and have high level of transparency on policies and operations on both sides. This is important for quality control purposes. When problems occur, the other side is able to understand them quickly and help the business partners to solve the problems.

3) Establishing the company's own offices and a factory in China is an important step. It is also important to establish high-level network connections with senior Chinese executives and local government officers in order to create sustainable, committed, and long-term business relationships so as to create win-win opportunities for all parties. Local governments have a very strong influence on local businesses. They are able to provide important business information and networking for selecting business partners and providing support. The local government in Wuhu City therefore gets ten per cent ownership of the joint venture factory in order to create a situation where all parties have equity in the outcome.

4) Outsourcing to China is part of a parallel plan entailing the manufacture of Company Two's products and establishing a growth path. Company Two has a strong view of the local Chinese car market. Because of the possibility of more

imported and less locally made automobiles in Australia in the future, the company takes the steps of selling many car-seating systems to automobile manufacturers in China. The product sale price is lower in China, but the production costs are also lower so that the profit margin is still acceptable.

5) Based on high-level design and firm engineering processes, Company Two adopts innovation and flexible methods to solve the problems between business partners and customers. The company retains its capabilities of providing the best solutions for design, engineering, production and delivery. The company has solutions providing quality, value and innovation and its products are at the highest level of consumer comfort, safety, and convenience, at low costs. The company participates in the campaign of 'Team Australia Automotive' and gets support from the Australian Government through programs such as the 'New Car Plan for a Greener Future'.

Analysis and summary

Company Two is an Australian automotive components manufacturer with total sales revenue of A\$450 million in 2009. It has the highest level of manufacturing restructure among the eight case studies in this research. It has its offices, joint venture factory and it sells its products in China. It provides most of its designs and has its engineers working with its suppliers. Because more vehicles will be produced in China, and maybe more vehicles being imported into Australia in the future, the company plans to have more production in China to win China's auto market and further reduce the costs of production in Australia. The company faces some outsourcing problems, but no major drawbacks at this time. However, its production cost savings are only five to ten per cent after its transaction costs, whereby the savings are lower than some other companies in this research. The company's outsourcing and the investment for the joint venture factory in China is a correct strategy because it provides cost savings and entry into China's growing local car market.

To reduce the high transaction costs, the company constructed an outsourcing plan that included building an office in China to reduce travel needs from Australia, selecting correct business partners and establishing control. For the problem of the

language barrier and cultural differences, the company had increased communication levels by hiring bilingual personnel. For inexperienced managers and unskilled labour, the company sent its staff from the Shanghai office to conduct training. For technical levels and quality standards not being high enough in China, the company outsourced some high technological parts to Germany. To avoid the risk of deficient product quality, the company conducted quality inspection prior to shipments, and planned to withhold part of the payments until the receipt of satisfactory quality products. For payment terms, the company used sales revenue in China for payments to reduce the risk of the changes in foreign exchange rates.

The business success factors in the company's strategies are specifying quality and service standards in contracts and good management of the handover process, sharing most data electronically and having high level of transparency on policies and operations on both sides. The factors also include establishing the company's own offices and a factory in China, having a parallel plan entailing the manufacture of products and establishing a growth path, and adopting innovation and flexible methods to solve business problems.

6.2.3 Case study three

Company Three – sleep breathing equipment

Introduction

This case study examines the outsourcing of components of sleep breathing equipment to China. The foci are on the company's inter-firm business problems and solutions, as well as its business success factors. Following the completion of a questionnaire and an interview with the manager of global procurement and supplier alliance in the organisation, the records together with information from the company's website are elaborated.

Background information

Company Three provides medical devices for screening, diagnosing, treating, and managing the medical problems of 'sleep-disordered breathing', other respiratory disorders and obstructive sleep apnea. The company is dedicated to developing

innovative products to improve the lives of those who suffer from the illness and to increase awareness among patients and healthcare professionals of the potentially serious health consequences of untreated sleep-disordered breathing. The business has grown rapidly after developing some highly innovative product lines. The medical devices are assembled in Australia and are available for the public to purchase on the internet. Fifty per cent of the products are sold to the USA, forty per cent to Europe and the remainder to the Asia-Pacific region. Company Three's mission statement is 'Provide global leadership in sleep medicine and non-invasive ventilation based on innovative technology advancing the diagnosis, treatment, and management of sleep-disordered breathing'.

Company Three has been a private Australian manufacturer since 1989. It is located in New South Wales, has its own systems engineering operations, system integration technologies and an innovation centre for research and development. It has excellent leadership and is a worldwide leader of innovation, production, and marketing with diverse professional, technical, medical and manufacturing skills. Its operation has grown rapidly via the introduction of highly innovative product lines. The company has more than 3000 employees and operates in more than seventy countries through wholly owned subsidiaries and independent distributors. Its offices include those in Beijing, Shanghai and Shenzhen cities in Mainland China and one in Hong Kong. The staff in the offices work with the local engineers in host countries for procurement projects and outsourcing manufacturing relationships.

Manufacturing restructuring and outsourcing to Mainland China and Taiwan

For lower cost production, Company Three has outsourced many medical device components to China for assembly in Australia over the last eleven to fifteen years. Some are high technology components such as electrical circuit boards. In addition to production cost savings, the other reason for outsourcing to China is to take advantage of the advanced technologies of some multinational companies in China. For example, some American and Japanese companies such as General Electric, HP and Hitachi have facilities in China and can produce some high technology components at lower costs compared to producing the same in Australia. The company also outsources some low technology labour intensive components, such

as transformers for power suppliers, plastic model parts, printed-paper materials (for example, product manuals) and carry bags for medical devices. The bags are sourced from the textile manufacturing area to the west of Shanghai. Payment terms for the outsourced products consist of thirty per cent deposit when contracts are signed, with the remainder paid via T/T transfer due in sixty days after the bill of lading is issued. There are no letters of credit used.

Achievements

Company Three has recorded twenty years of successful sales in Australia and worldwide through its eighteen overseas offices and many distributors. As a result, the products are sold to more than seventy countries, and the business is continually expanding and improving its value. In the beginning, the company planned to achieve thirty per cent of production cost savings via all offshore outsourcing, but the actual cost savings achieved is forty per cent of product value. This is bigger than expected from the projects to China and other South East Asian countries. The company conducts continuous innovation and has 1,700 patents and 1,270 design registrations granted and pending as of June 2008. It has also achieved the ISO9001 qualification and is working for the ISO14000 advanced environmental system. One of the awards it has achieved is the Large Manufacturer Category of the 2005 Premier's NSW Exporter of the Year Award. The company is listed on both the Australian Stock Exchange and the New York Stock Exchange.

Current and potential business problems and solutions

While achieving good results from outsourcing to suppliers in China, there are still some inter-firm outsourcing problems. The problems and related solutions are as follows:

(1) Sub-contracting without acknowledgement and approval

The problem: The terms of outsourcing contracts preclude suppliers from sub-contracting without Company Three's approval, and suppliers must inform any change in production to Company Three. However, after some time of outsourcing relationships, the procurement manager of Company Three in Shenzhen found some incidents of sub-contracting production of components by a principal supplier to other companies in China, without the company's acknowledgement and approval.

Company Three also has outsourcing relationships with some suppliers in Taiwan. Later, the company found that the suppliers also have their subsidiaries and outsourcing in Mainland China. Because labour and other production costs are also high in Taiwan, the suppliers there also conduct their own outsourcing to their subsidiaries and other suppliers in Mainland China. Therefore, there is a risk that the suppliers in Taiwan may further sub-contract Company Three's components to Mainland China.

The solution: After some investigation and discussion, based on the terms and conditions of the outsourcing contract, Company Three decided to terminate the business relationship with the supplier in Shenzhen because of the unacceptable trade behaviour and breach of the contract. At the same time, Company Three started using its alternative supplier in China to undertake the production and still achieved its outsourcing goals. Another reason for the decision was that Company Three would lose control of product quality if there was sub-contracting to third party suppliers. The subcontract practice can generate product quality problems. Company Three has had to more closely monitor its outsourcing operations since that time.

(2) Potential problem of the loss of the organisation's confidential information and intellectual property due to inter-firm business transactions

The problem: Company Three has strong concerns that outsourcing could result in the loss of company competency and tacit knowledge. If the whole production is outsourced to external suppliers, there is a high risk that duplicate products could be created without authorisation. Because the company has spent twenty years on innovation, design, manufacturing and marketing the products, and relies on the products for the business, it needs to keep strong management control over its intellectual property.

The solution: Company Three has devised some ways to prevent loss of the company competency and tacit knowledge. First, the company retains its core competency and main tacit knowledge by outsourcing only peripheral components overseas. The company retains design, development and the production of the main components involved with the main intellectual property in-house in New South

Wales. In other words, the company has not entered into a total change solution yet, and will not commit to any practice that creates the risk of losing the intellectual property.

Second, Company Three has a strategy of outsourcing components to different suppliers in different areas. Sixty per cent of components are produced by more than one supplier in China. The remainder are to suppliers in Taiwan, Singapore and Australia or in its own company. No one supplier has the full designs and technologies to produce the whole product. The final assembly is conducted in-house in Australia. As a result, the company maintains strong protection over its intellectual property.

(3) Potential problem of sustained production and development of high-quality products

The problem: In addition to labour intensive products such as carry bags, Company Three outsources some high technology but non-core components, such as printed electrical circuit boards to China. The company intends to invest further in research and the development of core components in Australia, whilst it outsources more non-core components for manufacturing overseas. However, the capabilities and the relationship sustainability of suppliers in China have become a notable concern of Company Three. Some suppliers may not have the capability to produce high technology products. As a result, some relationships may be of short duration. In order to ensure the overseas supplier's capabilities for producing quality products and their long-term commitment, Company Three needs to maintain a long-term management control with the suppliers.

The solution: Company Three conducts the following activities to improve management control for relationships with suppliers to sustain outsourcing production and maintain success.

1. Company Three invites engineers and research and development personnel of its suppliers in Mainland China, Taiwan and South East Asia to visit its company in New South Wales for regular business review meetings. The company shares non-confidential product information and also provides product

samples. It has a large input of product research and development and wants to improve suppliers' technical skills, ensure the product quality, and achieve its required needs of research and development.

2. A routine quality audit is undertaken every twelve months in order to maintain supply quality management. The company has a quality management team dedicated to maintaining its product quality, supply management system and sends engineers to China for long-term outsourcing operation development.

3. The company targets processing improvement and agrees on the cost of production for long-term agreements. As a result, the outsourcing business still expands and improves product value and efficiency, and results in cost reduction each year.

Business success factors

Company Three believes that there are several important business success factors. Business success is dependent on the three key fundamentals of people, products and profits. The aims are to help customers, educate the public and strengthen operations and products. The company is committed to effective corporate governance, managing for current profit and long-range interests of shareholders, and to comply fully with the regulations of the US Securities and Exchange Commission, the New York Stock Exchange and the Australian Stock Exchange.

General plans

To achieve higher levels of control, Company Three has rigid selection criteria for selecting its business partners. All legal and technical requirements are specified in contract documents. These can reduce the risk of unqualified suppliers being involved in the process and the misunderstanding of contracts. The company shares general business plans and strategic direction with suppliers without leaking its own confidential information, and invites business partners to participate in the early stages of product development. It also expands project terms from eighteen months to two years to suit long lead-time product development and technology targets. In addition, it trains the business partners to understand the medical knowledge and sleep treatments.

Company Three invests seven per cent of net revenues in product research and development. This is an innovative technology investment for global leadership in the industry. Its focus is on developing innovative therapies for improving health, comfort and convenience. The company is growing in the US and Australian markets, and also looks for large markets in China and India.

Plans in China

Ninety per cent of Company Three's current markets are in the USA and Europe. However, Company Three has established some new strategies for China's market. These include a very careful plan to examine opportunities for future growth: designing affordable products for the market, and building cost effective distribution and logistics networks in China. The next strategy is to conduct some trade shows in Shanghai and Guangzhou cities. For the outsourcing plan, the company plans to outsource some additional electrical cables and printed electrical circuit boards. Its manufacturing restructure plan includes increasing the outsourcing components to seventy per cent of the total product value. It also has an investment plan for establishing its own factories in China. The company is active in its progress into China's sourcing and sales markets.

Analysis and summary

Company Three has high technology for producing medical devices with many patents and designs. Its business has grown very fast: it has eighteen overseas offices and more than 3000 employees and operates in more than seventy countries through subsidiaries and distributors. It is listed in both stock markets in the USA and Australia. Its outsourcing is limited to its non-core components. The strong concern of leakage of confidential information and intellectual property limits the expansion of its outsourcing business and increases management work on controlling outsourcing operations, which is a transaction cost. Its current main markets are in the USA and Europe; however, the products are new and expensive for China's market. It can take a long time for the products to be accepted in China as well as in other developing countries.

Company Three provides medical devices for managing sleep-disordered breathing problems. The company has outsourced many medical device components to China

for assembly in Australia over the last eleven to fifteen years, taking advantage of the lower production costs and some of the advanced technologies of multinational companies in China.

For the problem of sub-contracting production of components by suppliers without Company Three's acknowledgement and approval, Company Three has terminated the business relationship. For the potential loss of the organisation's confidential information and intellectual property, the company retains design, development and the production of the main components, assembly in-house, and uses multiple suppliers in different areas. For sustained production and development of high-quality products, the company holds regular business review meetings, conducts a routine quality audit and process improvement and agrees on annually costing production for long-term agreements.

For business success factors and future plans, the company believes that business success is dependent on the three key fundamentals of people, products and profits. It is committed to effective corporate governance, managing for current profit and the long-range interests of shareholders, and it fully complies with stock exchange regulations.

6.2.4 Case study four

Company Four – microdots for product identification

Introduction

This case study looks at the outsourcing of microdot components for product identification to China. The research focuses on the company's inter-firm outsourcing problems and solutions, as well as its business success factors. Information from the completed questionnaire, an interview with the general manager of Company Four and a search of the company's websites are compiled as follows:

Background information

Company Four is an Australian-owned manufacturer located in New South Wales, has its own engineering operations, system integration technologies and an innovation centre for research and development. The company was listed on the Australian Stock Exchange in January 2005. It is an industry leader in the development of asset-based identification through its worldwide verification database.

The company's main product of identification technology is the microdots which are a unique micro-scale substance, blended into molecular structure micro pieces of data dots, that can be sprayed on to luxury items (for example, vehicles and computers) to identify and authenticate them in a manner similar to that of a barcode. The microdots are etched with some lines of code. The dots consist of high-grade polyester around one millimetre in diameter, delivered by a laser imaging process. When used, up to several thousand microdots can be sprayed or brushed onto cars or other goods. For example, between 1,000–10,000 microdots with a laser-etched identification number are applied to a vehicle. The dots are incorporated into self-adhesive labels of 'Protected by microdot' and can be read with a simple hand-held portable reader. The material is highly versatile and can be delivered in a variety of forms to suit various applications. The company has a website for customers with which to register their personal and property information.

The product aims to provide detection and protection against thieves and counterfeiting of products. For example, the technology helps to prevent the theft of luxury items including cars and boats, and can qualify for reduction of insurance premiums in Australia. The same technology is also used to counter international textile fraud and counterfeiting labels, and to detect fake designer clothing. It is integrated into a fine thread and used as an anti-counterfeiting device in apparel. The textile industry expects to reduce the risk in hundreds of millions of dollars worth of international textile fraud and label counterfeiting each year.

Product marketing

Company Four is a leader in the development of product identification and authentication by identification technologies, supported by its verification web database. The products are made in Australia and are available for the public to purchase on the internet. The technology is used by some vehicle manufacturers in Australia and overseas. The company's customers also include the NSW Education Department, the Master Builders Association and the Australian Broadcasting Corporation. In addition, Company Four has a joint venture with Australia's National Research and Development Organisation. There are more than 800 bicycle retailers in Australia using the marking technology. Some schools in New South Wales use the technology to protect their school equipment.

Company Four has a joint venture with a New Zealand company preventing clothing makers substituting low-quality textiles for high-quality products by using fake labels. In Taiwan, the data dots are sold to prevent vehicle theft. Furthermore, some companies in China, Germany, Italy, and the USA have expressed their interest in the technology.

Achievements

Company Four gained a standard patent and an innovation patent in Australia for the microdots technology. The company has its high-tech encoding technology to ensure the highest level of security for its customers who wish to protect their products from counterfeiting and diversion. The company sells its products to twelve countries including Australia, the USA, South Africa and some countries in Europe. The company was designated an outstanding contribution to the Crime Stoppers scheme for marine and copper protection campaign in 2008/9. Its products have gained acceptance in many countries including China and the USA. The theft rate of motorcycles in Australia has been reduced by 25 per cent as a direct result of using microdot technology on new motorcycles in 2008/9. The company has also achieved the ISO9001 qualification.

Manufacturing restructuring and outsourcing

Company Four has had six, long-term alliance suppliers in Guangzhou and Shanghai, China for six to ten years, and has outsourced some labour intensive

components such as plastic injection moulding as well as some middle-to-high technology components such as micro printed polymers. These are the components used for manufacturing the microdots and for packaging. The production costs in China are only one-third of the comparable costs in Australia. However, the microdots and the information coding processing, which are the core-part technology of the products, are produced only in-house in Australia due to the concern of intellectual property rights.

Company Four has outsourced manufacturing to the free trade zone in Taiwan to take advantage of the absence of a local tax on exported goods from the zone. The company has also had a distribution partner in Taiwan for seven years. As a result of a long period of good business relationships, the level of trust between companies is high. The production costs in Taiwan are higher than in Mainland China, but are still less than half of the comparable costs in Australia.

Company Four uses T/T payment terms to pay for the outsourced components to China. Because the outsourcing contract amounts are not very large compared to some big companies, in order to get contracts easily signed, Company Four pays one hundred per cent of the contract price when it signs contracts with existing suppliers. This also represents a high level of trust by Company Four. The company is confident that the suppliers can produce the components correctly. It takes the risk that the suppliers may run away with the money, file bankruptcy, not produce the products or make defective-quality goods. The company is seeking business partners in China to create its sales market to have formal distribution sales.

Business problems and solutions

While achieving good results from offshore outsourcing, there are still some business problems. For the problems, Company Four has devised the following solutions:

(1) Quality issues

The problem: In a shipment from China, the outsourced components of the plastic injection model showed evidence of a quality problem due to a size difference that was over the allowed limit. The reason for the error was that the supplier did not

take enough care when making the product. Delay also occurred due to the time required to remake the same products for overseas reshipments.

The solution: Company Four had to reship the defective components back to China, and requested the supplier reprocess them and ship them again at the supplier's costs. Company Four then finally received the correct components. Following that, the company sent an engineer to the factories of suppliers in China to make sure the requirements of technology specifications were met before mass production started. The quality has been assured since that time although this is expensive to achieve. Company Four will have its own office and its staff in China, who can conduct quality assurance prior to shipments so that the company can reduce travel costs.

(2) Planning to achieve 40 per cent of production savings, but achieving only twenty per cent

The problem: Because the production costs in China are less than one-third of the comparable costs in Australia, Company Four planned to achieve a 40 per cent cost saving after the costs of shipment, customs duties and other concerns. However, after seven years outsourcing practices, the company has found that only twenty per cent of final cost saving is achieved due to the high transaction costs. In particular, there are travel and extra management work costs. Defective-quality products are also a cost for both sides of the partnership.

The solution: Because the twenty per cent cost saving achieved is still a significant benefit for the company and its shareholders, Company Four plans to continue the outsourcing business and reduce the transaction costs by having its own office in China to carry out outsourcing tasks. This can save some costs of travel and management work in Australia, reduce the rate of defective products and it will increase the final cost saving.

(3) Risk of losing organisation's confidential information and intellectual property rights

The problem: Company Four intends to outsource as many components as possible to China for cost savings. The technology is not easily reproduced, but it can still be

copied if the suppliers try hard to do so. Company Four believes that counterfeit products will be created in six months if it outsources everything without protection.

The solution: Company Four has to keep the core-part technology, which is the laser imaging process, in Australia without outsourcing due to concerns about loss of intellectual property rights and key technology. The company plans to retain its patents and the core technology as confidential information. Only some non-core parts of components and packaging can be outsourced overseas. At this time, the company still has full control of the main technology.

(4) Misunderstanding of new product specification

The problem: Although the suppliers have produced the components for six to ten years, there are still some misunderstandings when Company Four introduces new components and products with new technical specifications. The language problem also contributes to the quality problems because of misunderstandings.

The solution: To improve suppliers' understanding of the product requirements and to improve the communication level, Company Four has hired two bilingual general staff inside its company to communicate with the suppliers to solve the language problems and has significantly reduced misunderstandings. The company also plans to hire bilingual engineers to work with the overseas suppliers. The product specifications and requirements are translated into the Chinese language for better understanding.

Business success factors and future plans

For business success in China, Company Four started with a very careful plan for entering China's market and sought distribution and licenced partners in all the major geographical areas and industries in China. Although the company does not have an office in China, it plans to have its own subsidiary company or joint venture in China to sell its products. Shanghai is the first location considered by the company.

Company Four plans to produce the microdots in Taiwan, but re-pack them into small individual bags in Mainland China. More and more components including the

microdots can be produced in China in future. Overall, the company has had good experience with suppliers in Mainland China and Taiwan and has also experienced a good sales market in Taiwan.

In order to succeed in the market of microdots for product identification, Company Four recognises that one important factor is to improve and maintain the technologies, and another factor is to gain local support in host countries. This includes support from car manufacturers and dealers, police departments and auto insurance companies. This support takes time to achieve, but results will be great when successful.

Analysis and summary

Company Four's main product is the microdots, which are unique micro-scale substances for product identification. The company outsources some labour intensive components such as plastic injection moulding as well as some middle-to-high technology components such as micro-printed polymers. It is seeking new business partners in China to create its sales market.

Company Four has new, high technology and useful products. If the products can enter China's market, it will be a big business. However, this needs local support in host countries. For easy acquisition of outsourcing contracts, it pays a one hundred per cent deposit when signing contracts. This is an uncommon practice and represents the highest level of trust with suppliers. Its laser imaging process is the key technology, which is of the most concern to be maintained by the company when outsourcing components. It is a small company and it will take some time for it to create its business in China's big market.

Because many manufacturers in Taiwan also conduct outsourcing or build their own factories in Mainland China, there is a risk that suppliers in Taiwan will subcontract the products to third party suppliers, or assign products to their own factories in Mainland China.

For defective-quality products, Company Four requests suppliers to reprocess the products, and will have its own staff in China to conduct quality assurance. For high

transaction costs, the office staff in China will reduce the travelling need from Australia to increase the final cost savings. For protection of the organisation's confidential information, the company keeps the core-part technology in-house. For the misunderstanding of new product specifications, the company hires bilingual general staff and will hire bilingual engineers to work with overseas suppliers. The company has a very careful plan for entering China's market, looks for distributors, its own subsidiary company or a joint venture in China.

6.2.5 Case study five

Company Five – electrical control systems

Introduction

This case study researches the outsourcing components of electrical control systems to China. The research focuses on the company's inter-firm business problems, solutions and business success factors. Following the completion of a questionnaire and an interview with the operations manager of Company Five, these records together with information from the company website are elaborated as follows:

Background information

Company Five is a wholly Australian-owned manufacturer. It is located in Port Melbourne, has its own systems engineering operations and an innovation centre for research and development. The company has been listed on the Australian Stock Exchange since January 1997. It manufactures and supplies high technology electrical control systems to international markets. The products include different models for fixed or mobile use. For fixed systems, the company sends technicians to do on-site assembly. Parts are sent directly from the company's factories and outsourced suppliers to assembly sites. For example, the core parts are shipped from Melbourne and the frames and boxes are shipped from China to sites in the USA for assembly and installation. Company Five is the market leader of the product in Australia, and it is also the largest provider of these systems and services in North America, contracting with more than 250 cities in the USA. Eighty per cent of Company Five's customers are in the USA, with the remainder in Australia, Europe, Africa, Middle East and Hong Kong. In Australia and the USA, the company

emphasises research and development (R&D), with spending of 3.8 per cent of its sales revenue in 2009, and three per cent in 2010.

Achievement

Company Five has had 25 per cent annual growth in installations over the past five years, and achieved the Governor of Victoria Export Award in the Large Advanced Manufacturer Category. The company also received the award of Excellence in Technology/Innovation in New South Wales. Company Five currently has a contract worth over A\$4 million with the Victorian State Government to supply, install and maintain electrical control systems at sixteen locations around Victoria. Their other achievements include participating in the Victorian State Government's program to upgrade existing control systems; and winning an A\$100 million contract in Ireland in 2009. Company Five has also been awarded a contract worth over A\$3 million with the Hong Kong Government. This program includes building new systems, and adding new parts to old systems in Hong Kong.

For the first twelve-month production when outsourcing to China in 2009/10, Company Five expected to achieve cost savings of 40 per cent. The company is increasing production capacity by manufacturing more and more components in China. The cost saving achieved was 25 per cent to date. It is expected that the cost saving will increase to 40 per cent.

Manufacturing restructuring and outsourcing to China

Company Five's business partners are located in Shenzhen City, China. The main reason for conducting outsourcing there is to save production costs and to gain flexibility in production, taking advantage of the production capability of the city. Although Company Five has less than one-third of its system components produced in China, it aims to increase to two-thirds of the components to be produced there in five years. The company also conducts sub-assembly there. In the event of having high-production demands from customers, Company Five can assign tasks to external business partners. As the suppliers in China are capable producers, Company Five is able to gain the flexibility of production variation when the required production volume changes. An alternate production system is necessary

because the company has limited production ability in Australia and is unable to produce large volumes of product in a short time.

Company Five sends engineers together with product designs to assist the production of its products in the factories of outsourcing partners. Both sides of the partnership invest in the production tooling. In addition, the company provides some special components that suppliers do not have for their production. However, in order to protect intellectual property rights, up to this time only low technology, non-core components such as the frames and boxes of the systems have been produced in China. Company Five plans to hire its own local staff in China, which will reduce the need to send staff from Australia, together with interpreters.

Business problems and solutions

Although Company Five has achieved good results from outsourcing, it has some business problems. For the five problems mentioned below, the company has related solutions as follows:

(1) Rising production costs in some large cities of China

The problem: Outsourcing partners of Company Five are located in Shenzhen City for the advantages of technical capabilities and skilled labour in the city. The city was the first special trade zone during economic reform in the 1980s. As a result, production costs there are much higher than in other cities in China. Although the present production volume needed for Company Five is not high, it is expected to grow in the next two years. Consequently, by that time, rising costs in Shenzhen will become a major problem because the primary reason for outsourcing to China is to save production costs while maintaining quality.

The solution: Company Five realises that offshore outsourcing cannot be located in only one city, Shenzhen, so it starts to look for new business partners in other cities in China in the next two years. However, because companies in Shenzhen have technologies and international business experience, Company Five plans to keep some outsourcing contracts with suppliers in the city.

(2) High staff turnover

The problem: Company Five spends time and money when training the new staff of the outsourcing partners. The production technologies are new to the suppliers, and as a result, Australian engineers are sent to China to provide training for Chinese engineers, a high-cost activity for Company Five. However, the turnover of staff including key-trained engineers of the suppliers is very high. The main supplier in Shenzhen has three hundred staff, but many of them keep changing jobs. This is a characteristic of the local working culture, and causes an increase in training costs with continual re-training and relationship building, as well as the risk of losing knowledge to Company Five when staff change jobs to competitors.

The solution: Currently, Company Five continues to send engineers from Australia to train new staff for its outsourcing partners. Company Five complains to the factory owners in China, but the owners are not able to make any significant change regarding the staff turnover at this time. Company Five suggests to its suppliers to improve employment conditions including salary increases in order to keep staff. Company Five also intends to hire its own staff in China to undertake the training jobs in order to reduce travel costs.

(3) Slow production and delivery

The problem: Production and delivery by suppliers is slower than expected. For example, the time from issuing of a purchase order to receipt of a typical product from external suppliers in Australia may take four weeks. However, it may take ten weeks for Chinese suppliers to produce the same, plus shipping time. Slow production and delivery will become a big issue when Company Five's required volumes become high.

The solution: Company Five orders products from Australian local suppliers when it needs them in a short time. However, this has not yet become a big issue because the outsourcing volumes are not very high and can be planned ahead for production. In future, with long-term fixed outsourcing contracts, Chinese suppliers are expected to improve their production speeds and capabilities to an acceptable level. If the existing suppliers are not able to produce at the required speed level, Company Five may have to look for new suppliers in China or elsewhere.

(4) Risks on product quality, production ability and intellectual property rights

The problem: The suppliers spend more time and effort than Company Five expected and the quality of components is acceptable in general. However, the quality of the components made by outsourcing partners in China is still not fully satisfactory. Although currently only labour intensive components are outsourced to China, there are still some quality requirements to be satisfied. For example, outdoor metal boxes have to meet the requirements of surviving in an outdoor weather environment. In addition, some components of the electrical control system to be outsourced will be high technology in the future, meaning that it will be difficult to find suppliers with the correct production ability. Furthermore, another risk Company Five faces is when high technologies are transferred to suppliers, the suppliers may either copy the products and produce their own, or transfer them to competitors.

The solution: Company Five hires a third party agent, a licenced individual, for local support, conducting quality inspection for all components prior to shipment, and completing paperwork. In addition, so far components being outsourced to China are non-core, low technology parts such as frames and boxes, so that less risk of defective products is involved. In future, Chinese suppliers are expected to improve their skills and product quality and be able to produce some high technology components and products. Otherwise, Company Five will need to look for new suppliers in other countries. With respect to intellectual property rights, Company Five retains the core parts of products within its own company. The most significant part of the system is its computer programs whereby the software is used as the key barrier to industry entry, protecting the business from intellectual theft.

(5) The difficulty of finding suitable suppliers when the contracting volume is low

The problem: The current volumes of components outsourced by Company Five are limited, whereas large suppliers in China look for mass production volumes to achieve economies of scale. This difference makes it difficult to negotiate outsourcing contracts. The other problem is the significant cost of the tooling investment when production volumes are low.

The solution: In order to negotiate outsourcing contracts for lower product volumes than others, Company Five pays 50 per cent deposits when signing its outsourcing contracts and pays the remaining against the bill of lading of shipments. For industrial products, many companies pay only 30 per cent deposits or do not pay any deposit. With high percentage deposits, it is easier to find suppliers because the suppliers can use the deposit money to buy materials and hire labour to produce goods without investment risks. As payment terms reflect trust levels, the high percentage of deposit can be construed as a high level of trust. However, because there are risks that suppliers may run away with the money, increase sales prices during contract time or never produce the agreed products, Company Five has to prevent these happening by close monitoring and control.

Business success factors and future plans

Company Five believes that it can identify several important business success factors and plans. For business success in China, a company should:

- 1) invest in long-term outsourcing goals, help the business partners to build capability with technical expertise and create the capacity to vary production quantities at low incremental costs. It is also important to hand over the production processing clearly. All the technological specifications should be clearly written in the contracts
- 2) be willing to contract with small suppliers so as to gain more advantage when volumes of outsourcing are low and it is difficult to find large suppliers
- 3) only outsource labour intensive components in the short term, but outsource most components to China as a long-term goal
- 4) aim to enter China's local market. A company should announce a future plan for entering the potentially lucrative electrical control system market in China. Under the plan, Chinese companies will produce some parts of the system and will conduct local sales. Marketing efforts shall focus on the biggest cities that include Beijing, Shanghai, Guangzhou, Nanjing and Shenzhen with total populations of 71 million people. The partnerships shall leverage the strengths of all parties on global

operations and local distribution, creating synergy of customer base and sales revenue

5) aim to build its own offices and factories in China. This depends on the volume of production. Some production facilities are very expensive and need to have high usage time to cover the investment. It can also be expensive to have offshore offices. If the products can be sold to China's local market, it will be a good reason to have its own offices and factories in China.

Analysis and summary

Company Five is located in Port Melbourne and listed on the Australian Stock Exchange. It manufactures high technology electrical control systems to international markets. Most products are sold to the USA. No sales are made in Mainland China although China has a big market and has high demands for this kind of product. Company Five may need market research for promoting the product into China.

The company's outsourcing operation in China gains cost savings of 25 per cent to date in 2009/10. Other than outsourcing components, the company also conducts sub-assembly of its control systems in China. The other achievement of outsourcing is gaining the flexibility of production variation when the demands for volume changes. Because of the rising production costs in some large cities, Company Five is looking for new business partners in other cities in China, but will retain some contracts in Shenzhen. For high staff turnover in suppliers' companies, other than complaining to the factory owners and giving suggestions, Company Five intends to hire its own staff in China to undertake the training. For slow production and delivery, other than looking for improving production speed and capabilities, Company Five may look for new suppliers in China or elsewhere. For risks on product quality, production ability and intellectual property rights, Company Five hires a third party agent conducting quality inspections and other issues. It retains the core parts of products. Due to the difficulty of finding suitable suppliers when the contracting volume is low, Company Five pays 50 per cent deposits. As a result, it has to prevent non-performance of contracts by close monitoring and control.

Company Five believes that it needs to invest in long-term outsourcing goals, help the business partners to build capability with technical expertise and create the capacity to vary production quantities. It is also important to hand over the production processing clearly. The company will outsource most components to China as a long-term goal and aims to enter China's local markets and build its offices and factories in China.

6.2.6 Case study six

Company Six – water treatment equipment

Introduction

This case study focuses on Company Six's inter-firm business problems and solutions, as well as its business success factors in outsourcing components of water treatment equipment to China. Following the completion of a questionnaire and an interview with the manager of commercialisation of Company Six, a transcript of the interview is analysed, together with information from the company website to provide evidence for answering the research questions.

Background information

Company Six is a Victorian state-owned manufacturer, located in West Sunshine, Victoria, with its own systems engineering operations for research and development. It is one of Melbourne's largest water equipment companies. This company provides water treatment equipment plus comprehensive solutions for all water treatment situations including groundwater cleaning, drinking water plant production, and recycling industrial process water including rinsing, condensation and wastewater discharge. Company Six is a leader in the innovation, production, and marketing of water treatment equipment in Australia with a pre-tax profit of A\$63.4 million in 2008/9, an A\$5 million increase from the previous year. One of its 2015 visions is 'Expanding our core function to offer a range of leading products and services to meet customers' needs in a supply-constrained world'.

Company Six provides service internationally for organisations including the World Health Organization and some public utilities. Its main focus is to provide

communities in developing countries with access to safe drinking water. The final manufactured products are sold to countries including China, Thailand and Bangladesh. In addition, it also has sales markets in Australia and the USA.

Manufacturing restructuring and outsourcing to China

To support its strategy of lower-cost production, Company Six has outsourced many low-end labour intensive components including water tanks to China for the past seven years. It has a representative office in Ningbo City, China. Its staff work with local engineers in China on its procurement and production projects and maintains business relationships with its suppliers.

Other than production cost saving, another objective of the outsourcing operation is to save shipping costs. Company Six outsources not only components, but also the assembly of final products in China. It is important to conduct the final assembly in China so that the staff of Company Six can ship the final products from China directly to its overseas customers. The reason is that shipping costs are lower in China compared to Australia and water treatment equipment is heavy. If Company Six ships them to Australia first, then to other countries from Australia, the shipping costs will be very high and the shipping time will be longer. In this way, both its production and logistics are outsourced.

Company Six outsources some high technology components in addition to labour intensive components. The current suppliers in China have their own technology to produce the components and conduct assembly. Their understanding of design, product quality and delivery performance is acceptable, so that long-term strategic alliance relationships with partial production in China are sustainable to Company Six. However, while outsourcing most non-core, labour intensive components to China, some crucial core components are made in Canada, Germany and Australia. These components are shipped from these countries directly to China for final assembly.

To achieve high-quality products, Company Six has increased management control over its business partners by monitoring production, including quality inspection. The company's staff in China specify documents and manage every process of

production to ensure product quality and conduct inventory control including physical counts and checking the documentation of all products prior to shipment. It also hires the Swiss SGS company to conduct product-quality inspection. Further to these, Company Six withholds part of its payments until the receipt of products and total satisfaction with product quality.

The payment terms utilised by Company Six are both letters of credit (L/C) and telegraphic transfer. For new suppliers and large contracts, L/C is used and with the terms subject to product-quality inspection. The company used to pay deposits when signing contracts, but no longer does this.

Achievements

After seven years of outsourcing practice, Company Six has achieved average cost savings of more than 60 per cent compared to producing the same in Australia. Other than production costs, logistic costs have also been reduced by more than 60 per cent due to shipping final products from China directly to customers overseas. The company has achieved more cost savings than its initial plans.

Current and potential business problems and related solutions

While achieving good results from outsourcing to China, Company Six faces four main outsourcing problems as follows:

(1) Cultural differences and communication problems

The problem: The main problem Company Six faces is the cultural differences. For example, the Chinese staff of suppliers are unwilling to acknowledge business problems to Company Six. Although they are polite to foreigners, they are afraid to talk about anything that may indicate a failure or cause them to lose 'face'. They continue operating the outsourcing business despite the problems or without solving them right away. However, Australians prefer to use straightforward communication, and solve problems right away, having little concept of the need to avoid direct criticism as in the Chinese culture.

The solution: In order to improve communication and successfully reduce problems of misunderstanding with their suppliers, Company Six sends managers

travelling to China, builds its own office and hires local bilingual staff in China to visit suppliers frequently. The staff explain all the needs for the production, find out any business problems and translate operation manuals and technical requirements into Chinese. These manuals illustrate some of the technical requirements with drawings and pictures for ease of understanding. In this way, the company very carefully manages cultural issues, especially in relation to problems relating to 'face'.

(2) Progress in business is difficult due to bureaucracy and unclear government policies

The problem: In China, business operations need business licences, and some water treatment solution projects require government approval. Company Six used to try to apply for business licences and permits itself in some cities, but found it was often difficult and time-consuming to achieve. One of the reasons was that the policies of local governments were different to those of Beijing's central government.

The solution: Compared to foreign companies, local people have the advantage of better communication with their local governments. For issues relating to governments in China, Company Six relies on local suppliers to acquire the licences, permits and undertakes other paperwork from governments. For example, the company's current suppliers in Ningbo City have good relationships with the local government so that they can more easily obtain all the licences and permits needed for the business.

(3) Flexibility of changing suppliers is low due to high lock-in costs, and costs for cancellation of current contracts and re-establishment of facilities

The problem: Company Six has to invest much time and money finding suitable suppliers. Sometimes the company also has to invest in tooling and other equipment to manufacture components. In the production of water treatment equipment, significant amounts of special tooling and facilities are required so that set up and re-establishment costs are very high. At times, a particular supplier had not done what was agreed to, was not reliable, and the production quality was not satisfactory by Company Six's requirements. After spending some effort working and

negotiating with this supplier, Company Six had to cancel the outsourcing contract, change to another supplier, and re-establish new production facilities. The overall cost to Company Six for this was A\$200,000.

The solution: Learning from this experience, Company Six is now more careful when choosing new suppliers, verifying as much as possible during the selection process, as well as working hard to maintain good relationships. As a result, it has now been able to establish stable and reliable relationships that are more suited to long-term outsourcing production with its suppliers in China.

(4) Potential loss of intellectual property, other confidentiality issues and the sales market

The problem: Water treatment is a big business due to heavy pollution and the huge population in China: therefore, many companies in China desire to make their own products to gain the markets. Thus there is a risk that suppliers use the same designs and technologies to produce their own identical products and sell them to China's market.

The solution: Although Company Six desires to increase its communication levels by sharing data information and have, as far as possible, transparency on policies and operations on both sides, it has strong concerns that outsourcing can result in losses of its core competency, main tacit knowledge, crucial technologies and markets. In evolving measures to prevent this happening, Company Six retains some core-part technologies that it cannot afford to lose, and only outsources non-core components. Its company in Australia produces most core-part components. Some other high technology components are outsourced to Canada and Germany. These components are then together shipped to Company Six's office in Ningbo City, China. Then the key staff in the office re-pack and re-label the components in order to keep their sources confidential, and then forward them to their suppliers in China for final assembly. The suppliers, therefore, do not know who makes the components and how to make them. In this way, the company's thirty patents remain well protected. Other than protecting its own tacit knowledge and technologies, the company also protects its sales markets. Company Six's office staff organise shipments of its final products to its end customers overseas and in

China without disclosing shipping information. This process protects the names and addresses of customers that are confidential and thus protects its sales market.

Business success factors and future plans

Company Six believes that there are several important business success factors and plans including strong management control in the selection of suppliers, quality and intellectual property. The company believes that both sides should increase the levels of trust by, for example, developing good relationships with suppliers and sharing as many as possible of the non-core designs and technologies. Company Six concludes that the most important way to achieve all outsourcing goals is to have a correct strategic balance between trust and management control with suppliers.

Analysis and summary

Company Six is a state-owned manufacturer located in Victoria providing water treatment equipment and services to many countries. The company has outsourced its low-end components, assembly, and logistics to China for the past seven years, and has an office in China. It has strong management control by monitoring production and quality inspection by its staff in China and also using an inspection agent. As a result, it has achieved average cost savings of more than 60 per cent in production and logistics costs, which are better than its initial plans. However, the tooling facilities for producing water treatment products are specialised so that the lock-in cost is high. The company faces the threat that the same products are made by its suppliers or others to win the market.

For the problems of culture differences and lack of communication, Company Six sends managers and hires local bilingual staff in China to frequently visit suppliers and do translations. For bureaucracy and unclear government policies, the company relies on local suppliers to deal with the local governments in China. For low flexibility and high lock-in costs, it has a careful plan when choosing new suppliers and works hard to maintain good relationships. For the potential loss of intellectual property, confidential issues and the sales market, it produces most core-part components, with some outsourcing to other Western countries and conducts shipping itself.

Company Six recognises some business success factors of strong management control in the selection of suppliers, and the protection of quality and intellectual property, increasing the levels of trust and increasing their communication levels by having as much transparency on policies and operations as possible. Having a correct strategic balance between trust and management control with suppliers is its important goal.

6.3 Two case studies of import/export companies

This section is the second group of case studies of an import company and an import/export company. Instead of sourcing within Australia, they outsource to China. They also have the same issues of inter-firm business problems, solutions to the problems and business success factors, which are the three main elements of this study.

6.3.1 Case study seven

Company Seven – gift promotion items

Introduction

This case study is to research the outsourcing of gift promotion items to China. It will focus on the company's inter-firm business problems and solutions, as well as its business success factors. Information from a questionnaire and an interview with the managing director of the company is analysed together with data gathered from the company website as follows:

Background information

Company Seven was established in 1981, an import company that sources many of its products in China. The company is located in Melbourne, has 30 years of company business history and currently employs ten people. Its primary services include developing business promotional concepts and sourcing promotional products for customers' product management. The company business aims to offer the best service for customers' promotional products. The promotional products

include reward and incentive items, and brand culture products. For logo promotion products, some techniques of decoration include embroidery, laser engraving and embossing. The company imports a variety of promotional items and then resells them to companies in Australia. Company Seven's customers then use the products for promotional purposes.

The products that Company Seven sources offshore and imports include about 5000 different small promotional gifts. Items include sporting goods (for example, footballs), clothing, toys, electrical, stationery, and household items. Some successful examples include the Zofran neck-pen holders, Subaru compact disc cases, Monash education's slinky and the Allied Pickfords' toy trucks. The company has a large showroom displaying the available products that can be custom made. For example, corporate logos may be printed on the promotional gift items. Company Seven's business philosophy is to provide the best service as the customers' extension of their marketing departments, and make the promotional products best suited to their needs. The mission of the company is to exceed customers' expectations by developing prosperous business partnerships through innovative solutions, experience and creativity.

Outsourcing to China

The majority of the products that Company Seven has are imported from China with a few items such as handbags imported from other countries or areas, including India and Taiwan. The company has imported from suppliers in China for 15 years. It has been found that the Chinese personnel are easy to work with, understand the designs and needs, correctly pre-produce samples and adjust the differences between designs and samples. The quality of products is satisfactory most of the time, and shipments are made on time once the suppliers receive full payment. However, because Chinese manufacturers are competing with each other on low-price production in export markets in recent years, the quality of production has declined due to the cost-cutting measures. In addition, because the volumes of orders from Company Seven compared to some large companies from the USA or elsewhere are small, suppliers usually do not want to spend enough care and time on the products. This generates the risks of quality and on-time performance.

In initiating import procedures the company first asks its suppliers to make pre-production samples, for example, printing corporate logos on small footballs and small plastic moneyboxes. On satisfaction with the samples, the company seals the samples, and signs the envelopes and contracts; paying 30 per cent of total payments before the production starts. Company Seven does not use letters of credit. It only uses telegraphic transfers. After the products are made the suppliers advise Company Seven and request full payment. Company Seven then pays in full when products are ready for shipment.

Each purchasing contract is worth from one to three thousand US dollars. The company has about 50 suppliers in China with a broad product range, importing labour intensive promotional gifts of low value and low-to-middle level technologies. For example, these include clothing, soft toys, coffee mugs and sport bags as well as some electronic products including MP4s, digital photo frames, and USBs.

Business problems

Company Seven does not have excessive control over its suppliers, but relies on trust. However, in the past three years the company has increasingly faced quality problems and difficulties of import processing. The quality problems have included a high rate of defective products such as logos not being printed on the centre of footballs, some moneyboxes are broken and there are incorrect colours on T-shirts. These have resulted in the company's customers coming in and physically testing each item in the warehouse before accepting them in order to ensure the quality of products. In the last four shipments, defective items exceeded 25 per cent of the total, and were deemed unacceptable to Company Seven, which indicated that the quality control of its suppliers had failed to reach Company Seven's standards. As a result, the company contacted its suppliers to seek solutions. However, the suppliers declined to accept responsibility, refused to replace the defective items, used avoidance tactics such as saying that the person in charge was away and that their current working staff could not speak enough English to deal with this problem. In addition, on-time performance is another problem, as the company cannot get every shipment out on time.

Apparently, Chinese suppliers operate under the misunderstanding that promotional items are only give-away products and therefore quality is not important. Company Seven believes that this misunderstanding results from cultural differences. For the company, those promotional items are not free as the company has to pay for them, and resells them to their customers for profit. The customers may give away the promotional items to others, but this affects people's satisfaction and improvement of corporate value, with the quality of the promotional items making a difference to both Company Seven and its customers' reputations. The company therefore looks to solutions to the problems.

Prior to the financial crisis in 2008, if the company was not satisfied with some of its suppliers, it could easily change suppliers because there were many choices in China. With the significant decrease in export demand during 2008–2010, some suppliers in China have gone out of business. As a result, the company has fewer choices of supplier and has to find other solutions.

When the company did business in Hong Kong, it used to have an inspection agent for quality control at a reasonable price for his service, and the company was able to contact the trade commission of the Hong Kong government with respect to quality problems on export products. However, a different business environment exists in Mainland China, and it is difficult to get government help. It is also difficult for a small foreign company to have business networks in that environment. As a result, the company has not yet been able to find a suitable inspection agent. As a small business the company has no leverage with most suppliers in China, and has to rely on trust. Furthermore, it is not worthwhile to hire a lawyer for the problems as each shipment is worth only one to three thousand US dollars. Small businesses cannot afford the time and costs for lawyers, international courts, or arbitration.

Solutions to the problems

Because of the limited legal protection in Mainland China, Company Seven now plans to withhold between ten to twenty per cent of final payments to suppliers in cases of problems of quality. Final full payments will be made on receipt of satisfactory products. If there are defective products, the related amounts will be deducted from final payments. The company will also use inspection agents in

China to examine and ensure the quality of products. In addition, the company proposes to change suppliers in China, or source from other countries. The final goal of these solutions is to find reliable suppliers to ensure the quality of products.

Business success factors and future plans

One plan is to conduct quality control before production. More detailed terms on new contracts will be made. For example, the defective rate cannot be higher than 5 per cent. Payment will not be made for defective items. In this way, the company hopes for improvement from the suppliers, otherwise the company will change suppliers within China. If there are better sources in other countries, for example, in India, the company will also consider changing outsourcing locations. In future, the company hopes that the Australian Government will have some level of involvement in small business international trade, and assist in ensuring legitimate negotiation with foreign suppliers. The company also wants the Chinese government to regulate quality control on export products more rigidly.

Analysis and summary

Company Seven has been located in Melbourne since 1981 with the primary services of developing business promotional concepts and sourcing for customers' product management to offer the best service to customers for their promotional products. The mission of the company is to exceed all expectations by developing prosperous business partnerships through innovative solutions now and in the future through experience and creativity.

Most of Company Seven's products are imported from China. As a small business, the company does not have excessive control over its suppliers but relies on trust. However, the company has increasingly faced quality problems including a high rate of defective products and the difficulties of import processing.

Company Seven has to contact its suppliers to seek solutions and believes that this misunderstanding results from cultural differences. As a result, the company withholds some final payments in the event of quality problems. Final payments are made only on receipt of quality, satisfactory products. The company also intends to use inspection agents in China. In addition, the company keeps pressing its

suppliers for on-time performance. Furthermore, it proposes to change suppliers in China, or source from other countries. The company also hopes that the Australian and Chinese governments will have some level of involvement in small international trade business.

6.3.2 Case study eight

Company Eight – import textiles, clothing and household goods and export wool

Introduction

Company Eight imports textiles, clothing and household goods from China, and exports wool and other products to China. This case study focuses on the company's inter-firm business problems and solutions, as well as its business success factors. Following completion of the questionnaire and an interview with the director of the company, findings were analysed and collated with information from the company website to provide evidence with which to answer the research questions.

Background information

Company Eight is an import and export company established in 1978 and located in Geelong, Victoria. Its primary businesses include the sourcing of labour intensive finished products, and exporting Australian products to companies in China, India and elsewhere. Company Eight also conducts its own research and market development in China, Southeast Asia, Eastern Europe and India. However, this case study is limited to its dealings with companies in China.

Import business with China

Although Company Eight started with only two per cent of its total business dealings with companies in China, it has now grown to 71 per cent. During the past 21 years of business, Company Eight has imported textiles, clothing and household goods from China, and built up its business networks. In 1988, Company Eight extended its networks by becoming a member of the Australia China Business Council (ACBC). The director of the company is a board member of the ACBC. In

addition, the company also works with banks and law firms in China to develop new markets, and research. Despite China's imposition of restrictions on importing in 1988 and a major political event in Beijing in 1989 that reduced trade at the time, Company Eight's business has continued to expand when China's trade opened more from 1995.

Business problems of importing

During its many years of importing from China, Company Eight has faced several business problems as follows (solutions follow after problems are enumerated).

Contract enforcement

When importing textiles, clothing and household goods from China, one main problem that Company Eight has faced when dealing with Chinese companies has been that some contracts have not been enforceable. For example, if raw material costs have risen, some suppliers in China are likely to demand increased payments from Company Eight for the same products, even after contracts have been signed. The suppliers frequently do not want to be bound by signed contracts. If extra payments are not made, these suppliers refuse to make and ship out the agreed products.

Poor management

The poor management systems of suppliers in China are also a problem. This often results in inconsistent responses, not performing as promised, lack of replies to emails or letters, providing incorrect data in transactions, misunderstanding purchase orders, and delaying production. As many contact persons of the company in China either cannot speak enough English or do not understand international business protocols, misunderstandings frequently occur. Furthermore, paperwork processing often takes a longer time than expected, and often contains mistakes.

Delays in shipment

Company Eight finds that delays in shipments from China are also a problem. The before-mentioned pricing problem frequently results in unacceptable delays in shipments. Other delays are caused by ineffective equipment and slow working attitudes. For example, some Chinese companies lack shipping facilities and

experience in the efficiency of international trade. For these reasons, Company Eight has found that doing business in China can take longer than doing the same in Australia.

Communication problems

Company Eight has found that the language and cultural differences create many forms of communication problems when doing business with companies in China. This means that expectations of quality, price and timelines for performance may be different. For example, many business people in China think that everything is negotiable even after contracts have been signed. This is because they are used to relying on short-term trade and results. In addition, their timelines for performance are longer than those in Australia. Many misunderstandings can arise due to the different language and cultural expectations.

Other problems

As Company Eight does not have its own office or hire staff in China other problems such as the higher levels of networking required in the Chinese context are significant. Without having established valuable networks, Company Eight finds it difficult doing business in China, which is the main reason they have not expanded further.

Solutions for the importing problems

Over time, Company Eight has developed a workable 'framework' for its import/export business. This includes contract performance, payment terms, open L/C, quality inspections, enforcement of contracts and arbitration for contract disputes. This effective plan has been introduced to its suppliers, and works well in most outsourcing relationships to improve performance.

Export business to China

Other than importing, Company Eight also exports products to China. Its major export is wool, having exported more than 3,000 tons to China since 1995. However, despite achieving good results from this trade, some business problems have arisen.

Contract enforcement

When Australian products such as wool attract low prices, companies in China purchase more regardless of other factors including quality, with most companies being seen to focus only on product prices. When exporting goods to China, Company Eight finds that even after contracts are signed, if commodity prices decline, Chinese buyers want to buy the previously agreed-upon goods at new lower prices. For example, on one occasion Company Eight shipped out lower-quality wool than originally agreed in order to maintain the same profits. Surprisingly, the import agents in China were unconcerned about the quality being lowered as they could resell it to factories in China anyway. Furthermore, when resale market prices in China are found to decline, profit for resale reduces, causing Chinese companies to want to buy Australian products at even lower prices.

Risk of non-payment

When doing business with companies in China, Company Eight has found that some buyers in China are not willing to apply for letters of credit (L/C) because these involve bank costs and paperwork for both buyers and sellers. For this reason, buyers in China prefer to use telegraphic transfers (T/T) which have no banking guarantees. However, even though T/Ts are less reliable, due to competition Company Eight now accepts T/T payment terms in order to sell their products even though there is a risk of non-payment. This has meant that Company Eight has experienced several delays in receiving payments.

Product test standard

Business partners in China have problems with testing standards for wool because their own hand-testing standards differ from international standards. However, Australian companies use machines to test wool, and can provide certificates showing international standards, whereas the Chinese still use the less accurate hand-tests. Company Eight believes that Chinese companies should have an obligation to have quality testing that matches domestic standards with international standards. Company Eight believes that because Chinese quality standards do not meet international standards, their quality control of products is limited.

China's import quota

Another problem facing Company Eight is that China has a quota for importing wool from other countries. The quota is allocated to different countries and companies, meaning that the wool export business is hard to expand. Company Eight believes that the quota constitutes a trade barrier between countries, and as China is a member of the World Trade Organization, it should eliminate all import quotas to match the current trends of international business.

Solutions for exporting problems

Although it took Company Eight three years to develop a business framework, there are still some companies in China that refuse to accept it, or if they do, fail to implement it. In these cases, Company Eight resorts to accepting only sight drafts or short payment terms that have less non-payment risk for export to these companies in China. In addition, Company Eight usually requires a 30 per cent deposit when exporting to China, with contracts being signed prior to shipment. As some other supply companies in Australia do not ask for upfront deposits for export contracts, Company Eight signs some contracts without collecting deposits. This brings the risk of non-payment, and on one occasion it had to resort to arbitration in Beijing City for payment. Nevertheless, since 1999 Company Eight has improved its agreements with its business partners in China in specific areas including technological understanding, quality claims, non-payment prevention, and arbitration in Beijing for contract disputes. Therefore, although L/C is sometimes used, the more convenient T/T has become more frequently used.

Business success factors and future plans

Company Eight believes that contracts are not weapons for punishment, but blue prints for projects. As contracts are tools for business frameworks, they need to be both fair and specific. At the micro level, clear specifications, terms and conditions are necessary. These are not just about prices, but also about quality and service. Inconsistency of data needs to be avoided and should include dispute resolution and arbitration clauses. In the case of disputes, court decisions must always be enforceable.

In dealing with companies in China, Company Eight insists that both sides need to understand and respect cultural differences. They need to have the ability to address difficult issues and be willing to work together, not just to work out purchases and sales. As a follow-up to ensure good performance is necessary, correct language translations and a good understanding of culture and expectations are very important.

Company Eight also believes that Australian companies need to go into China's market with their own company level communication systems – not just use third party agents in the country. Australians need to be the principals who are in control, doing enough homework to understand how Chinese businesses, courts and arbitration systems work. They need to have enough trustworthy personal relationships, and if possible, have their own offices and hire their own staff in order to get into the local market, build up trust and have a good reputation. Although Company Eight did not have enough understanding of these issues before 1999, after building up business networks in China, reaching an understanding on contracts and performance, and finding ways to deal with problems, Company Eight has mainly contracted companies in China, despite maintaining its businesses in other countries, including Japan and India.

Analysis and summary

From its location in Victoria, Company Eight imports textiles, clothing and household goods from China, and exports wool and other commodities to China. With more than 30 years experience dealing with companies in China, this company has built good business connections through developing trust and cultural understanding that have led to strong supportive networks. This company has grown because it not only does trade, but also conducts business research and market development to develop its own business framework in the context of the import/export business with China.

One of the main problems that Company Eight has faced when dealing with some companies in China has been that some contracts have not been enforceable. Other problems have included poor management systems, delays in shipment, delays in receiving payments, different testing standards, quota requirements for exporting

wool to China, and communication problems. In solving these problems, Company Eight has developed a workable framework for import/export processing. As a result, its agreements in regard to specific technological understanding, quality claims, non-payment prevention, and arbitration for contract disputes have been improved. This company believes that contracts are work tools that provide clear specifications, terms and conditions. Furthermore, both parties need to understand their cultural differences and ensure correct language translations. Australian companies need to go into China's market with their own communication systems at company levels, preferably setting up their own offices and hiring staff in China in order to build up trust and a good reputation.

6.4 Summary

This chapter has presented the case studies and within-case analysis of six manufacturing companies and two import/export companies that engage in merchandise trading with companies in China. The case studies mainly include background information, company objectives and achievements, manufacturing restructuring and outsourcing, business with China, results of outsourcing, business problems and solutions, and analysis and summary. The cases show in detail how each of the companies carries out its outsourcing to China. Each case delineates the relationship between the company and the problems and successes in its outsourcing.

The following chapter presents the findings of a cross-case analysis. It uses interview records and compares results from the questionnaire survey and interview records in order to find evidence to answer the research questions, verify the propositions and support the thesis arguments.

Chapter 7

Comparative analysis of cases (comprises questionnaire and case data)

7.1 Introduction

The eight case studies contain information from questionnaires, interviews and company websites. The purpose of this chapter is to find significant evidence to answer the research questions by presenting a cross company data analysis within interview records of the eight companies, plus comparisons between questionnaire results and interview findings. The developments of within and cross case studies are consisted to be the primary source of new knowledge.

The case studies comprise good evidence from one-on-one interviews with significant manufacturing or import/export executives from the Australian companies. The case studies form convenience samples. Most of them were not available for re-interviews. However, information was validated by comparison between cases and questionnaire survey information for the same respondents. Moreover, the existence of eight case studies is believed to be sufficient to validate the particular findings derived.

Steps employed in analysing the present qualitative data are data reduction, data display, conclusion drawing and verification (Lancaster, 2005; Miles & Huberman, 1994). Employing these four elements, the novel factors (representing the research questions), are compared between interview records and between survey questionnaires and interview records.

In the tables in this chapter, all eight companies are listed, but sub-headings are used to divide manufacturing and import/export into two groups. This research recognises the differences between them, although they have many outsourcing similarities .

In order to conduct a clear cross case analysis, for the first step of data analysis, qualitative data reduction has been used to select, simplify and focus the information gained from interview records into the first three tables (see Tables 7.2–7.4). In addition, a table showing payment terms about business trust levels is also presented (see Table 7.5). These four tables present the interview records regarding problems, solutions, success factors and payment terms in outsourcing relationships.

Secondly, following data reduction, data displays are used to present assessments, interpretations and evaluation of the qualitative data. Data in these tables are used for cross analysis to describe and compare the similarities and differences between companies to provide evidence that is significant to answering the research questions (Lancaster, 2005; Miles & Huberman, 1994).

In addition to analysing the four tables of interview records, findings from the survey questionnaires in Chapter 5 are then retrieved to compare with data in the three tables of interview records (Tables 7.2–7.4) to identify the similarities and differences between the findings from the questionnaire analysis and the interview records. This process provides a cross-examination from the two perspectives. Similar findings in both questionnaires and interview records will be considered as highly significant.

As introduced in Chapter 4, interview opportunities were found from filled questionnaires and ACBC members (see section 4.2.1) the eight interviewees have also filled in the survey questionnaires, their opinions appear on both questionnaires and interview records. Average data from the 51 participants on the questionnaires are representative of the ideas of the whole population. The data from the eight interviewees are representative of the ideas of the eight individual companies. The comparison between findings from the questionnaires and interview records is to identify the differences between general answers of the whole population (51 companies) and the individual samples (the eight companies within the 51 companies).

Following the above analysis, conclusion drawing is presented in section 7.12 in order to summarise the findings of the main problems, solutions and success factors of outsourcing to China. The last step of the analysis is verification, which involves comparing initial ideas and thoughts with data found in the research (Lancaster, 2005; Miles & Huberman, 1994) and checking that the data are accurately represented. The initial ideas used are the propositions of this research. The following section is the first part of the analysis, which is background information in the eight case studies.

7.2 Analysis of background information

In the eight case studies, background information of the eight companies shows some similarities and differences. The sources of information include survey questionnaires, interview records and companies' websites. The information in Table 7.1 shows that six companies are located in the State of Victoria, and two in New South Wales. All are located in major manufacturing areas in Australia and are engaged in business with organisations in China. Their primary motivation of outsourcing is to take advantage of lower labour and other production costs in China. However, even though outsourcing has resulted in some level of cost savings, all companies have faced some kinds of problems. Nevertheless, they all want to continue and improve their outsourcing businesses and find ways to solve these problems.

There are different backgrounds among the eight interviewed companies. Company histories range from about 20 to 70 years. Companies Two, Three and Six have established offices in China. Company sizes range from 10 to 3000 employees. Six companies interviewed are manufacturers. Company Seven is an importer, and Company Eight is exclusively an import and export company. Companies Two to Six sell their products to China's market. Company One produces mostly labour intensive, low-technology electrical household goods. The other five manufacturing companies produce mainly middle-to-high technology goods. For example, Company Two produces seats for vehicles, whereas Companies Three, Four and Five produce high technology products comprising medical devices, laser imaging

process microdots and electrical control systems. Other than purchasing from overseas, Company Two has a joint venture factory in China producing whole seats for vehicles to sell to both Australian and Chinese markets, which is the highest level of manufacturing restructure in the sample companies. The components and products most outsourced by the other five manufacturing companies are non-core, low technology and labour intensive products. Companies Seven and Eight only import and export products. Company Seven sells its products only in Australia; Companies One, Two and Four sell to both Australia and New Zealand. Companies One, Three and Five have markets in Europe and the USA. The details are:

Table 7.1 Background information of case study companies

Company	One	Two	Three	Four	Five	Six	Seven	Eight
	Manufacturing						Import/export	
Locations & history	Victoria 1940	Victoria 1980s	NSW 1989	NSW 1970s	Victoria 1990s	Victoria 1970s	Victoria 1981	Victoria 1978
Type of business & products	Factory, import export	Factory, import	Factory, import export	Factory, import export	Factory, import export	Factory, export	Import	Import, export
Suppliers' locations	Australia China Sri Lanka Thailand	Australia China Thailand USA Europe S. Africa	Australia China Taiwan	Australia China Taiwan	Australia China	Australia China Canada Germany	China Taiwan India	Australia China Japan India
Products outsourced to China	Electrical items, auto parts water equi	Auto seats other auto comp.	Medical device comp.	Comp. for producing microdots	Comp. of electrical control systems	Comp. for water equipment	Gift promotion items	Textile clothing household items
Type of products made	Labour intensive	Labour intensive, middle to high tech.	Low to high tech.	High tech.	High tech.	Low to high tech.	Low tech.	Low tech.
Years outsourcing	15	4	15	10	1	2	15	30
Cost savings	+40%	10%	+40%	20%	25%	60%	N/A	N/A
Types of outsourcing	Strategic alliance	Joint ventures Strategic alliance	Strategic alliance	Strategic alliance	Short term contracts	Strategic alliance	Short term contracts	Short term contracts
Products exported	Water equipment locks	Car seats, auto comp.	Medical devices	Microdots	Electrical control systems	Water equipment	None	Wool
Office & factory in China	None	Offices JV factory	Offices	None	None	Offices	None	None
# of total employees	Over 1000	Over 1200	Over 3000	N/A	N/A	N/A	10	5

Comp. = components, tech = technology, JV = joint venture, N/A = information not available, or not applicable, equi = equipment, tech = technologies Data are as of the year of 2010.

7.3 Summary of qualitative data from interview records

In accordance with the interview records of the eight companies, four tables have been compiled to examine the subjects of outsourcing problems, solutions, success factors and payment terms (see Tables 7.2–7.5). This task is to transfer the qualitative information from the interview records into the summary tables to view the main factors related to the research questions.

Table 7.2 Outsourcing problems in interviews

	Problems	Company								Total
		Manufacturing						Import export		
		1	2	3	4	5	6	7	8	
O	Product quality, technological level and quality standards are not high enough in China	Y	Y	Y	Y	Y		Y	Y	7/8
O	Risk of losing confidential information and intellectual property		Y	Y	Y	Y	Y	N/A	N/A	5/6
O	Language barrier, cultural differences, and communication issues	Y	Y		Y		Y	Y	Y	6/8
F	High transaction costs, and overload of management work in setting up and managing production	Y	Y		Y	Y		N/A	N/A	4/6
O	Delay in production and shipments				Y	Y		Y	Y	4/8
O	Difficult to find or retain suitable suppliers when contracting volume is low		Y	Y		Y				3/8
O	Poor management work, inexperienced managers and unskilled labour	Y	Y						Y	3/8
F	High cost of tooling investment	Y				Y		N/A	N/A	2/6
O	Bureaucracy and unclear government policies in China and import quota						Y		Y	2/8
O	Contracts cannot be fulfilled, increase in price, shipment and production delay	Y							Y	2/8
O	Loss of supplies due to financial crisis	Y						Y		2/8
F	High costs in major cities and in southern China	Y				Y				2/8
F	No payment or long-delayed payments		Y						Y	2/8
O	Suppliers sub-contract without approval			Y				N/A	N/A	1/6
F	High lock-in and re-set-up costs						Y	N/A	N/A	1/6
O	High staff turnover of suppliers					Y				1/8
O	Misunderstanding of new product specifications				Y					1/8
F	Risk of foreign exchange rate fluctuating is high		Y							1/8

Column 1: F= Financial problems, O= Operations problems

Last column shows how many participants mentioned the problems in the interviews

Row 1 is company number of one to eight in the interviews. Rows with total equal and higher than 0.50 are in bold font. Y= Yes, N= No, N/A = Not Applicable. Two samples consist of import/export companies. Some problems do not apply to them. The denominator of the not applicable items for these two companies in column 11 is 6. For problems applicable to all eight companies, the denominator is 8. The last column is an equivalent numerical amount. Data are sorted in the last column.

Table 7.2 above shows a summary of the outsourcing problems mentioned by the interviewees. Twelve problems are operational problems and six are financial problems (indicated in the first column). The last column shows the number of interviewees who mentioned the issues. The data in the table are sorted in the last column. The most frequently mentioned problem is row one, by seven interview participants. Table 7.3 in next page shows solutions to the problems used by interviewed companies. The highest score is six – meaning that six interviewed companies used the same solutions in the sample companies.

Table 7.3 Solutions to the problems in interviews

Solutions	Company								Total
	manufacturing						Import export		
	1	2	3	4	5	6	7	8	
Increase communication level, visiting, meeting, training	Y	Y	Y	Y		Y		Y	6/8
Strong control: visit, face-to-face-talk	Y	Y	Y	Y	Y	Y			6/8
Outsourcing only non-core components & retain core technologies			Y	Y	Y	Y	N/A	N/A	4/6
Provide skills training and workshops	Y	Y	Y		Y		N/A	N/A	4/6
Hire bilingual staff, translate product specifications into Chinese	Y	Y		Y	Y	Y			5/8
Change to other suppliers within China	Y	Y	Y		Y		P		4/8
Monitor production	Y	Y	Y				N/A	N/A	3/6
Enter China’s market, local distributor and joint ventures		Y		Y	Y				3/8
Quality inspection prior to shipments	Y	Y		Y					3/8
Withhold part of payment until receipt of goods with satisfactory quality	Y	Y		N			Y		3/8
Hire third party agents to do inspection	Y			Y	Y	P			3/8
Pay more deposit for low volume contracts				Y	Y	Y			3/8
Understand and tolerate cultural and other differences	Y	Y						Y	3/8
Outsourcing components to many different suppliers			Y			Y	N/A	N/A	2/6
Outsourcing high tech parts to other Western countries		Y				Y	N/A	N/A	2/6
Contract small suppliers	Y				Y				2/8
Reject and ask suppliers to remake defective products	Y			Y					2/8
Set up office/factory in China	N	Y	P	P	P	Y			2/8
Change to other suppliers in other countries		Y			Y		P		2/8
Increase trust level	Y							Y	2/8
Rely on local suppliers to deal with local governments in China, gain local support		Y				Y			2/8
Control know-how to keep intellectual property rights		Y					N/A	N/A	1/6
Final assembly in own company		Y					N/A	N/A	1/6
Invest and own tooling in supplier’s factories	Y						N/A	N/A	1/6
Develop a framework for international trade								Y	1/8
Keep domestic sourcing while outsourcing overseas					Y				1/8
Pay RMB within China to avoid the risk of foreign exchange rate. Use adjustment term in contracts		Y							1/8
Pay suppliers after receiving payments from its customers		Y		N					1/8
Protect sales markets				Y					1/8
Provide financial assistance to suppliers & production help	Y								1/8
Routine quality audit			Y						1/8
Set up office in Hong Kong	Y								1/8
Using different products in Australia and China		Y							1/8

P = Planning, Y = Yes, N = No, N/A = Not Applicable. Rows with total equal and higher than 0.50 are in bold font. The data are sorted in the last column in.

Table 7.4 below lists the business success factors of sample companies identified in the interviews.

Table 7.4 Business success factors in interviews

Business success factors	Company								Total
	manufacturing						Import export		
	1	2	3	4	5	6	7	8	
Outsourcing as many as possible components in the long run	Y		Y	Y	Y	Y	N/A	N/A	5/6
Specifying quality and service standards in contract and good management of handover process	Y	Y			Y		Y	Y	5/8
Careful selection of business partners	Y	Y	Y	Y		Y			5/8
Increase level of trust, share data, high level of transparency in operations and policies	Y	Y				Y		Y	4/8
Send designs and technologies to suppliers	Y	Y				Y	N/A	N/A	3/6
Establishing high-level connection with local governments in China and gain local support.		Y		Y				Y	3/8
Achieve a proper strategic balance between trust and management control with business partners						Y			1/8

P = Planning, Y = Yes, N = No, N/A = Not applicable. Rows with total equal and higher than 0,50 are in bold font

In addition, the different payment terms the sample companies used for the outsourcing contracts are listed in Table 7.5:

Table 7.5 Payment terms interviewed companies used

Payment terms	Company								Total
	1	2	3	4	5	6	7	8	
Using telegraphic transfer (T/T)	Y	Y	Y	Y	Y	Y	Y	Y	8/8
Pay deposit when signing outsourcing contracts	N	N	Y	Y	Y	N	Y	N	4/8
Use letters of credit for some contracts (L/C)	N	Y	N	N	N	Y	N	Y	3/8
Pay in full against shipment	Y	N	N	N	Y	N	N	N	2/8
Pay in full after receipt of goods (or 60–90 days' terms)	N	N	Y	N	N	N	N	Y	2/8
Withhold part of payments until receipt and satisfactory product quality	P	Y	N	N	N	Y	P	N	2/8
Pay 30% deposit when signing contracts	N	N	Y	N	N	N	Y	N	2/8
Pay 50% deposit when signing contracts	N	N	N	N	Y	N	N	N	1/8
Pay 100% deposit when signing contracts	N	N	N	Y	N	N	N	N	1/8
Pay in full when products made prior to shipment	N	N	N	N	N	N	Y	N	1/8
Accept only sight draft and short payment terms	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y	1/8
Require 30% deposits when signing export contracts	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y	1/8
Not make full payments to suppliers until receiving payments from purchasers' customers	N	P	N	N	N	N	N	N	0/8

P = Planning, Y = Yes, N = No, N/A = Not applicable. Rows with total equal and higher than 0,50 are in bold font. For payment terms, there is no difference between manufacturing and import/export.

7.4 Analysis of findings from outsourcing problems

This section has two parts. The first part compares the eight interview records. The second part compares the findings from the questionnaires and interview records.

7.4.1 Comparison of data within interview records

During the interviews, some outsourcing problems, solutions, business success factors and payment terms were mentioned by four to seven interviewees (where the denominator is eight). For example, the problems of the language barrier, cultural differences and communication issues were mentioned by six interviewees (see Table 7.2). This means that these are common problems when outsourcing to China. However, some issues were mentioned by only one to three interviewees (where the denominator is eight). This means that these are individual problems for one to three sample companies.

The measurement for interview findings: a high score occurs when the same issue was mentioned by four ($50\% = 0.50$) or more interviewees in eight interviews, or three (0.50) or more interviewees in six interviews. A low score occurs when the same issue was mentioned by less than four interviewees in the eight interviews or less than three interviewees in six interviews. Due to the open questions and limited time for the interviews, there is a possibility that some existing issues in their businesses were not addressed. For this reason, issues mentioned by four or more interviewees in eight interviews have been considered as a high score even if four is not higher than fifty per cent in a total of eight.

Overall, the eight companies in this study have faced some similar inter-firm business problems in outsourcing. According to the data in Table 7.6, from the eight participants in the interviews, outsourcing problems indicated by fifty per cent of participants or more are as follows:

Table 7.6 Outsourcing problems indicated by fifty per cent or more of participants in interviews

	Outsourcing problems	%
O	Product quality, technological level and quality standards are not high enough in China	87
O	Risk of losing company confidential information and intellectual property	83
O	Language barrier, cultural variance and communication issues	75
F	High transaction costs, and overload of management work in setting up and managing overseas production	67
O	Delay in production and shipments	50

O: Operations problem, F: Financial problem

Column 3 is the percentage of participants who mentioned the problems in the interviews

Data are sorted in the last column

Four operational problems and one financial problem were found in the data, meaning that operations appear to be the main problem. The findings indicate that these five items are the common outsourcing problems for the interviewed companies. Other than the five common problems stated above, some individual problems were also faced by a minority of companies. From the interview data in Table 7.7, outsourcing problems indicated by less than fifty per cent of participants are as follows:

Table 7.7 Outsourcing problems indicated by less than fifty per cent of participants in interviews

	Outsourcing problem	%
O	Poor management, inexperienced managers and unskilled labour	37
O	Difficult to find suitable suppliers when contracting volume is low. There are only short-term relationships with suppliers	37
F	High-cost investment for tooling	33
F	High costs in major cities and in southern China	25
F	No payment or long delay in receiving payments	25
O	Bureaucracy, unclear government policies and import quotas in China	25
O	Lose suppliers due to financial crisis	25
O	Contracts cannot be fulfilled, there are problems of increasing prices, shipment and production delay	25
F	Lock-in costs and re-set-up costs are high	17
O	Suppliers sub-contract outsourcing work without approval	17
F	Risk of foreign exchange rate fluctuating is high	13
O	High staff turnover in suppliers' companies	13
O	Misunderstanding of new product specification	13

F: Financial problems, O: Operations problems

Column 3 shows the percentage of participants who mentioned the problems in the interviews.

Eight of the problems are operational and the other five problems are related to financial activities. They were mentioned by less than 50% of participants during the interviews. These data indicate that the above are problems for the minority of companies in the sample.

7.4.2 A comparison of findings between questionnaires and interviews

In addition to the cross company analysis within interview records shown above, findings from the questionnaire analysis in Chapter 5 are used to compare findings from interview records. This procedure forms two direction measurements from two groups of data. If the findings are supported by the two groups of data, the findings will be highly significant. This relationship is illustrated in Figure 5.1 below:

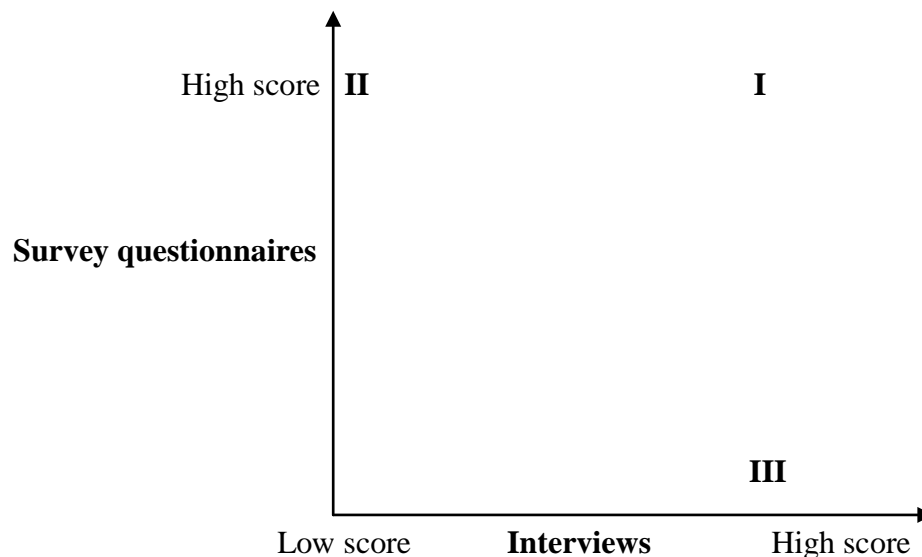


Figure 7.1 Relationships of scores in questionnaire and interview findings

In order to provide a thorough assessment of similarities between companies, questionnaires and interviews have been cross-analysed in three ways. For this purpose, three possibilities of findings from Figure 7.1 above are examined as follows:

Possibility I shows high scores in both survey questionnaires and interviews.

Possibility II shows high scores in questionnaires but a low score in interviews.

Possibility III shows low scores in questionnaires but high scores in interviews.

The following section analyses these three possibilities.

7.4.2.1 Similar findings in questionnaire and interview records

For the questionnaire findings from Chapter 5, a high score occurs when the mean of answers is higher than three (neutral), indicating agreement or strong agreement in a five-point scale. A low score occurs when the mean is less than three, which indicates disagreement or strong disagreement.

For possibility I in Figure 7.1, firstly, the results of outsourcing problems in which the questionnaire mean is higher than three, presenting agreement in a scale of five (see Table 5.5), are shown in the following Table 7.8:

Table 7.8 Outsourcing problems indicated in the questionnaires in which the mean is higher than three (neutral)

	Outsourcing problems in questionnaire	Mean
F & O	Significant high inter-company costs and additional work including quality control and conflict resolution are involved in outsourcing (2.10)	3.4
O	Product quality is poor and the quality standard is too low in China (2.5)	3.3
O	Loss of companies' confidential information due to inter-firm business transactions (2.12)	3.3
O	Significant problems of opportunism in outsourcing relationships (2.7)	3.3
F	Too many hidden business costs in China including local agency fees (2.11)	3.2
O	Outsourcing results in loss of own company competency and tacit knowledge (2.13)	3.1
O	There is a problem of violations of intellectual property rights when production is conducted by external business partners (2.14)	3.1
O	Progress of business is difficult due to bureaucracy in China (2.2)	3.1

F: Financial problems

O: Operations problems

Column 3 shows the mean of the problems in the questionnaires (see Table 5.5).

Data are sorted in column 3

By comparing data in Table 7.8 with the problem issues in interviews in Table 7.6, similarities between findings from questionnaires and interviews, with high scores in both questionnaire and interviews include:

- (1) risk of losing company confidential information and intellectual property rights
- (2) product quality, technological levels and quality standards are not high enough in China
- (3) high transaction costs and overload of management work in setting up and managing overseas production.

These three problems were found to be the most common and important in outsourcing to China, supported by both survey questionnaires and interview information.

7.4.2.2 Different findings between questionnaire and interviews

This research also compares the differences between findings from survey questionnaires and interviews. The following is possibility II in Figure 7.1, where outsourcing problems have high scores (the mean higher than three) on the survey questionnaire (see Table 5.5) but low scores (mentioned by less than four (50%) participants) by interview participants (see Table 7.1).

Table 7.9 Outsourcing problems with high scores in questionnaires but low scores in interviews

	Outsourcing problem	Mean	%
O	Progress in business is difficult due to bureaucracy and unclear Chinese Government policies	3.1	25
O	Significant problems of opportunism (business parties take advantage of other sides for profit when there is a chance) in outsourcing relationships	3.3	00
F	Too many hidden business costs in China including local agency fees and finance fees	3.2	00

Column 3 shows the mean in questionnaires

Column 4 shows the percentage of participants who mentioned the problems in interviews

Data are sorted in column 4.

These results indicate that these are general problems for the 51 sample questionnaire-surveyed companies, but are not specific problems for some individually interviewed companies. This is believed to be due to the different constituents of the two groups of samples and the limited information from interviews.

The other group of differences is that there is a low mean (less than three) in survey questionnaires, and high scores (0.50 or more) in interviews (possibility III in Figure 7.1).

Table 7.10 Outsourcing problems with low scores in questionnaires but high scores in interviews

	Outsourcing problem	Mean	%
O	Language barrier and cultural variance, communication problems	2.8	75
O	Delay in production and shipments	2.5	50

Column 3 shows the means in questionnaires

Column 4 shows the percentage of participants who mentioned the problems in the interviews.

These are not the general problems for all questionnaire surveys but are individual problems for some interviewed companies. For the first row, because the score (2.8) is near three, this problem can be considered as a general problem.

Further discussion about these three groups (possibilities I, II and III) of findings is in Chapter 8. The next section analyses the second group of research factors relating to solutions to the inter-firm business problems of companies outsourcing to China.

7.5 Analysis of findings from solutions to inter-firm business problems

This section consists of two parts. The first part aims to find the similar findings from questionnaires and interview records. The second part aims to find the differences.

7.5.1 Similar findings in questionnaires and interviews

From findings relating to solutions for outsourcing problems (see section 5.5.3), the mean higher than three in questionnaires was found to be as follows (see Table 5.6):

Table 7.11 Solutions to problems with high scores in questionnaires (the mean is higher than three)

Solutions to problems	Mean
Better understanding and connections with suppliers for example, hire liaison persons (3.3)	3.9
Emphasise administratio on suppliers, for example, monitoring production and/or hire quality inspection agents (3.1)	3.7
More rely on suppliers, for example, give more designs and technologies to suppliers (3.2)	3.5
Withhold part of payments until we receive products with satisfactory quality (3.4)	3.4

Column 2 is the mean of the answers in questionnaires. (see Table 5.6)

In the interview results the following solutions were mentioned by 50% or more participants:

Table 7.12 Solutions to problems with high scores in interviews (50% or more)

Sourcing to the problems	%
Increase the communication level (for example, personal visits and meetings)	75
Strong control (for example, visits, face-to-face-talks, quality inspections and audits)	75
Provide skills training and workshops	67
Outsource only non-core components and retain core technologies	67
Hire bilingual staff and translate product specifications into Chinese	63
Change to other suppliers within China	50

Column 2 is the percentages of the answers in questionnaires.

Some similarities of solutions are apparent in the findings of survey questionnaires (Table 7.11) and interviews (Table 7.12). Three findings that show a high mean (higher than three) in questionnaires and are also frequently mentioned in interviews (four or more participants) (possibility I in Figure 7.1) are as follows:

- (1) Hire bilingual staff and translate product specifications into Chinese.
- (2) Increase communication levels such as by personal visiting, meeting or training.
- (3) Exert strong control by visiting, face-to-face-talks, or quality inspections and audits.

These results indicated that these three are the common solutions used by the majority of the sample companies. These are the important solutions for the problems companies found in outsourcing to China.

7.5.2 Different findings between questionnaire and interviews

Differences between the findings from survey questionnaires and interviews were identified. Comparing data from Tables 5.6 and 7.3, solutions showing high scores of the mean (above 3) in the survey questionnaire but low scores in interviews (less than 4) (possibility II in Figure 7.1) are presented in Table 7.13.

Table 7.13 Solutions to problems with high scores in questionnaires, but low scores in interviews

Solutions to problems	Mean	%
Withhold part of the payment until we receive products with satisfactory quality (3.4)	3.4	37
More rely on suppliers, for example, giving more designs and technologies to suppliers (3.2)	3.5	25

Column 2 shows the mean in questionnaires

Column 3 shows the percentage of participants who mentioned the problems in interviews

Data are sorted in column 3.

These two results of solutions indicated that these are the general solutions used by the 51 questionnaire-surveyed companies, but they are not the specific solutions used by individually interviewed companies.

The other type of difference could show a low mean on the survey questionnaire but high scores on interviews (possibility III in Figure 7.1). No finding matches this selection criterion, indicating that there is no such individual solution that is highly used by interviewed companies, but is not a general solution for all surveyed companies.

Further discussions are in Chapter 8.

7.6 Analysis of findings about business success factors

This section compares the similarities and differences of business success factors between the findings from the questionnaires and the interviews.

7.6.1 Similar findings in questionnaires and the interviews

For the first possibility (possibility I) in Figure 7.1, from the findings in Table 5.7, the following Table 7.14 presents the main business success factors with high scores (mean is higher than three) in the questionnaires.

Table 7.14 Business success factors with high scores in questionnaires

Business success factors	Mean
Specify quality and service standards in contracts and manage the handover process well (4.1)	4.1
Share data and have high levels of transparency on policies and operations on both sides (4.3)	4.0
Achieve a proper relationship between delegation and administration with suppliers (4.4)	3.9
Establish own offices in China or hire staff in China (4.2)	3.8
Review and measure performance to evaluate stability of offshore business relationships (4.7)	3.7

Column 2 shows the mean of answers in questionnaires

From the data in Table 7.3, the main business success factors showing high scores (four or more) in interviews are presented in the following Table 7.15:

Table 7.15 Business success factors with high scores in interviews

Business success factors	%
Outsourcing as many as possible components in the long run	83
Specify quality and service standards in contracts and provide good management of handover process well	63
Careful selection of business partners	63
Increase levels of trust, share data, and provide high levels of transparency on operations and policies	50
Send designs and technologies to suppliers	50

Column 2 shows the percentages of answers in interviews

Two similarities were found between the findings of a high mean in the survey questionnaires and frequency in interviews (mentioned by 50% or more participants) as follows:

- (1) Specify quality and service standards in contracts and provide good management of handover process.
- (2) Increase levels of trust, share data, and provide high levels of transparency on operations and policies.

The findings indicate that these two business success factors are the most common and important in outsourcing to China, supported by both survey questionnaires and interview information.

7.6.2 Different findings between questionnaires and interviews

In addition, for the second possibility (possibility II) in Figure 7.1, this analysis searches the differences between the findings from questionnaires and the interviews. The following business success factor has a high mean on the survey questionnaires (see Table 5.7) but low score in interviews (see Table 7.3):

Table 7.16 Business success factors with high scores in questionnaires but low scores in interviews

Business success factors	Mean	%
Achieve a proper relationship between delegation and administration with suppliers (4.4)	3.9	13

Column 2 shows the mean in interviews

Column 3 shows the percentage of participants who mentioned the problems in interviews

This indicates that it is a common objective for most surveyed companies, but not for some individual companies interviewed.

Furthermore, for the business success factors which have low scores in the questionnaires but have high scores in the interviews (third possibility in Figure 7.1), there is no one answer to match this criterion, meaning that every business success factor used by interviewed companies is also used by the questionnaire-surveyed companies (data results end up in possibility I in Figure 7.1).

Further discussions are in Chapter 8.

7.7 Discussion of payment terms

Payment terms in outsourcing contracts are a primary issue to be negotiated and they reflect on the trust levels between the business parties. The terms consist of these parts: when and under what conditions payments are made, and what percentage of the total payment is to be made.

According to the eight cases summarised in Table 7.4, all eight companies interviewed use T/T transfers for payments, indicating that this is a popular method of payment in international trade. Only four companies (50%) pay deposits when

signing outsourcing contracts. Three companies use letters of credit (L/C). Their suppliers ask for L/C when dealing with large contracts and with new or imperfect business relationships. Some companies use L/C or telegraphic transfer (T/T) for different contracts. For existing business relationships and small contracts, T/T terms are widely used. Among the four companies paying deposits, Companies Three and Seven pay 30%, Company Five pays 50% and Company Four pays 100%. Paying 30% is a common practice for most industry trade contracts. Paying one hundred per cent when signing contracts reflects the highest level of trust.

With regard to the time at which full payments are made, Company Seven pays in full prior to shipment. Companies One and Five pay in full against shipments. Companies Three and Eight pay in full after receipt of goods (or in 60–90 day terms). In the event of dissatisfaction with the product quality received, some purchasers return the products for remake (for example, Company Four), and some deduct a percentage of payments (for example, Companies Two and Six).

Of the four companies which pay no deposit when signing contracts, Companies Two and Six withhold payment until receipt of satisfactory quality products; Company Two plans to not pay in full until receiving payment from its customers; and Company Eight accepts only a signed bank draft and short payment terms for export contracts. These conditions of payment terms represent low levels of trust. The later the payments are made, the lower the level of the trust as purchasers do not want to take the risk of not receiving products and of defective quality products.

The next section provides the verification and conclusions that are drawn and verified based on the analysis results presented in Tables 7.1–7.16 above.

7.8 Summary

This chapter has investigated eight cases of how the companies conduct manufacturing restructuring from their own production to outsourcing to China, and the import/export of merchandise. The problems that companies experience in practice are described, and the strategies that companies devise to deal with the

problems are discussed. The companies' strategies for success and planning for outsourcing to China are reviewed as business success factors. All steps provide evidence to answer the research questions. The content also provides evidence to support the thesis arguments and test the propositions.

The eight study samples are Australian companies which conduct manufacturing outsourcing and importing from China. All are located in major industrial areas in Australia. Their primary motivation for outsourcing is to take advantage of lower labour and other production costs in a developing country in order to increase their capability to compete in Australian and overseas markets. The six manufacturing samples show that outsourcing has resulted in some level of production cost savings, and that outsourcing generates some kinds of inter-firm business problems. Even though the companies recognise these problems, all of them want to continue the outsourcing business and find ways to solve the problems.

The study samples represent different business backgrounds. Company histories range up to 70 years (as of 2010). Company sizes range from ten to 3000 employees. Three companies have established their offices in China. Six companies are manufacturers, the other one is an import company, and the last one does both import and export. Company One produces mostly labour intensive, low technology electrical household goods. The other five manufacturing companies produce middle-to-high technology goods. Company Two has a joint venture factory in China producing whole seats for vehicles to sell to Australian and Chinese markets. Other than Company Two, the other seven companies outsource mostly non-core, low technology and labour intensive components and products, or only import and export products. Company Seven sells their products only in Australia; Companies One, Two and Four sell to both Australia and New Zealand. Companies One, Three and Five have markets in Europe and the USA.

For the inter-firm outsourcing problems, combining the two groups of findings from the questionnaires and from the interviews, it is found that the similarities are:

- risk of loss of confidential information and intellectual property

- product quality, technological level and quality standards are not high enough in China
- high transaction costs, and overload of management work in setting up and managing production.

These three are the most common and important outsourcing problems supported by the evidence from both survey questionnaires and interviews.

For solutions to the problems, the similarities of findings from both questionnaires and interviews are:

- hiring of bilingual staff and translating product specifications into Chinese
- increasing communication levels, visiting, meeting and training
- strong controls including visiting, face-to-face-talks, quality inspections and audits.

For business success factors, the similarities of findings from both survey questionnaires and interviews are:

- specifying quality and service standards in contracts and good management of the handover process,
- increasing levels of trust, sharing data, high levels of transparency of operations and policies.

Different payment terms are used by the eight interviewed companies. Four companies (50%) pay deposits when signing outsourcing contracts. Three companies use both L/C and telegraphic transfer (T/T) for different suppliers and contracts. All eight companies use T/T transfer for payments.

Only Company Two has a joint venture in China. Three companies have their offices and hire staff in China. The other companies only contract manufacturing or purchasing with companies in China. All the sampled companies outsource only non-core technologies to their suppliers in China, but keep the crucial technologies in-house in order to protect their intellectual property. Some outsource high technologies to European and American companies because Chinese companies

cannot produce the same quality products. Some outsource to many suppliers and conduct final assembly on their own in order to avoid duplicating products.

The next chapter discusses the research results, evaluating the components of the conceptual framework, verifying the propositions, answering the research questions, and supporting the thesis arguments.

Chapter 8

Discussion of research results

The aim of this chapter is to discuss the research results arising from Chapters 5 and 7. This chapter firstly presents a discussion of the findings presented in these two chapters. Following these, the three research propositions are validated. Next, the three research questions are addressed. The research results are compared with some findings of other research in the literature. Furthermore, the three thesis arguments are supported.

8.1 Discussion of findings from questionnaires and case studies

This section discusses the questionnaire and case study results including demographics and business information, inter-firm business problems, solutions to business problems, key business success factors, and an analysis of cost savings.

8.1.1 Demographics and business background information in questionnaires and case studies

Cost savings and other benefits are their primary motivations for maintaining outsourcing in China. However, despite their outsourcing practices resulting in some levels of cost savings, all have faced some kind of inter-firm business problems. Nevertheless, all want to continue and improve their outsourcing businesses and find ways to solve these problems.

Outsourcing in the sample companies covers a broad range of products. The largest category of the products is household goods, followed by home electrical items and textiles/clothing/garments. Other manufactured products include aircraft components, auto components, satellite communication products, chemicals, steel products, software, micro labels, plastic glasses, and water treatment equipment (see Table 5.2). Most of these products are labour intensive manufactured goods because China has the largest manufacturing workforce in the world, enabling it to produce at low costs. Some other products are high technology such as auto and

satellite components, with a few being capital-intensive manufactured products such as aircraft components. In addition, there are delivery/logistics, information and communication technology (ICT), and management service tasks.

Sample companies have engaged in several types of outsourcing for manufacturing restructuring. The lowest level of restructuring is principally direct purchasing of components and finished products instead of own production. Instead of sourcing these within Australia, many products are imported from China. However, the majority of these companies have no plans to enter China's market, but only import goods into Australia. Their strategy is to conduct offshore sourcing to save production costs, but they have no plans for foreign investment. Some sample companies have higher levels of restructuring which include contracting out whole products and providing designs, technology and production specifications to suppliers to replicate products, with some creating joint ventures or building their own factories in China. They also sell their products to China's market as one of their main business goals. In some cases, final products are assembled by suppliers in China who then ship them either to purchasing companies in Australia or directly to overseas customers.

The majority of sample companies (64%) have been outsourcing to China for from one to ten years, with some (16%) for from eleven to fifteen years, followed by others (14%) for sixteen years or more, and the remainders (6%) for less than one year. As a result, the average period of all sample companies outsourcing to China is only nine years. As China started its economic reform around the 1980s and further opened for international trade since 1992, compared to some companies in Hong Kong, Taiwan and the USA, it is only comparatively recently that the sample companies have begun outsourcing to China. The earlier dealings with companies in Hong Kong and Taiwan were due to their business people having more connections in Mainland China and the advantage of close geographic proximity. In addition, some US companies such as Hewlett Packard Company (HP), were invited by the Chinese government to invest in China as early as the 1970s (HP, 2011). Furthermore, many enterprises in Hong Kong, Taiwan and the USA were active in seeking new opportunities and investments in China. This indicates that the sample companies might have more conservative attitudes towards foreign trade.

Findings in this study are similar to other Western companies which, in addition to achieving cost savings in producing labour intensive goods in general, some can also achieve the benefit of lower costs in producing high technology components and products, as well as innovation by using local Chinese engineers rather than the higher paid engineers in home countries (Kennedy & Clark, 2006; Zviran, Ahituv & Armoni, 2001). Such transformational offshore outsourcing can therefore generate a long-term competitive advantage. For example, Company Three in this study contracted with some American and Japanese multinational companies in China to produce high technology components and to conduct innovative projects for its sleep-breathing equipment. Company Two had its joint-venture factory and conducted innovative projects in China.

8.1.2 Inter-firm business problems in questionnaires and in case studies

For inter-firm business problems associated with companies in Australia undertaking outsourcing with suppliers in China, the main findings from the survey in Chapter 5 are:

- high transaction costs
- low product quality and standards
- loss of confidential information and violations of intellectual property rights
- opportunism
- hidden business costs
- loss of competency and tacit knowledge
- bureaucracy and unclear government policies.

Testing the significance of the correlation coefficient and t test for the seven variables were conducted in Chapter 5. Because the correlation test shows a high correlation between the two variables of loss of confidential information and violations of intellectual property rights, and they have similar meanings, these two variables have been combined into one. The other highly correlative relationships are between high transaction costs and low product quality and standards; between hidden business costs and high transaction costs, low product quality and standards and loss of confidential information; between loss of competency and tacit

knowledge and low product quality and standards and hidden business costs (see Table 5.9).

The t test results show that none of the seven variables of business problems has significant different answers to the survey (see Table 5.12).

Chapter 7 revealed three groups of findings that summarised inter-firm business problems from interview records. These findings were then compared with the findings from the survey questionnaires. The results of the first group of findings indicate that the three most significant problems in outsourcing to China are:

- risk of losing confidential information and intellectual property rights
- low product quality, technological levels and quality standards
- high transaction costs and overload of management work.

These three findings are supported by both the questionnaire survey and the interview the records.

These are the common outsourcing problems for the sample companies. The primary reasons for these problems in the extended supply chains of the sample companies to other independent companies overseas are due to different business environments, technical capacities, business cultures, and working attitudes between companies in Australia and China. When production tasks are contracted out to suppliers, transaction costs cannot be avoided. However, the level of costs is related to operational types and sizes, types of projects, and trust levels with suppliers. As many companies in China lack high levels of technology and standards of quality control, companies in Australia often face problems when product quality does not meet their requirements (see Chapter 5). Because intellectual property, company competencies and tacit knowledge including confidential information, are highly important assets, leakage of these is of prime concern when supply chains are extended to independent suppliers overseas. In addition, due to the different business environments, opportunism, hidden business costs, bureaucracy and unclear government policies in China are significant issues in outsourcing business.

The next group of findings indicates three general problems facing the majority of surveyed companies. However, these are not fully supported by individually interviewed companies. These findings are:

- bureaucracy and unclear government policies
- opportunism
- hidden business costs.

This set of problems is mainly due to the different business environments operating in China. They have become general problems faced by the surveyed companies. However, some interviewed companies have been able to overcome them, for example, by setting up joint venture factories in China that achieve localisation in the environment.

The third group of findings are not general problems for all surveyed companies but are individual problems for some interviewed companies. They are:

- language barrier and cultural variance
- communication problems
- delays in production and shipments.

When companies in Australia start to do business in China, it is most likely that communication problems between business partners will exist. However, these problems can be reduced over time or solved by adopting correct strategies, such as hiring bilingual staff. Problems of delay in production and shipments can be solved by having correct management control. However, even though most surveyed companies have overcome these problems, some individual interviewed companies have not.

Case studies in this thesis show that the sample companies have a strong concern with protecting their intellectual property rights, as these are their main competencies. Six interviewed companies only outsource selected non-core components and purchasing finished goods. The exceptions are Company One that outsources most of its products, and Company Two that has built a joint venture factory in China to produce middle-to-high technology products. This indicates that

most of the sample companies are still at a lower level of manufacturing restructure and have not yet entered into a total solution to their manufacturing restructure. In order to protect their intellectual property rights, most companies in Australia have retained their core designs and technologies in-house, and only contract out non-core, low technology parts to suppliers in China. Another reason why those companies have retained their core parts of production in home countries is to ensure product quality. The other way is to outsource high technology parts to other developed countries. For example, Company Two outsources some key parts of automobile seats to Germany. This usually applies to high-technological products, such as automobiles and aircraft.

When comparing European and American outsourcing experiences from the literature with the findings of this study, similar results are found. However, the purchasing and investment volumes in China by some sample companies in Australia are not as high as some large companies in Europe and the USA. For example, Wal-Mart, an American company, has the goal of engaging one million local farmers in its direct-farm program covering 25,000 acres of farmland in China by 2011 (Wal-Mart, 2011). This can be a difficult issue for smaller Australian companies to overcome when negotiating with larger Chinese suppliers that desire large contracts in order to achieve economies of scale.

8.1.3 Solutions to business problems in questionnaires and in case studies

In Chapter 5, the main solutions to the above-mentioned problems that the surveyed companies commonly use are:

- increasing levels of communication
- increasing management control
- increasing levels of trust
- withholding part of payment until receipt of products with satisfactory quality.

These four variables were statistically analysed by correlation and t tests. The correlation tests show that none of them is highly correlated; they are independent variables (see Table 5.10).

The t tests show that there are significant differences between the three paired samples:

(1) Between 'Increase levels of trust with our business partners, for example, 'By giving more designs and technologies to business partners' and 'Increase communication levels with business partners, for example, by hiring liaison persons and bilingual staff';

(2) Between 'Withhold part of the payment until we receive the goods and satisfy product quality' and 'Increase communication levels with business partners, for example, by hiring liaison persons and bilingual staff'; and

(3) Between 'Withhold part of the payment until we receive the goods and satisfy product quality' and 'Increase management control over business partners, for example, by monitoring production and/or hiring quality inspection agents'.

These indicate that companies have different ways to solve problems. Participants gave a stronger agreement with the last variable than the first one in each pair tested because the mean differences are negative (see Table 5.13).

Outsourcing of components requires the provision of product designs, technology transfer and support. Additional requirements may include translating product designs into Chinese and providing staff training. These procedures are required at certain levels of communication. Failure to communicate or not reach the required levels may lead to the failure of outsourcing projects or non-achievement of goals. Good communication with business partners is so important that some companies in Australia hire bilingual staff and establish their offices in China to improve their business.

Management control and trust with business partners are both important, as well as the balance of these two. However, insufficient control due to relying on trust alone may lead to defective product quality, loss of an organisation's confidential information, loss of their company competency and tacit knowledge, and violations of intellectual property rights. Conversely, tough control and distrusting suppliers

may lead to higher transaction costs, loss of suppliers, time wastage in finding new suppliers, and high costs for re-setting-up and training new staff.

Similarities in solutions were found in both results of questionnaires in Chapter 5 and case studies in Chapter 7. These are:

- hiring bilingual staff and translating product specifications into Chinese
- increasing communication levels
- strong management control.

These findings indicate that effective communication and strong control are both important due to being supported by both questionnaire and interview results.

Another two findings were highly supported by the questionnaire results (see Chapter 5), but they are not highly supported by the interview results (see Chapter 7). These are:

- withholding part of the payments until receipt of products with satisfactory quality
- increasing levels of trust.

These solutions indicate that increasing the levels of control and trust are common strategies adopted by most of the companies surveyed. However, individual companies interviewed may or may not use any of the solutions, as companies are different. Some companies do not significantly adopt the same solutions.

8.1.4 Key business success factors in questionnaires and in case studies

The business success factors outlined in Chapter 5 show that the majority of surveyed companies agree upon strategies that cover:

- specific quality and service standards in contracts and good management of handover procedures
- high levels of transparency in policies, data and operations
- achievement of a proper strategic balance between trust and management control
- establishment of own offices and/or hire staff in China

- review and measure of performance to evaluate the stability of offshore business relationships.

These five variables were statistically tested for correlations and t tests in Chapter 5. The correlation test shows that six paired variables have significant correlative relationships but not strong correlative relationships. The business success factors are related but are not highly correlative (see Table 5.11). This means that while there are five different strategies available to choose from, companies may choose more than one strategy at the same time, or not choose any of them. These happen but the chances are not high.

The paired sample t test shows that there are significant differences between five paired samples of variables. The results indicate that companies have different strategies for business success factors. The mean differences are negative in each paired sample tested indicate that more participants agreed with the last variable rather than the first one in each pair (see Table 5.14).

The above factors of detailed management, better communication, trust, control and stability are all important strategies for outsourcing to China. Detailed and strong management in the early stages of outsourcing are necessary. High levels of communication are important. Investment in China, such as hiring local staff and having own offices are seen as the optimum way to increase communication levels. Thus overall performance management in overseas projects is crucial for success.

In addition, the following findings are supported by both questionnaires results in Chapter 5 and interview results in Chapter 7:

- Specifying quality and service standards in contracts and providing good management of the handover process
- Sharing data and providing high-level transparency on operations and policies.

These indicate that detailed management and open communication in inter-firm relationships are very important for outsourcing success.

Another finding of achieving a proper strategic balance between trust and management control with one's business partners was mostly supported by the questionnaire results, but it was not supported by the interview results, indicating that although this is a common objective for most surveyed companies, it is not significant for some individually interviewed companies.

8.1.5 Analysis of cost savings in questionnaires and in case studies

According to the results from Chapter 5, the overall mean of 71 per cent of achievement indicated that on average, companies in Australia achieved less product cost savings through outsourcing to China than they originally planned for.

In this analysis, actual production cost savings refer to the remaining amount after deducting all transaction costs. This is mainly due to the costs for additional work created by inter-firm business relationships, defective product quality, protection of an organisation's confidential information, and opportunism between purchasers and suppliers. Mainly for these reasons, on average, outsourcing to China has not achieved full cost savings objectives. According to the contents in the case studies, labour costs in Australia are about fourteen times higher than they are in China. Overall production costs in China are about one-third to one-fourth of those for the same products in Australia. However, the average cost savings achieved in outsourcing for the sample companies is only twenty per cent. This means transaction costs significantly reduce the cost savings achieved.

For the interviewed companies, the results of their cost savings are shown in Table 8.1 below:

Table 8.1 Cost savings of interviewed companies

Co.#	One	Two	Three	Four	Five	Six	Seven	Eight	Average
Planned cost savings	30%	10%	30%+	40%	40%	60%	N/A	N/A	35%
Actual cost savings	40%+	10%	40%+	20%	25%	60%	N/A	N/A	33%

Row 1 is the companies interviewed

These results show that, on average, the actual cost savings (33%) of the six interviewed companies were only slightly lower than they expected (35%).

According to the interview records, the main reason for achieving less than planned is mainly due to the transaction costs involved in offshore business relationships.

8.1.6 Payment terms in case studies

Following the analysis of questionnaires, it was found necessary to analyse some of the payment terms in individual companies in order to better understand the outsourcing operations and trust levels between purchasers and suppliers. For example, the 'T/T' payment term was used by all eight companies interviewed, which shows trust because these payments have no bank guarantees. The 'L/C' was used by only three companies for their large contracts and new and imperfect relationships. When signing contracts, four companies paid deposits demanded by suppliers, varying from 30 to 100 per cent of total payments. These payment terms reflect trust levels, meaning that the higher the deposit paid and the shorter the payment terms, the greater the level that purchasing companies trust their suppliers, because purchasers have taken the risk of not receiving products or having defective quality products delivered. For example, Company Four in the case studies deposited up to 100 per cent of the payments as a tool to easily find suppliers and bargains. However, some of the larger purchasing companies, such as Company One, can easily find suppliers so they do not want to pay deposits, thus avoiding risk as well as keeping more cash in hand. Conversely, some large suppliers insist on receiving deposits to increase cash flow and reduce the risk of non-payment.

With regard to the time at which full payments are made, purchasing companies in case studies either pay in full prior to shipments, against shipments, upon receipt of goods, or on 60–90 day terms (see Chapter 7). The later the full payments are made, the lower the level that purchasing companies trust suppliers, as purchasers do not want to take the risks mentioned above.

8.2 Verification of propositions against findings

Following Lancaster (2005), and Miles and Huberman (1994), the last part of the qualitative data analysis is the verification and conclusion drawing. Verification

involves comparing initial ideas and thoughts with the data found. The conclusions include the background information, and the three research factors of the inter-firm business problems, the solutions and the business success factors. This section provides a comparison of the three research propositions outlined in section 3.2 with the qualitative data display of interview records outlined in the Tables 7.2–7.4.

The initial ideas used for comparison are the three propositions indicated in Chapter 3, Conceptual framework, which are related to the three research questions. The following is the related verification:

The first proposition is '*There should be many business problems of outsourcing manufacturing from Australia to China. These should include unexpected high transaction costs in operations; overloaded bureaucracy in China; Australian companies' loss of key capabilities, skills and intellectual property; and loss of management control (Qu & Brocklehurst, 2003; Young, 2000)*'. For the first proposition, anticipated inter-firm business problems in questionnaires and interviews include:

- (1) unexpected high transaction costs in operations
- (2) overloaded bureaucracy in China
- (3) Australian companies' risk of losing key capabilities, skills and intellectual property
- (4) loss of management control.

According to the findings from Chapter 7, problems (1) and (3) are highly supported by both the questionnaire survey and interview records; mentioned by four or five companies in total from eight companies (see Table 7.2). Problem (2) is supported by the findings of the survey questionnaire (mean is 3.1), but was indicated by only two interviewees, which is supported by the minority group. Problem (4) is not supported by the survey questionnaire and any interview record, meaning it is not a problem when outsourcing to China.

This means that when there is an extension of the supply chain, issues of transaction costs and risks of losing key capabilities, skills and intellectual property have become the main problems. The second part of the first proposition, *overloaded*

bureaucracy in China, has been supported by only a minority of interviewed companies (mentioned by two companies). This means some companies face the problem but others do not. The last part of the first proposition, *loss of management control*, has not been supported by any interview record, meaning it is not a problem when outsourcing to China. The sample companies in Australia have a high enough level of management control so that control is not a problem. Consequently, apart from a lack of management control, all other aspects of the first proposition have been validated.

The second proposition is '*Companies in developed countries such as Australia should mainly outsource labour intensive, low technology and low capital manufactured components and finished products to developing countries, but retain the core parts of production, high technology and high capital intensive parts of manufacturing in their own domestic factories, or within their home countries (Li et al., 2007; Tayles & Drury, 2001)*'. For the second proposition, anticipated solutions to the problems in questionnaires and interviews include:

- (1) mainly outsource labour intensive, low technology and low capital manufactured components and products to developing countries
- (2) retain the core parts of production, high technology and high capital-intensive components of manufacturing in their own domestic factories, or within their home countries.

According to the findings from Chapter 7, solutions (1) and (2) are highly supported by interview records. Six companies interviewed outsource only the non-core part of their production to China and keep the core part of production in-house, or outsource high technology components to other developed countries. These procedures lessen the risk of losing intellectual property rights.

The third proposition is '*The main business success factors for outsourcing to China should include good preparation, correct strategies and good operations management (Johnston et al., 2004)*'. For the third proposition, the main business success factors in questionnaires and interviews include:

- (1) good preparation (for example, to conduct benefit/risk analysis and plan well prior to outsourcing, the correct selection of business partners, the specification of service standards in contracts and managing the handover process)
- (2) correct strategies (for example, a correct balance between inter-firm management control and trust, effective business relationships)
- (3) good operation management (for example, review and measure performance, emphasise stability of overseas relationships and good communication).

According to the findings from the questionnaires and the interviews, factor (1) is supported by both the results from questionnaires and interviews (five of the eight companies). This shows that companies in Australia have realised that planning well before outsourcing operations helps to achieve cost savings goals. Factor (2) is supported by the questionnaire results. However, the factor of a correct balance between inter-firm management control and trust, and effective business relationships is supported by only one company interviewed (see Table 7.4). This means that this strategy is not applied by some interviewed companies, which only emphasise control and that some rely more on trust.

Factor (3) is only supported by the interview record of Company Three. Some sample companies just conduct short-term purchasing and do not focus on measuring performance, emphasising stability of overseas relationships and good communication.

In summary, most statements in the three propositions have been verified against the findings in interview records. The statements in propositions that cannot be verified may be due to different company backgrounds, solutions used and strategies adopted. In addition, the time of interviews and other information found from the companies are limited, so that although the information may exist, it has not been found in this research.

8.3 Answers to the research questions

According to the research design indicated in Chapters 3 and 4, the methods used to answer the research questions of this study are firstly extracting main findings from the questionnaire survey to provide evidence answering the research question. Secondly, main findings from interview records and the case analysis results in Chapter 7 are used to provide further evidence. Thirdly, there are comparisons of the main findings of this research with some key points of other research extracted from the literature to test the answers.

8.3.1 Outsourcing inter-firm business problems (research question one)

For research question one of this study, '*What are the main business problems due to extension of supply chains when companies in Australia outsource their components and finished products to companies in China?*', the answers are as follows:

8.3.1.1 Evidence from questionnaire findings

Findings from Chapter 5 provide some quantitative evidence to answer research question one. There are eight outstanding problems of outsourcing to China that have the highest agreement levels (the mean is three or higher) in the questionnaires listed in Tables 5.5 and 7.8. In addition, ten minor problems from Chapter 5 (the mean is less than three) were also found in the questionnaires listed in the lower part of Table 5.5.

8.3.1.2 Evidence from case study findings

Findings from interview records and the analysis results in Chapter 7 provide qualitative evidence answering research question one. The problems of outsourcing mentioned by 50% or more participants in the eight interviews are in Tables 7.2 and 7.6.

By combining the two groups of findings from the questionnaires and interview records above, the three similar problems found with high scores in both the questionnaire and interview records are:

- the risks of losing company confidential information and IP rights

- product quality, technological levels and quality standards are not high enough
- high transaction costs, and overload of management work in setting up and managing overseas production.

The three problems above have been found to be the most common and important for the sample companies' outsourcing business to China, and are supported by both the questionnaire survey and interview records in this study. These three main problem statements are compared with some key points of other research in the literature in section 8.3.1.3.

8.3.1.3 Comparison of findings with other research in the literature

In order to test the answers to the research questions, there are comparisons of the main results of this research with some key points of other empirical research extracted from the literature in Chapter 2. The following begins with the comparison of the three above-mentioned main problem statements that were supported by both the questionnaire and interview records (see section 8.3.1.2). Afterwards, more comparisons are applied to some other findings of this research.

With regard to the first problem statement above: '*risks of losing company confidential information and IP rights*', Bidanda et al., (2006) and Song et al. (2007) state that protection of IP has become a major concern for outsourcing decisions in the USA and UK, with leakages of IP in outsourcing being a significant problem which is difficult to avoid. In addition, Langfield-Smith et al. (2000) in Australia find that suppliers in host countries may share or sell purchasing companies' information to competitors, thus violating IP rights. Furthermore, Kennedy and Clark (2006) in the USA point out that there is not adequate protection of IP rights for high technologies transferred to and developed when outsourcing to China, meaning that outsourcing can lead to loss or misappropriation of IP rights. Therefore, the situation between companies in Australia and China is similar to other outsourcing for this problem of IP loss in other countries. The first problem statement of this research is therefore supported by the findings of other research in the literature.

With regard to the second problem statement above: *'product quality, technological levels and quality standards are not high enough in China'*, Schoenherr et al. (2008) in the USA confirm that some suppliers in developing countries, including China, lack both capability and motivation to control and improve product quality, and have ongoing quality problems in future production. Lam and Han (2005) and Ting (2004) conclude that product quality often does not meet the standards in developed countries including the USA, with many purchasing companies finding that the arrangements of quality control are either rejected or ignored by suppliers in China. Furthermore, Earl (1996) and Quelin and Duhamel (2003) find that outsourcing in the USA, France and other European countries can be risky when linking to suppliers who have deficient capabilities. Therefore, the second problem statement above is supported by other research in the literature.

With regard to the third problem statement above: *'high transaction costs, and overload of management work in setting up and managing overseas production'*, research in Canada by Bahli and Rivard (2005) find that there are risks of uncertainty including bounded rationality and the degree of expertise in outsourcing. Barthelemy (2001) and Bidanda et al., (2006) in the USA have identified high extra inter-firm business costs in outsourcing business in the country. In addition, Benson and Littler (2002) in Australia and Ellram et al. (2008) in the USA find that compared with service trade, outsourcing of production in general has higher variable transaction costs of shipping, marine or air cargo insurance, increased requirements of quality inspection, and costs of managing outsourcing operations which may negate planned cost savings.

Therefore, these three main problem statements in section 8.3.1.2 above are all supported by other research in the literature review.

Other than the three main problem statements above, some other findings of this research are also compared with other research in the literature. For the findings from the questionnaire in this research: *'there are too many hidden business costs'*, a study in Europe and North America, Barthelemy (2001) finds that the existence of hidden costs, for example, local government and bank fees are unpredictable. In

addition, Glass (2000) in a study in Europe indicates that problems such as the unpredictability of costs have resulted in many outsourcing businesses often being unable to meet the long-term strategic goals of multinational companies.

For the other present questionnaire findings in this research, the problem of '*loss of one's own company competency and tacit knowledge*', Schoenherr et al. (2008) in the USA indicate that the risk of transferring main technologies to suppliers means that purchasing companies often lose their core competency and market positions. According to the studies by Metters (2007) and Grover and Teng (1993) in the USA, outsourcing practices may shift knowledge to suppliers and reduce long-term competitive advantage and lead to loss of tacit knowledge. Furthermore, Khosrowpour et al. (1995) and Quinn and Hilmer (1994) in the USA point out that purchasing companies which provide technology and information for outsourcing production can end up losing know-how and opportunities to innovate new products. In the long run, purchasing companies can lose their distinctive competencies, and create reliance on suppliers.

For the problem of '*bureaucracy and unclear government policies*' found in this research, Li et al. (2007) indicate that overloaded bureaucracies, erratic government responses and unclear government policies exist in China. The mode of behaviour can be the main reason for the failure of alliances and other forms of inter-firm cooperation in China.

With regard to the problems of '*language barriers, cultural differences and other communication issues*' found in this research, research by Li et al. (2007) in China confirm that offshore risks in cross-cultural communication and bias are problems. Social control and culture and business practice familiarities are important contributing factors.

In summary, similar findings related to problems in the questionnaire and interview results of this research are found in other research in the literature. This provides further confirmation of the answers to the research questions, and puts this research in context with other empirical studies of outsourcing in various countries.

8.3.2 Solutions to outsourcing problems (research question two)

For the research question two, ‘*What solutions are available for the outsourcing problems of these companies?*’, the answers are as follows:

8.3.2.1 Evidence from questionnaire findings

The findings of solutions from the questionnaires show high levels of agreement among participants:

- Increasing communication levels with business partners
- Increasing management control over business partners
- Increasing levels of trust with business partners
- Withholding part of the payment until receipt of goods with satisfactory product quality (see Table 5.6).

8.3.2.2 Evidence from case study findings

The solutions highly mentioned in interviews are:

- hiring bilingual staff and translating product specifications into Chinese
- increasing communication levels
- providing skills training and workshops
- outsourcing only non-core components and retaining core technologies
- having strong control over outsourcing operations (see Table 7.3).

From these two groups of findings above, two similar solutions indicated in both the questionnaire survey and interview records are increasing communication levels and increasing management control. These results indicate that these two are the common solutions used by the majority of the sample companies outsourcing to China.

8.3.2.3 Comparison of findings with other research in the literature

In order to confirm the answers to research question two, this subsection compares the results from the questionnaires and the interview records of this research with key points of other research extracted from the literature reviewed in Chapter 2.

For the solution of '*increasing communication levels*' found in this research, similar results have been found from other research in the literature. According to Langfield-Smith et al. (2000) in Australia, effective communication is necessary in outsourcing. Kennedy and Clark (2006) in the USA find that it is important to have a good understanding of risks when transferring high technologies and understanding differences in the legal system in China. Benson and Ieronimo (1996) in Australia point out that solutions can include the development of more complete specifications and long-term contracts and the development of strategic, trusting and cooperative relationships. These include improvements in planning, performance management, trust and communication.

With regard to the findings of '*increasing management control*' in this research, Beaumont and Sohal (2004) and Benson and Ieronimo (1996) in Australia state that performance management usually requires the need to control outsourcing relationships. Such management is of benefit to both parties when operational processes are improved. Furthermore, some stages of managing outsourcing processes include defining the scope of services and products to be outsourced, measures of quality, internal transition arrangements, contracting, extension of supply chain operation, monitoring, and re-negotiating or terminating contracts. In addition, Langfield-Smith et al. (2000) identify mechanisms to improve control including key performance indicators and performance measures, coordination of production, and determining the responsibility for costs and post-implementation reviews in Australia. Furthermore, Ellram et al. (2008) in the USA point out those purchasing companies need to provide better control and need to monitor outsourcing operations. Performance management is usually required to control outsourcing relationships.

For the finding of '*increasing levels of trust*' with business partners from this research, Langfield-Smith et al. (2000), Sako (1992) and Parker and Russell (2004) are in agreement that, in general, when trust is established in inter-firm relationships, both sides can avoid risks such as incorrect or incomplete information. In this way transaction costs can be reduced. Trust plays an important role in outsourcing relationships. Incentives and trust are counted as two related aspects of governance. Das and Teng (2001) in the USA and Gulati and Singh (1998) state

that when trust has a certain weight in transactional relationships, both sides can make fewer assumptions about incorrect or incomplete information from the other side of the partnership. Trust is also an important mechanism to achieve success of the contract aims in outsourcing networking. Ellram et al., (2008) in the USA identify ways to reduce risks including the development of measurable specifications, using random customer satisfaction surveys, using internal consultants, and benchmarking to develop trust and cooperative relationships.

In summary, there are similar findings related to solutions for the problems in the questionnaire and interview results of this research and in the literature. This provides further confirmation of the answers to the research questions, and puts this research in context with other empirical studies in some other countries.

8.3.3 Business success factors when outsourcing (research question three)

For the research question three, *‘What are the main business success factors for improving the management control systems for inter-firm performance management when outsourcing from Australia to China?’*, the answers are as follows:

8.3.3.1 Evidence from questionnaire findings

Five statements in the questionnaire have the highest agreement levels from the participants, which are:

- specifying quality and service standards in contracts and managing the handover process well
- sharing information and having high level of transparency on policies and operations on both sides
- achieving a proper strategic balance between trust and management control with one’s business partners
- establishing one’s own offices in China or hiring staff in China
- reviewing and measuring performance to evaluate the stability of offshore business relationships (see Table 5.7).

8.3.3.2 Evidence from case studies

The interview records show that the following statements appear with high frequency:

- Specifying quality and service standards in contracts, providing good management of the handover process
- Increasing levels of trust, sharing data, and providing high level of transparency on operations and policies (see Table 7.4).

These two findings in the interview records are similar to the related findings from the questionnaire, indicating that they are the most common, important business success factors for the sample companies outsourcing to China. They are supported by both the questionnaire and the interview records.

8.3.3.3 Comparison of findings with other research in the literature

In order to confirm the answers to the research question three, this subsection compares the selected four results from the questionnaires and the interview records of this research with key points extracted from other research in the literature as follows:

Firstly, with regard to the findings of '*specifying quality and service standards in contracts and managing the handover process well*' from this research, the other research in the literature shows agreement. For example, Langfield-Smith et al. (2000) find that factors including adequately specifying contracts can be revised over time and developing relationships that go beyond contractual obligations. In addition, Preston (2004) in the USA points out the need to identify processes and activities in host countries. Furthermore, P A Consulting Group (1996) in the USA points out that those outsourcing contracts need clear specifications so that activities can be well defined. These specifications include clear definitions of the roles and responsibilities of both sides, and terms for effective monitoring of suppliers.

Secondly, with regard to the factor of '*increasing levels of trust*' found within this research, other research in the literature points out the need for the development of strategic, trusting and cooperative relationships. Ellram et al, (2008) point out that

these methods normally use random customer satisfaction surveys, internal consultants and benchmarks to develop trust and cooperative relationships. In addition, Langfield-Smith et al. (2000) consider that the other side of control is trust. For higher levels of trust, more reliance is necessary in formal and indirect control mechanisms. Furthermore, Li et al. (2007) and Qu and Brocklehurst (2003) find that trust is highly important for doing business in China, whereas the control level is adjustable because people prefer trust rather than control. If people do not feel they are being trusted then business relationships will suffer.

Thirdly, for the factor of *'reviewing and measuring performance to evaluate the stability of offshore business relationships'* from this research, Burdon and Bhalla (2005) in their study in Australia and New Zealand identify four key success factors for correct designs of contract style and management control systems, managing innovation, managing relationships and managing workforce are ways in which managers can best achieve their outsourcing benefits. Langfield-Smith et al. (2000) conclude that new management skills are required in many areas such as communication, negotiation and inter-firm skills for outsourcing relationships.

Fourthly, for the factor of *'achieving a proper strategic balance between trust and management control with one's business partners'* from this research, Fincham and Rhodes (1999) in the USA and Johnston et al. (2004) in Canada find that a balance between control and trust is important for successful outsourcing businesses. Insufficient control can lead to quality problems and opportunism, whereas too much control may increase management costs and damage business relationships. This coincides with the findings of Langfield-Smith and Smith (2003) that in order to facilitate a long-term relationship between purchasing companies and suppliers, a correct strategic balance between control and trust is necessary.

The above comparisons support the present research in context with other empirical studies of outsourcing between various countries.

8.4 Support for thesis arguments

The following three thesis arguments in this research are listed in Chapter 3. The support for each argument is now stated by the research results.

8.4.1 Support for the first thesis argument

The first argument is *'International outsourcing can achieve significant cost savings on production and service. However, new problems are generated from the inter-firm relationships. In addition, many companies achieve less cost savings than anticipated in their initial plans'*.

Argument one proposes firstly that *'International outsourcing can achieve significant cost savings on production and service'*. According to the findings in Table 5.8, the average percentage of actual achieved cost savings is 20 per cent. Four companies achieve more than 40 per cent of production cost savings. These are highly significant results and, therefore, this part of the first argument is supported.

Argument one proposes secondly that *'New problems are generated from the inter-firm relationships'*. From Table 5.5, rows 1 to 8, the data have an average mean higher than three, meaning that the 51 sample companies agree that on average there are significant inter-firm business problems in outsourcing practices. The results of findings from the questionnaires and interviews are listed in sections 8.1.3 and 8.1.4. In addition, from the case study findings in Table 7.2 there are four to five agreements for the first five rows of the statements. Thus this part of the argument is highly supported.

Argument one proposes thirdly that *'In addition, many companies achieve less cost savings than anticipated in their initial plans'*. According to the findings in Table 5.8, the average percentage of planned production cost savings goal was 28%. However, the average percentage of actual achieved cost savings is only 20%. On average, these companies achieve only 71% of the cost savings compared to their initial plans. Therefore, this part of the argument is highly supported. Combining

these three statements it is clear that the thesis argument is supported by the empirical evidence.

8.4.2 Support for the second thesis argument

The second argument is that *‘The solutions for outsourcing problems include strong control such as sending staff to visit factories of business partners, hiring third party quality inspectors, and changing payment terms. The solutions also include improving communication levels such as setting up offices in China, employing bilingual staff, and having more transparency on company data for business partners’*.

The first part of the second argument proposes that *‘Solutions for outsourcing problems include strong controls such as sending staff to visit factories of business partners, hiring third party quality inspectors, and changing payment terms’*. From the findings in Table 5.6 (row 2) ‘increasing management control over our business partners, for example, by monitoring production and/or hiring quality inspection agents’, the mean is 3.7. Row 4 states: ‘withhold part of the payment until receipt of goods and satisfaction with product quality’. The mean is 3.4. In addition, Table 7.12 (row 5) ‘strong control (for example, visits, face-to-face-talks, quality inspections and auditing) is mentioned by four interviewees. Therefore, both the questionnaire survey and interview records support this part of the argument.

The second argument states secondly that *‘The solutions also include improving communication level such as setting up offices in China, employing bilingual staff, and having more transparency on company data for business partners’*. The survey findings in Table 5.6 (row 1), ‘increasing communication level with business partners by, for example, hiring liaison persons and bilingual staff’ has the mean of 3.9. In addition, Table 7.3 (row 2) indicates that ‘increasing communication level, visiting, meeting, training’ is mentioned by five interviewees as the highest score in the interview records. Furthermore, Table 7.4 (row 2), the statement of ‘Increase levels of trust, share data, higher level of transparency on operations and policies’ is mentioned by four interviewees. Therefore, both questionnaire survey and interview records support this part of the argument. The second argument, therefore, is supported.

8.4.3 Support for the third thesis argument

The third argument is: *'To ensure the success in outsourcing to China, the important business success factors are specifying quality and service standards in contracts and managing the handover process well; achieving a proper strategic balance between trust and management; controlling one's business partners; reviewing and measuring performance to evaluate the stability of offshore business relationships'*. The following is supported by the research results.

The third argument states, firstly: *'To ensure the success in outsourcing to China, the important business success factors are specifying quality and service standards in contracts and managing the handover process well'*. According to the findings from Table 5.7 (row 1): 'specify quality and service standards in contracts and manage the handover process well', the mean is 4.1. In addition, the interview records show that 'Specify quality and service standards in contracts and provide good management of handover processes' is mentioned by five interviewees in eight interviews, which is the highest score. This part of the argument is highly supported by both the questionnaire survey and interview records.

The third argument proposes, secondly: *'achieving a proper strategic balance between trust and management'*. The findings in Table 5.7 (row 3): 'Achieve a proper strategic balance between trust and management control with our business partners' has good support with a mean of 3.9. However, in Table 7.16, this is mentioned by only one interviewee indicating that this is supported by the findings from the questionnaire but not highly supported by the interview records.

The third argument proposes, thirdly: *'controlling one's business partners'*. In Table 5.6 (row 2): 'increasing management control over our business partners, for example, by monitoring production and/or hiring quality inspection agents' has the mean of 3.7. In addition, Table 7.13 (row 1): 'increasing management control over our business partners (for example, by monitoring production and hiring quality inspection agents)' has the mean of 3.7. However, in the interview records, this is mentioned by only three interviewees. This part of the argument is strongly supported by the findings from questionnaires, but is only moderately supported by the findings from interview records.

The third argument proposes, fourthly: *‘reviewing and measuring performance to evaluate the stability of offshore business relationships’*. In Table 5.7 (row 5), ‘review and measure performance to evaluate the stability of offshore business relationships’ has the mean of 3.7. However, only Company Three in case studies emphasises the performance management and maintains stability, which supports this statement. Therefore, this part of the argument is mainly supported by the findings from the questionnaires, but is only somewhat supported by the interview records. This is because some interviewed companies focus only on the short-term, buy-and-sell relationship.

Thus, the second and third parts of the third argument are not highly supported by the findings from the interview records. In addition, the fourth part of the third argument cannot be supported by the interview records. Other than these, the other parts of the three arguments are supported by both findings from questionnaires and interview records.

8.5 Summary

In summary, this chapter presents discussions of the research results from the findings in the questionnaires and the interview records. Then the results are used to verify the propositions, answer the research questions and support the thesis arguments. The next chapter responds to the aims of this research, summarises the newfound knowledge, points out the limitations of this research and suggests some areas for further study. Responses to the aims of this research and the conclusion of the thesis are then made in Chapter 9.

Chapter 9

Research summary and conclusions

In this chapter, section 9.1 summarises the research process in response to the research aims stated in Chapter 1. Section 9.2 presents the conclusions of the findings which include the main outsourcing problems and related solutions to such problems in interviews, and points out the significance of these findings. Section 9.3 presents contributions to knowledge. Section 9.4 explains the limitations of this research. Section 9.5 suggests some areas for further research.

9.1 Research process in response to the aims of this study

In fulfilling the research aims, this section reviews the processes used to reach the conclusions drawn from the discussion chapter. First, a review of literature focusing on manufacturing strategies, TCE, MCS and trust, advantages and disadvantages of outsourcing, solutions to problems and key business success factors. Three knowledge gaps were identified from the review (see Chapter 2). Second, based on the review and the gaps found, three research questions were developed (see sections 1.6 & 3.3) and a conceptual framework was established (see Chapter 3). Third, a methodology and a research design were established (see Chapters 3 & 4) to achieve the aims. Following these, a survey questionnaire was developed and mailed to potential participants resulting in 51 survey responses. Next, eight face-to-face interviews were conducted and built, with other information, into cases. The survey data were then statistically analysed (see Chapter 5), and within and cross-case qualitative analysis were conducted (see Chapter 7). The findings were then compared with other research outlined in the literature review (see Chapter 8). Verification of the propositions against the findings in the interview records was recorded in sections 8.2. Accordingly, the research questions were answered with the evidence from the findings of both questionnaires and case studies. Thus the thesis arguments have been supported by the research findings with answers to the

research questions in fulfilment of the aims of this research. The following section draws the significant conclusions of this study.

9.2 Conclusions of findings

Several significant findings have arisen from the research. These include the types of outsourcing, cost savings achieved, intellectual property rights, product quality, transaction costs, communication, trust, solutions to problems and business success factors. Some findings are compared with other outsourcing research in other countries such as UK and the USA.

Products outsourced by the sample companies of this research covered a broad range. The largest category is household goods, followed by home electrical items and textiles/clothing/garments. Others include aircraft components, auto components, satellite communication products, chemicals, steel products, software, micro labels, plastic glasses, and water treatment equipment.

Types of components outsourced were mostly labour intensive, non-core parts of production with only a few being involved in high technology or capital-intensive manufacture. Overall outsourcing was found to involve a range of activities, from import only to owner built factories and joint venture factories overseas.

The mean length of time found in outsourcing to China was nine years, which is short when compared with some companies in Hong Kong, Taiwan and the USA. This may reflect a conservative attitude towards foreign trade in the sample companies.

In this study, the motivations for outsourcing to China were found to be primarily to take advantage of lower labour and other production costs. These companies were able to achieve twenty per cent of net cost savings on average after transaction costs. Most companies only imported components and finished products, with a few having their own factories and joint ventures in China. Outsourcing

manufactured components and finished products to China was recognised as the correct strategy for manufacturing restructure in all cases researched.

The main problems identified in both questionnaires and interview responses associated with outsourcing to China included the risks of loss of confidential information and intellectual property; low product quality, technological levels and quality standards in China; and high transaction costs, such as overloaded management in the setting up and managing overseas production. However, although these problems reduced the benefits of outsourcing and became risks for purchasing companies, all sample companies in the eight case studies were keen to continue their outsourcing businesses and seek suitable solutions. They were also looking for business success factors that helped achieve sustainable development in outsourcing.

Both management control and trust with business partners were found to be important, as well as the balance of these two. Insufficient control was found to lead to opportunism and other problems, whereas tough control and distrust of suppliers led to higher transaction and reset up costs.

Most sample companies were found to have strong concerns about core technologies and intellectual property rights. In agreement with the literature review, the problem of leakages of these two elements was found to be a significant issue in both questionnaire and interview findings. In addressing these problems, sample companies were found to either keep the core parts of their production within their own companies, or outsource them to other Western countries such as Germany and Canada – mainly to avoid suppliers in China replicating products in the suppliers' own brands. With regard to poor product quality, low technological levels and low quality standards, solutions presented included helping suppliers to improve, changing suppliers, keeping high technology parts of production in house, or outsourcing to other Western countries. High transaction costs were the main reason that sample companies achieved only 71 per cent of their predicted cost savings, with main solutions including increased communication and trust levels, and the reduction of management work.

The main solutions to the above problems encountered by participants were to increase both trust and the management control levels with suppliers using the tactic of withholding part of the payments until goods are received and product quality approved. Other solutions included the increase levels of communication (for example, hiring bilingual staff) and trust, the increase of management control, and the outsourcing of only non-core components.

After conducting correlation and t tests, some significant results have been found regarding the correlations between variables of outsourcing problems, solutions and business success factors and some significantly different answers provided by the participants. Firstly, seven pairs of variables of business problems are highly correlated. They are related problems which are summarised in Table 5.9. High correlations are found between 'Violations of intellectual property rights' and 'Loss of organisation's confidential information', these two variables are combined into one. No high correlation was found between variables of solutions and business success factors. They are independent variables.

T test results show that there are no significant differences between the pair samples of business problems. There are significant differences between three pair samples of possible solutions which are summarised in Table 5.13. There are significant differences between five pair samples of business success factors which are summarised in Table 5.14.

By reviewing the eight case studies, the problems and related solutions mentioned by the interviewees are matched in Table 9.4 in next page.

Table 9.1 Main outsourcing and other problems and related solutions in interview records

Problems	Related solutions
Product quality, technological level and quality standards are not high enough in China	Strong control, hire third party agents to do inspections, quality inspections prior to shipment, withhold part of payment until receipt of goods with satisfactory quality, audit quality and require suppliers to remake of defective products, specify quality and service standards in contracts, and monitor management of handover process, using different products in Australia and China, outsourcing high tech parts to Western countries. Increase communication level, visit, training, routine quality audit, change suppliers within China or move to other countries
Risk of losing confidential information and intellectual property	Control know-how, outsource only non-core components and retain core technologies, outsource components to many different suppliers, maintain final assembly in-house. keep sources of components secret when assembled by suppliers
Language barrier, cultural differences and communication issues	Increase communication levels, hire bilingual staff, translate product specifications into Chinese, understand/tolerate cultural and other differences
High transaction costs, and overload of management work in setting up and managing production	Set up office/factory in China, carefully select business partners, use correct methods and levels of control, monitor production
Delay in production and shipments	Strong control, change to other suppliers in China or move to other countries
Difficult to find or retain suppliers when contracting volume is low	Offer more contracts in future, pay higher deposit for low volume contracts
Inexperienced managers and unskilled labour, poor management work	Increase control, provide skills training and workshops, conduct quality inspection prior to shipment
High cost of tooling investment	Invest and own tooling for use in suppliers' factories
Bureaucracy, unclear government policies and import quotas in China	Rely on local suppliers to deal with local governments in China, gain local support
Contracts cannot be fulfilled, prices were increased after contracts signed	Increase control, set up office in Hong Kong, develop a framework and use it
Loss of supplies due to financial crisis	Provide financial assistance and production help, change to other suppliers within China
High costs in major cities and in southern China	Change to other suppliers within China and keep some contracts in the south
No payment or long-delayed payments	Pay suppliers after receiving payments from customers, accept only sight drafts or short payment terms, require deposits, go to arbitration
Suppliers sub-contract without approval	Change to other suppliers within China, monitor production
High lock-in and re-set-up costs	Careful selection of business partners, work hard to maintain good relationships
High staff turnover of suppliers	Using own staff in China office to provide skill training and workshops to suppliers
Misunderstanding of new product specifications	Increase communication levels, hire bilingual staff, translate product specifications into Chinese
Risk of foreign exchange rate fluctuating is high	Pay RMB within China to avoid the risk of foreign exchange rate, use adjustment terms in contracts
Loss of sales market	Keep customers' information secret

The same solutions can apply to more than one problem. For example, ‘strong control’ can apply to the problems of ‘product quality’ and ‘delay in production and shipments’. Furthermore, each problem there can be more than one solution (see case studies in Chapter 6).

The key business success factors recommended by participants include good preparation and planning well before the outsourcing takes place. This shows that companies in Australia have realised that planning well prior to outsourcing helps achieve cost savings goals. Other success factors include specifying quality and service standards and carefully managing handover processes, sharing information, achieving a strategic balance between trust and management control, establishing offices, and hiring staff in China. In addition, increasing levels of trust, for example, by sharing data information, and ensuring high level of transparency in policies and operations on both sides. Furthermore, the fact that ‘T/T’ payment term was used by all eight companies interviewed and ‘L/C’ was only used by three of them shows that these companies have developed certain levels of trust.

Most sample companies were found still have low levels of outsourcing at this time, and they have not yet entered into total solutions for manufacturing restructure: only outsourcing some non-core components and purchasing finished products. Exceptions were that Company Two had a joint venture factory in China, and Company One outsourced almost its entire production to China. Some of the sample companies did not want to enter into China’s market, but only wanted to conduct import/export businesses. Some had no plan or had not yet established offices in China due to concerns about the risks of investment, operational sizes and costs, lock-in costs, and levels of manufacturing restructure.

Compared to some large companies in the USA and Europe, sample companies in this study were smaller. This factor put them at a relative disadvantage in negotiations with large suppliers in China, because those suppliers wanted a larger volume of production in order to achieve economies of scale. For example,

Company Four sometimes paid up to one hundred per cent of the deposit when signing contracts in order to gain an advantage when negotiating with suppliers.

In comparing findings in this study with the reviewed literature, some similarities in outsourcing business from Australia to China and outsourcing between other countries were found (see Chapter 8) as following.

Firstly, with regard to the findings of *'specifying quality and service standards in contracts and managing the handover process well'* from this research, the other research in the literature shows agreement. For example, Langfield-Smith et al. (2000) find that factors including adequately specifying contracts can be revised over time and developing relationships that go beyond contractual obligations. In addition, Preston (2004) in the USA points out the need to identify processes and activities in host countries. Furthermore, P A Consulting Group (1996) in the USA points out that those outsourcing contracts need clear specifications so that activities can be well defined. These specifications include clear definitions of the roles and responsibilities of both sides, and terms for effective monitoring of suppliers.

Secondly, with regard to the factor of *'increasing levels of trust'* found within this research, other research in the literature points out the need for the development of strategic, trusting and cooperative relationships. Ellram et al, (2008) point out that these methods normally use random customer satisfaction surveys, internal consultants and benchmarks to develop trust and cooperative relationships. In addition, Langfield-Smith et al. (2000) consider that the other side of control is trust. For higher levels of trust, more reliance is necessary in formal and indirect control mechanisms. Furthermore, Li et al. (2007) and Qu and Brocklehurst (2003) find that trust is highly important for doing business in China, whereas the control level is adjustable because people prefer trust rather than control. If people do not feel they are being trusted then business relationships will suffer.

Thirdly, for the factor of *'reviewing and measuring performance to evaluate the stability of offshore business relationships'* from this research, Burdon and Bhalla (2005) in their study in Australia and New Zealand identify four key success factors for correct designs of contract style and management control systems, managing innovation, managing relationships and managing workforce are ways in which

managers can best achieve their outsourcing benefits. Langfield-Smith et al. (2000) conclude that new management skills are required in many areas such as communication, negotiation and inter-firm skills for outsourcing relationships.

Fourthly, for the factor of '*achieving a proper strategic balance between trust and management control with one's business partners*' from this research, Fincham and Rhodes (1999) in the USA and Johnston et al. (2004) in Canada find that a balance between control and trust is important for successful outsourcing businesses. Insufficient control can lead to quality problems and opportunism, whereas too much control may increase management costs and damage business relationships. This coincides with the findings of Langfield-Smith and Smith (2003) that in order to facilitate a long-term relationship between purchasing companies and suppliers, a correct strategic balance between control and trust is necessary.

9.3 Contributions to knowledge

This research is novel because few studies have focused on organisational level outsourcing relationships between companies in Australia and China, despite China being Australia's biggest trading partner. This work extends knowledge by using applied research to provide new evidence into the problems, solutions, and business success factors found in outsourcing components and finished products to China.

9.3.1 Research results

Using data collected through both survey questionnaires and interviews in which Australian managers provided valuable opinions towards the research subject, this research achieves significant findings that answer to the research questions (see section 9.2). The business problems generated in outsourcing relationships, the solutions to problems found, and the business success factors identified all add to knowledge in the field of manufacturing strategy. The research results have provided some examples to explain some international trade phenomena.

These results show that outsourcing to China can achieve significant cost savings and other benefits. However, due to the extension of supply chains, some new inter-firm business problems are generated. On average, the sample companies cannot fully achieve their initial cost saving goals. Although the risks of outsourcing are significant, none of the sample companies plans to withdraw from outsourcing to China. The problems encountered, the solutions used and the business success factors identified have some things in common but there are also differences between companies. There is no one general solution for all sample companies. Their decisions of make-or-buy, levels of manufacturing restructure and management style vary according to companies, suppliers and business environments.

9.3.2 Achieving cost savings

Production and purchasing cost savings are the primary motivation of outsourcing to China. However, this research provides empirical evidence of how transaction costs significantly reduce such cost savings. Transaction cost economics is one theory which explains why some purchasing companies do not achieve their full production cost saving goals, and gain much less savings than expected when just comparing domestic labour and other production costs with those available in offshore operations. On average, sample companies achieve only 71 per cent cost savings compared to initial planning, mainly due to transaction costs being more significant in overseas operations (see section 9.2).

9.3.3 Filling the research gaps

Both questionnaire and case study findings in this research provide evidence that fill gaps in the available knowledge about management of outsourcing relationships between companies in Australia and China, the risks and problems of outsourcing manufacturing products, and company-level management control systems for inter-firm outsourcing relationships and ongoing management.

This research places its main emphasis on providing detailed information of the three research elements of problems, solutions and business success factors of inter-firm manufacturing outsourcing relationships between Australia and China. These results add knowledge to the area of outsourcing as an extension of supply chains,

and show that outsourcing manufactured components and finished products to China is a correct strategy in general, although not every company can fully achieve its cost saving goal.

9.4 Contributions to practices

This research provides an example of outsourcing used as a strategy in manufacturing restructure, mainly based on six case studies. It finds that the sample companies have engaged in several types of outsourcing for manufacturing restructuring. The lowest level is direct purchasing of components and finished products from China instead of own production or sourcing within Australia. Although many of these companies conduct offshore sourcing to save production and purchasing costs, but they neither plan to enter China's market, nor to invest there. This indicates that many sample companies are still at a lower level of manufacturing restructure and have not entered a 'total solution' level. Higher levels of restructuring include contracting out whole products and providing designs, technology and production specifications to suppliers to replicate products, with some creating joint ventures or building their own factories in China. In addition, some finished products are assembled by suppliers in China and shipped to Australia or direct to other overseas customers in order to achieve further savings in shipments. Outsourcing therefore has become an important supply chain strategy for manufacturing restructure in these six case studies.

The research results show that purchasing companies can achieve on average 71 per cent of cost saving comparing to their initial plans. Although most companies cannot fully achieve their cost saving goals, none of the companies in the case studies plans to withdraw sourcing operations from China. They all look for ways to solve the problems, which are summarised in Table 9.1.

In conclusion, the research results from questionnaire survey of 51 companies and eight case studies have provided a significant reference for further research. These findings can be used to assist manufacturers in making strategic and operational decisions to improve their outsourcing practices from Australia to China.

9.5 Limitations of this research

Although this research provides a window of information about outsourcing from Australia to China, generalisation to all outsourcing business is limited as findings are based solely on the samples of the survey questionnaire and the case studies.

First, its sample size comprised of only 51 questionnaires and eight case studies. Although this number can be considered large for statistical model test purposes (Mason et al., 1999) and the participants are believed to be representative samples, the number is still too small to generalise. This was constrained by being the only method of data collection available to the researcher at the time. The low response rate might be a result in that the name list was mainly from a public source, for example, Australian Stock Exchange and some companies' websites. The names were their chairpersons and CEOs. The post/mailed questionnaires might be discarded by their secretaries. It would be better that the names of purchasing managers and operations managers could be found. In addition, the response rate would be higher if the questionnaires were distributed by a professional body/organisation to its members. Furthermore, follow up phone calls, extra reminder emails/letters and visiting premises could increase the response rate.

Second, for the eight case studies, due to the limited time of interviews and the lack of complete information sources of the eight companies investigated, information describing their businesses is not exhaustive. Therefore, results of these case studies and the particular combinations of industries do not provide a complete conclusion to the subject.

Thirdly, most of the samples were limited to companies, located in the states of Victoria and New South Wales in Australia, which conduct manufacturing outsourcing to China. Whilst the results provide some implications for the main manufacturing locations in Australia and for all developed countries outsourcing to China, case results may not apply to all outsourcing practices of other states in Australia and other large countries such as the USA.

Lastly, this research covers only outsourcing for manufacturing in China and import/export of merchandise with companies in China. Therefore, the findings are not applicable to service industries such as ICT.

9.6 Suggested areas for further study

Findings from this research suggest a few areas for future research. These include a more detailed study of the benefits and risks of offshore outsourcing from Australia to China with a larger, more representative sample size. In addition, how outsourcing production fits into the overall supply chain for particular types of industry could be a useful study. A further manufacturing strategy framework could address more details about the gap between company level management control systems for inter-firm outsourcing relationships and the ongoing management identified in literature. The impact of transaction costs on a wider range of international outsourcing is also a useful subject for future study. Furthermore, the current high profile of Chinese-made product recalls due to quality and safety failures and its negative impact on trade could be a significant issue to research. Finally, the impact of increasing labour costs and environment control costs in China, the movement of manufacturing industries from the southeast coast to the inland of China, and increasing trends of the Chinese currency against the US dollar affecting outsourcing businesses could be a worthwhile research to build on the findings of this study.

This chapter has provided an overview of how the content of this thesis has achieved the aims of this study. The key points of the research have led to some significant conclusions. Contributions to knowledge provide a practical basis to assist researchers and manufacturing managers in the field. Finally, the limitations of this research and areas for further study are pointed out.

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