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**Interfirm Alliance Linkages and Knowledge Transfer:
An Exploratory Analysis of Mutual Cooperative
Learning in an International Joint Venture
in the Chinese Automotive Industry**

**A thesis
submitted in fulfilment of the requirements for the
Degree of Doctor of Philosophy
in International Management**

**by
Qiang (Ken) Ding
The University of Waikato
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Abstract

The purpose of this thesis is to extend existing knowledge in interfirm knowledge transfer research and provide a rich description of the dynamic knowledge transfer process in alliance arrangements. An exploratory case study methodology is employed, and one international joint venture (IJV) project is investigated. The empirical evidence was derived from the researcher's involvement with one auto IJV – Shanghai GM, an IJV formed between Shanghai Automotive Industry Corporation (SAIC) from P.R. China and General Motors (GM) from the United States. Data collection was conducted through primary and secondary sources including fieldwork interviews with Chinese and American executives respectively in the IJV, selected published sources as well as government officials, and consultants who were directly or indirectly involved with the case companies.

Using CATPAC software as an analytical tool for textual analysis of the collected data, the following findings emerged. First, partner firms in Shanghai-GM reinforce the development of international cooperation as a means of increasing knowledge exchange and adaptation, such as enlarging the product ranges, and developing new car models. Second, partner firms are motivated to increase their knowledge transfer activities to increase competitive advantage levels to match or exceed those of other competitors. Both partner companies initially contributed differentiated sets of idiosyncratic and nonsubstitutable resources that are distinctively under the control of each partner. The Chinese side brings in locally embedded resources and country-specific knowledge. The foreign side contributes technology, managerial abilities, brand image, and financial resources. There is thus an asymmetrical relationship between the objectives of partners and the resources brought into the alliance: each partner firm tries to gain access to what the other puts into the joint venture. Third, relevant important preconditions and situational factors regarding knowledge transfer effectiveness in alliance context are also mentioned. Certain elements are identified as a critical barrier during the process. Fourth, IJV knowledge transfer actually occurred over a longitudinal period involving intensive interactions between the partners. Different types of knowledge were transferred over time starting with key technologies, management skills, followed by the tacit social and cultural knowledge. As time passed, both partner firms demonstrated effort and commitment in facilitating interfirm knowledge transfer practices. The IJV knowledge transfer performance finally influenced the nature of the interfirm partnership.

This thesis provides a unique example which looks at the two-way learning processes for true knowledge creation and sharing in a cross-border collaborative organisation, demonstrating the performance of partner organisations in the process of IJV knowledge transfer. Based on literature reflections, tangible facts and interpretations, this thesis provides a deeper understanding of the organisational activities involving cooperation and the dynamic knowledge transfer routines, which is a significant extension of past static cross-sectional conceptualisations. This thesis also proposes an interfirm knowledge transfer and cooperative learning framework, which is emphasised that the issue of sharing knowledge in IJVs and bringing IJVs into profitability requires partner companies to engage in interpartner learning and to be able to benefit from the transfer of knowledge. A key implication for the firm, therefore, is the critical ability to deal effectively and efficiently with the transfer of knowledge resources and in so doing to gain a competitive advantage.

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List of Abbreviations

- APEC: Asia-Pacific Economic Cooperation
- CAAM: China Association of Automobile Manufactures
- CAV: Compact Activity Vehicle
- FDI: Foreign Direct Investment
- GDP: Gross Domestic Product
- GM: General Motors
- HR: Human Resource
- IB: International Business
- IFDI: Inward Foreign Direct Investment
- IJV/JV(s): International Joint Venture(s)/Joint Venture(s)
- ISAs: International Strategic Alliances
- ISO: International Organisation for Standardisation
- M&A: Mergers and Acquisitions
- MNEs: Multinational Enterprises
- MOFTEC: the Ministry of Foreign Trade and Economic Cooperation (P.R. China)
- MQA: Material Quality Assurance
- NPC: National Party Congress (P.R. China)
- OEM: Original Equipment Manufacturer
- OVMs: Original Vehicle Manufacturers
- RMB: Renminbi (Chinese currency)
- R&D: Research and Development
- SABIC: the State Administrative Bureau for Industry and Commerce (P.R. China)
- SAIC: Shanghai Automotive Industry Corporation
- SETC: the State Economic and Trade Commission (P.R. China)
- SEZs: Special Economic Zones
- SGM: Shanghai General Motors Corporation
- SOEs: State-owned Enterprises
- SUV: Sport Utility Vehicle
- TQM: Total Quality Management
- WOFEs: Wholly-owned Foreign Enterprises
- WTO: World Trade Organisation

Chapter 1 Introduction and Overview

1.1 Introduction

With the emergence of the knowledge economy, knowledge is rapidly being recognised as a critical resource. In many firms, knowledge is now considered to be as important as strategic capital and critical assets (Nonaka, 1994). Such assets can ever become useful in accordance with an organisation's strategic goals (Davidson & Voss, 2002). It should be clear that organisations will increasingly rely on knowledge for survival and competitive advantage, and that knowledge development provides the key tool for achieving this end. In this regard, initiating a knowledge transfer strategy is all about achieving competitive advantage, and knowledge transfer is very much about organisational performance (Boisot, 1995; Ding, Akoorie, & Pavlovich, 2009a, 2009b).

Under the pressures and stimulus of seeking new knowledge resources, including technology and managerial techniques, business firms are likely to be working together to jointly accumulate complementary knowledge resources (Hyder & Abraha, 2003). Various researchers such as Bradley (1999) and Kotler (1997) also support the notion that competition is becoming fierce and complex both in the domestic and international markets which makes firms' operations more uncertain and risky; thus it could be impossible for a single firm to hold all of the required capabilities and knowledge to successfully pursue the targets of business. In addition, firms are also seeking to jointly develop new knowledge and find other new technological and managerial techniques to reduce the uncertainties and risks related to products or technological development.

This chapter aims to present an overview in terms of interpartner knowledge transfer research. It begins by describing the origins of interorganisational knowledge transfer in alliances (in section 1.2). This description is followed by section 1.3 which outlines the research objectives and questions. The

methodology and specific research techniques are summarised in section 1.4. Research contributions of the study are mentioned in section 1.5. Section 1.6 discusses research limitations. The structure of the thesis is explained in section 1.7.

1.2 Rationale and Background of the Study

Global competitiveness of a firm is largely a function of the pace, efficiency and extent of its knowledge accumulation (Easterby-Smith, Lyles, & Tsang, 2008; Yan & Luo, 2001). According to the resource/knowledge-based theory of the firm (RBT/KBT), knowledge has the greatest potential for providing sustainable competitive advantage (SCA) for the firm (Barney & Clark, 2007; Davenport & Prusak, 1998; Doz, Santos, & Williamson, 2001; Grant, 1996; Inkpen & Ramaswamy, 2006; Kogut & Zander, 1992; Kumar, Cyert, & Williams, 1993; Schulz, 2001). At the core of the theoretical argument is the idea that valuable, rare, and imperfectly imitable resources are the key to maintain SCA which brings about positive abnormal returns (Barney & Clark, 2007).

However, few companies hold all of the necessary resources for obtaining positive abnormal returns in the current uncertain and complex markets (Schulz, 2001), firms thus increasingly specialise in and co-ordinate their external knowledge resources (e.g., Ding et al., 2009a, 2009b; Easterby-Smith et al., 2008; Inkpen, 1998; Milgrom & Roberts, 1992; Spender & Grant, 1996; Teece, 1998; Yan & Luo, 2001). They also need to give more thought to various ways of accessing the necessary resources in order to survive – a trend that has become particularly strong as a result of globalisation over the past decade (Iles & Yolles, 2002).

Firms can gain access to knowledge resources by entering into interorganisational cooperative arrangements (Drucker, 1995; Hamel, Doz, & Prahalad, 1989; Milgrom & Roberts, 1992). The most well-known cooperative arrangements are strategic alliances and joint ventures. Akoorie and Scott-Kennel (2005) define a strategic alliance as “a cooperative contractual agreement between firms, which does not usually involve equity participation or ownership” (p. 245). In contrast, “a joint venture usually involves equity contributions by participants” (Akoorie & Scott-Kennel, 2005, p. 245-246). In other words, a new company is

formed using resource contributions from both cooperating firms. While many authors do not classify these separately, the key point of differentiation is whether or not an equity (investment capital giving ownership rights) investment occurs, and whether or not a separate legal entity is formed¹.

Knowledge transfer and organisational learning are one of the important motives in interfirm cooperative arrangements, and the term “learning alliances” has been coined to designate associations in which the primary objective of the partner firm is to learn knowledge (Khanna, Gulati, & Nohria, 1998). In a learning alliance, the transfer and creation of new knowledge should be seen as central to the work of all parts of the business, not the exclusive province of a research and development department (Denton, 1998). The ability to take knowledge from other organisations or other parts of the organisation and learn from what they are doing is an important task.

Yoshino and Rangan (1995) go so far as to argue that the implicit strategic objective for every firm that becomes involved in an alliance is “learning”. In other words, cooperative partners can become sources of knowledge with potential for utilisation elsewhere in the alliance; partner firms are dependent on the alliance for knowledge and other types of resources (Ding et al., 2009a, 2009b). By collaborating with partners, the firm (either knowledge contributor or recipient firm) can build a spearhead at lower set-up cost and can reduce operating difficulties and costs, thereby increasing the chances of success. In addition, firms can realise synergies through resources combination, risk-spreading, and increased market power while adopting joint venturing (Harrigan, 1984).

In particular, alliances established in transitional economies provide local partners with capital and critical know-how about manufacturing, technological expertise, marketing, and managing in a competitive marketplace (Griffith,

¹ Some scholars, for example Yan and Luo (2001), even argue a joint venture is often regarded as a specific form of strategic alliances. In order to avoid confusion in this thesis, therefore, the researcher has adopted the term ‘interfirm cooperative arrangements’ to encompass the wide variety of alliance/JV phenomena.

Zeybek, & O'Brien, 2001). Foreign partners can also access to new markets by leveraging their local partner's knowledge (Ding et al., 2009a, 2009b; Sharp & Barz, 1997), which may help reduce the risks. This situation is a shift from a single company's perspective to one where two or more companies share costs, risks and benefits, and access to new resources (Child & Faulkner, 1998).

The possibility of using interorganisational cooperative arrangements for accessing knowledge has been frequently discussed in the business press and in the academic literature over the last three decades (Ding et al., 2009a, 2009b; Inkpen, 1995; Lyles, 1987; Lyles & Gudergan, 2006). While there is a considerable amount of research on the overall interorganisational cooperation and knowledge transfer phenomenon, our understanding regarding the knowledge transfer process through cooperative arrangements is still far from complete (Ding et al., 2009b; Easterby-Smith et al., 2008; Eunni, Kasuganti, & Kos, 2006; Steensma & Lyles, 2000). Inkpen and Pien (2006) acknowledge that "although alliances learning has been the subject of much theorising, it remains empirically under-researched, and there have been few attempts to examine the actual process of transferring knowledge resources via alliances" (p. 779). Faems, Janssens and Looy (2007) also state "previous studies provide limited insights into the dynamics of interfirm knowledge transfer" (p. 1702).

Meanwhile, from the perspective of practical implications, although the benefits and importance of knowledge transfer in the alliances have long been realised, actions of knowledge transfer vary significantly in different alliances (Gupta & Govindarajan, 2000; Szulanski, 1996). Thus although there is nothing new about knowledge transfer *per se*, recognising it as a source of corporate success continues to challenge many organisations, and few companies realise the potential rewards of knowledge because they misunderstand what it is and what they need to learn from it (Buchel, Prange, Probst & Ruling, 1998).

The current research was initially inspired by the increased use of knowledge-driven cooperative strategies and their significance in the knowledge transfer process. The main purpose is to extend existing knowledge in the alliance learning area with respect to a particular industry setting – the Chinese automotive industry. The research seeks to describe, explain and illustrate a more detailed understanding of what, why and how learning takes place and knowledge is transferred.

The thesis is conducted in the following way. First, it encompasses a broad literature review, which provides a theoretical basis and then assesses what is already known about knowledge-driven cooperative arrangements. It addresses the central question regarding the modes of knowledge transfer activities and key factors influencing knowledge transfer in alliances.

Second, it presents methodological issues and research methods. The primary data collection procedures are carried out through a series of in-depth interviews in order to identify a variety of experiences and perspectives relevant to knowledge transfer issues and surrounding management decisions in the automotive industry in China.

Third, this thesis describes the evolution and ongoing process of the case companies, and demonstrates how the two companies can make judicious use of the cooperative IJV form. The thesis seeks to identify sources of change-driven IJV reconfigurations and the prompted shifts in interpartner knowledge transfer practices. The background for this case is the consolidation of the automobile industry in China, and the need for complementary knowledge (resources) integration for new product development, managerial understanding and interorganisational competitive advantage.

Fourth, in the pursuit of an understanding of common features and emerging themes, a process of textual analysis was then undertaken. This thesis presents the statistical results of the interview transcripts conducted for the study following the

CATPAC programme procedures, and thus explores many of the facets that create knowledge transfer tensions based on cooperative implementation.

This thesis also analyses the implications of knowledge transfer and learning practices in the case of IJVs, in compliance with the relevant theoretical framework and research model. The refined model presented in this thesis incorporates context issues and relevant mechanisms of the knowledge transfer process as an expression of learning which may be useful for organisations and managers that want to engage in knowledge transfer.

Based on current theoretical reflections, tangible facts, interpretations and experiences, this thesis concludes with the main findings of the study, its theoretical contributions, managerial implications, research limitations and areas for future research. The thesis regards alliances/IJVs as a category of organisations that provides a strong source for the construction of a model addressing the creation, sharing, and transferring of knowledge overall. This viewpoint sees the collaboration as a clear step to reduce risks of knowledge transfer by partner firms. This thesis typically suggests alliance partners need to improve their abilities and understanding to overcome partnership barriers which will have an impact on knowledge transfer outcomes.

1.3 Research Objectives and Questions

To address the research issues discussed above, drawing upon the insights provided by previous relevant studies and using IJVs as the research context, the research objectives are as follows:

- To review the literature on strategic alliances/IJVs, interfirm knowledge transfer and organisational learning;
- To provide in-depth case analysis regarding the process of knowledge transfer and learning;

- To examine possible influencing mechanisms on knowledge transfer in IJVs among partner firms and the IJV itself in order to improve future knowledge transfer strategies;
- To assist in the building of a theoretical model to integrate some core concepts relevant to interpartner knowledge transfer and learning evolution.

In light of the profile of research objectives, the research question of interest in this thesis is:

How does an IJV (the Shanghai-GM) conduct knowledge transfer and cooperative learning in the Chinese automobile industry?

Specifically, the researcher tries to explore the following research questions:

RQ1: What are the main motives in forming IJVs in China for partnering firms?

1a: Do the motives relate to knowledge transfer consideration and if so, how?

RQ2: How does knowledge transfer take place in IJVs on the part of partnering firms in connection with expectations and contributions of knowledge resources?

2a: How do the partnering firms cope with knowledge transfer opportunities and constraints?

RQ3: What are the relevant factors contributing to the overall knowledge transfer outcomes in IJVs?

3a: What and how do partners learn the knowledge from their cooperative experiences and business operations in the Chinese automotive industrial market? Here identification, explanation and thorough description of the events critical to the alliance development are specifically focused upon.

1.4 Research Methodology

Using empirical material gathered from the primary and secondary data collection, this thesis's research objectives required a research approach that would address the knowledge transfer issues in alliances/IJVs, and a qualitative-oriented approach and case study method were considered to be suitable and appropriate (Parkhe, 1993a; Yin, 1994).

In this qualitative-oriented research, the in-depth case study method was employed to permit deep understanding of the key conceptual framework in knowledge transfer research. One of the methodological strengths of the case study method is that it accelerates rigorous theory development through the tracing of changes, which is evolutionary-stage appropriate, and is not limited to static assessments. This research followed the organisational learning research model as a research framework and also adopted semistructured interviewing procedures with executives in case companies for collecting empirical primary data. This method was complemented by archival secondary data to ensure the validity of the research.

The IJVs in the Chinese automotive industry provided the context for pursuit of the research objectives. The case evidence drew on the researcher's involvement and research participation with, and selected published sources on an auto IJV in China between Shanghai Automotive Industry Corp. (SAIC) and General Motors (GM). Although the parent company of the IJV – GM – eventually went through bankruptcy protection on Monday June 1st, 2009, the PhD thesis preparation during the past 5 years still demonstrated that this interfirm knowledge transfer in IJV cases is still valid. The case study covers a range of country and operating conditions, and brings important practical elements into the discussion of interfirm cooperation, knowledge transfer, and learning issues for improving firm competitiveness.

1.5 Research Contributions

This current research on the interorganisational knowledge transfer process is important in international business strategy research. This research seeks to make the following contributions to the existing literature.

First, it adds a resource-based view to examine the interorganisational knowledge transfer and learning process in joint ventures in a number of ways. The knowledge transfer in an IJV is a step-by-step process; and several key factors play an important role in the knowledge transfer process.

Second, the research suggests knowledge transfer and learning add value to the alliance activities, such as enhances responsiveness and/or problem-solving skills. Although not all business cooperations definitely provide same knowledge accessing opportunities, ineffective knowledge transfer will hinder the actual alliance performance.

Third, since most previous studies on the transfer of knowledge in IJVs in China have revolved around factors influencing the transferability and applicability of Western practices in the Chinese context, the thesis contributes to the literature by shedding some light on an important, yet less often addressed, issue – the knowledge transfer process itself.

1.6 Research Scope and Limitations

Because of the research's purpose and its nature, the present study is an interpretative, qualitative case study. The present need is for an in-depth understanding of knowledge transfer in IJVs. One case sample was studied in depth in order to conduct intensive research, and an engagement with a specific IJV offers an important opportunity in this respect. The research findings are preliminary, and the research seeks to provide insights into, rather than general understanding of, the interorganisational knowledge transfer and learning issues. By taking a multidimensional perspective, this research on knowledge transfer is

still at the exploratory phase; however, the research framework is derived from a diligent and detailed literature review and relevant emerging themes. This research thus brings us one step further toward filling the empirical gaps in our knowledge about “IJV learning” in an emerging economy, and highlights the necessities of acquiring knowledge resources for companies involved in international business expansion.

1.7 Structure of the Thesis

The thesis contains nine chapters outlined as follows:

Chapter 1 discusses the research background, and relevant research areas. This chapter thus provides a guideline for the whole study. The theoretical approach, adopted methodology and research contribution and scope are also mentioned in this chapter.

Chapter 2 draws upon available literature to consider knowledge transfer and learning which are applied to the specific context of alliances/IJVs. This chapter considers the research progress on certain international business theories upon which this thesis has been based. Relevant influencing factors and phases are also discussed. This chapter finally identifies the research gaps existing in the literature.

Chapter 3 presents a research model. The implications of this model are used to identify the categories and relationships regarding IJV knowledge transfer and learning issues.

Chapter 4 presents the research design for the thesis including the arguments about methodological and research method issues. It emphasises that the research is primarily qualitative in nature and examines data collection procedures and data analytical techniques.

Chapter 5 traces the features and transformation stages of global automobile industry. Certain historical backgrounds and industrial situations in different countries regions are described in details.

Chapter 6 evaluates the historical development path and the main contextual situations of the Chinese automotive industry, and here the general characteristics of Sino-foreign auto joint ventures are also reviewed.

Chapter 7 describes the backgrounds and motivations of the case companies, with relevant alliance development outlines and business operational situations.

Chapter 8 presents the research results using CATPAC software analysis. This chapter also discusses the research findings and draws together the research model that has been derived from applying the research framework.

Chapter 9 concludes the thesis by presenting the summaries of the findings, theoretical contributions, management implications, research limitations and future research directions.

Chapter 2 Literature Review

2.1 Introduction

As the thesis aims to examine interorganisational knowledge transfer in cooperative alliances, several major literature streams are reviewed in this chapter. The aim is not to give an exhaustive overview, but rather to highlight the theoretical foundation of this thesis. The main purpose is to extract suggestions and constructs from different perspectives in the literature that can be helpful in answering the research questions in the thesis. These literature reflections provide an overview on the growth of interorganisational knowledge transfer, by relying on alliances in the competitive and changing environment, to describe the research setting in which this thesis is positioned. This chapter also identifies the gaps in the existing literature when it comes to understanding the knowledge transfer phenomena in alliances.

This chapter begins by clarifying the concept of knowledge (in section 2.2) and knowledge transfer (in section 2.3) respectively; section 2.3.1 also demonstrates a simple form of knowledge transfer activities. Section 2.4 considers the conceptualisation of organisational learning (in section 2.4.1) and learning organisation (in section 2.4.2), and linkages between knowledge transfer and learning (in section 2.4.3). Section 2.5 emphasises the alliance context which is of the institutionalised knowledge-driven interorganisational cooperation form. Section 2.6 discusses the relevant theoretical explanations relating to alliance knowledge transfer. The stages of alliance knowledge transfer are shown in section 2.7. Relevant antecedent elements influencing knowledge transfer performance are then presented in section 2.8. The cross cultural consideration and the nature of equity-based alliance/IJVs are mentioned in section 2.9 and 2.10 respectively. These considerations lead to knowledge transfer strategy recognition and facilitation in section 2.11. A metaanalytic review and summary of

knowledge transfer studies, including methods and results, are identified in section 2.12, leading to research gaps identification in section 2.12.1 and specific research questions (RQs) in section 2.12.2. Chapter conclusions are offered in section 2.13.

2.2 Knowledge: Types and Characteristics

Knowledge has become a strategic asset, or, as Drucker (1993) puts it: “Knowledge is the only meaningful resource today” (p. 42). In most business situations, different areas of knowledge resources can be categorised into two types – explicit or implicit (Polanyi, 1958, 1966). Explicit knowledge (such as manuals and documents) is a part of human capital and can be acquired on the open market and bought according to need (Nonaka & Takeuchi, 1995; Polanyi, 1966). Explicit knowledge is often embedded in standardised procedures (Martin & Salomon, 2003) and, hence, can easily be written down and shared with others (Davidson & Voss, 2002; Nelson & Winter, 1982; Polanyi, 1966).

The second type of knowledge – implicit or tacit knowledge (such as values and procedures) – is a different matter as it cannot necessarily be clearly articulated in words or symbols (Lyles & Gudergan, 2006). Tacit knowledge typically originates from the nonstandardised and context-specific processes. Knowledge supporting an organisational or operational process is normally tacit and is arguably more valuable (Yan & Luo, 2001). It can be passed on only by the active involvement of each player (Buchel et al., 1998). Jonscher (2000) talks about how much tacit knowledge is required simply to communicate with another person, “you can believe that a conversation between two people is an extraordinary phenomenon that has so far defied all attempts to capture it” (p. 251).

Companies normally possess knowledge in both explicit and tacit form (Nelson & Winter, 1982). Generally speaking, quantifiable technological knowledge and related standardised procedures are more explicit and more easily understood (Martin & Salomon, 2003). By comparison, nonstandardised managerial expertise, marketing skills and organisational processes are more tacit than technological engineering and product development, and cannot be reverse-engineered easily (Salk & Simonin, 2003; Tsang, 2007; Zander & Kogut, 1995).

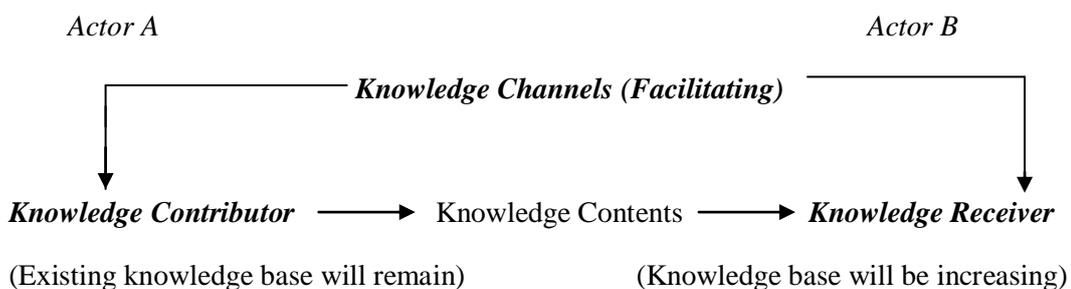
2.3 Knowledge Transfer

Knowledge transfer (KT) refers to “a process of exchanging knowledge resources, including information and skills, between two different but relevant actors (at the individual, group or organisation level) in a systematically organised way, so that competitive advantage can be improved” (Tsang, 2007; as cited in Ding et al., 2009b, p. 10).

2.3.1 A Typology of KT Communication Model

Figure 2.1 demonstrates a simplified typology of transmitting knowledge from *Actor A* to *Actor B* through facilitating channels.

Figure 2. 1 A Typology of Knowledge Transfer



Source: Ding et al., 2009b, p. 11

In this figure, knowledge actors (including knowledge contributor and knowledge receiver) refer to different institutions, groups or units, which have autonomy and freedom to choose whether or not to transfer knowledge (Albers, 2005; Ding et al., 2009b).

Knowledge contents include (1) know-what or information, which represents the more articulated knowledge resources, such as technical and functional knowledge; and (2) know-how, which is the practical skills or expertise accumulation (Ding et al., 2009b; Kogut & Zander, 1992). Although knowledge can be classified along different dimensions using various terms (such as the tacit/explicit as mentioned in the above section 2.2), researchers generally agree

that knowledge contents can be the integration of ideas, experience, intuition, skills, capabilities and lessons learned which may allow actors to complete tasks (e.g., Foss & Mahnke, 2003; Nonaka, 1994; Simonin, 1999a; Spender, 1996).

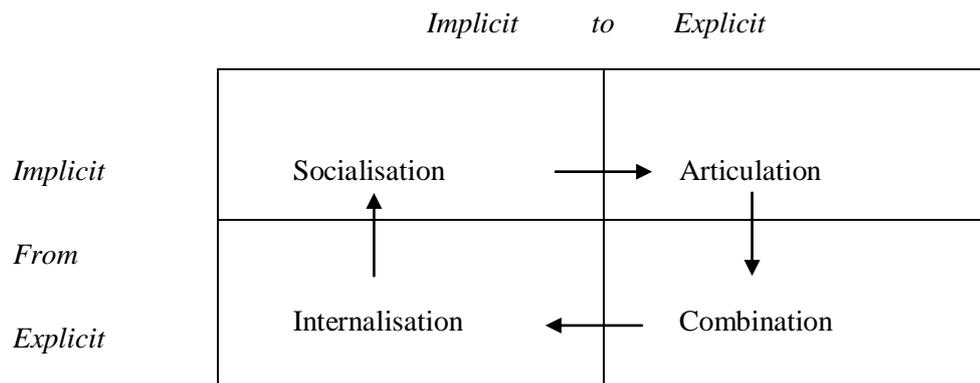
Knowledge transfer is linked with the coordination issues between the actors (Tsang, 2007). Figure 2.1 thus also underlines “Knowledge Channels”, which refer to interactive and communicative activities conducted between actors as a component of the knowledge transfer facilitating system (Ding et al., 2009b; Szulanski, 1999). On the one hand, knowledge transfer will be affected by the extent of coordination between the involved actors; on the other hand, actors can decide which KT activities are to be performed in which way (Ding et al., 2009b; Van Wijk, Jansen, & Lyles, 2008).

Ding et al. (2009b) conclude that “both actors can play a critical role in exchanging the knowledge, and the scope and results of KT could then be of benefit to both parties” (p. 12). From this figure, a knowledge receiver will experience an increase of its existing knowledge base, as the recipient did not possess this particular kind of knowledge before the transfer occurred; while a knowledge contributor will not be affected by the knowledge sharing actions and can continue to hold the knowledge resources after transferring the knowledge to the recipient (Ding et al., 2009b). Even if knowledge transfer failed, the level of the knowledge receiver’s knowledge base will remain unchanged.

2.3.2 Nonaka and Takeuchi's Model: The Spiral of Knowledge

Nonaka and Takeuchi (1995) provide the following model which shows different ways in which individual knowledge can be transferred and become collective knowledge; it embraces both implicit and explicit knowledge.

Figure 2. 2 The Knowledge Spiral Model



Source: Nonaka & Takeuchi (1995, p. 62).

The first stage occurs most readily through the process of *socialisation*. In the course of *socialisation*, knowledge possessed by individuals must be made accessible to others. Knowledge that is subjective or difficult to articulate can be transferred without being made explicit, that is through “learning-by-doing”. In this first phase, individual learning has not yet been transferred to a large group or generally communicated within the company.

The second phase in the transfer process is to communicate the experiences of the individual to a larger circle of people. Nonaka (1991) calls this *articulation*. It constitutes a quantum leap; knowledge is no longer traceable to particular individuals, but has gained an independent quality through the process of articulation and collective discussion. This process also makes the knowledge easier to store and transfer.

In the third phase, previously articulated knowledge is standardised and combined with other knowledge to produce new solutions – *combination*. This

transfer happens, for instance, if routines are developed, and perhaps partly formulated in writing. The knowledge then becomes available to many people.

If in the course of further development new strategies are formed, the knowledge can be used as a basis for planning – *internalisation*. It thus represents a potential that can be used in strategy formulation and implementation. The *internalisation* phase completes the cycle of knowledge transfer.

In the optimal case, these four phases (*socialisation, articulation, combination* and *internalisation*) form a circular knowledge process in which implicit knowledge is communicated to a wider group and externalised, thus making it possible for individual knowledge to become organisational knowledge (Nonaka, 1991).

By combining these two models – the simplified KT communication model (as shown in Figure 2.1) and the knowledge spiral model (as shown in Figure 2.2) – the knowledge transfer can only be seen as a one-way transfer between a sender and a recipient, which leads to the conclusion that every knowledge sender and every knowledge receiver has to engage in some interactions in order to process the inflow or outflow of knowledge (Chini, 2005). Meanwhile, as made clear in the communication model, it has to be remembered that no knowledge transfer is context-free (see “knowledge channel” discussion). At a later stage, this argument will be revisited to explain knowledge transfers in alliances/IJVs context.

2.4 Knowledge Transfer and Organisational Learning

During the last decade, the issues of how organisations learn and how that learning can be maximised have taken on such significance that a subfield of management devoted entirely to learning has developed (e.g., Argote, Beckman, & Epple, 1990; Lyles & Gudergan, 2006; Seibert & Daudelin, 1999; Szulanski, 1996; Zander & Kogut, 1995). Debate has centred on whether organisational learning should be looked at in terms of changes in knowledge (Duncan & Weiss, 1979; Fiol & Lyles, 1985), changes in behaviour (e.g., Hilgard & Bower, 1975; Wingfield, 1979), or changes in “potential behavior” (Huber, 1991, p. 89). Acknowledging these debates, Argote (1999) argues, “what is critical for advancing our understanding of knowledge transfer and organisational learning issue is for researchers and practitioners to be precise about the approaches they take and to develop the theoretical and practical implications that can be derived from those approaches” (p. 13).

2.4.1 Organisational Learning

In simple terms, organisational learning means “the process of knowledge development and formation” (Shrivastava, 1981, p. 15), and organisational learning assists an organisation to utilise knowledge to make continuous progress and improvement in its organisational development. Through the organisational learning process, firms seek to increase their capabilities in dealing with constant changes from diverging and unpredictable forces (Lyles & Gudergan, 2006). Organisational learning, therefore, is a technique to increase organisational performance.

Generally, organisational learning leads to positive performance yet the causality is complex. As Dodgson (1993b) suggests, organisational learning is a structured and systematic method adopted by an organisation to motivate employees to learn. The objectives of organisational learning are to increase an

organisation's competitive advantage and to reach goals through innovation in product and production methods (Zander & Kogut, 1995).

Marquardt and Reynolds (1994) believe that four cultural aspects can enhance an organisation's ability to learn: incentives for innovation, learning from experience, the learning habit, and corporate support. "Incentives for innovation" means rewarding employees' ideas and initiatives, leading to more ideas and a higher level of initiative. "Learning from experience" means taking advantage of past mistakes and encouraging feedback to aid learning. The "learning habit" refers to a culture of continuous learning in every part of the business, while "corporate support" means a strong top-level commitment to learning. This comment often manifests itself as a high percentage of total revenue devoted to training and development.

Denton (1998) argues that the deliberate and conscious possession of a learning strategy (embracing both learning and innovation as specific goals) is the first primary characteristic of organisational learning. The abilities to learn faster than competing organisations can maintain sustainable competitive advantage (SCA). Organisations need to make an explicit decision to place learning at the top of their list of priorities and to put in place the necessary conditions for learning to occur (Denton, 1998). This comment means firms should be deliberately geared towards learning. A strategy must be endorsed by top management. Thus an inherent feature of a successful learning strategy is high-level commitment to learning.

2.4.2 Learning Organisation

Another similar concept which needs to be clarified is the "learning organisation". Garvin (1998) highlights the fact that, organisations need to act on knowledge. In a learning organisation "corporate values and principles are formally articulated and are a source of inspiration and unity ... they provide a framework for behaviour and performance" (Graham, 1996, p. 17). She goes on to list the values

commonly expressed in a learning organisation: learning from mistakes and appreciation of the personal and business significance of continuous learning. These characteristics which are most closely related to culture, lead to a supportive atmosphere.

Garvin (1998) argues a learning organisation can be approximated to the creation of structures conducive to learning; one that gives employees the time and space to reflect and analyse; one that trains managers/employees in common methods of problem-solving; one that opens up boundaries within the organisation and encourages the exchange of ideas (cross-functional meetings, presentations, seminars); and one that creates learning environment.

A successful learning organisation could provide a learning opportunity and make persistent economic growth possible (Garvin, 1998). According to this view, increasing the company's ability to solve problems and to take actions are as important as acquiring explicit or codified knowledge. An increase in these abilities may be termed "tacit" knowledge and it is distinguished from "explicit" knowledge (Nonaka & Takeuchi, 1995).

2.4.3 Linking Knowledge Transfer and Organisational Learning

The connections between organisational learning (OL) and knowledge transfer (KT) should be readily apparent. Denton (1998) comments if organisational learning means anything it must mean improving the abilities to transfer knowledge, and to use knowledge in an organisation. If knowledge is truly becoming more important, then so is organisational learning. Thus the increasing importance of KT is a key antecedent of organisational learning. This idea is supported by Shoshana Zuboff (1988) who notes that an organisation may need to expand its knowledge resources i.e., to acquire or transfer knowledge.

Buchel et al. (1998) emphasise that organisational learning can be viewed as dynamic aspects of acquiring knowledge rather than as a traditional, static view of knowledge transfer. The important thing is to access relevant knowledge

resources and then to create new knowledge – put another way, to learn. As a result, more and more organisations are paying increased attention to leveraging knowledge for value creation. Since it is difficult to draw a distinct line between organisational learning and knowledge transfer (Buchel et al., 1998), the two concepts themselves are thus treated and discussed interchangeably in this thesis.

2.5 Institutionalised Knowledge-driven Interfirm Alliances

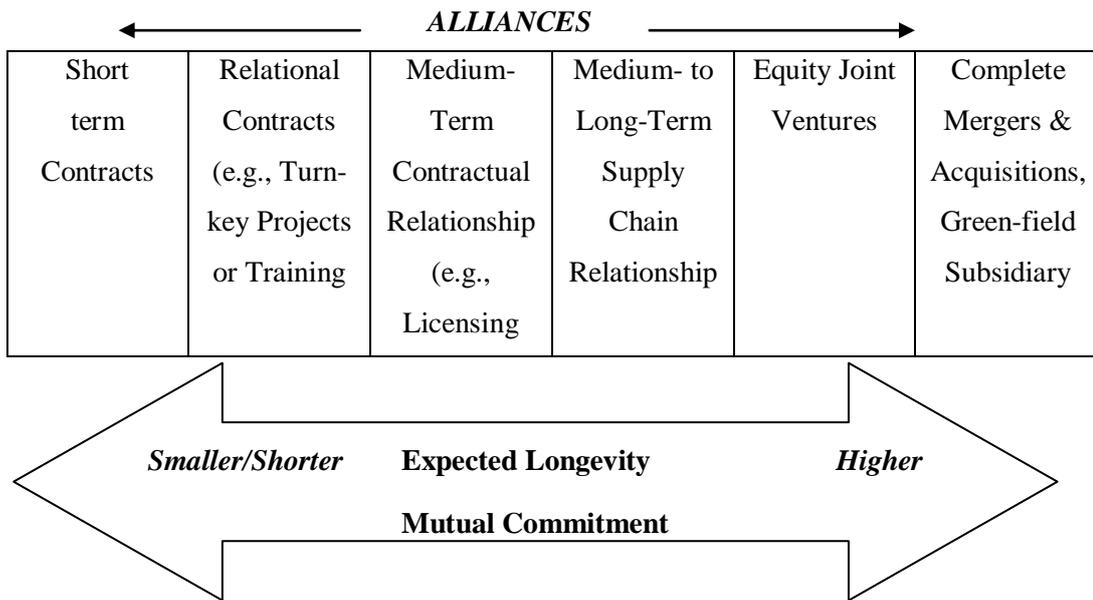
2.5.1 Interfirm Cooperative Alliances as a Corporate Strategy

The past two decades have seen a large number of interorganisational alliances established, despite the fact that alliances are inherently fragile and unstable in nature (Albers, 2005; Ding et al., 2009a). According to Ding et al. (2009a, 2009b), interorganisational alliances can be viewed as “an important component of corporate strategy undertaken by firms” (p. 47), involving two or more parties engaging in the operation of a new business entity in both domestic and international markets (Ariño & Reuer, 2004; Ding et al., 2009a, 2009b).

2.5.2 Various Forms and Benefits of Interfirm Alliances

Interfirm alliances include a spectrum of institutionalised forms (as shown in Figure 2.3), ranging from just short-term contracts to complete mergers and acquisitions (when one firm absorbs most of the stock of another) (Albers, 2005; Ding et al., 2009a, 2009b; Hyder & Abraha, 2003). These different cooperative forms illustrate an important phenomenon in organisational management practices – companies become gradually interdependent (Child & Faulkner, 1998; Ding et al., 2009a, 2009b; Pavlovich & Akoorie, 2003).

Figure 2. 3 A Spectrum of Interorganisational Cooperative Arrangements



Source: Adapted from Contractor & Lorange (2002) (Cited in Ding et al., 2009a, p. 54)

The benefits derived from interorganisational alliances have been noticed in the height of the globalisation of markets (Ding et al., 2009a, 2009b). Researchers point out that interorganisational alliances are ideal for maximising economies of scale, capturing long-term profitability (e.g., Inkpen, 1996; Lyles & Gudergan, 2006), being cost-effective and efficient (Barney, 1996; Ding et al., 2009a, 2009b); and gaining local market networks (Albers, 2005).

Albers (2005, as cited in Ding et al., 2009a) explains the resource access as the benefits for organisations where they enter into alliance arrangements to integrate their complementary resources. Cooperative arrangements could also have chance to bring about the innovativeness and competitiveness of the members involved because of the dispersion of capabilities across firms (Hamel, 1991).

2.5.3 Interfirm Alliances as a Form of Transferring Knowledge

Scholars particularly view alliances as important platform for knowledge transfer and skills learning (Ding et al., 2009a; Parkhe, 1991; Tallman, 2005). Table 2.1 provides three different ways of accessing knowledge resources, which are either through the market, through internal development, or through alliance formation.

Table 2. 1 Ways of Transferring Knowledge: Advantages and Disadvantages

<i>Knowledge Development Within Company</i>	<i>Alliances as Learning Instrument</i>	<i>Purchase of Relevant Knowledge in the Market</i>
<i>Advantages</i>		
Control over knowledge	Emergence of new knowledge	Purchase based on goods
Lead over competitors	Implicit knowledge transfer	No dependence on facilities
	Building up problem-solving potential	
<i>Disadvantages</i>		
Cost-intensive	Danger of knowledge leakage	Cost-intensive
Time-consuming	Knowledge transfer barriers must be deleted	Limited availability of relevant knowledge
Few incentives		Implicit knowledge Transfer is difficult

Source: Adapted from Buchel et al. (1998) (Cited in Ding et al., 2009a, p. 54)

Generally speaking, collaboration is attractive when it provides desirable resources that a firm cannot develop within an acceptable time frame and cost structure (Tallman, 2005). When a firm is bereft of resources, it will seek alliances with other firms possessing these attributes instead of purchasing the resources from the market (Hyder & Abraha, 2003). Researchers also note that companies

can seek the mechanism of cooperation as a means to access resources, core competencies, innovative skills, and country-specific knowledge from each other that they cannot develop by their own efforts (Ding et al., 2009a; Eunni, Kasuganti, & Kos, 2006),

According to Child (2001), even though alliances are set up for other considerations, knowledge resources acquisition is regarded a well-accepted cooperative byproduct. Ding et al. (2009a) and Pavlovich and Akoorie (2003) emphasise that partnering firms from various industries could be involved in rich and fine-grained knowledge exchanges. According to Ding et al. (2009a), Inkpen (2002) and Schuler and Tarique (2006), companies that are capital-rich but knowledge resource-poor are attracted to collaborative alliance ventures. In doing so, they can achieve time advantages in comparison to the alternative of developing or acquiring the needed resources alone.

Albers (2005) and Ding et al., 2009a) explains the resource access as the benefits for organisations where they enter into alliance arrangements to integrate their complementary resources. Cooperative arrangements could also have chance to bring about the innovativeness and competitiveness of the members involved because of the dispersion of capabilities across firms (Hamel, 1991).

With these arguments in mind, it is thus important for companies to consider the potential opportunities of forming inter-firm alliance linkages, as it seems not only benefit companies' growth (Hill, 2005) but also will be "essential to gain an advantage and stay a step ahead of the opposition – a key strategy for modern corporations" (Ding et al., 2009a, p. 48).

2.6 Three Schools of Theoretical Explanations

The literature reviewed above provides relevant perspectives on knowledge transfer, alliance networks, and the benefits for firms entering into alliance arrangements. With regard to the phenomena of interfirm knowledge flows based on alliances, researchers (i.e., Ding et al., 2009a) have argued that it is necessary to consider multiple disciplines and theoretical thoughts (such as economics, sociology and psychology), before going further into the detailed clarifications about the research topic. The next sections thus classify three different but related schools of thoughts (i.e., *Transaction Cost Economics*, *Resource-based Theory* and *Knowledge-based Theory*).

2.6.1 Transaction Cost Economics (TCE)

Transaction cost economics theory (TCE) is thought to be most useful for examining different governance mechanisms from the economics perspective (Alter & Hage, 1992; Johanson & Mattsson, 1987; Kogut, 1988b; Pearce, 1997). The assumptions underlying transaction cost theory are that any governance mechanism formed (such as business exchanges, boundary activities and organisational structures) is because this mechanism is considered efficient and not-expensive (Ding et al., 2009a). The TCE perspective is oriented specifically towards the minimisation of the transaction costs when dealing with various business activities (Ding et al., 2009a; Tallman, 2005; Williamson, 1975, 1985; Zajac & Olsen, 1993). Transaction costs include: time spent for investigating marketing channels and conducting negotiations; expenses consumed when preparing terms and conditions of contracts; fees occurred when implementing legal claims and agreements; efforts occurred for maintaining working relationships (Kogut, 1988a, Ding et al., 2009a).

TCE identifies the conceptual significance of knowledge transfer in alliances. TCE suggests that in order to avoid environmental uncertainties, firms are willing to engage in alliance governance, as the costs incurred are perceived to be lower

than “market means” and “full integration of the given activity within the existing corporate hierarchy” (Ding et al., 2009a, p. 48). As this “mutual hostage position” functions, it could be possible to result in the “sharing of technologies, and then guaranteeing performance through agreement on the division of profits or costs” (Ding et al., 2009a, p. 48). Some researchers (e.g., Ding et al., 2009a; Hennart, 1988, 1989; Kogut & Zander, 1992, 1993) conclude it is rational to regard an alliance arrangement as an alternative means of extending the current hierarchical structures, to minimise coordination expenses, and to improve the scale and scope of knowledge exchange and communication frequencies. TCE thus provides a greater understanding of cost-benefit comparisons under the alliance form of cooperation (Yan, 2000).

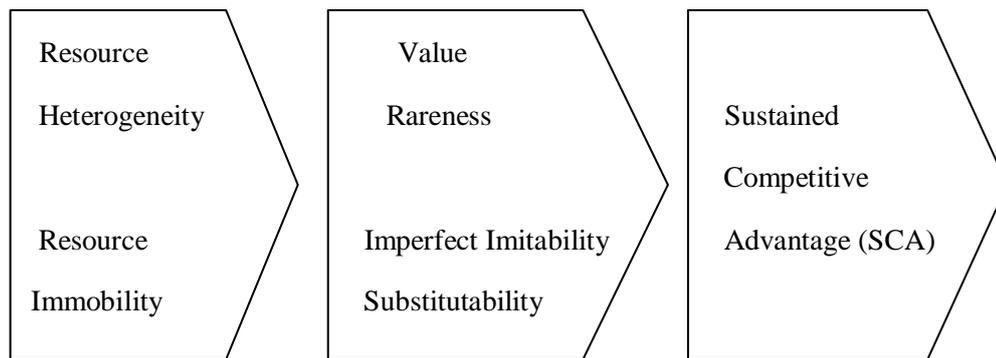
However, researchers also state there exist certain limitations in the TCE approach when explaining alliance learning behaviour (Alter & Hage, 1992; Ding et al., 2009a; Doz & Prahalad, 1991; Johanson & Mattsson, 1987). Kogut (1988a) argues TCE mainly considers alliance learning based on cost-minimisation perspective, ignoring the fact that in some circumstances, alliance knowledge transfer may represent “a more costly” situation (Ding et al., 2009a, p. 49). A more fundamental limitation of the TCE approach is that it has “an antitrust tendency” when assuming the nature of human beings and organisations. TCE believes “people always want to maximise profits in all business activities”, thus “opportunism” will be unavoidable (Ding et al., 2009a, p. 49).

According to Boisot and Child (1988) and Ding et al. (2009a), while this assumption could be valid when analysing some organisational behaviour under the influence of Western culture (taking the United States context as an example), this may be not true in the East Asian context. Evidence reveals that there is a tendency in organisational behaviour toward greater trust and interdependency, including all types of interorganisational collaboration, and away from only pursuing profit maximisation, even if small numbers are involved (Alter & Hage, 1992; Ding et al., 2009a; Doz & Prahalad, 1991).

2.6.2 Resource-based Theory (RBT)

First introduced by Penrose in 1959, RBT is an alternative theory to TCE for explaining firm exchanges and integration (Ding et al., 2009a; McGunagle, 2007). The primary concern of RBT is to identify why firms exhibit varying performance, and which characteristics could generate the growth of the firm (Barney & Clark, 2007; Ding et al., 2009a; McGunagle, 2007). Penrose (1959) argues firms can be seen as “a set of productive resources and administrative organizations” (cited in Ding et al., 2009a, p. 49). It is argued that a firm may compete against other firms when successfully possessing and exploiting unique resources (Albers, 2005; Ding et al., 2009a).

The essential notion of the RBT is that a firm needs to own “more or less strategic relevant resources” with “four attributes” (i.e., *valuable*; *rare*; *substitutable*; and *imperfectly imitable*) (Barney, 1996, p. 105), in order to achieve a higher level performance, or a so-called sustainable competitive advantage (SCA) than the average (Barney, 1991; Barney & Clark, 2007; Gulati, Nohria, & Zaheer, 2000; Penrose, 1956, 1959; Tallman, 2005). The first identified attribute is that firms’ resources need to be *valuable*, i.e. resources that can contribute to “the firm’s effectiveness and efficiency” will be considered *valuable* (Barney, 1991, p. 106). Second, resources need to be *rare*, which means “no or only a small number of competitors possess these same resources” (Ding et al., 2009a, p. 50). If every firm can obtain this same resource, even this resource is *valuable*; it still can not be considered as *rare*, as “no single firm has an advantage over the others” (Ding et al., 2009a, p. 50). The third attribute is resources should be *imperfectly imitable*, which means it will be costly for other competitors to imitate the firm’s unique resources. The last attribute is called *substitutable*, which is “closely linked to the *imperfectly imitable* attribute” (Ding et al., 2009a, p. 50). A firm’s resources that “do not have strategically equivalent resources” will be referred to “nonsubstitutable resources” (Ding et al., 2009a, p. 50). The model of RBT is illustrated in Figure 2.4 below:

Figure 2. 4 A Resource-based Theory (RBT) Model of SCA

Source: Barney & Clark (2007, p. 69) (as cited in Ding et al., 2009a, p. 55)

Regarding the interfirm alliance knowledge transfer phenomena, RBT provides certain convincing arguments although it is viewed “still in its infancy” (Ding et al., 2009a, p. 50). The RBT sees alliances as a unique system for deploying resources (including explicit and tacit knowledge, skills, competences, and capabilities) (Barney & Clark, 2007; Ding et al., 2009a). From a RBT perspective, firms will be willing to conduct alliance knowledge transfer activities if cooperative arrangements can provide “resource access opportunities in a shorter time and/or at lower costs compared to developing the resources on its own” (Ding et al., 2009a, p. 50). Meanwhile, firms providing required resources to the alliances can still retain its own unique or heterogeneous resources without any loss (Das & Teng, 2000; Grant, 1991; Gulati et al., 2000; Hyder & Abraha, 2003). Hence, it seems that the RBT “clearly helps explain all the components of the resource access motive and economies of scale” (Ding et al., 2009a, p. 50). Peng (2001) also argues given that the RBT is ultimately a theory about how to extract rent from knowledge resources, in an emerging market environment those alliances who can acquire a favourable initial knowledge resource position should be able to earn an early success. In the strategic management field, some researchers further extend the RBT and develop a so-called knowledge-based theory (KBT) as discussed below.

2.6.3 Knowledge-based Theory (KBT)

The KBT argues that knowledge is a firm's most important and primary resource (Grant, 1996, 2002). Researchers adopting the KBT perspective emphasise that "a firm's future growth comes from the coordination and combination of different knowledge resources through business activities at the firm level" (Ding et al., 2009a, p. 50). Quinn (1992) and Spender (1996) comment that a firm is a repository with distinctive production technology and organisational knowledge, which cultivates organisational learning and growth. As a firm's competitive advantages are related to knowledge stock accumulated through path-dependency, it should own specific competencies in creating and protecting distinctive assets so as not to be imitated and/or exploited by competitors (Grant, 1996).

With regard to the emergence of knowledge transfer in alliances, the knowledge-based theory (KBT) also provides certain convincing arguments (Ding et al., 2009a). According to the KBT, strategic alliances are used to access other firms' resources and for knowledge enhancement in certain critical functional areas, as the required knowledge cannot be developed independently (Ding et al., 2009a, 2009b; Madhok, 1996). Building on the knowledge-based approach, while alliances sometimes bring together partners making similar contributions, e.g., sharing the risks of assets' investment, it seems that they more frequently contribute to the integration of strategic and complementary inputs and knowledge resources (Ding et al., 2009a, 2009b; Mowery, Oxley, & Silverman, 1996).

Therefore, alliances can be seen as systems of knowledge inputs, which is similar to RBT's arguments. Alliances are "required to integrate the specialised and idiosyncratic knowledge, thus to constitute the coordination for generating advantage, creating returns" (Demsetz, 1991, p. 172), and developing relevant organisational abilities (Knight & Cavusgil, 2004). In most situations, "there exists a mutual reinforcing relationship between knowledge and capabilities", which "can enable companies to create new knowledge" (Ding et al., 2009a, p.

50). Ding et al. (2009a), Tallman and Fladmoe-Linquist (2002) point out, these knowledge movements will result in a virtuous cycle of capability and technological enhancement

2.6.4 Theoretical Critique

There exist certain different theoretical perspectives with regard to the various aspects of interfirm knowledge transfer phenomena. Specific contributions of these above-mentioned approaches include the identification of antecedent conditions that provide a strategic rationale for entering alliances, the anticipation of specific returns, and the selection of a governance structure (Gulati, 1998).

Transaction cost theory is traditionally viewed as the mainstream theory when examining alliance knowledge transfer research (Das & Teng, 2000), which provides some different explanations comparing with that of the RBT (Albers, 2005). While the RBT focuses on the firm as a predefined whole organization by examining the resource integration implications for its strategy formulation (Ding et al., 2009a), TCE basically focuses on the transaction exchanges based on contract conditions (Williamson, 1975, 1985, 1996). TCE particularly emphasizes the importance of cost reduction for each business dealing rather than value creation when firms seek competitive advantages vis-à-vis its competitors (Albers, 2005; Ding et al., 2009a; Faulkner & De Rond, 2000).

According to Ding et al. (2009a), there exist certain common issues for RBT and KBT. First, both approaches emphasise the unique characteristics and significance of knowledge, competence and capabilities, such as patents, processes and brands, when explaining why firms are different in growth (Faulkner & De Rond, 2000; Gomes-Casseres, 1996; Li & Shenkar, 1996). Second, they provide persuasive arguments when explaining how to develop competitive advantage and maximise long-run profits through using firm resources, including knowledge (Tsang, 1998). Third, both approaches suggest as few organisations are self-sufficient in critical resources/knowledge, the lack of

self-sufficiency in the firm introduces both uncertainty into the decision-making process (Barney & Clark, 2007; Koza & Lewin, 1998; March, 1991), and knowledge learning opportunities (Hyder & Abraha, 2003). By exchanging complementary resources and sharing knowledge “that otherwise are not available to each individual partner”, two or more firms “can form an alliance to achieve a symbiotic cooperative advantage and economies of scale” (Ding et al., 2009a, p. 51).

In sum, given particular affinities with either economics or organisation theory, these three schools of thought exhibit distinct characteristics. However, “none of these explanations should be seen as being superior to any other, and it cannot be assumed that interorganisational cooperation is always prompted by a single aim” (Ding et al., 2009a, p. 52).

Drawing the above three theoretical explanations, Ding et al. (2009a) also comment that “although a unified theory is not yet available, it is helpful if we view these explanations as being complementary rather than contradictory” (p. 52). Each explanation “makes a singular contribution to our understanding, and it is possible to offer a systematic overview of the main perspectives which contribute to our understanding of the research topic and to draw some comparisons between them” (Child & Faulkner, 1998, p. 17). Indeed, a review and comparison of the most common theoretical frameworks may illustrate this point.

2.7 Alliance Knowledge Transfer Stages

Knowledge transfer in alliances is often viewed as an unfolding process consisting of stages in which characteristics not only appear to a greater or lesser extent, but also in certain order of occurrence (Berdrow & Lane, 2003). Researchers (i.e., Buchel et al., 1998; Harryson, Dudkowski, & Stern, 2008; Inkpen & Pien, 2006; Sammarra & Biggiero, 2008) are generally agreed that a series of relevant and interconnected stages including knowledge identification, contribution, acquisition, application, development, and knowledge harvesting, can be identified. This section offers an overview of these stages in the alliance knowledge transfer process with the individual elements and concepts being mentioned in relevant academic writings.

2.7.1 Knowledge Identification

Knowledge identification refers to the conscious development of goal categories that emphasise the acquisition of specific knowledge in alliances (Inkpen & Pien, 2006). The deliberate formulation of knowledge identification is a way of influencing the knowledge objectives and the knowledge base of the organisation. A description of the knowledge identification answers the question, “What knowledge transfer objectives are being pursued with regard to the existing knowledge base?” Hence, the important task confronting any partnering organisation wishing to create a knowledge transfer strategy is to classify whether or not knowledge exists and where it is (Beamish & Berdrow, 2003). As knowledge normally resides in (1) the minds of the staff, (2) office reports, (3) corporate data sets, and (4) the suppliers’ documents (Davidson & Voss, 2002), at this point, seeking the common sources of knowledge to any organisation is a must.

Identification of knowledge is also the process of creating connection with alliance partners in terms of knowledge complementarities in the internal and external environment (Inkpen & Pien, 2006). Knowledge connection provides the

answer to the question, “What kinds of knowledge exist in the organisation?” In order to identify knowledge connections, knowledge needs are a given. Knowledge identification thus may be based on identifying the current state of knowledge bases, connection and complementarities according to their strategic importance, and immediate or future knowledge needs.

2.7.2 Knowledge Contribution

Knowledge contribution means the starting process by which knowledge is transferred between partnering organisations. In order to make knowledge useful, it is important to ascertain whatever knowledge exists in the alliances (Davidson & Voss, 2002). The question is, “How is knowledge shared?” When an alliance/joint venture is formed, the partners must allocate responsibility for various decision areas (Geringer & Hebert, 1989; Killing, 1983). This allocation of responsibility is the basis for determining the resources committed by the partner firms.

This knowledge contribution phase explicitly shows that partner firms are willing to integrate their knowledge which is already known (Yan, 2005), which has received attention in the research (e.g., Berdrow & Lane, 2003; Kedia & Bhagat, 1988; Tung, 1994). Researchers (e.g., Ariño & de la Torre, 1998; Doz, 1996) argue that knowledge contribution is where partners bring size of knowledge resources (initial investment) into the alliance/joint venture, which can create its initial resource profile to start an operation. At the alliance formation stage, firms contribute various types of knowledge and skills to their alliances. Initial investment in an alliance includes capital, technology, management know-how and marketing network (Hitt, Levitas, Arregle, & Borza, 2000). For local partners, the critical knowledge contribution revolves around an understanding of the local institutional environmental conditions and production facility (Inkpen & Beamish, 1997), while foreign partners generally contribute advanced technology, product know-how and global strategic support (Yan & Gray, 1994). Generally,

partners bring to the alliance their stock of firm-specific knowledge or other business activities (such as technology R&D, marketing, production, etc.).

In sum, subsequent knowledge contribution from both partners after the joint venture formation stage is critical not only in terms of better use of the existing knowledge resources/capabilities of the joint venture, but also in building new knowledge resources and capabilities to deal with a changing market environment (Buchel et al., 1998). Those who fail to reinvest appropriately in developing capabilities of the joint venture will likely see their initial advantage gradually disappear. On the other hand, those who invest appropriately beyond the formation stage of the joint venture will be able to gain a stronger position (resource profile) over time (Buchel et al., 1998).

2.7.3 Knowledge Acquisition

The phase of knowledge acquisition is that of gathering information from different sources, mainly external. The question is, “Where does knowledge come from?” Examples of knowledge acquisition activities include sharing of manufacturing know-how, exchange of design technology, tacit knowledge, and market and customer information (Lei & Slocum, 1992). Knowledge acquisition normally happens when the firm enlarges or changes its knowledge base (Fiol & Lyles, 1985; Lyles, 1988, 1994). The knowledge acquisition phase may be useful for acquiring more explicit and codified knowledge. This process, however, may not be effective when the knowledge is complex and thus it is hard for alliance partner firms to acquire knowledge and integrate it into its own knowledge base. Also, alliances often may not know what kind of knowledge will be useful in the future when alliances engage in experimentation and trial and error processes. Therefore, while knowledge acquisition is important, equally important is a process where alliance partners engage in joint experiments, trials, and related activities to develop new knowledge. Related to the acquisition process is the learning that occurs when firms benchmark and imitate best practices.

2.7.4 Knowledge Application

Knowledge needs not only to be acquired, but also applied (Davidson & Voss, 2002). Acquiring knowledge does not guarantee that good use will be made of it. The procedures for making use of knowledge should, therefore, be examined. The question is, “How can knowledge be applied internally and marketed externally, for example in the form of new product?”

One underlying motivational factor for the establishment of alliances is to achieve synergies and establish a competitive position through the integration of complementary resources/ knowledge (Inkpen & Beamish, 1997; Kogut, 1988a; Lane & Beamish, 1990). Application is thus the relevant process that decides on the success of integrating given knowledge. When knowledge application is considered from a long-term perspective, it is the market value or knowledge that will finally determine the firms’ success (Buchel et al., 1998). For example, researchers respectively point out that firms capable of integrating knowledge, when pursuing international strategies, will demonstrate competitiveness (Quinn, 1992), superior performance (Eppel, Argote, & Devadas, 1991), and enhanced adaptability (Doz, 1996).

2.7.5 Knowledge Development

Talking about knowledge development in companies usually refers to the development of new knowledge. But even though this is the major focus, the development of new knowledge needs to be based on knowledge that is already held (Buchel et al., 1998). Certain structures, processes and tools need to be shared in order to build on them as a joint basis for further development. Companies also need to consider the time necessary to build up this joint basis and whether this time is compatible with the knowledge objectives it has formulated. The management of knowledge development is related to duration management of firms (Buchel et al., 1998). Knowledge development thus

sometimes focuses on the emergence of new knowledge in organisations. The question is: “How is new knowledge generated?”

Knowledge development requires contribution from all areas of the knowledge resource profile of a firm, as well as building new knowledge resources (Das & Teng, 2000). In the knowledge development stage, alliance partners agree to jointly engage in the tasks of integrating contributed resources, to adapt them and finally to create new cognitive understanding, new technology, or new sets of routines that neither party currently has (Harryson, Dudkowski, & Stern, 2008). Thus a series of joint experiments, trial-and-error activities, and adaptations often occurs as organisations engage in the knowledge development process.

This knowledge development pattern is actually concerned with learning through the transformation or synergy of transferred practices as a result of the joint activities and the creation of new practices within the alliance (Harryson et al., 2008). Interaction occurs in teams consisting of key members from all partnering organisations. The teams discuss and share their own perspectives on the issues at hand, air their own assumptions, and engage in joint discovery and reflection then they can develop a fresh understanding of the issues. Casson (1993) has noted that this process may require an adaptation of technology and managerial practices to the local environment, especially in line with cultural and institutional differences.

In sum, although the initial knowledge resources/capabilities brought by all the partners are critical for early success in the market, it is difficult for them to guarantee sustainable competitive advantage without further development of the resources consistent with the evolution of the industry.

2.7.6 Knowledge Harvesting

Beamish and Berdrow (2003) refer to this stage as learning through the *harvesting* of new knowledge practices that have been created in alliances, i.e., the transferring of newly developed knowledge from the alliance to the parent firms. It is argued that while the initial knowledge resource contribution can be seen as the initial asset stock a joint venture obtained from the strategic factor market, the knowledge harvesting stage (asset accumulation) can be considered as the building of strategic asset stock (Dierickx & Cool, 1989). This stage is thus a distinct part of the knowledge transfer process which may allow the parent firms to gain benefits from the higher value of developed knowledge resources and from implementing the new knowledge to enhance existing internal or new operations in alliances that the firms engage in (Tiemessen, Lane, Crosson, & Inkpen, 1997).

2.8 Alliance Knowledge Transfer Challenges

There has been a growing amount of research on the challenges of transferring knowledge in alliances fuelled by the recognition that acquiring, absorbing, amplifying and developing knowledge cannot essentially be separated from an organisation's context, as knowledge is also relevant to human activities (Nonaka & Takeuchi, 1995; Roos, Roos, Dragonetti, & Edvinsson, 1997). Researchers agree that KT is not an idealistic and simplistic process in the context of alliance settings (Ding et al., 2009b; Gupta & Govindarajan, 2000; Nonaka & Takeuchi, 1995). Understandably, questions arise about how alliance companies acquire knowledge, and what management practices they employ to exploit and transfer knowledge resources. The following sections identify certain KT challenges thus to bring an important issue to the forefront, which is why organizations differ in promoting or hampering KT process in alliances.

2.8.1 Knowledge Characteristics and Nature

The first challenge originates in the socially embedded nature of knowledge (Ding et al., 2009b). It is recognised that the transfer of hardware such as blueprints, products and specification samples is easy enough (as mentioned in Section 2.2). Some scholars argue that in contrast to exchange codified and explicit knowledge, which is generally transparent, readily accessible, and thus inherently diffusible, most knowledge transferred between alliance partners is tacit, context-specific, and socially or organisationally embedded (Ding et al., 2009b; Yan & Luo, 2001). Studies on organisational learning also recognise that "embedded knowledge" may result in "asymmetry" (Killing, 1983). Such asymmetry is likely to obstruct interpartner learning and knowledge exchange. The concepts of "complexity" and "ambiguity" are also widely recognised barriers to knowledge transfer (Ding et al., 2009b; Simonin, 2004).

2.8.2 Knowledge Base and Ability to Transfer

Dierickx and Cool (1989) and Ding et al. (2009b) and Simonin (2004) make the point that the KT is mainly affected by (1) the extent and scope of the existing knowledge base, and (2) the capabilities of transmitting knowledge to the recipient. The existing knowledge base is conceptualised as a stock of knowledge which is accumulated through prior independent learning activities. Other new knowledge inflows may occur through pursuing cooperative tasks (Cohen & Levinthal, 1990; 1994). The significance is that the KT action tends to be more effective and efficient “if the contributor unit has a sufficient prior knowledge base” (Ding et al., 2009b, p. 15). It is also true that a recipient unit with a rich knowledge base will easily absorb and process more intangible knowledge resources than a firm with a poor knowledge base (Ding et al., 2009b). Several empirical studies (e.g., Bucic & Gudergan, 2004; Inkpen, 2000; Lane, Lyles, & Salk, 2001) have been conducted in support of this finding.

2.8.3 Contributor’s Willingness to Transfer

One problem with knowledge transfer concerns firm’s incentives for knowledge sharing and its protection against knowledge leakage (Ding et al., 2009b; Yan & Luo, 2001). It is natural that “firms may be reluctant to share knowledge irrespective of its rich resource base and each party wants to protect its knowledge from uncompensated leakage to the other or any third party” (Ding et al., 2009b, p. 16). Unwillingness to transfer knowledge thus refers to a concern of controlling knowledge flows, which is likely to adversely affect the level of knowledge transfer (Becerra, Lunnan, & Huemer, 2008; Faems et al., 2007; Simonin, 2004). Ding et al. (2009b) emphasise that the risks-benefits consideration will affect contributor’s willingness to transfer knowledge. The more the potential benefits derive, the greater it is willing to transfer the knowledge. If alliance partners are rivals or potential rivals, it is reasonable to predict that they will strive to prevent knowledge leakage to partners due to the risks of knowledge spillover (Hamel,

1991; Inkpen, 1998). Ideally, “partner protectiveness will be minimal when an alliance is designed by both parties to facilitate knowledge transfer” (Ding et al., 2009b, p. 17).

2.8.4 Recipient’s Learning Intent

For organisational learning to take place, a clear intent, instead of mere willingness, needs to be present (Ding et al., 2009b; Simonin, 2004; Szulanski, 1999, 2000). Researchers point out that a clear intent of acquiring knowledge is an important determinant for facilitating learning from its allies (e.g., Beamish, 1988; Hamel, 1991; Inkpen, 2002; Killing, 1983), while the reluctance to learn will hinder the dissemination of skills and knowledge (Ding et al., 2009b; Zander, 1998). Dong and Glaister (2006) and Si and Bruton (1999) look at similar motivation issues and found that knowledge acquisition intent is explicit for Chinese firms in alliances/IJVs in China. Ding et al. (2009b) conclude that a recipient with conscious intent will seek knowledge more actively from its partner (knowledge contributor) via the alliances than those who do not.

2.8.5 Recipient’s Absorptive Capacity

Absorptive capacity (AC) refers to certain abilities to recognise the importance of new knowledge which is developed externally, assimilate and apply it for commercial purposes (Cohen & Levinthal, 1990, 1994). Ding et al. (2009b) and Lyles and Salk (1996) identify that the collectively constructed ability to absorb knowledge plays a critical role in transferring knowledge. Lane et al. (2001a) demonstrate the cognitive similarities between firms and clarifying the value of relative AC in knowledge transfer enhancement. The “dynamic capabilities” perspective has also been introduced which distinguishes between *potential* and *realised* AC (Bucic & Gudergan, 2004; Ding et al., 2009b). This ability is largely dependent on a firm’s prior related knowledge base (such as existing managerial expertise and experience) and organisational factors, such as communication and knowledge distribution (Lau, Lu, Makino, Chen, & Yeh, 2002). In this vein, a

prior knowledge base and relative absorptive capacity may explain the issues of innovation, business performance and interorganisational learning (Ding et al., 2009b).

2.9 Knowledge Transfer in Cross-cultural Alliances

By their very nature, cross-cultural issues are inherent in alliances (Ding et al., 2009b). Culture distance can be distinguished as “subjective” cultural distance, which is “a way of perceiving the environment”; and “objective” cultural distance, which can be expressed in a meaningful way (Triandis, 1972, p. 4).

International alliances are normally formed by partners coming from different countries and ethnicities, and with different historical traditions, political bases and cultural backgrounds (Albers, 2005; Ding et al., 2009b). These differences may be responsible for considerable diversity in firm-specific characteristics that might be linked to each firm’s national heritage and cultural misunderstandings. These differences appear to be particularly susceptible to failure on management and other behaviours (Datta & Rasheed, 1993; Ding et al., 2009b). It is natural that cultural differences (in the areas of national culture and organisational culture) will impact on a series of issues for an alliance, from negotiation of setting, to performance and survival (Ding et al., 2009b; Meschi, 1997).

Researchers argue that alliance knowledge transfer is subject to cultural influences (Ding et al., 2009b; Ford & Chan, 2003; Simonin, 1999a, 1999b). Inkpen and Dinur’s (1998) study identified the knowledge management processes in IJVs: technology sharing; organisational interaction; personnel transfer process; the way knowledge is gained, and the questions asked that could be affected by national cultural differences. In IJVs, interpartner cultural diversity might inhibit the ability for partners to work jointly and effectively unless the firms can overcome their differences, cross-cultural differences included (Ding et al., 2009b). It may also mean that, although companies from culturally dissimilar

countries have a higher potential for knowledge transfer, such knowledge transfer will require more effort and commitment from management (Pollard, 2001). Ding et al. (2009b) and Killing (1982) further found that cross-border collaborations between partners from developed and developing countries are particularly troublesome. As Killing (1983) points out, such cultural differences can delay the creation of an effective, cohesive management group. The ability of managers to interpret one another's estimates correctly – the forecasts of a sales manager, the delivery promises of a production manager, or the cost estimates of a financial controller – means the group can develop more rapidly into a cohesive unit that shares many basic assumptions, in which everyone is seen as working towards the same objective (Ding et al., 2009b).

Organisational culture, a company's ways of doing things, can also cause problems where companies with distinctive cultures merge or jointly form a third venture (Ding et al., 2009b; Lyles & Salk, 1996). The managers or employees from the parent firms tend to carry with them a home-company cultural burden which may not be easy to shake off. This baggage, if not directly responsible for poor performance, can have implications for the daily business operations in the form of tension and frustration, for example (Datta & Rasheed, 1993; Ding et al., 2009b).

Child (1994) classifies knowledge transfer in alliances into three different levels (i.e., technical, systemic and strategic level). Child's (1994) study found that knowledge transfer at the strategic level, which is a major challenge, is greatly influenced by cultural elements. For example, in the previous centrally controlled economy, Chinese managers from state-owned enterprises (SOEs) were often under the government direction and supervision. They normally have no opportunity to make strategic decisions by themselves. After implementing economic reforms (since 1978), Chinese managers gradually changed their traditional way of thinking and understood the competitive nature when doing business with foreign companies. Child (1994) emphasises that it is necessary to

be aware of this background, to understand how local Chinese managers think, so that the foreign partner's senior managers can interact accordingly and cooperate with their Chinese counterparts. The reasons behind this need are quite simple. The evolution and transformation of national and organisational culture is a slow process (Ding et al., 2009b; Meschi, 1997). Although the forces of homogenisation and westernisation can no doubt change some dimensions of national and organisational culture, they cannot eliminate the differences between them. Researchers thus agree that cultural distance between firms has implications for their ability to transfer knowledge (Ding et al., 2009b; Simonin, 1999a).

In sum, cross-cultural distance is related to knowledge transfer, and aspects of cultural similarity, collective or individualistic approaches and the relative positions of people in the collaborative venture might be relevant. Both knowledge acquisition and knowledge development would be affected by cultural differences. However, there still remains a diversity of attention when considering cross-cultural knowledge transfer as a source of competitive advantage in collaborative working and learning. The main point is that cultural differences should be appreciated, so knowledge transfer processes can be designed accordingly (Ding et al., 2009b).

2.10 The Impact of Ownership Structure Characteristics

The preceding sections explained the emergence of interfirm collaboration, why organisations acede to cooperative arrangements and highlighted the various considerations relating to the conceptual background of knowledge and knowledge transfer. This section next focuses on knowledge transfer in one of the specific forms of alliances – international joint ventures (IJVs). As a specific form of strategic alliance, international joint ventures (IJVs) are a cooperative arrangement with two or more separate sponsoring organisations collectively dealing with the managerial decision-making activities needed to fulfil their strategic objectives based on a specific contract or agreement (Benvignati, 1983).

There are, therefore, multiple benefits. First, resources/knowledge for international business expansion can be acquired through the cooperation process; and second, joint use of complementary resources, competencies, and skills possessed by partnering organisations can create synergistic effects, which none of the companies is able to achieve if acting alone (Yan & Luo, 2001).

IJVs are often regarded as the organisational channel by which interorganisational knowledge transfer most often occurs. IJVs are also relatively efficient at transferring tacit knowledge between partners, as long as restrictions are not placed on the release of such knowledge (Child, 2001). IJVs bring cooperative partners into a close working relationship, fostering learning both by facilitating knowledge transfer and by promoting knowledge creation (innovation) on the basis of complementary competencies (Child, 2001; Inkpen & Pien, 2006).

Equity-based IJVs are a type of ownership structure that is shared amongst two or three companies that join together to establish a new business abroad. A common arrangement is a 50/50 share arrangement where both parties contribute equal management and operational control (Hill, 2005). There are a number of advantages of being joint ventures (Hill, 2005): first, one partner firm will benefit from the other partner's knowledge and past experience that include culture, market conditions, and political, legal and business systems of the host country; second, in opening and expanding a foreign market, development costs and/or risks can be very high, but these costs and/or risks are shared by the firm with the partners in terms of joint ventures; third, due to political considerations, the joint venture may be the only feasible entry mode in many countries.

Researchers note (e.g., Buchel et al., 1998; Contractor & Lorange, 1988; Das & Teng, 2000; Yan & Luo, 2001) that in addition to cost considerations, joint venturing is an effective, if not the most effective, avenue for companies in developing countries to learn about new business processes and to catch up with the substantial technological advantages possessed by their counterparts from

developed economies. Lyles and Salk (1996) examined KT in IJVs and found explicit business goals help facilitate the process of knowledge transfer and IJV managers could have a window to learn what have already been useful in the parent companies.

Meanwhile, each IJV is unique, and many of the knowledge resources in IJVs are tacit; therefore, knowledge access in an alliance is often difficult to copy and assimilate (Szulanski, 1996). Equity-based international joint ventures (IJVs) are viewed as the most effective way to transfer tacit and embedded knowledge, through interacting and frequent communicating and direct observation among the technical and managerial staff members (Schuler & Tarique, 2006; Shenkar & Li, 1999; Todeva & Knoke, 2005). Similarly, Millington and Bayliss (1995) identify that IJVs enable a firm, with the assistance of a local partner's knowledge and resources, to swiftly enter local markets through product and technology transfer abroad; alliances can consume excess capacity, increase efficiency, and lead to economies in research and development, production and promotion. In a technology-complementary joint venture, partners can share technology, patents, new products and technology development with each other to realise economies of scale that enable the gradual process of experiential learning and successful tacit knowledge transfer (Tsang, 1999).

It is the distinctiveness of many joint venture experiences that requires organisations constantly to adapt their alliance knowledge transfer process to new circumstances. Consequently, the routines built to support alliance management and acquire knowledge from partners have always been subject to questions of adaptation, reevaluation, improvisation, and mutation (Lyles, 1988; Miner et al., 2001). Thus, equity-based IJVs have some important economic and managerial advantages over both simple contractual agreements and direct capital investment. However, it is also observed that the unstable nature of IJVs, such as the escalation of partner political behaviour or mistrust between the cooperative

partners, may result in the failure of collaborative ventures, affecting knowledge access (Duysters, de Man, & Wilderman, 1999; Shenkar & Yan, 2002).

2.11 Facilitating Interfirm Knowledge Transfer in Alliances

While KT is a prerequisite for obtaining competitive advantage, effective KT mechanisms are still required even if these preexisting conditions are not present (Perez-Nordtvedt, Kedia, Datta, & Rasheed, 2008; as cited in Ding et al., 2009b). One important consideration is that knowledge transfer is unique and complex, requiring management to recognise that access to a partner's knowledge base needs serious consideration, especially when much of the knowledge is often organisationally embedded and tacit in nature (Ding et al., 2009b; Szulanski, 1996). As knowledge transfer does not necessarily take place efficiently or effectively, Gupta and Govindarajan (1991) state, "the realisation of resources (*knowledge*) sharing and the accompanied benefits depends on how linkages among organisations are actually managed" (p. 696).

2.11.1 Frequent Interaction

Bucic and Gudergan (2004) and Kogut and Zander (1996) suggest that firm boundaries provide the context for knowledge to be developed and exploited; they emphasise the role of social interaction and coordination as key activities of the firm interactions enhance learning capability, which may mitigate the transactional concerns. In a similar vein, Nonaka (1994) emphasises the role of "socialization" within organizations (as mentioned in Section 2.3.2). His perspective suggests that "social connections enhance the emergence of new knowledge and the transformation between tacit and explicit knowledge" (as cited in Ding et al., 2009b, p. 19).

Social interaction necessitates knowledge exchange among partner firms and this exchange process promotes extensive interorganisational coordination and integration. Existing interorganisational connections provide channels for flows of resources. Such interaction between firms provides avenues to ensure that their

cooperation follows the broader mission (Dhanaraj, Lyles, Steensma, & Tihanyi, 2004). Empirically, Tsai's (2000, 2001) study demonstrate there is a positive relationship between organizational socialisation and resource exchange. Thus, previous research has concluded that social interaction and communication promote interorganisational learning and knowledge acquisition, and social networking facilitates the sharing of tacit knowledge (Ding et al., 2009b).

Teece (1998) argues there is a necessity for frequent interaction if companies are culturally distant from each other. Interaction between individuals and the transfer of knowledge are necessarily carried out in an environment of cultural differences, whether they are in face-to-face contact or not. Pollard and Tayeb (1997) discuss the idea that "the provision of knowledge, the expectations of its recipients and the implementation of new techniques all have significant cultural dimensions" (p. 68). Hence, transferring knowledge involves crossing national boundaries in such a way that it has implications for collaborating partners.

2.11.2 Interpartner Trust Relationship

Trust has been viewed as an aspect of the organisational context and as an antecedent of cooperation (Ding et al., 2009b). Uzzi (1997) has noted in his study, trust "facilitated the exchange of resources and information that are crucial for high performance but are difficult to value and transfer via market ties" (p. 678). A reputation for trustworthiness is an important factor that will influence both the way in which a firm will manage its relations with other exchange partners and also the content of the relations, i.e., the type of knowledge transferred and the mechanisms used. Knowledge transfer is fundamentally dynamic and is thus organised and created by social interactions among individuals and organisations (Ding et al., 2009b; Nonaka & Takeuchi, 1995; Nonaka et al., 2000).

Such trustworthy behaviours increase the scope of the relationship, and enhance an enriched, meaningful mutual knowledge transfer between firms in the alliance (Ding et al., 2009b). As there are no specific contractual agreements that

could cover all of the changing variations and conditions, trust, which is “the belief that one partner would not behave in fulfilling its self-interests” (p. 43) is seen as being essential in alliances (Uzzi, 1997), and the extent to which one partner’s knowledge is accessible to the other also depends on interpartner trust (Ding et al., 2009b). Researchers (e.g., Lane, Salk & Lyles, 2001b; Van Wijk et al., 2008) specifically examine the relationship between trust and knowledge sharing. They confirm trust influences the knowledge exchanged at both extent and efficiency level, which lead to further increase in investments, risk sharing, and knowledge exchange (Muthusamy & White, 2005; Van Wijk et al., 2008). As Pollard (2001) notes, the link between learning and trust was alluded to earlier in the context of sharing information in groups; trust helps the transfer of knowledge and information over company boundaries.

2.11.3 Shared Vision and Understanding

In the social capital literature, a shared vision is often used to refer to the common goals of the member organisations (Dyer & Singh, 1998; Inkpen & Tsang, 2005). Ouchi (1980) notes, “common values and beliefs provide the harmony of interests that erase the possibility of opportunistic behavior” (p. 138). Knowledge and learning could be built on shared vision and understanding (Ding et al., 2009b; Pavlovich & Corner, 2006; Pollard, 2001). Denton (1998) argues that shared vision is the important characteristic which is most closely relevant to the idea of a learning strategy. Without a shared vision and a striving for the desired future, a company will not be moving forward (Hamel & Prahalad, 1994). The same line of reasoning applies in the cross-cultural alliances context (Dyer & Singh, 1998). As the cross-cultural alliance matures and both partners build trust and learn more about each other, they are likely to have developed a basic understanding about each other’s skills (Ding et al., 2009b).

One difficulty facing researchers and arguably practitioners in any cross-cultural alliance situation is the problem of identity (Tsang, 1998). People

interpret situations and actions in a cultural framework and it is all too easy to add one's own cultural perspectives to an international setting (Ding et al., 2009b). This limitation can manifest itself in culturally-bound interpretations of management issues, and errors in understanding or action might not be realised until a problem occurs. An example might be failure to properly regard the seniority of a partner firm's senior manager, leading a loss of status or face (Ding et al., 2009b). Thus a shared vision and understanding are necessary conditions for an exchange to take place (e.g., Lane et al., 2001a, 2001b). The existence of shared goals and values can enhance culturally different partners' responsiveness to each other's needs, and an appreciation of the other's initiatives helps to create a conducive environment for knowledge sharing (Ding et al., 2009b).

2.11.4 Summary

Nonaka and Takeuchi (1995) emphasise that knowledge transfer is fundamentally dynamic. Additional competence, abilities, and trust-based cooperative relationships (Ding et al., 2009b; Inkpen & Dinur, 1998) are, therefore, required to overcome the challenges (Lyles, 1988; Miner, Bassoff, & Moorman, 2001).

In business alliances, the most significant knowledge processes aim to facilitate knowledge flows between partners from different background and to control unwanted knowledge leakage (Buchel et al., 1998; Ding et al., 2009a, 2009b). To ensure this knowledge exchange process occurs, partners must work closely together and learn through watching, or through acquiring new skills under specific guidance where people can allow others to gain insight into their own capabilities. The ability to absorb new knowledge may be reduced in business alliances due to the differing cultural background or differences in viewpoints on the alliance's cooperation objectives. It is only when previously accepted values are reconsidered that there will be a space for creating something unique (Nonaka, Toyama, & Konno, 2000). The readiness to pass on knowledge which was previously present in implicit form, and to organise and create new

knowledge through creative cooperation within business alliances, can thus be encouraged by careful moulding of tools, such as social interactions, and versatile communication systems between individuals and organisations (Ding et al., 2009b).

2.12 Identifying Research Gaps and Proposing Questions

Knowledge transfer (KT) research has attracted many organisational management scholars dating back to the early 1990s (e.g., Bou-Liusar & Segarra-Cipres, 2006; Buckley, Clegg, & Tan, 2003; Crossan & Inkpen, 1995; Ding et al., 2009b; Eunni et al., 2006; Tsang, 2001, 2007). Looking at the literature on knowledge transfer, the development of the research trends has contributed to our understanding from diverse perspectives linked to the knowledge transfer (Ding et al., 2009b). In the international business context, several streams of literature on knowledge transfer have revealed a series of research considerations, such as knowledge transfer contents, tools, determinants and outcomes, and transfer of technology as well as the transfer of managerial know-how (Easterby-Smith & Lyles, 2003; Easterby-Smith et al., 2008). Some research focuses mainly on *intrafirm* knowledge transfers, and the concept that knowledge may be transferred, integrated, and disseminated in an evolutionary way (Schlegelmilch & Chini, 2003). Other researchers focus on the extent of the internalised and institutionalised knowledge acquired by the recipient (Cummings & Teng, 2003; Kostova, 1999).

Most often, knowledge transfer research is considered in alliance settings, which has actually gained heightened recognition in the literature (i.e., Ding et al., 2009b; Dong & Glaister, 2006; Inkpen & Tsang, 2005). In the strategic alliance literature, knowledge transfer research generally sees a transfer as the movement of existing knowledge between relevant collaborative organisations, when one partner either imitate or learn from the other organisation in the field of relevant business or production behaviours (Ding et al., 2009b; Tsai, 2001). Some researchers thus view knowledge transfer as a learning process. They also identify

various factors which could impact on the acquisition of knowledge from external partners (e.g., Inkpen, 2002; Simonin, 1999a, 1999b, 2004). Table 2.2 below presents major studies on knowledge transfer in alliances.

2.12.1 Identifying Research Gaps

However, research on interfirm knowledge transfer in alliances is still in its early stage of development, which creates a significant gap in the literature of interfirm knowledge transfer research (Ding et al., 2009b; Duanmu & Fai, 2007). With respect to overall interfirm knowledge transfer based on the alliance phenomenon, Duanmu and Fai (2007) and Easterby-Smith et al. (2008) acknowledge that although alliances' knowledge transfer has been the subject of much "theorising", it still remains relatively underresearched. A key challenge in studying knowledge transfer is how to adequately specify the actors involved, the contents to be transferred, as well as the channels in "facilitating" the transfer (Ding et al., 2009b; Van Wijk et al., 2008). Particularly, extant knowledge transfer research tends to focus on either the contributor or the receiver instead of on both sides. This unidimensional rather than a multidimensional perspective has prevented us from reaching a holistic understanding of the KT process, and few studies tend to explicitly address the difficulties or challenges experienced between foreign MNEs and host nation local partners (Duanmu & Fai, 2007). Finally, most studies (except Inkpen & Pien, 2006) mostly employ quantitative methods (such as surveys), rather than in-depth case analysis. This confirms that the nature of KT in alliances creates fundamental challenges for both practitioners and researchers alike (Ding et al., 2009b; Szulanski, 2000).

Table 2. 2 Major Studies on Knowledge Transfer and Learning in Alliances

<i>Author(s)</i>	<i>Country of Investigation</i>	<i>Research Method</i>	<i>Key Aspects Investigated</i>
Markoczy, 1993	Hungary	Case Study	The impact of changes in contingent factors, such as decrease in dependence on authorities and the increase in dependence on the foreign partners, on organisational routines and procedures.
Cyr & Schneider, 1996	Poland, Hungary & Czech Republic	Interview Questionnaire	How human resource management contribute to new values learning for local partners.
Geppert, 1996	East Germany	Case Study	How learning/KT in organisations are related to particular external environment elements.
Lyles & Salk, 1996	Hungary	Survey Questionnaire	The impact of the organisational feature and institutional factors on knowledge acquisition from parents to subsidiary in JVs.
Nilsson, 1996	East Germany	Longitudinal Case Study	How changes held by western firms are related to learning in Eastern Europe.
Villinger, 1996	Czech Republic, Hungary, Poland & Slovakia	Survey Questionnaire	Main skills needed for overcoming the learning barriers.
Lyles & Steensma, 1997	Hungary	Longitudinal Questionnaire Survey	The impact of managerial activities and technological knowledge supported by parents on learning, and IJV survival.
Mowery, Oxley, & Silverman, 1996	USA	Meta-Analysis	Equity arrangements and absorptive capability promote greater knowledge transfer in alliances.
Shenkar & Li, 1999	China	Questionnaire	Possession of the complementary knowledge is a prerequisite, and JV is the vehicle for transferring the tacit knowledge.
Si & Bruton, 1999	China	Survey	Knowledge acquisition ultimately helped increase the IJV satisfaction.
Simonin, 2004	USA	Questionnaire	Proposed and tested a basic model of organisational learning in alliances.

<i>Continued</i>			
Dhanaraj, Lyles, Steensma, & Tihanyi, 2004	Hungary	Stratified Sampling	Examined the role of relational capital and its impact on IJV success.
Wang & Nicholas, 2005	China	Survey	Identified the collective learning in contractual JVs.
Inkpen & Pien, 2006	China	Case Study	Examined alliance knowledge transfer, found tacit knowledge was difficult to transfer.
Becerra, Lunnan, & Huemer, 2008	Norway	Questionnaire Survey & Interview	Role of trust and tacit & explicit knowledge transfer on the learning alliances.
Harryson, Dudkowski, & Stern, 2008	Sweden	Case Study	Identified transformation network theory and innovation in alliances.
Mason & Leek, 2008	Europe & India Based	Case Study	Explored the business models as an example of interfirm knowledge transfer.
Van Wijk, Jansen, & Lyles, 2008		Meta-Analytic Literature Review	Examined the antecedents and consequences of inter and intraorganisational knowledge transfer.
Perez-Nordtvedt, Kedia, Datta, & Rasheed, 2008	USA	Survey	Examined the relationship between source and recipient, and indicated that recipient learning intent and source attractiveness positively impact on KT effectiveness & efficiency.
Sammarra & Biggiero, 2008	Rome, Italy	Telephone & Face to Face Interview	Investigated the exchanges of technological, market and managerial knowledge based on social network analysis. Revealed the complex process of knowledge-specific exchange. Emphasising the nature of innovation in collaborative relationships.

2.12.2 Proposing Research Questions (RQs)

As the current dynamic environment requires firms to concentrate on their core activities while forming collaborative relationships with other firms to access and build internal resources (knowledge) (Pavlovich & Akoorie, 2003), this knowledge transfer process in alliances seems to be of strategic importance particularly in the context of international business activities and has long been a part of the research agenda (Ding et al., 2009b).

Given that research on knowledge transfer has received increasing attention, we still know relatively little about how to transfer knowledge within and across organisational boundaries (Ding et al., 2009b; Inkpen & Ramaswamy, 2006), and unlike the profusion of conceptual work, there has been only limited empirical work on the knowledge transfer in strategic alliances (Ding et al., 2009b; Easterby-Smith et al., 2008).

This thesis focuses on the interfirm knowledge transfer and learning process in IJVs in the Chinese auto industry context. Focusing on the IJVs – a specific alliance form – provide good opportunities to examine international partnership and interfirm knowledge transfer nature (Ding et al., 2009b; Inkpen & Dinur, 1998). It sought to examine how companies with different backgrounds working together to exploit cooperative opportunities in order to share, integrate and develop knowledge for the purpose of acquiring competitive advantages in a specific industrial setting.

Building on the pertinent contemporary theoretical thinking and conceptualisation considerations, the thrust of knowledge transfer and learning as a dynamic process is the main research focus in the thesis. Possible influential factors in knowledge transfer activities, specifically, knowledge characteristics and trust dimensions, and alliance management behaviour in the knowledge transfer process are also considered. The researcher looks more closely at the bases of learning processes in the IJV and tries to answer the question “What does

learning in the IJV system mean?”. Particularly, the researcher uses the following points as a basis for discussing learning processes in the IJV system: (1) *Agents*: “Who learns in the IJV?”; (2) *Content*: “What is learned?”; (3) *Process*: “How is it learned?”.

2.13 Chapter Conclusion

Alliance/IJVs are frequently formed with the intent of facilitating organisational learning and gaining access to new knowledge from the partner firms (Ding et al., 2009b; Parkhe, 1993b). Scholars have treated aspects of knowledge transfer and interfirm learning in alliances in a diffuse manner, and defined the terms in question using a multitude of different theories or drawing on different empirical findings. Theoretical explanations go some way towards explaining the increased use of the alliance mode, which means that a company can be involved in cooperative arrangements in different market areas and with different partners at the same time, bringing different strengths to each partnership as they are needed, such as knowledge of the market in a particular region, or the capital needed for an important investment. In some countries, alliances may be the only acceptable and possible form with local partner/s; the firm could reduce liabilities of foreignness and have keen insights about local environment, thus increasing the likelihood of success (Li & Shenkar, 1996). Pavlovich and Akoorie (2003) point out that different knowledge owned by different partners; consequently how the knowledge could be used by each other means that the alliance phenomenon is not entirely unexpected. Therefore, learning expectations and goals exist in alliances which were shaped for strategic, or functional considerations. This alliance knowledge transfer phenomenon has occurred particularly in knowledge intensive or high-tech industries.

This chapter presented an overview of the literature and the relevant theories concerning the area of study. It critically reviewed theories relevant to the research questions. The purpose was to illustrate the importance of interfirm knowledge transfer in IJVs and relevant knowledge transfer barriers and facilitating mechanisms and knowledge transfer stages for alliance partners faced with the new knowledge environments. Based on the review of the literature, this chapter identified the research gaps of knowledge transfer in alliances and

proposed several research questions when considering the particular characteristics of knowledge transfer and learning process as an additional way of looking at cooperative relationships.

After summarising the relevant literature, the next chapter will introduce the proposed theoretical framework and a conceptual research model, which will define various constructs, conditions and dynamics that favour effective knowledge transfer between partners in alliances.

Chapter 3 Research Model

3.1 Introduction

As the literature review chapter suggests, the formation and operation of an IJV raises many knowledge transfer and interfirm learning issues that have implications for how the IJV partners manage their cooperative learning activities in the IJV system. Many of these implications are grounded in the assumption that partners in the IJVs have routines for transferring knowledge, learning, gaining management efficiencies (Schuler & Tarique, 2006). Thus organisations can support knowledge flow, learning, sharing and even developing with technology and management practices in IJVs (Jackson & Schuler, 2003; Inkpen & Tsang, 2005).

This chapter introduces the conceptual research model of knowledge transfer within learning IJVs. It justifies the constructs and identifies the interrelationships among these concepts through proposing a framework of interfirm knowledge transfer and organisational learning in IJVs. Section 3.2 formulates a theoretical framework. The research model is considered in section 3.3. The chapter concludes in section 3.4.

3.2 Formulating a Theoretical Framework

An appropriate theoretical framework is needed to guide this research. Chen (1995) and Kang (2002) argue that first, a suitable theoretical framework can decide the basic units of analysis; second, a suitable theoretical framework is able to identify and address some kind of special or nonrandom relationship from the basic units of analysis which is a specific institutional relationship; third, a suitable theoretical framework is able to observe the repeated process of interaction between the basic units of analysis; fourth, a suitable theoretical framework can be a guide to delineate the boundaries of the basic units of analysis from other units outside them; fifth, a suitable theoretical framework is able to identify independent preconditions and their influence on the basic units of analysis both inside and outside boundaries; and finally, an appropriate theoretical framework has an undeniable function – it is able to distinguish the causal linkages between the determinants and outcomes.

However, a great challenge lies in formulating a suitable theoretical framework to guide the whole research process. Interfirm knowledge transfer in IJVs essentially presents an institutional arrangement, which is very different from both traditional forms of hierarchy and market in its organisational form (Powell, 1990). Knowledge transfer in IJVs also involves many issues of operational strategies in the field of international business. Further, the decision to transfer knowledge and the operational decisions to be made relating to knowledge transfer in IJVs are not made in isolation from the two or more partners since IJV learning behaviour can be understood only in the social context. Thus the formulated theoretical framework must be capable of dealing with all three areas: organisational form, business strategy, and social behaviour.

Considering the research purpose (presented in Chapter 1), this thesis addresses interfirm knowledge transfer in a broad historical background and social context in which the partners are embedded. It focuses on the dynamic

process of knowledge transfer evolution as a result of cooperative arrangements. It asks questions which are relevant to the thesis purpose. The questions centre on the conditions under which IJV knowledge transfer could be affected by the management of the cooperative partners and the knowledge itself.

Looking at the theoretical explanations, the use of the transaction costs approach and other perspectives to study interfirm knowledge transfer has not been incorrect, but simply incomplete (Ding et al., 2009a). Recognising knowledge resources and learning opportunities as the major reasons for IJV formation, firm specific knowledge development is dependent upon partners' interactions to access, assimilate and accumulate knowledge (Barney & Clark, 2007).

The resource-based theory (RBT) defines and shapes the precursors, processes and outcomes related to interfirm knowledge transfer in their social networks, which is a give-and-take process that includes combining and pooling knowledge resources. Learning can take place only in an environment where change is encouraged – as the organisational learning school views alliance knowledge transfer as collaborative learning processes intended to internalise and codify skills needed to improve firm performance (Faulkner & De Rond, 2000).

The RBT theory tends to ask and answer “how” questions related to interfirm knowledge transfer, whereas transaction cost economics fails to capture the mechanics and dynamism of interfirm knowledge transfer activities. A knowledge-based view (KBV) highlights the idea that the firm's future growth is dependent on the productive integration of knowledge resources and the derivative capabilities (Ding et al., 2009b; Steensma & Lyles, 2000). The KBV is thus an alternative to the RBV for explaining firm knowledge resources' integration. Following Ireland, Hitt, and Vaidyanath's (2002) classification, this thesis uses the term “knowledge” referring to those skills, capabilities, and processes which could be critical to enhancing organisational competitiveness.

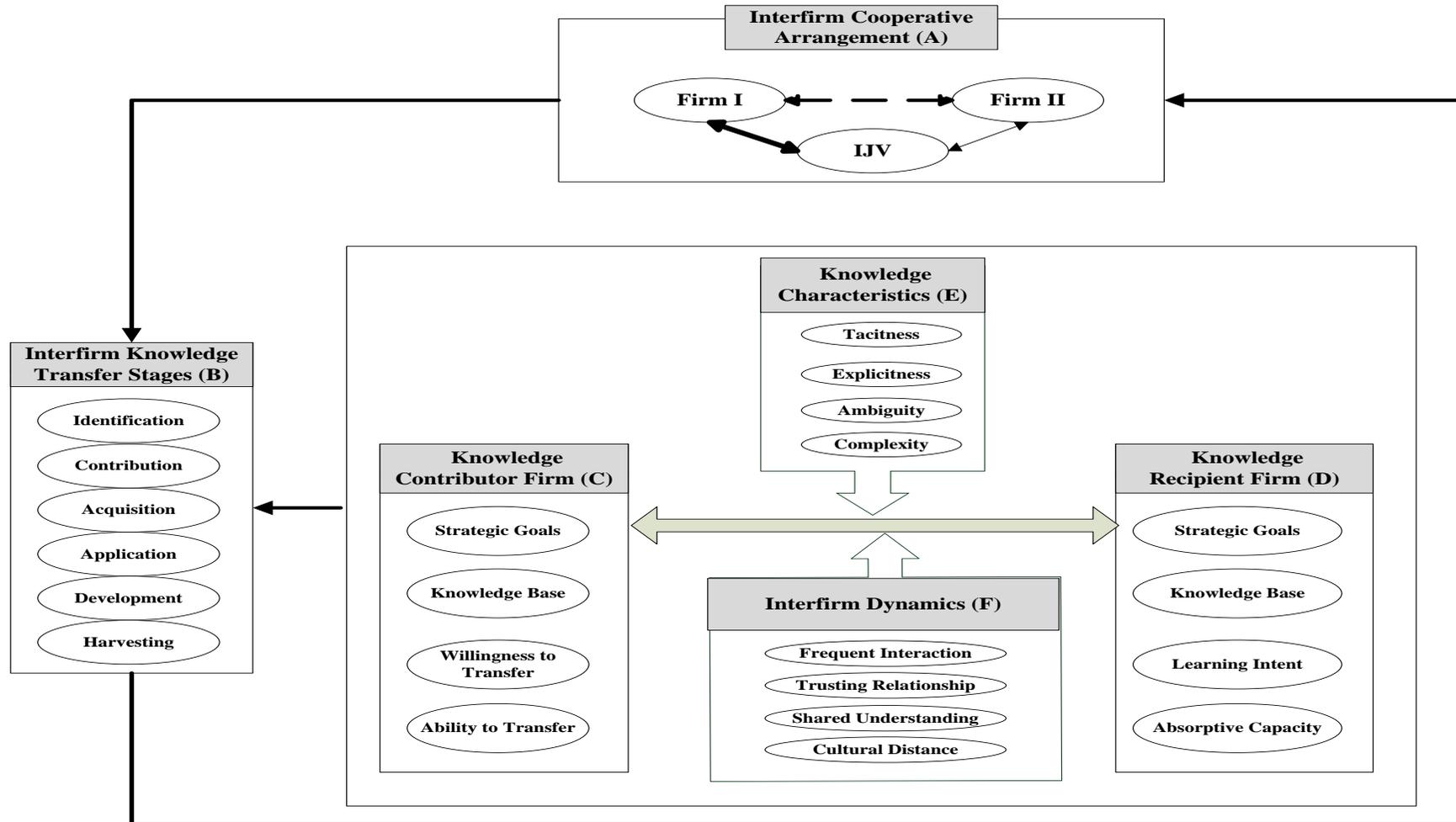
3.3 Conceptual Research Model

Drawing on the relevant theoretical ideas about cooperative arrangements and knowledge transfer (refer to the literature review chapter), a research model with which to frame this study is postulated (see Figure 3.1 below). The conceptualisation is shown schematically as a model of the interfirm knowledge transfer in IJVs. The proposed theoretical framework of the research includes several major groups of elements. The first group involves the partner firms in the IJV's internal cooperative system. The second group contains knowledge transfer stages. The final group constitutes the central part of the model: it includes knowledge contributor dimensions, recipient firm dimensions and relevant influencing factors (knowledge characteristics and interfirm interactions) related to the knowledge transfer process. This conceptualisation of the interpartner knowledge transfer model, in common with past conceptualisations, shows a holistic view of the IJV system involving the knowledge transfer dynamics.

3.3.1 Category A: Interfirm Cooperative System

Strategic alliances including IJVs are most frequently (at least implicitly) founded on the resource-based theory (Faulkner, 1995). As the RBT views companies as a unique system to collect and deploy resources (such as knowledge, skills, competences, and capabilities), these resources determine the effectiveness and efficiency of a company's activities (Barney & Clark, 2007; Collis & Montgomery, 1995; Ding et al., 2009a). A resource-based view of joint ventures suggests that all the partners involved in forming the joint venture could bring a certain set of knowledge resources to the joint ventures. The formation of a joint venture could increasingly create value through combining the knowledge resources, thus reaching an optimal return (Das & Teng, 2000; Ding et al., 2009a).

Figure 3. 1 Conceptual Model of Interfirm Knowledge Transfer



In the research model, Category A constitutes a cooperative system comprising two partner firms (Firm I and Firm II) from different backgrounds. An IJV cooperative system is considered as the firms' business relationships with other organisations and/or individuals who have an interest or can play some role when developing the business and exchanging knowledge resources (Cook & Emerson, 1974; Granovetter, 1982; Johanson & Mattsson, 1988). An IJV cooperative system is based on three major factors: (1) partner firms who get involved in an IJV partnership; (2) interactions and exchanges, and (3) knowledge resources (Albers, 2005; Ding et al., 2009b; Johanson & Mattsson, 1988).

The knowledge exchanges and transactions that take place between partner firms refer to the knowledge transfer and learning activities. An interfirm cooperative arrangement has been described by Håkansson (1989), Johanson and Mattsson (1988) as a useful asset that can be created by the exchange relationship between the actors. Due to the establishment of the IJV network, partners will encounter and many times gain entrance to each other's knowledge resources in the system.

3.3.2 Linking Category A and B: Knowledge Transfer Stages

How partner firms develop and utilise the knowledge in the network is important in the IJV system because IJVs are, to a large extent, expected to dictate the capacity of the IJV. Researchers recognise different yet closely interconnected knowledge flows in alliances calls for distinctive knowledge management procedures (such as knowledge creation, dissemination, and use) (Barney & Clark, 2007; Davenport & Prusak, 1998; Ding et al., 2009b).

Category B involves the interfirm knowledge transfer stages (including identification, contribution, acquisition, application, development, and harvesting of knowledge) that cooperative partners employ to get to know and to mobilise external knowledge and skills as a way of strengthening the alliance's competitive

advantage. Here, the partners seek to develop the alliance's existing knowledge by including new knowledge significant for raising the alliance's competence.

These knowledge transfer stages do not always confer direct benefit on the IJV but may be helpful in creating reliance and confidence in the partnership between the cooperative partners. Before an IJV is formed, partner companies may decide how much knowledge (initial resources) is needed by the new joint venture. At the initial stage of IJV formation, partner firms contribute both tangible and intangible knowledge (such as technical knowledge, managerial knowledge, and market knowledge) to the IJV. At the following stage, additional knowledge will "flow" into the cumulative knowledge "stock" of the IJV.

While the initial knowledge resource commitment is an irreversible (fixed) decision, once the IJV is formed the ongoing knowledge transfer stages can be adjusted according to market requirements and other factors. The sustainability of the alliance's competitive advantage will depend on both the initial knowledge contribution and the cumulative new knowledge developed through learning generated beyond the initial operational stage. Thus, the following resource/knowledge adaptation and development beyond the formation stage can be a topic of concern.

3.3.3 Linking Category B and Group Category of (C, D, E and F)

Although the benefits of knowledge transfer as the primary internal function for providing a basis of knowledge/competence development have long been realised, the activities of interfirm knowledge transfer are a complex process, and vary significantly across different alliances (Ding et al., 2009b; Easterby-Smith et al., 2008; Tsang, 2007). Some scholars (e.g., Gupta & Govindarajan, 2000; Szulanski, 1996) argue that as there are several fundamental impediments to interpartner learning and knowledge transfer, KT does not automatically occur.

Category C: Knowledge Contributor Firm – Category C concerns the knowledge contributor firm’s characteristics in terms of its strategic goals. Alliance formation is often regarded as one of several means or tools to pursue the strategic goals/motives of the business firm. The goals/motives include economic and/or strategic considerations. Certain goals and motives must be presented to justify creating an alliance/IJV, which suggests firms do not merely cooperate, but cooperate for a reason – an appropriate assumption is that organisations decide to enter cooperative relations with one another (Hyder & Abraha, 2003). As Albers (2005) comments, “Certainly, cooperating firms aim at creating positive synergies” (p. 13). Doz and Hamel (1998) also suggest, “Executives do not awake one morning with an unexplained urge to collaborate. It is not in their nature.” (p. 225)

Naturally, the knowledge contributor firm may be reluctant to share knowledge and want to protect its knowledge from uncompensated leakage to the recipient. Thus, knowledge transfer willingness is also considered in this category. If international joint venture partners are rivals or potential rivals, it is reasonable to predict that the contributor will strive to prevent knowledge leakage to the recipient because of the risks of knowledge spillover.

The existing knowledge base and its ability to transfer knowledge are also considered in this category. A certain level of knowledge base affects knowledge transfer ability which stimulates or impedes interpartner learning, although a reciprocal need or willingness to transfer serves as a solid basis for knowledge transfer. Meanwhile, high complementarity in the knowledge base increases both incentives for knowledge transfer and accessibility to partner’s knowledge.

Category D Refers to Knowledge Recipient Firm – Tsang (2007) argues the transfer of organisational knowledge could depend not only on the contributor’s dimensions, but also be related to the recipient-related characteristics. Ideally, knowledge transfer will be encouraged when the recipient

possesses definite strategic goals with a certain level of knowledge base. Those parties who have no learning intent will often be hesitant to acquire knowledge. If the recipient is not able to absorb the contributor's knowledge, interfirm knowledge transfer between partners is likely to have problems. Similarly, a reciprocal need for each other's proprietary knowledge boosts knowledge exchange between partners and ensures resource accessibility. Thus, in a two-partner joint venture, accessibility to other partner's knowledge resources also depends on recipient's strategic goals, the extent of the its knowledge base, learning intent and absorptive capacity, as indicated in Category D.

Category E Identifies “Knowledge Characteristics” Related Elements –

The first characteristic originates in the socially embedded nature of knowledge (tacit or explicit). In contrast to the codified, explicit knowledge, which is generally transparent, readily accessible, most knowledge transferred between joint venture partners is tacit, context-specific, and socially or organisationally embedded (Ding et al., 2009b; Nelson & Winter, 1982; Nonaka, 1994; Yan & Luo, 2001). Studies on organisational learning also recognise the embedded knowledge may result in “complexity” and “ambiguity” (Kogut & Zander, 1992; Simonin, 1999a, 1999b), and such factors are likely to obstruct interpartner learning and knowledge exchange (Granovetter, 1985). Thus, these widely recognised barriers, including “tacitness”, “complexity” and “ambiguity” are thus involved in the Category E of the model.

Category F Emphasises InterFirm Dynamics –

As interfirm knowledge transfer includes both the knowledge contributor and the recipient firm, the interfirm dynamics between the contributor and recipient constitute the central issue in the research model and are also regarded as the focus in this thesis. Meanwhile, it is also recognised that while transferring hardware such as blueprints, specification sheets is easy enough, real commitment is required to make sure the tacit or ambiguous know-how transfer across units of an organisation (Killing, 1983). It is thus acknowledged that frequent interaction

involved in Category E may enable partners to conform to new procedures and processes, and to contribute equally business practices and resources (Miesing & Slough, 2003). Another two dimensions are whether there are trusting relationships and shared understanding between cooperative partners.

Related to this stream of logic, active management involvement, communication, visits, meetings, training and social interactions appear to encourage greater knowledge sharing (Ding et al., 2009b; Inkpen, 1997; Nonaka & Takeuchi, 1995). As collaboration matures and the venture organisations build trust and learn more about each other, such shared knowledge could also be a platform for developing understanding about each other's skills, and so on. Specifically, as interpartner trust increases and mutual understanding develops, access to each other's knowledge base will become less problematic (Ding et al., 2009b; Pavlovich & Corner, 2006). This category thus refers to both partners providing more active support and getting involved in the IJV primarily to combine their knowledge in the IJV and thus increase their competitive strength.

3.3.4 Ownership Structure and Cultural Distance Considerations

In the collaborative IJV system, knowledge management involves the transfer of knowledge between the venture partners working together to increase their total knowledge (Bresman, Birkinshaw, & Nobel, 1999). If a company relies on a partner's constant supply of necessary resources and knowledge, it will tend to form an equity-based IJV structure, as Huber (1991) argues one of the critical issues concerning knowledge transfer cannot be separated from the consideration of the type of ownership structure (See literature review in Section 2.8).

Such knowledge management activities in equity-based ownership structure are complex enough within the same national environment but the transfer of knowledge management to foreign locations poses further difficulties (Bresman et al., 1999), especially when knowledge is acquired and institutionalised in cross-cultural settings, a difficulty which deserves serious attention from international

managers (Huber, 1991; Yan & Luo, 2001). Nevertheless, the cultural compatibility of partners determines if they can effectively communicate and coordinate. Higher cultural compatibility heightens the odds of knowledge transfer across nations (Pollard, 2001) (See literature review in Section 2.9).

Finally, knowledge transfer in the cross-cultural alliance/IJV setting cannot be effectively conducted through market transactions (Ding et al., 2009b; Hamel, 1991; Mowery et al., 1996). Through interpartner mutual interactions, trust relationship and consensus building (i.e., factors identified in Category F), IJV can help firms create a unique culture distinctive from that of the partner companies in order to promote shared understanding and effective knowledge transfer.

3.3.5 Linking Category of (C, D, E and F) and Category A

Interfirm knowledge transfer activities in IJVs may play an important role in the overall cooperative activities. It is anticipated that knowledge transfer results will vary in the IJV depending on the interpartner cooperative management. Beamish (1987) pointed out that combined resource strength describes the joint venture's overall resource endowments and capabilities and it should contribute to better or worse joint venture performance. When combined resource strength changes during a knowledge management process, the joint venture's performance would be expected to change accordingly (Eunni et al., 2006). It is the combined knowledge resources that give the joint venture a competitive advantage over its competitors (Das & Teng, 2000).

Hence, the model finally suggests that changes in IJV cooperative management will lead to changes in the knowledge transfer process and in turn change the learning performance in IJVs. As partner firms combine their knowledge in the IJV, more learning and adaptation take place, which may also have a synergetic effect on the overall IJV development.

3.4 Chapter Conclusion

Knowledge transfer in alliances/IJVs needs to be approached realistically if they are to provide companies with a meaningful way of extending their scope for action by cooperating with others (Buchel et al., 1998; Ding et al., 2009b). Experience has demonstrated that companies are often eager to embark on alliances. However, this versatility constitutes both the attraction of alliances and one of the main difficulties which they present. This is especially true when dealing with knowledge transfer practices, which are another demanding and unfamiliar task. There are a rapidly growing number of researchers focusing on IJV knowledge transfer issues; however, a unified theoretical framework has not emerged yet.

This chapter articulates and presents a research model (See Figure 3.1) for the current research in categories that bring together the major features of IJVs and knowledge transfer. In Figure 3.1, alliances/IJVs are regarded as a specific kind of interorganisational cooperative system. The partnership of the firms is treated as an institutional relationship and also constitutes the core tier of the IJVs. This figure indicates the interpartner knowledge transfer based on cooperative partnerships between the firms as well as the operations of the key constructs. Through the operations of the IJVs, knowledge transfer can be conducted by the partners both inside and outside IJVs with their subsequent behaviours, and may affect their alliance cooperation performance. This chapter thus presents a conceptual framework in which certain key elements influence and are influenced by each other, following relevant literature review and theoretical analysis in Chapter 2. This conceptual model also provides part of the basis on which the research methodology and research design are selected, which will be discussed in the following chapter.

Chapter 4 Methodological Issues and Method

4.1 Introduction

The literature brings out certain crucial questions and theoretical improvements regarding the studies on interfirm knowledge transfer in IJVs. Parkhe (2006) critiques the fact that some research projects have not followed a “collectively coherent” theoretical logic, and thus progress in the study of alliance knowledge transfer has been hindered. These mixed results, Parkhe (2006) claims, come from the methodological inconsistencies to a certain degree. While specific methodologies have been used in past interfirm knowledge transfer research, this thesis addresses a number of fundamental philosophical and research method considerations in relation to the proposed research question in Chapter 1.

This chapter firstly provides clarification in terms of philosophical inquiries and paradigms in section 4.2, including a presentation of the dominant philosophical foundations and a qualitative interpretive inquiry in sections 4.2.2 and 4.2.3; a suitable theoretical paradigm consideration regarding this thesis is then discussed in section 4.2.4; the process of research method selection is explained in section 4.3, including the details of the specific in-depth case study design for fieldwork and contextual analysis; data collection procedures and principles are considered in section 4.4; fieldwork access and procedures’ execution, and ethical considerations applied in conducting the research are described in section 4.5; and the details of interpreting data and software analysis techniques are presented in section 4.6. This chapter concludes in section 4.7.

4.2 Philosophical Inquiries and Paradigms

“Most quantitative techniques are data condensers. They condense data in order to see the big picture. Qualitative methods are best understood as data enhancers ... It is (thus) possible to see key aspects of cases more clearly.”

– Ragin, 1994, p. 92.

4.2.1 What is a World View or Paradigm?

Discussion of the philosophical basis, which draws on a variety of specific *world view* or *paradigm* and why it is meaningful to a research topic, has been central to the debate about different research methodologies. International business management research is no exception to this. Willis (2007) states that a *world view* or *paradigm* is “a foundational system of assumptions about the world nature that guides research and practice” (p. 8), which has five components as outlined by Chalmers (1982, p. 91):

1. Prescriptions about how to conduct work;
2. Techniques bringing the laws to a variety of situations;
3. Standard ways of applying the fundamental laws;
4. Principles guiding work on the real world;
5. Explicit theoretical beliefs.

Then why should we be concerned with understanding the paradigm guiding a research study? Burrell and Morgan (1979) state the answer well, “the principal concern is to understand the way of how the individual interprets the world” (p. 3). Jennings (2001) further proposes a paradigm needs to consider the following three questions:

1. What is the nature of “reality”?(Ontological Considerations)

Ontology is concerned with the nature of reality (Guba, 1990). Burrell and Morgan (1979) state that ontology is reflecting different prescriptions of what can be real and what can not in the world, “whether the ‘reality’ is external to the individual consciousness or a product of one’s mind” (p. 5). There are two

competing views of reality: idealist or materialism. Proponents of idealism assert that perception or mind creates the reality. While a materialist ontological position means all that is real is the physical world which is not the product of one's consciousness (Crotty, 1998). That is, reality is material rather than mental or spiritual.

2. Relationship between the knower and the known (Epistemological Considerations)

Epistemology refers to what humans know about reality and how to know it (Crotty, 1998). Burrell and Morgan (1979) describe an epistemological assumption as being how one might begin to understand the reality and how to communicate this understanding as knowledge to other people. The epistemological assumption is also concerned with whether knowledge is something that must be acquired or experienced. It includes identifying how one might go about disseminating true and false information (Burrell & Morgan, 1979). This distinction has a direct influence on the way the researcher might attempt, for example, to elicit information from his or her subjects.

3. How should the knower go to find out knowledge? (Methodological Considerations)

A methodology is a discourse or a theory of inquiry or a system of ontological and epistemological assumptions on which research is to be based. It is generally referred to certain key aspects and procedures of conducting a research, such as the selection of subjects, research design, data collection, and analytical methods (Willis, 2007). Different world views, ontologies and epistemologies may embrace different methodologies which, therefore, makes their usefulness and capacity to create meaningful findings, and reach consensus on methodological considerations difficult (Silverman, 2000).

4.2.2 The Dominant Paradigm in IJV KT Research

Willis (2007) comments different scholars may have different world views or paradigms. Within knowledge transfer research in IJVs, the predominant paradigm appears to be that of positivism, which assumes that there are universal laws that govern the operation of the social world – the belief holds that a common physical reality exists, and that use of the appropriate methods of analysis will uncover these laws (Neuman, 2000). The same argument posits that there is a body of knowledge that existed independently of whether people knew it or not, and that the task of the researcher is to uncover that knowledge piece by piece, building up a comprehensive understanding of the nature of reality (McNeill, 1985).

Positivists see science is waiting “out there” to be revealed, and is free of religious values or individual consciousness (Neuman, 2000). This positivist worldview is apparent in the methodology and method selections. It perceives research in an instrumental way, and the eventual research purpose is based on scientific explanations – to find out, explain, and to testify the common laws of human social activities. They can then be described in an objective and value-free way (a strong version of positivism is objectivism), and the hypothesis-deductive method is the best way of following this procedure (Derksen & Gartrell, 1992). It prefers to collect accurate quantitative data and uses surveys, experiments, and exact statistical tools “searching for rigorous measures, and to test hypotheses by cautiously analysing the numbers” (Neuman, 2000, p. 66).

Traditionally, quantitative research develops strict design and research procedures before the research actions begin. In quantitative research, it adheres to statistical analysis and measurements (Marschan-Piekkari & Welch, 2004; Sarantakos, 1993). A specific, testable hypothesis or hypotheses is/are then formulated from this theory (Tashakkori & Teddlie, 1998), as summarised in Table 4.1:

Table 4. 1 Dominant Positivism Assumptions in Knowledge Transfer Research

Worldview (Ontology)	<i>Universal Laws and Truths (Realism)</i>
Epistemology	<i>Objective and Value Free</i>
Methodology	<i>Nomothetic (Experimental, Quantitative Research)</i>
Method	<i>Questionnaires (Surveys, Measurement Scaling)</i>

Source: Crotty (1998); Willis (2007).

The rigorous quantitative approach provides a sense of substance, scale and completeness to research results. In quantitative research, the focus is to observe and measure. The main concern for the quantitative researcher is the “objectivity” of the research, so that care is taken not to influence the research data through personal involvement with the data. The purpose of quantitative research is usually to certify or falsify an existing theory through empirical testing, or to generalise an existing theory in order to expand its application. In practice, quantitative inquiry has its prespecified intent (Silverman, 1995). The key variables and their general relationships, which are predetermined, can provide a clear conceptual framework for empirical testing.

However, many researchers have expressed openly their dissatisfaction with the positivist thinking and quantitative methodology. Critics challenge the positivists’ perception of a single reality, the goals it pursues, the methods it employs and its perception that the world was “mathematically drafted” (Sarantakos, 1993, p. 5). The overemphasis on quantitative measurement and technique standardisation by quantitative research is neither beneficial nor justifiable, as the overemphasis on objectivity and standardisation may lead to technocratic needs, and may neglect the real meaning of social actions and cultural constructions. For instance, Silverman (1993) criticises the way positivism leads people to focus on static numbers while ignoring those actually dynamic changing lives in the real world, and not all research findings are

consistent with the worldview that this nomothetic methodology implies. Cicourel (1964) also notes how the choice of a purely mathematical logic can neglect the common sense reasoning used by both participants and researchers.

4.2.3 A Qualitative Interpretive Inquiry

In contrast, a qualitative interpretive research study allows the researcher and the researched to be perceived as two equally important elements of the same situation. The qualitative research needs to observe the research subject, ask questions, and interact with relevant people, in depth and long term sometimes in situations at one or more field sites. The whole process, which is developing and changing over time, includes the stages of problem statement, research design, interview questions and interpretations. According to Easterby-Smith, Thorpe and Lowe (1993), Gummesson (1991), and Veal (2005), qualitative findings can be constructed in a narrative way, so readers who are not trained in statistics can still understand the whole research report. This kind of research usually examines changes over time, and it aims to look at human-interest issues, which have significance to operating managers. The underlying indicators provide a basis for the interpretivism philosophical and practical framework as illustrated in Table 4.2.

Table 4. 2 A Qualitative Interpretivism Framework

Worldview (Ontology)	<i>Multiple Realities (Nominalism)</i>
Epistemology	<i>Antipositivism, Subjective</i>
Methodology	<i>Qualitative</i>
Method	<i>Case Study (Participant Observation, In-depth Interview, Focus Group)</i>

Source: Adapted from Crotty (1998); Willis (2007).

The epistemological stance in qualitative research is mainly considering an ontological approach that the reality is to be understood from the perspective of participants involved in the events that are investigated. It is the perception and

interpretation by agents of these facts that provide fundamental data. Interpretivism argues that research needs to facilitate an understanding of the construction of people's social meaning, which arises from their real life perspectives. Human values do encroach upon the construction of social life, and to exclude them from the process of inquiry presents a singular and atomised perspective to understanding the theoretical foundations of reality.

The essence of the qualitative interpretive framework draws on the richness of direct experience to heighten perception and understand actions and meanings in their social context (Crotty, 1998), which can be sought through observing the events and phenomena in the process in an effort to identify different ways things can be viewed (Mercer & Powell, 1972). This experience must be that of those who participate in the context of the research as no one can experience things on behalf of the participants (Crotty, 1998). Interpretivism criticises positivist thinking and especially the underlying assumption that people, through their senses, can capture the world around them (Alvesson & Skoldberg, 2000). It suggests that people can explain their everyday experiences and knowledge (Holstein & Gubrium, 1998). McNeill (1985) also argues "reality is not waiting to be experienced by social actors, even though it may often feel as though it is" (p. 112). Instead, social reality can be actively constructed through social interaction.

This interpretation perspective has led to the growth of those research methods that emphasise the importance of studying social life in its natural setting, describing the realities and perceptions as they are seen and experienced by those involved as respondents. Van Maanen (1983) also confirms that qualitative research comprises "the interpretive techniques that make it easier to describe and decode certain naturally occurring phenomena" (p. 9). Qualitative interpretive research seeks individuals' understanding and translations rather than relying on external influences (Sarantakos, 1993). The main characteristics of the qualitative inquiry are to be open and evolutionary. This nature of openness, evolution and emergence leads to ambiguity, and it means a lack of

standardisation (Veal, 2005). That is to say, when conducting a qualitative inquiry, the clear criteria, which will be applied to each step of a research, are not known and cannot be provided in advance. However, the strength of the qualitative method is that it sets a stage for exploration and discovery. Therefore, the key elements and/or hypotheses in qualitative research are emerging from the data rather than being determined in advance (Bailey, 1988).

This qualitative interpretive framework is particularly effective in investigating dynamic organisational processes in terms of knowledge transfer and strategic management research (Marshall & Rossman, 1989). In order to understand the knowledge transfer process, some knowledge transfer researchers have chosen to use qualitative interpretive methodology which examines situations subjectively by gathering and translating qualitative data (Buckley, Clegg, & Tan, 2004).

Several studies, for instance, Hoopes and Postrel (1999) and Pavlovich and Corner (2006) have demonstrated that an interpretative perspective is appropriate to understand the “intangible” nature of knowledge resources. Indeed the qualitative paradigm in the extending of IJV knowledge transfer suggests that it is a tool of “scientific discovery” while nomothetic methodology drives “normal science” (Kuhn, 1970). Interpretive research utilises qualitative information to understand what lies behind poorly understood social phenomena (Strauss & Corbin, 1990). It attends to the social construction of meaning and is more concerned with subjective experience, observation and description from field research (Cicourel, 1964; Neuman, 2000; Silverman, 1995). Understandably, most qualitative research has preferred to describe and illuminate the meaningful social world as prescribed by the interpretivist paradigm (Silverman, 1995).

4.2.4 Adopting a Suitable Theoretical Underpinning

Various scholars such as Bryman (1988, 1989), Marschan-Piekkari and Welch (2004), Podsakoff and Dalton (1987), Tashakkori and Teddlie (1998), Yin (1994) distinguish the significant differences between the qualitative and quantitative approach in several ways as shown below:

Table 4. 3 Comparisons between Quantitative and Qualitative Approach

<i>Quantitative Approach</i>	<i>Qualitative Approach</i>
Objective facts measurement	Social reality construction, subjective, holistic
Variables-focus	Interaction, events process-focus
Reliability emphasis	Authenticity emphasis
Value-free	Value-explicit inquiry
Independent of context	Time-and-context specific
Statistical analysis	Thematic analysis, less emphasis on statistics
Research is neutral	Research is actively involved with Participants
Deductive analysis	Inductive analysis

Source: Adapted from Marschan-Piekkari and Welch (2004).

Layder (1988) argues that traditionally there has been a gulf between qualitative and quantitative research, with each belonging to distinctively different paradigms, and that the distinction relates to the production of knowledge and research processes. In considering qualitative and quantitative research methodologies, it is evident that there are disagreements regarding the value of each, and each academic discipline tends to favour some research approaches over others with differing methodologies (Brannen, 1992). The positivist tradition, which underpins much social policy research is, not surprisingly, often less than sympathetic to qualitative perspectives (Finch, 1986). Qualitative interpretive research is usually seen as a comparatively minor and even marginalised pursuit

within international business research, a pursuit which is adopted at an early exploratory stage to familiarise the researcher with a research setting before a large-scale sampling begins (Silverman, 1995), implying that the quantitative study is the standard form and the foundation of research. Weaknesses of the qualitative research approach in terms of its nature and features are also noted. For example, overemphasising the adoption of qualitative research may result in extreme subjectivity risks or in collecting meaningless data; it is a time-consuming research process; and the research findings' generalisability and the objective research attitude need to be considered (Sarantakos, 1993). Moreover, the interpretive social sciences have often been equally dismissive of quantitative methods (Brannen, 1992).

However, Marschan-Piekkari and Welch (2004) argue that “compared to quantitative methods, qualitative research takes a more holistic approach to the research object and studies a phenomenon in its context” (p. 8). Qualitative methods can take advantage of rich data and in this way allow the researcher to obtain more meaningful results about “soft” interrelationships between core factors (Wright, 1996). Chadwick, Bahr and Albrecht (1984) also emphasise the idea that interpretive research could demonstrate a more realistic worldview, allowing interpretative meanings; raising a deep understanding of the respondents' perceptions; and achieving flexibility. This issue means that a subjective and interpretive, rather than an objective, framework is required.

In spite of the above arguments, it is still argued that research approaches cannot be inherently good or bad (Veal, 2005). Quantitative or qualitative approaches serve different purposes and result in equally valuable but dissimilar types of data. Each is more or less appropriate for the task at hand. How the two approaches can be integrated depends upon the problems to be addressed and the purposes to be achieved (Sarantakos, 1993).

For this research, a suitable theoretical paradigm was applied with the data collection including both interpretive description and empirical statistical methods. The combination of these two paradigms varies with the different stages of the research, and the combining of different methods within a single piece of research raises the question of movement between paradigms. The part of the in-depth interviews with IJV executives from both sides was entirely qualitative. The use of a qualitative approach gave the participants the ability to express their views, and as a result their responses formed a basis for studies such as this one which interpret “how the various participants – individuals, groups or organisations – socially and subjectively construct rather than objectively determine the world round them” (Glesne & Peshkin, 1992, p. 6). The use of a qualitative approach also gave the researcher ability to comprehend “the inherent complexities of social interaction and to respect this situation in its own right” (Glesne & Peshkin, 1992, p. 7).

Meanwhile, although generally against the notion of an objectively experienced reality, interpretivism does not reject its existence outright; rather, it argues that there is an objective world, but it is experienced only through meaningful understanding and new perception (Crotty, 1998). The most important function of interpretivism is to penetrate and look beyond the various layers constructed by actors in the real world so that the essential structure of understanding becomes clear (Ritzer, 1983). This perspective has led to the growth of adopting certain positivism research methods that emphasise the importance of studying social life in its natural setting, describing the realities and perceptions as they are seen and experienced by these respondents involved. For example, a software package statistical analysis – CATPAC – was used to enhance the analysis of textual data and their reliability (The nature of CATPAC will be described in section 4.6.2.). This computer-based method has advantages for handling large volumes of textual data in qualitative research at high speed with rigor and consistency (Silverman, 2000).

Overall, this research, in its current evolutionary stage, will adopt qualitative case descriptions. Meanwhile, this research will also employ statistical frequencies in portraying the results/findings of the research. This combination of theoretical paradigms gives the research the opportunity to apply various data collection and analytical tools and to build the research from one stage to the next, which is an efficient way to advance the theory of IJV knowledge transfer. In particular, through the application of CATPAC software, it provides a more detailed assessment and facilitates statistical comparisons, thus enriching the knowledge transfer measurement methodology required by Easterby-Smith et al. (2008). This kind of research may permit deeper understanding and sharper delineation of concepts, and allow for theory building, by focusing on the phenomena that are related to the knowledge transfer in IJVs.

4.3 Considering the Case Study Method

Turning from the epistemological lens, a research method describes the process within which the data is collected, analysed and presented in the thesis document (Noorderhaven, 2004). For qualitative interpretive research, case studies are often a preferred approach (Pavlovich, 2000). Yin (1994) argues “the case study is an empirical investigation method which could explore a real-world phenomenon in a contemporary social context” (p. 13), “consisting of research questions, theoretical perspectives, empirical findings, interpretations, and conclusions” (Yin, 2004, p. xiv). The process of identifying case study as the vehicle for this thesis utilised the framework is illustrated in Table 4.4:

Table 4. 4 Identification of Appropriate Research Method

<i>Yin's Indicators</i>	<i>Relevant Features of the Thesis</i>	<i>Yin's Suggested Strategies</i>
Research questions form	Asks "in which ways"	History, Case study
Control over behaviour?	No control, impartially seeking experiences of participants	Survey, Archival analysis, History, Case study
Focuses on temporary events?	Principal focus on contemporary perceptions and events.	Experiment, Survey, Case study

Source: Yin (1994).

However, case study research in reality is not easy, even though it has traditionally been viewed as a "soft research" (Yin, 1994, p. 26). Yin's statements distinguish a case research from some other research methods, such as surveys, histories and archival analysis. As each method has its strengths and weaknesses, researchers could consider single or multiple methods in any given research study. What the researchers need to consider regarding how to select the appropriate methods come from factors, such as the research purposes, types of questions (open-ended, or structured), the research setting/situation, the degree of control over behavioural processes and the extent of looking at historical documents versus contemporary events (Yin, 1994). As regards this thesis, the main practical considerations are as follows.

First, the ultimate research approach depends upon the types of proposed research questions. When asking a "what" question, (e.g., "What are the most effective ways to communicate in alliances?"), then the research objective is mainly to develop hypotheses for later testing. If the questions concern "how much" or "how many", (e.g., "How many ways to communicate in alliances?"), then the survey method or archival analysis will be recommended. Finally, when asking "how" or "why" questions, (e.g., "How to communicate in alliances?"), a case study method is appropriate (Ghauri, 2004). Yin (1994) also points out, the

case study is often helpful when asking *how* or *why* questions which are concerning set of contemporary events or a particular phenomenon under circumstances that researchers have difficulties in controlling.

Second, the case study method is well suited when the phenomenon under examination is hard to separate from its natural settings (Yin, 1994). This situation is particularly useful when collecting data from cross-cultural and/or international business context (Ghauri, 2004), as researchers need to consider the attached different environmental contexts. It also means when examining the effects that the turbulent business environment has on international business operations, case studies could be helpful to understand the combined macroenvironmental elements, industry-level institutions, and company-level strategies.

Third, Romano (1989) believes that while the business literature base has been preoccupied with developing practical results, it has ignored the need for profound methodological processes in the development of business theory. As a result, existing business studies lack an understanding of the internal mechanisms of business. One main characteristic of the case study is that it is “useful to new research areas for which existing theory seems inadequate” (Eisenhardt, 1989, pp. 548-9).

Fourth, another advantage of the case study approach is that it is flexible and holistic, which is very important when describing a process (Hyder & Abraha, 2003). Case studies are useful for conducting process-oriented inquiries and for theory development, as they allow the tracing of significant events and capture the richness and subtlety of the phenomena (Ring & Van de Ven, 1994). Unlike those who use a survey, the case study researcher not only identifies certain causal links in terms of variables, but also is concerned with understanding, describing and interpreting the whole situation. Ghauri (2004) similarly points out that case studies are mostly conducted through reviewing the existing archival materials,

plus direct observations and interviews, providing a holistic account and analysis of an event or a series of related phenomenon under investigation which are not well documented in order to offer explanations in certain organisational functioning areas, such as strategic implementations and accompanied results (Bryman, 1989; Chetty, 1997).

Fifth, Duanmu and Fai (2007) propose that when a complicated research subject involves organisational cooperative partnerships and knowledge transfer processes, the case analysis approach may be considered appropriate. The fuzzy nature of the interorganisational knowledge transfer process recommends the appropriateness of the qualitative approach (Easterby-Smith et al., 2008). Nearly half of the empirical inquiries and investigations in this area adopt a case study method (Inkpen & Dinur, 1998; Leonard-Barton, 1992; Rouse & Daellenbach, 1999).

In sum, the case study, as opposed to the logical-empiricist studies, is a viable research approach (Denis, 1990). The identification of case study as a strategy and framework for this thesis provides a basis for case selections processes and relevant analytic tools used in the collection of evidence. There are some principles in the selection of cases:

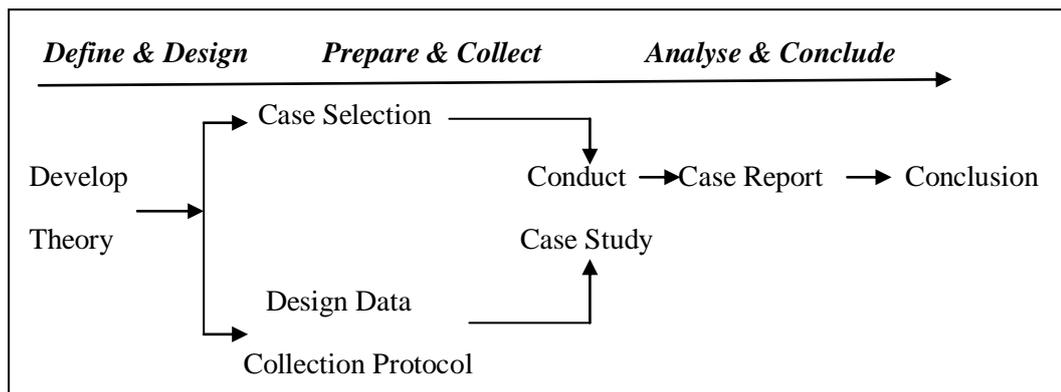
1. Choosing cases that help extend theory, rather than provide randomly selected statistical assessments (Eisenhardt, 1989);
2. Obtaining differences in research constructs (Yin, 1994); and
3. Capitalising on individual relationships with respondents to guarantee a smooth interviewing process and quality data collection and information access (Inkpen, 1997).

The purpose of case selection such as this is not to ensure representativeness, but to ensure that the case selection really does address the research questions and the main research purpose. This selection is even more legitimate when the study is characterised by theory building (Eisenhardt, 1989).

4.3.1 Research Design in a Case Study

An appropriate research design in a case study is needed for the purpose of logically linking the collected data with the proposed initial research questions, and ultimately with the conclusions. Figure 4.3 shown below outlines the steps in designing the case study strategy.

Figure 4. 1 Designing the Case Study: Research Strategy



Source: Based on Yin (1994, 2004).

The main purpose for setting up the research strategy is to prevent a situation where the collected evidence and data may not properly answer the research questions. As mentioned in the above section, case studies most probably answer the questions structured in a “how” and “why” format (Ghauri, 2004, p. 11). The major study themes refer to the required directions that need to be examined in a case study. Research targets are relevant to the research boundaries that define what the real case is and what is being talked about in a case study. The research targets and boundaries could be guided through the literature review. Research design should also be outlined to explain how to analyse the collected evidence, what the logic is, and the findings’ assessment guidelines (Yin, 1994). The last essential stage of designing the research strategy is in developing the current theory (Yin, 1994). At this stage, the researcher can think about appropriately

facilitating the generalisability of research findings and defining the application of the whole research design process.

This thesis followed the above framework guidance to design the case study research strategy by, first, conducting the literature review and relevant case readings to find out the gaps in terms of previous established literature theories; second, identifying the research themes and selecting the major unit of analysis; third, constantly exchanging the ideas in the research project with the supervisors and preparing the research questions; fourth, gaining access to the field sites and getting more information from the case company participants; and finally, based on the investigative findings followed by the major research outlines or formats, finding out the key theoretical and managerial implications.

The unit of analysis, which is the interfirm knowledge transfer in the IJVs, was incorporated in a single case study design². Single case design is suitable, (1) when it can be used to explain an established theory; (2) when a focused phenomenon can be studied which can provide useful insights; (3) when a case is unique (Ghauri, 2004). The selection of a single case design in this thesis was also closely linked with the identification of the research questions and context. This thesis put strong emphasis on the analysis of the collected information, to deepen, broaden and support the understandings of IJV knowledge transfer. Emphasis was given to the context within which knowledge transfer occurred. The identified context is one where partner firms transfer knowledge based on the established cooperative connections in an IJV setting in China's automobile industry. Thus, their different motivations, and the nature of their partnership demonstrates that human actions, perceptions and relationships would be important social realities, requiring the researcher to get close to the involved individuals for getting an in-depth understanding. Several factors in the environment, which had major impacts

² Some scholars argue that the selection of case numbers in a research mostly depends on the research objectives and proposed questions. There is nothing wrong with "a sample size of one" (Mintzberg, 1979, p.583). In certain circumstances, only one case is enough (Ghauri, 2004; Mintzberg, 1979; Pauwels & Matthyssens, 2004).

in the functioning and process of knowledge transfer, were incorporated in the model. Emphasis has also been put on identifying and describing critical events. The single case research design helped the researcher to achieve maximum flexibility whenever necessary during the research process, which is a typical characteristic of the qualitative research approach (Ghauri, 2004).

4.3.2 Research Industry Setting

Although extremes of methodological view are useful in addressing specific questions, specific research methods for a research undertaking cannot be determined outside the nature and impact of the research context and research setting for the research process itself (Morgan & Smircich, 1980). Researchers thus need to consider the context of the research process which raises a fundamental consideration for both methodological credibility and theory development (Cappelli & Sherer, 1991). It is also widely acknowledged that qualitative research is well suited to capturing contextual factors. In fact, qualitative research is so closely associated with knowledge transfer studies in their “natural setting” or “local context” that this is regarded as one of its key distinctions (Marschan-Piekkari, Welch, Penttinen, & Tahvanainen, 2004, p. 244).

This research concentrates on the IJV knowledge transfer in the Chinese automotive industry. Theoretically, comparing with other knowledge intensive industries such as the telecommunications manufacturing industry, the automotive industry occupies an intermediate situation between high and medium technological levels, which means it is less technologically intensive than, for example, the telecommunications industry (Buckley, Clegg, & Tan, 2004). The automobile industry depends mainly on mature technological skills and massive production to minimise operational costs and to maintain competitiveness over other players, thus the probability of finding cooperative arrangements such as alliances/joint ventures is very high (Buckley et al., 2004).

This auto industry research setting offers several strengths. First, the automotive industry in China is a rapidly changing industry in which the wide range of knowledge transfers have been demonstrated as a result of the dominance of extensive FDI activities (Buckley et al., 2004), and Chinese authorities have already issued some industrial policies around knowledge transfer in joint ventures formed between foreign multinational enterprises (MNEs) and local Chinese companies. Second, the use of a single auto industry helps control for industry-level factors. However, the researcher still expects that the results concerning knowledge transfer issues in this setting could have implications for other industry settings and business activities.

4.4 Principles and Sources of Data Collection

There are six relevant sources of data collection in qualitative research, including “historical artifacts, archival documentation, physical records, interviewees’ description, direct observations, and indirect observations” (Yin, 1994, p. 79). Each source offers an effective way of accumulating relevant information; and no single source can completely replace any other. Following Yin’s (1989, 1994, 2004) comments, the data collection process permits the researcher to look through a broad range of evidence to make the findings and conclusion more convincing and appropriate, which means a good case study needs to use a broad range of sources in an appropriate procedure.

The use of multimethods of collecting data is actually not new, as Campbell and Fiske (1959) suggest that researchers should use more than one data collection method to ensure validation. Collecting data from various sources of information can reduce the likelihood of misinterpretations and oversimplifications, and identifies a more complete portrait of the object (Ghauri, 2004; Pauwels & Matthyssens, 2004).

4.4.1 Interviews as Primary Data Sources

Primary data are a kind of information or evidence directly gathered from either internal or external sources for meeting certain purposes. Mostly, the primary data come from interviews, and indirect or direct observations within or outside the involved company (Yin, 1994, p. 79). An interview is a situation “where the data and findings are based on direct researcher-to-respondent conversations (in person or by phone)” (Daniels & Cannice, 2004, p. 185). According to Cohen and Manion (1989), Page and Meyer (2000), the interview is a very commonly used approach in exploratory and descriptive studies. It can obtain past and relevant evidence about phenomena or processes and focus on the participants’ context-specific and systemic statements, or descriptions, an outcome which can not be effectively achieved by other techniques of research.

There are three situations in which interview techniques may be appropriate for international business research (Daniels & Cannice, 2004). First, interviews are particularly useful for *exploratory studies*. In this case, interviews allow the researcher to discover new relationships or situations not previously conceived, as the comments and opinions of the main respondents constitute a focal part of the research. Second, interviews are well suited when there is a *small population of interviewees*. In this sense, researchers must focus on the depth of collected data when breadth is simply not attainable³. Third, interviews may allow researchers to *develop a deeper rapport with interviewees* than is possible through written questionnaires; thus they may create a trusting relationship when needing further information or cooperative contribution to the research. Thus, by properly managing interview studies, researchers can develop a network of new data, and insights which can be used to achieve research efficiency (Lindlof & Taylor, 2002).

³ Of course, a researcher should not seek depth just to overcome the problem of a small population; rather, interviews “offer an opportunity to acquire a richness of information from each respondent” (Daniels & Cannice, 2004, p. 186).

4.4.2 Selecting the Semistructured Interview Method

Generally speaking, there are three types of interview format (Page & Meyer, 2000):

- The first type refers to a structured-interview format, which involves more a specific range of questions requiring restricted responses;
- Regarding the second type of interview, an investigator can ask key interviewees about facts and events followed by specific questions derived from the case situation in an exploratory nature without any restrictions on how the participants would reply;
- In the third type – semistructured interview – both closed-ended and completely open-ended prestructured questions are sent to all respondents. Care needs to be taken when using completely open-ended questions as the concern will be how to analyse those responses in a meaningful (systematic and objective) manner.

Although interviews can be conducted one-on-one, and may be either in a structured or semistructured format, researchers recognise that semistructured format would be more flexible than other means (Page & Meyer, 2000). Some advantages related to semistructured interviews including the generally higher response rate, flexibility, ability to observe nonverbal behaviour, control over the investigative environment, and control over question order. In addition, they offer the ability to explore through follow-up probing and provide a great opportunity to assess the validity of responses (e.g., via observation of nonverbal behaviour).

Other advantage of the semistructured questions relates to the possibility of raising additional questions and discussing essential issues in depth. This type of flexibility relates to the possibility of modifying the research design, as it is not essential to design formal questions, though some guidelines for conducting the interviews are necessary in order to ensure that the study remains focused and corresponds to the research questions. These guidelines or questions enable

respondents to describe the process, as it really exists, without too much influence – so that the process becomes a natural outcome of the prevailing situation. Additional questions or thoughts could even be taken up later and not necessarily on the same interview occasion. However, regarding the semistructured interview, the researcher still needs to be aware of some key issues including travel costs, time consumed, potential bias, and interpretation inaccuracy (Hyder & Abraha, 2003).

Following Adler, Campbell and Laurent's (1989) call, the researcher decided to design an semistructured open-ended interview questionnaire to improve the validity, since Chinese managers often do not use the same constructs that western researchers do (Adler, Campbell & Laurent's, 1989), but thereafter leave greater freedom to change the ways of asking interviewees; to adjust the questioning sequence; to modify the amount of interviewing time, and even to add or delete particular questions which then seem to be inappropriate according the conversation context (Robson, 1993).

In preparing the interviewing questions in details, the researcher followed the reviewed literature, the conceptual model, the proposed research questions, and the preapproved PhD Plan (Refer to Appendix A). Some of the main concepts of the model were reflected in the questions, something which made it possible to create a strong linkage between the research problems, the conceptual model, and the empirical data. The finalised interview questions (See attached Interview Questions List in Appendices C and D.) were written in two versions (English and Chinese), which were then approved by the Waikato Management School Ethics Committee.

4.4.3 Interview Respondent Selection

The selection of the relevant and suitable interview respondents is quite important for researchers. Well-informed respondents can provide insightful perspectives, unique expertise, or areas of knowledge that researchers probably cannot access

on their own. These have a decisive and meaningful influence on the research findings obtained in answering the research questions in certain ways (Daniels & Cannice, 2004).

This research selected multiple respondents from the case companies and the interviews were conducted at Shanghai-GM (The process for selecting interview respondents is discussed in section 4.5.). The interviewees are IJV American and Chinese top managers including presidents, general managers, representatives of partnering firms, and functional department managers (who are in charge of business development, marketing planning, technology R&D, and human resource training programmes). These respondents had an in-depth insight of the interfirm cooperative strategies and knowledge transfer operations in the IJV.

Previous research conducted by Dhanaraj et al. (2004) and Peng and Luo (2000) supports the viewpoints that reliable data provision (from either self-reported or archival documents) can be expected from the IJV top managers. Child, Yan, and Lu (1997) and Geringer and Hebert (1991) also point out that there exists a significant and reliable correlation between parent firms and IJV's top managers' attitudes toward IJV operational performance and a parent firm's influence. On average, the American and Chinese managers had been in their current position for about 4 years as at the first contact, and all were involved in the knowledge transfer processes.

With the interviewees coming from both sides of the IJV, there were differences in competence, age, rankings, and nationalities. In response to their different cultural backgrounds, the researcher carefully designed two versions of the interview questionnaire: one in English, and the other in Chinese. As the researcher has lived and worked in Nanjing city, Jiangsu Province (close to Shanghai) for a long period, this personal background proved convenient in terms of understanding the local environment and establishing the necessary personal connections. More importantly, his bilingualism (Mandarin and English) was very

helpful in conducting the interview data collection procedures. Finally, the method of back translation was also adopted to keep the questions' content consistent, as suggested by other researchers such as Brislin (1970), and Buckley et al. (2004). Table 4.5 gives a summary of the interviewees and their backgrounds.

Table 4. 5 Relevant Issues and Topics Covered in the Interviews

(1) American Interviewees

Interviewees	Date	Topics
A1	November 2005	GM's business strategy and strengths; background of investment in China; reasons to choose the Chinese partner; comments on IJV performance and partnership with the Chinese; types of technology (knowledge) transferred; problems to transfer and background story
A2	December 2005	Background of establishing the partnership with SAIC; objectives of GM; reasons to choose the JV form; auto industry policies; comments on IJV performance and partnership; different behaviours of American and Chinese; conflicts and misunderstanding; learning in JV; impediments or benefits of knowledge transfer
A3	December 2005	Knowledge transfer to IJV in China; product development; auto policies; learning intent of Chinese; product development; adaptation; HR issues
A4	January 2006	JV business performance evaluation; localization; partner relationships; Conflicts between the partners; managerial styles; cross-cultural considerations
A5	January 2006	Strategic objectives; working environment in JV; partners conflicts; cross-cultural issues; methods used to solve problems encountered; learning issues; knowledge adaptation; barriers in knowledge transfer

(2) Chinese Interviewees

B1	November 2005	JV set up background; major strategic objectives; adapting GM's expertise; perceptions of the competencies of GM; impediments to maintaining good partner relationships; conflicts; preferential treatments of the Shanghai City Government to the Shanghai-GM; benefits of sharing know-how
B2	December 2005	JV consideration; background of JV establishment; first batch of expatriate managers from both sides; Qualifications of the American managers and Chinese executives in Shanghai-GM; implementation of knowledge learned and rationales; conflicts in implementing the new system; training received; perceived competencies of GM managers working in Shanghai; technology transfer and R&D issues
B3	December 2005	Background of JV; HR practices in JV; difficulties encountered and factors contributing to success; GM's willingness to transfer production system
B4	January 2006	Recruitment of Chinese employees; human resource training practices; principles of personnel management learned from GM; localisation and adaptation practices
B5	January 2006	Objectives of SAIC's participation in the Shanghai-GM project; contributions of the partners; how the Chinese partner was transformed as a result of learning
B6	December 2005	Nature of the knowledge learned from the Shanghai-GM; willingness to transfer from GM; impediments to learning, business partnership
B7	January 2006	Significance of learning and knowledge transfer; the relations between cooperation and knowledge complementarities
B8	February 2008	Working environment in the JV; cross-cultural conflicts and misunderstandings
B9	February 2008	Joint venture daily operations; knowledge acquisition activities
B10	February 2008	China's automotive industry background and joint ventures; knowledge acquisition
B11	February 2008	China's automotive development; knowledge acquisition issues

4.4.4 Secondary Data Sources

It is always helpful when doing case investigation to have a look through some of the existing information to get an overview of the research subject first. These secondary sources play a critical role when preparing a case study. What appears in the files of the companies as texts can be used as sources of knowledge, even though these could be regarded merely as remnants of the organisation's activities in the past (Yin, 1994). In this case research, in addition to carrying out the above-mentioned interviews, certain written documents (such as annual reports, interim reports, company memos, websites, newspaper articles, booklets, and company brochures containing information about the products and services), were used as additional and complementary information sources, as suggested by Yin (1994).

Additionally, the researcher also consulted professional magazines, published journals, and online academic databases such as EBSCO and ProQuest. This secondary research was possible, as the researcher had access to the Internet database of the University of Waikato in Hamilton, and had opportunities to go back to Shanghai, China to visit the company (which is described in Section 4.5). The study of documents forms part of the case study, which provided the opportunity to see developments before and after the IJV formation. Thus the researcher was able to identify differences and changes in content.

However, these secondary sources cannot be used without scrutiny and must be treated with a critical eye, as some of them were written for other purposes and audiences. As Yin (1994) points out, "the researchers need to bear in mind that, reviewing these materials doesn't mean to accept all of these opinions; confirmation and assessment tasks for verifying the usefulness and effectiveness are still fully required" (p. 81). In addition, the researcher needs to add an assessment of the relationship between the writer and the focus of the writing (Ghauri, 2004). For example, (1) was the writer close enough in time and space to

witness what he/she is saying? (2) Would the writer have any interest in changing the story in his/her own favour, or in order to suit other interests?

In sum, the thesis tried to employ various procedures to increase understanding and explanation of interfirm cooperation and knowledge transfer activities over time. The principles of data collection were intended to make the research process as feasible as possible, and to set up the links between specific evidence and final results. In this way, research findings could become more persuasive, comprehensive, and accurate. These principles are of crucial importance for understanding the very complex nature of the business alliances and knowledge learning issues in this case study. Through these principles of data collection, plus with reviewing literature, studying company documents and archives, and contacting the case companies, understanding on the research issue of knowledge transfer in IJVs in China's automotive industry was gradually increased.

4.5 Access and Execution of the Fieldwork

Fieldwork is part of the PhD research. A number of scholars have reflected upon different types of difficulties regarding fieldwork access to the studied organisation and to the individual interviewees (Andersen, Borum, Kristensen, & Karoe, 1995; Michailova, 2004). The reasons for the difficulties are, however, of a different nature in certain organisations in certain research settings. Michailova (2004) maintains that fieldwork sometimes is an art, which make the access possible.

4.5.1 Initial Contacts and Gaining Access

The fieldwork research and interview activities were carried out during the period between September 2005 and February 2006 (First Round Data Collection), and in February 2008 (Second Round Data Collection) respectively. In order to conduct the data and evidence collection procedure properly, and to get firsthand materials and information on the situation, following the suggestions of Singleton,

Straits, Straits and McAllister (1988), the researcher sent emails several times to establish initial contacts before the fieldwork stage. It has to be emphasised here that in China, if people do not know any person working inside the company or have no personal connections (so-called *guanxi* networks) outside, the chances to get permission in conducting interviews in these big Chinese companies would be minor. Sometimes these companies' doormen will even not let the interviewer enter into the office building without showing appropriate "Letter of Introduction".

In order to surely get the interview things done, the researcher then asked his father to try to get approval first from the Chinese case company. As the researcher's father had been working in the vehicle and transportation management field for so many years in Jiangsu Province, he had certain important *guanxi* networks, and he initially contacted some of his friends who were in charge of the automotive development in the government of Jiangsu Province and Shanghai city. Because the researcher was introduced by the relevant government departments, after several rounds of emails and telephone calls made to the Shanghai case company, the beginning of fieldwork research was verified and the case company finally offered to host the field research during certain days. In this way, the researcher could increase the reliability of the whole research data collection process. These interview arrangements and getting access helped the researcher receive more information in an informal manner by secured manner without perceived difficulties⁴.

4.5.2 Meeting with Managers

One Chinese managing director warmly welcomed me, showing that the offer made was not an empty promise (which was also a gesture of "giving *face*" to the researcher and other relevant people involved in these fieldwork arrangements). He is an open-minded, friendly man in his late thirties. Professionally and socially he is active in Shanghai Automotive Industry Corporation (SAIC). After

⁴ One disadvantage of using personal connections for determining the field is that the researcher may in this way be forced to conduct a study in a organisation that may not be the most appropriate one for investigating the particular research issues he/she intends to deal with, as commented by Michailova (2004).

exchanging business cards, we spent a few minutes talking about things not related to the research, for example, the trip to make the visit and the weather in both Shanghai and New Zealand, all of which helped establish an easy tone for the following conversation. As we had already scheduled this particular day for interviewing, the researcher then briefly explained the study again and why undertaking this research. Meanwhile, the researcher reassured him that when the interview process began, he and other participants could refuse to answer any interview question if they feel uncomfortable about it. Finally, the researcher emphasised the confidentiality and anonymity issues regarding this research and asked him to pass this consideration to other managing directors and his colleagues.

After having lunch which was provided by the company, we decided to meet other senior Chinese and American managers who were interested in this topic and willing to provide useful information into the study (The choice of a suitable respondent – someone able to provide the relevant information – was particularly emphasised.). Because of his senior managerial position as one of the managing directors, he was able to show me around the company building and access to different departments. This entrée turned out to be helpful for my data collection and interview procedures with the relevant managers, most particularly because people could easily see me as his guest. The following step was then to hand in the research project information, consent forms, and questionnaire guide to the Public Relations Department (in charge of the media interview and news release), as a way of formally requesting the joint venture to participate in this study.

Of the 20 IJV top managers contacted (in the areas of planning, marketing, R&D, manufacturing, and HRM), 16 agreed to participate and were interviewed. As not all of the senior executives had seen the researcher before, this was a perfect occasion to introduce the research in a relatively formal way. The aim was to lay open my intentions to the top managers, to appreciate them for participating and full support for this study.

4.5.3 Conducting Interviews

The face-to-face dialogues with 11 Chinese executives were conducted in Mandarin and the conversations with five American managers were in English. Generally speaking, each interview in this research followed a four-part protocol to ensure reliability:

First, the researcher started with general questions in a warm-up phase, things for example, the researcher clearly described the project content and research purpose to make sure that the respondents had a basic idea about the key theoretical concepts. The researcher also generally took 5 minutes to brief participants on the research, and gave a two-page, well-written introductory statement on the project; together with a one-page covering letter that addressed any concerns about anonymity and confidentiality (The ethical issues are discussed in the following section 4.5.4). The respondents working in various departments of the company were then asked to provide personal information (such as the respondent's position and background). The researcher again especially emphasised the confidentiality issues to the participants involved.

Second, the researcher switched to let the respondents answer very broad questions, talking about the historical development and current status of the IJV firms involved, thus stimulating storytelling at this stage.

Third, the respondents were asked to provide detailed activities they had participated in that involved knowledge transfer and learning from the source unit to the recipient unit. The researcher paid particular attention to the following aspects of the interview process: (1) how respondents described the details of knowledge transfer activities they engaged in; (2) what knowledge transfer mechanisms they perceived as effective or ineffective; (3) what benefits of transfer strategies the respondents deemed effective; (4) how respondents compared various knowledge transfer practices; and (5) the knowledge transfer activities involved in the chronologies that the respondents described, along with

the rationale behind the sequence. In this phase, the researcher also posed precise questions about important subjects, such as conflicts, connected to knowledge transfer while at the same time, checking answers by asking the same questions again in a slightly different way.

Towards the end of the interview, in the final phase, the researcher asked about more general subjects, moving away from sensitive issues to other relevant things, such as the developments in the auto industry as a whole, rather than in the company itself. Essentially, the interviewer was continually helping the participants to clarify their understanding and thinking, accompanied by an encouraging nod of the head. The most frequently asked questions took the following form:

- Can you give me some examples?
- What do you mean by that?
- Could you please further explain or say a little more about that?

These dialogues provided the information regarding the firm's business operations. Each interview normally lasted at least half an hour, and many were much longer. The researcher explained to the respondents the issues being investigated during conducting all interviews. Although it was not always easy to give a complete picture, it was important that the respondents were given background knowledge and information about the phenomena being researched. Marked differences between American and Chinese managers over the issues of IJV learning were expected as these differences are reflected in their perceptions of knowledge management in alliances. Such differences between Chinese and American managers may impact on the quality of the received information.

For presenting the overall perspectives of the joint venture knowledge transfer operations, the subject matter concerning the relative influence of Chinese and American partners was answered separately by American and Chinese managers in the joint venture, i.e. the interviews with different managers

tended to get both a Chinese and American perspective. The aim was to strengthen the validity of the information provided.

4.5.4 Three Fieldwork Research-related Considerations

(1) Ethical Considerations

It is often justified by the researchers on the grounds that research findings might contribute more benefits to the public society. However, research practices have also shown that this uncontrolled freedom could result in adverse effects on the participants, directly and/or indirectly causing serious problems for the subjects in the research process (Sarantakos, 1993), and thus violating those participants' rights. In order to avoid or prevent such malpractices, it is claimed that "ethics" should be the controlling factor, i.e., researchers need to be guided by certain standards and principles in the area of social investigation to ensure responsible research practice.

These issues mentioned above are particularly sensitive in Sino-foreign joint ventures, as senior managers tend to feel that the release of confidential information could put them at a competitive disadvantage. A few respondents might even feel that the information would be used against them. Thus, in order to conduct this research successfully and without any trouble, several important considerations regarding ethical issues were kept in mind. First, when conducting the interviews, the researcher initially identified himself to the respondents in an appropriate way (Sarantakos, 1993). All the participants were then informed about the whole procedures involved in this research beforehand either in written or verbal form (See Appendices A and B). Second, in accordance with Waikato Management School's ethical guidelines, all of the interviewees who volunteered to participate in this project were required to sign a consent form. The interviewees could also withdraw from the research at any time. They also had the right to refuse to answer any question under any circumstance. Finally, the relationship between the researcher and the interviewees was kept totally

independent. It was important that the researcher allowed the managers to express their own interests or enthusiasms and to feel that they had the opportunity to talk about these within the scope of the interviews.

(2) Gaining Cooperation with Respondents

Business and management research is a kind of dynamic interactive process involving researcher(s) and respondent(s). Successful research interviews are always dependent on trustworthy cooperative relationships, as well as on fulfilling promises and well-accepted expectations.

During the interviewing period, the researcher had endeavoured to create an open and trusting relationship with the respondents by communicating in the interviewees' language, providing assurance of anonymity, and communicating an understanding of the interviewees' situations in the IJV to obtain reliable and valid responses from interviewees. For example, the researcher asked some more sensitive questions at the end of the interview after all other questions had been answered and rapport had been built up, although the researcher was aware that some managers preferred to focus on some particular topics, such as procurement, investment decisions, product pricing, branding or marketing instead of topics such as conflicts, unhappiness and misunderstandings between each other. The researcher also encouraged a positive attitude towards the interview by indicating the benefits of previous knowledge transfer research, together with the feedback report that the participating companies would receive⁵.

On this basis, researchers enter the research site(s) with a relatively large number of options for action. This freedom of action has always been thought to offer the best opportunities for answering the research questions, or solving the problems under investigation.

⁵ A specific aspect of conducting fieldwork in the case company was that the Chinese managers were not very interested in receiving the researcher's findings, which I speculated was that they might perceive providing the interview and data collection as merely a personal favour. One Chinese manager excused himself with the words: 'Don't worry about that, if you are not quite sure about the company situation, just let me know'. But for American managers, there were several times they told me that "it would be interesting to see the results of your research".

(3) Using a Tape Recorder

Initially, the researcher did not realize the importance of using tape recording techniques when conducting the fieldwork, as this was the researcher's first time to experience this type of interview-based qualitative research. During the first round of interviews in 2005, the researcher only took notes during the conversations and then transcribed the notes as soon as possible thereafter. Then the transcriptions were submitted to the interviewees for clarification. However, the researcher gradually realized it was quite inconvenient without using a tape recorder, as the researcher found in certain circumstances, some participants spoke really fast, and it was difficult to write every single word down the paper while trying to concentrate on the conversations and interviewees' answers. Therefore, the researcher only wrote down some key words which made certain transcripts were not in a complete form. Realising this problem, the researcher decided using tape recorder during his second round interviews in 2008. The researcher then noticed although it was time-consuming when listening tapes again and again sitting in the room, it was quite useful and necessary to get full original transcripts afterwards. Tape recording the interviews was thus seen a positive light and, therefore, critical as a "serious" research technique (although using recorder still needs to obtain permissions from each interviewee first).

4.6 Data Analysis Strategy and Methods

4.6.1 Interpretation and Descriptive Analysis

This process of interpreting and analysing case study evidence and qualitative data is difficult. As with so many aspects of qualitative research methodology, there is extensive debate about the most appropriate aspects of qualitative data analysis. Prasad (2003) observes that qualitative research is in no way a uniform set of procedures for data analysis, and can be conducted within a variety of intellectual traditions (Hammersley, 1992). Denzin and Lincoln (1994) try to move beyond this position by suggesting qualitative research is a multimethod

way to “interpret phenomena in terms of the meanings people bring to them” (p.2). Bryman (1989) identifies certain characteristics of data analysis. First, much emphasis has been given to the research object or the context characteristics. Second, the changing process, i.e., to unfold the events in time, is emphasised in qualitative research.

In this research, “authenticity” rather than reliability is the main issue. The idea is to present the “authentic” understanding of people’s experience, which means not just understanding the viewpoints of the individuals and organisations being studied. Researchers cannot be satisfied merely by “telling stories” (Yin, 1994). In addition, “data has to be interpreted against the background of the context in which they are produced” (Ghauri, 2004, p. 117). Because of this difficulty, preplanning the analysis is seen as critical to ensure the quality of this case study results. In this research, research evidence is based on the collected data combined with the conceptual research model. Data analysis consisted of multiple readings of the interview transcripts and related documentation, and identifying activities and subjective evaluations pertaining to the success of knowledge transfer and learning configurations (Strauss & Corbin, 1990). Table 4.6 presents the case analysis techniques with relevant explanations:

Table 4. 6 Case Analysis Techniques

<i>Case Analysis Techniques</i>	<i>Explanations</i>
Chronologically ordering	Narratively explain the events occurred (arranged by year, month, and date)
Coding	Organising data according to the themes and relevant concepts
Clustering	Sorting cases according to the common features
Matrices	Explaining the linkages between identified elements
Decision Tree Modelling	Grounding the depictions of decisions and/or events in the real world
Pattern Matching	Comparing a predicted pattern with an empirical one

Source: Ghauri (2004).

In this research the data analysis was not a consecutive activity, but was carried out concurrently with the evidence collection process during the life cycle of the case study research (Silverman, 2000). Interview data were compared with public company reports and press releases, internal company documents, and other articles written about the case company's operations. Meanwhile, the fieldwork impressions were also included. On certain occasions, the researcher communicated with the respondents to rectify some situations when encountering inconsistencies, a technique suggested by Daniels and Cannice (2004). Then the researcher is more confident about the accuracy of the information received. Nevertheless this case analysis involved the following several stages. First, was to construct the case descriptions (including the "story" of situation and historical development path) in a "narrative" way (Ghauri, 2004, p. 118). This procedure attempted to explain what happened, then interpret "how" things are developing over time and "why" things happened the way they did (Ghauri, 2004, p. 118).

The next step was to rearrange the collected data, and to try to present the data in an understandable manner through classifying the data, and extracting common or conflicting themes. This coding and categorisation helped with data interpretation and the relationship of the information to the research questions and conceptual model. Importantly, the relationships between different themes and research questions could be identified predicting how the elements are connected and related (These steps can be done with the help of a computer software package called CATPAC, which is discussed in the following sections.). In sum, the analysis followed a pattern of description, interpretation, evaluation, and application – an analytic method proposed by Miles and Huberman (1994). Data analysis adopted the tools identified in the case study protocol, with the classification and examination of evidence to make linkages between concepts as a basis to address the research questions (Dey, 1993).

4.6.2 Computer Software Analysis - CATPAC

Computer software is viewed as one choice in the management of case evidence and data (Silverman, 2000). Software programs are particularly useful in rendering data analysis more systematic and providing counterarguments to those who claim that case study researchers are “just telling stories” (Ghauri, 2004, p.119). In this research, a software package (CATPAC – CATegory PACkage) was utilised, which was developed by Joseph Woelfel and Terra Research and Computing more than a decade ago (Woelfel & Stoyanoff, 1998). CATPAC is a nonbiased self-organising computer program, designed to analyse data in a consistent and replicable way. It has options which allow the concepts to be related to one another. It reads the text and determines what words occur the most frequently (Woelfel & Stoyanoff, 1998).

4.6.3 How to Operate CATPAC

When running CATPAC, the user is asked to specify the number of unique words he/she desires. At this point, the programme functions like a human brain; for example, when one reads or receives information, it is virtually impossible to retain every single word iterated from the source. Like the brain, CATPAC remembers the n -most frequent concepts of the data, with n being an appropriate number assigned by the analyst. At this point, while a person might have the ability to remember only a limited amount of information given in a text, an analyst like CATPAC can opt to remember as many words or concepts as exist in the data set. The text is read using a sliding window. The user specifies the number of words CATPAC should look at, and moves through the text according to the slide size. For example, if the window size is seven, and the slide size is one, CATPAC will look at the first seven words⁶, move one word over and then look at words two through eight, three through nine, etc. This process is repeated

⁶ When running CATPAC, it asks the user to specify the number of unique desired words. At this point, this program functions like a human brain. Like the brain, CATPAC remembers the n -most frequent concepts in the data – with n being an appropriate amount assigned by the analyst. Seven words at a glance are approximately how many words a “human reader” sees at one time (Woelfel & Stoyanoff, 1998).

until the entire text has been read. At this point, CATPAC might have the capacity to remember not a limited amount of information given in the data, but as many words or concepts as those that existed in the data.

Frequency Statistics – The output from a CATPAC run includes the following files: .cat, .win, .crd and .lbl, the prefix name of the files is assigned by the programmer, and the suffix (i.e., .cat) clarifies the type of file. The .cat file shows the parameters that were chosen for executing the run (nodes clamped, window size), and basic information about the specific data file (total number of words, lines, etc.). The .cat output includes two lists of the same information; one in descending frequency and one in alphabetical order of concepts. Each word is listed with its frequency and its percentage occurrence. The output table can demonstrate which words occurred the most, along with their frequencies of occurrence compared to the others. Analysts often use the frequency to see which words occur most frequently (Woelfel, 1998). Frequency information thus can be used to help identify whether the data need any further cleaning-up procedures or not before conducting a second run.

Cluster Analysis of Dendogram – However, the list of frequency statistics of the unique words alone does not lend itself to significant interpretations (Woelfel, 1998). Therefore, to further explore the underlying concepts of the data collected in the interviews, the results are presented in a dendogram to visually illustrate the most frequent key words used in the texts. A dendogram graphically provides a matrix representing the cognitive clusters of concepts and shows how closely associated one word is to another. As a result, the relationships between words can be discussed in various ways such as in terms of their clustering, their distance matrices, and closest and furthest words (Woelfel, 1998). Similar nodes/concepts thus get clustered, and the stronger the linkages between nodes, the closer they are located.

Based on the text entered and analysed in the computer, the dendogram

displays an output of words at the top of the page. Dips in the dendogram show the divisions between groups of concepts, and the height of the “hills” made by the stacked arrow-heads represents the strengths of the relationships between nodes. This display generated a visual “city skyline” of “building” across the page (Woelfel, 1998). In essence, the building skyline illustrates how the words clustered together. Accordingly, each skyline building represents a concept by shading the area underneath the set of words that go together.

4.6.3 Detailed Operating Procedures

First, for the purpose of achieving satisfactory interpretable results from this text-mining analysis, the textual interview data were transcribed onto computer disk as ASCII text form. Since text files include many words that do not add to the content of the text, a laborious “smoothing out” procedure and technical operations have to be considered for the textual data prior to analysis (Woelfel, 1998). Thus CATPAC ignores prepositions, conjunctions and other words, including: 1) identifying certain words, such as “the”, “a”, “you”, “are”, “I”, “am”, which occur in the text but have no underlying meaning. The researcher loads these exclusion words – loading these words means they are not included in the CATPAC analysis; 2) using singulars instead of plurals; 3) using present tense rather past tense; 4) making the spelling of the companies’ names consistent, and combining some multiple names (with two or three words) into one, for instance, “Shanghai-GM” was recorded as “ShanghaiGM”; 5) after the above procedures, then have multiple runs of the CATPAC to further exclude some words such as “month”, “ten”, since these terms will have no contributions for interpreting the data. These refined data formed the base for the main content analysis and synthesis from which the conceptual contribution emerged. Then the researcher loads three main starting parameters: (1) unique words 25; (2) window size 7; and (3) slide size 1. Thus, CATPAC initially picks up 25 unique words for the connections; and the CATPAC scans seven words each time. After several experimentations, a setting of relevant unique words was pickeded up as most

appropriate.

Second, for each of the CATPAC runs, Ward's Clustering Method was used with the words in the co-occurrence matrix. In this instance, CATPAC used this clustering method to look for associations among the words to identify the interviewees' perceptions of specific topics and interview questions. The findings are then grouped into a square matrix of summary statistics where the rows and columns represent the words, and the cell value represents the associations between every pair of words.

Third, the hierarchical cluster analysis is presented in this chapter by computing a visual of a "city skyline". The dendrogram creates a skyline formed below the important words (unique words) of the text. The important words are vertically positioned across the top of the page. The dendrogram identified clusters of concepts, by shading the area directly below those words that cluster together. More specifically, the dendrogram constructs each of the clusters to represent the linkages among the textual data. As each of the clusters grows wider from the bottom of the dendrogram as it includes more words, it peaks at the top as fewer words are linked. In this instance, the visual representation of data is used to describe or recognise the subclusters by creating the illusion of a building skyline in a city.

4.6.4 Summary and Implications

CATPAC simply reads the text, identifies the most important words and establishes patterns within any kind of written text, such as speeches, focus group discussions⁷ (Woelfel, 1993; Woelfel, 1998). The scanning of the text produced a matrix with weights that showed associations between words (Woelfel, 1998). The output of the analysis could also be displayed as a conceptual map because of the strong visualisation abilities of CATPAC (Lockyer, 2005). Distinct from traditional textual analysis, CATPAC does not require any precoding of the text,

⁷ Some examples of text files people have studied using CATPAC include: in-depth interview transcripts; answers to open-ended survey questions; newspaper reports and magazine articles.

nor is it necessary for the analyst to precode or determine what categories of information (or even how many categories) might lie in the text in advance (Woelfel, 1993, 1998). The procedures outlined above are done by CATPAC in an interactive environment to prevent any inappropriate changes of the underlying meaning of the text⁸.

Advantages of looking at individual issues across the interview transcripts include (Woelfel & Stoyanoff, 1998): (1) a unique perspective on how consistent interviewee participants were from one question to another; (2) the ability to see through vague answers, for example, if one manager was asked a question about an issue he/she was not comfortable with, he/she might not answer ambiguously, but redirect the answer into another concern which he/she is highly confident discussing. While he/she might be successful in eluding the interviewer, his/her answers, analysed in CATPAC, will reflect the real issue he/she focused on; (3) the analysis of individual issues across all the interview questions will also enable the analyst to extrapolate from the data to what extent each interviewee knows the issue at hand, and his/her self-referent relationship to the issue. In each of the interviewee answers, a title was assigned to sections according to the questions asked. Thus, the importance of reading interview transcripts' texts in the present study provided key insights that helped enhance an understanding regarding the IJV interfirm knowledge transfer practices.

⁸ Programming CATPAC to ignore words that do not change content but function grammatically to clarify interview transcripts etc. further illustrate how the program acts like a human brain – when a person analyses the text, they do not focus on how many times the interviewees said “the”. Instead, that person is more likely to remember if a particular issue was addressed repeatedly.

4.7 Chapter Conclusion

This chapter identified a qualitative approach as being most appropriate for this research. Qualitative approach is appropriate when research is a complex and pluralistic process, diverse in purpose and methods, based on a varied theoretical and ideological structure which reflects the researcher's belief system and methodological stance, drawing on the relative philosophical theories about methodologies, plus the identification of research context and questions. This approach assumes reality is constructed through ongoing processes of interactions, communications and negotiations and is based on the definition people attach to that reality within the context, suggesting "social reality exists as people experience it and give it a subjective meaning" (Hughes, 1990, p. 89). Further, as people may experience different social experience; there may exist multiple views of interpretations about realities (Neuman, 2000).

This chapter also describes a case research strategy for conducting the empirical work, and the applied method in writing this thesis – from developing the research design to conducting the entire investigation of case research. The key stages in developing the case research are: choosing the research problems; constructing a research model; deciding on fieldwork methods; gathering the data – with the researcher not only collecting related secondary information on case companies – but also designing interview questions in terms of research objectives, and starting to contact interviewees for details about interview times and places. Lastly, this chapter specifies a computer-assisted software CATPAC package for coding and analysing the data.

The next chapter moves to present contextual analysis of global automobile industry – to obtain a clear understanding of the current situation of the global auto industry, its characteristics, historical development and its future trends.

Chapter 5 The World Automobile Industry

5.1 Introduction

Automobiles have revolutionised transportation and been affecting the way people live. By various measures of size (e.g., employment, value of output) the automotive industry is regarded as one of the world's most important manufacturing industries. It has been a glamour industry worldwide showing massive rates of growth and, with the development of its distinctive production methods and consumer products. This chapter looks at the specific characteristics of the automotive industry in a global context in order to explore industry-related issues, highlighting its importance and significance over 100 years, and why human society has so readily embraced a global automobile industry as a mechanism for economic and social development.

This chapter begins by defining the construct of the automobile industry and motor vehicle products (section 5.2 and 5.3); it then describes the transformation process of the auto industry in the global setting (section 5.4) and in the USA context (section 5.5) respectively. Reflecting upon these past events facilitates a clearer understanding of the current situation of the global auto industry and its future development trends. Section 5.6 then mainly considers the issue of global auto industry's sustainable development. This chapter finally concludes in section 5.7.

5.2 The General Category of Motor Vehicles Type

The automobile has shortened the time and distance for transportation, and enabled people to travel farther and faster. However, the concept of the automobile has remained much as it was in the mid 1880s since the invention of the original practical motor vehicle a hundred years ago – in spite of the fact that vehicle manufacturing technology, operating performance and individual personal comfort have been advanced, the automobile is basically used as an internally powered, four-wheeled road transport tool with a driver and a few passengers (Lundqvist, Button, & Nijkamp, 2003).

The general category of motor vehicles includes a wide variety of products, differentiated by dominant function or size, weight and method of propulsion. Variations in engine size and dimensions of vehicles reflect national differences in vehicle and fuel taxation, driving conditions and traditions, and income levels. For example, there exist major contrasts between American standards and those of Western Europe and Japan, where small- and medium-sized engines dominate (Lundqvist et al., 2003). To the producers, retailers and consumers worldwide, automobiles are normally classified by particular make, model and variant, which appeal to distinct market segments and always convey particular implications of quality, image and tradition (Lundqvist et al., 2003).

Passenger cars are considered the dominant vehicle type, which can be classified by body type (two-door, three-door, four-door, hatchback, sedan/saloon, sports, and station wagon), engine capacity, and price class (Lundqvist et al., 2003). The second category, commercial-vehicles manufacturing, consist of relatively light-weight vans, pick-up trucks, and buses, which are used for commercial purposes, recreation, and general passenger carrying (Lundqvist et al., 2003). Many of these commercial vehicles are close derivatives of passenger cars and have traditionally been made by the large automobile manufacturers. Commercial-vehicles manufacturing are governed by varied national regulations

on gross vehicle weight, unladen weight, seating capacity, width, and length (Lundqvist et al., 2003). Comparing with passenger cars, licensing of vehicles, use and driver are more stringent with commercial vehicles. The use of diesel engines is more widespread in commercial vehicles but varies internationally depending on fuel tax policies (Lundqvist et al., 2003).

5.3 Subdividing the Automobile Industry

The automobile industry is generally grouped within the cluster of vehicle engineering and the more specific category of transport equipment manufacturing industries. The manufacture of motor vehicles can be subdivided into a number of distinct but closely related sectors (Lundqvist et al., 2003):

- (1) The first sector, which is also the largest sector of the industry, refers to the manufacture and assembly of complete motor vehicles and is normally dominated by the well-known motor corporations. Vehicle products include passenger cars, vans, trucks, buses and special-purpose vehicles, such as fire engines and ambulances.
- (2) The second sector encompasses the making of bodies and trailers mainly for trucks and buses, where bodies are fitted closer to the point of sale for the special requirements of customers. This sector was much larger in the past when custom-made car bodies were common and before the large independent mass-produced body makers were acquired by the large vehicle producers.
- (3) The third sector covers a wide range of motor vehicle parts and components, such as engines, clutches, gears, transmissions, brakes, body frames, and wheels. Some of these are now made in the same establishment as motor vehicle assembly. Large motor corporations worldwide are interested in acquiring firms in this sector and have become increasingly integrated within them.

These three sectors described above form the core of the automotive industry. Car and commercial-vehicle manufacturing are distinct sectors of the automotive industry (Lundqvist et al., 2003).

While differentiation by product type continues, control of the two sectors is now largely integrated within the big motor corporations. Small independent manufacturers remain only in the specialist sectors of car and commercial-vehicle building. Beyond this there is a wide periphery of ancillary industries, often strongly integrated with the production of motor vehicles. Many essential components used in vehicles are classified in other industrial groups. Examples include automobile glass (glass products), tyre making (rubber products), electrical equipments (batteries), fabrics and textiles (Lundqvist et al., 2003).

5.4 Mapping the Development Path of Global Auto Industry

The global auto industry has experienced various stages of remarkable transformations (Lundqvist et al., 2003). These transformations and relevant background descriptions are summarised in Table 5.1.

The first transformation was from horseless carriage to the automobile age starting from the 1890s. The second transformation was around 1910, brought by the American car producers, moving into a period of mass production. The third stage commenced in the 1940s when European manufacturers proposed both the concepts of mass-volume production and product differentiation. The fourth stage occurred in the late 1960s when Japanese carmakers emphasised both lower-cost products and manufacturing technological accuracy. The fifth transformation (the late 1980s into the 1990s) was characterised by the emergence of new producers from regions such as the Soviet bloc and the newly industrialising countries (e.g., Brazil and Korea). The current stage of the global auto industry transformation includes developing countries, such as those in Latin America, Eastern European countries, China, and India. The following sections examine the nature of how these transformations occurred.

Table 5.1 Industrial Transformation in World Automobile History

Transformation phases	Year	Production or product innovation	Geographic area of rapid market growth	National or regional industry seizing the initiative in shaping the world auto industry
<i>First</i>	1890s into 1910s	From horseless carriage to automobile age	Europe, US	Europe, US
<i>Second</i>	1910s into 1930s	Standardised product, mass production system	US	US
<i>Third</i>	1940s into 1960s	Product differentiation, emphasis on product technology	Europe	Europe
<i>Fourth</i>	Late 1960s through 1970s	Just-in-time, total quality and corporate groups as a new system of production organisation	Japan	Japan
<i>Fifth</i>	Late 1970s into 1980s	Concentrated production at low-factor-cost locations	Certain regions such as the Soviet Union, Korea, Mexico and Brazil	
<i>Sixth</i>	Late 1980s, 1990s until the present day	Mass introduction of flexible manufacturing systems, new forms of “cooperative” competition	Latin America, the ASEAN countries, Eastern Europe, China and India	

Source: Adapted from Kennedy (1972) and Lundqvist et al. (2003).

5.4.1 From Horseless Carriage to Automobile Age (1890s-1910s)

During the period of 1890s and 1910s, there was a great emphasis on the automobiles “as an entirely original transportation tool in the application of gasoline power that could move over the public highways without the assistance of a horse” (Kennedy, 1972, p. 1).

The world’s first automobile was completed by German carmaker – Benz – in 1886 (Kennedy, 1972). Interest in motor vehicles then expanded rapidly in the 1890s in France, and to a lesser extent in the US and Britain. After the automobile was initially born in Germany and France in the mid-1880s, the establishment of motor vehicle manufacturing as a distinct industry took place in the period between 1898 and 1908 (Bloomfield, 1978). By 1906, more than 20 years after the appearance of the first practical vehicle, French and German producers accounted for 58% of worldwide production and were acknowledged as the leaders in high-performance vehicle products. However, the market was still generally tiny, fewer than 50,000 vehicles were produced per year in Europe at that time (Bloomfield, 1978). Meanwhile, the momentum in the world auto industry was also being transferred to the United States.

Six motor vehicles were displayed at the 1893 Columbian Exposition in Chicago. That same year two bicycle mechanics, Charles E. and J. Frank Duryea, successfully made the first gasoline automobile in Springfield, Massachusetts (Flink, 1975). Experiments in the US also began with Haynes and Apperson in Kokomo, Indiana (1894), and Maxim in Lynn, Massachusetts (1895), who also produced motor vehicles using some ideas from Europe but often undertaking parallel developments (Flink, 1975).

From these inauspicious beginnings, a new form of mobility was rapidly to become a major force in shaping the twentieth-century. Considerable progress had been made since the mid-nineteenth century in developing more compact and efficient power units. Most significantly, during the 1860-1890 period light-

weight, high pressure, internal combustion engines with automatic controls were developed (Flink, 1975). Flink (1975) points out that the implementation of the automotive throughout Western Europe and the United States by the 1890s also depended upon a reawakening of interest in the highway transportation, which provided a fertile climate for the commercial exploitation of the advances in automotive technology made in preceding decades. This new interest in highway transportation created requirements that neither the railroad nor the horse could meet (Flink, 1975). The automobile, however, began to outgrow its horseless carriage era where until 1896 a man carrying a red flag was required to walk in front of any motor vehicle, and few motor trucks being produced before 1910 (Turner, 1963; Kennedy, 1972).

The last quarter of the nineteenth century was thus a very important period. It witnessed both invention and major innovations in transport and in the widening use of transportation facilities, such as improved machine tools and petroleum refining technology. Flink (1975) argues, “It is probable that no invention of such so quickly exerted influences, transforming the national culture, even habits of thought” (p. 2). Everyone was now automobile conscious. Although horses continued to be hardworking and dependable for pulling wagons and cabs, they did come with some drawbacks – even if manure clean-up on the city streets gave employment to many men (Anderson & Anderson, 2005). Although most of the automobile news during that period centred upon car performance such as cross-country endurance tests and races, predictions that a cheap, reliable car for the masses would soon be built and many people believed that within the foreseeable future a utopian automobile age would dawn began to become commonplace (Kennedy, 1972).

5.4.2 Ford's Initiation in Volume Production (1910s-1930s)

In the early 1900s there were several small automakers building cars. Many of the early automakers were new business entrepreneurs with no particular commitment to this industry (Lundqvist et al., 2003). The days before 1914 were a time of risk. The automobile industry lacked appropriate mass-production techniques due to its concentration on luxury designs resulting in a very small market. In 1900 world vehicle output was only estimated at 9,500 units, mostly produced in France and the United States. By 1908, world output had risen to 106,000 vehicles (Bloomfield, 1978). As demand rose, a more popular market developed, and manufacturers began producing standardised light cars. With the progress of vehicle technical improvement, some industrialists began making experimental and then practical working models. The early models of these vehicles were experimental prototypes designed for pleasure and amusement (Lundqvist et al., 2003). A large proportion was shortlived and may never have reached full commercial production, but the growth illustrates the wide interest in the new vehicle. The successful firms were commonly characterised by a skilled labour force, accurate and standardised machining of components, strict quality control of materials and finished products (Lundqvist et al., 2003).

It was Henry Ford who helped popularise the ownership of a car (Lundqvist et al., 2003). Ford began producing the famous Model T in Britain in 1911 – at an assembly plant in Old Trafford, Manchester. By the beginning of the First World War Ford improved its operational ease and achieved great success through bringing in mass-production. Ford also standardised auto parts and reorganised production to maximise efficiency. In 1913, the first moving assembly line was laid down at Ford's Highland Park, Michigan plant, and by 1914, a chassis was being turned out every 40 seconds (Turner, 1963).

By the time the First World War came, Ford was turning out 6,000 cars a year. Although no fewer than 198 makes of car had been put on the market, fewer

than half of them were still in production by 1913 (Turner, 1963). Yet the war was not a wholly negative influence. It created a public with a much greater conception of the potential of the motor vehicle and trained thousands of drivers who might otherwise never have sat behind the wheel of a car. The end of the war found an industry ill-prepared for bad times. Such plant as had survived was unbalanced, and although engine shops had expanded, the coach-building shops, which had handled the car bodies, had almost ceased to exist. There were far too many uneconomic firms, and during the 1920s the car industry “was forced to streamline itself under the twofold impact of the slump and fierce competition” (Turner, 1963, p. 21).

The first million annual output was achieved in 1915, and 2 million vehicles were made in 1919 (Bloomfield, 1978). In the second half of 1920s, the American auto giants came to the European continent and Britain in full force. When the war ended, it was clear that Ford had outgrown its prewar headquarters in Manchester, and now sought a new centre which it could use primarily as a great exporting base for Europe. In 1925, Ford acquired a 500 acre site at Dagenham. Operations began in 1931, and within 4 years the company began to sell its car on the market (Turner, 1963). The Ford expansion was then to take a large slice of the European continental and British markets.

Between 1924 and 1929, car prices fell on average by 25% (Turner, 1963). In 1925, General Motors took over Vauxhall. By 1929, car production output had climbed to 6.3 million, which was to remain as a record figure until post Second World War expansion. After 1929, the world economic depression had a strong influence on total auto production worldwide, seeing it decline to 1.9 million vehicles in 1932 (Bloomfield, 1978).

5.4.3 Volume Production plus Trade Tariffs Decline (1940s-1960s)

The Second World War meant major dislocation and shortages within the car industry, as the manufacture and repair of arms immediately became a top priority (Lundqvist et al., 2003). When the war ended, the European producers had been hit hard, and in Germany many motor manufacturing plants lay in ruins. While there was an increasing demand for cars in the world, there were few cars to be had. In 1943, only 1,649 cars came off the assembly lines (Turner, 1963). In America, domestic demand swallowed up total home production.

This situation had far reaching significance. For 10 years the world market had been starved of cars, and at that time quality became secondary (Turner, 1963). Equally, in the rush to produce cars, labour relations had to take a back seat. Management was far too concerned with production figures to spend time on unions. Consequently, they tried to ignore the union's increasing power. Another consequence of postwar disruption was the way in which governments milked the car industry (Turner, 1963). The problem, apparently, was no longer how to sell the cars, but how to produce them quickly enough. It was a new world in which the motor car was not merely (as in prewar days) an instrument of luxury and pleasure but also a tool with which to rebuild a broken economy.

At this stage, a large number of automobile manufacturers began to pursue different design and technical solutions in order to meet various national market conditions, such as the wide variations in consumer incomes, vehicle taxes, and geographic locations⁹. In Europe, some manufacturers experimented with large engines; others favoured small cylinder layouts. Some producers concentrated on rear-engine/rear-drive arrangements, others used front-mounted engines with rear-wheel drive, and still others offered front-mounted engines with front-wheel

⁹ For example, in Italy, with its low incomes, high fuel taxes, and the concentration of population in ancient cities with narrow streets and limited parking spaces, consumers demanded small cars. In Sweden, lower fuel taxes, higher incomes, less dense cities, and harsh winter driving conditions combined to channel consumers' desires toward larger cars, even at the expense of higher purchase cost and fuel consumption (Lundqvist et al., 2003).

drive. In North America, carmakers had standardised on a large, 6- or 8-cylinder, front-engine/rear-drive, gasoline-fuelled, chassis-on-frame design (Lundqvist et al., 2003).

During the three decades after World War Two, as a consequence of increased personal income and redeployment of labour from wartime manufacturing to peacetime production designed for consumption, the world production of new vehicles and the total number of vehicles in use climbed year after year, reaching 10.5 million units in 1950, and 16 million in 1960. Manufacturing output almost doubled in the 1960s, reaching 30 million in 1969. Among these figures, the European auto industry accounted for only 13.6% of world auto production in the early 1950s, compared with North America's 85.1% (Humphrey & Memedovic, 2003). In 1958, for the first time over one million cars were produced in Britain, and the achievement was trumpeted as the beginning of a new age. The dream of "a car in every home" seemed about to become reality (Turner, 1963, p. 9).

Trade barriers such as tariffs were also falling dramatically across the world in the 1950s and 1960s due to the successive rounds of tariff negotiations under the General Agreement of Tariffs and Trade (GATT). The European external tariff on automobiles was reduced to 10.9% by 1973 while the American tariff was reduced to a nominal 3% (Humphrey & Memedovic, 2003). In a competitive world auto industry, this reduction meant that consumers had opportunities to access to most of the world's automotive products without paying high tariffs. It also meant that international auto marketplace competition increased at a rapid rate. The European carmakers took advantage of this opportunity, greatly promoting the sales of their motor vehicles. In contrast, American auto exports, which had fallen during the 1930s, failed to grow significantly in the 1950s and 1960s, even as tariffs fell and American exports to most world markets were rapidly increasing in other sectors. The reason was quite simple: the North American automobiles had grown so large that they were not suited to consumer

incomes and energy prices in any other world market (Humphrey & Memedovic, 2003). By the early 1970s, the total European auto market was equal in size to the North American market.

5.4.4 The Emergence of the Japanese Auto Industry (1960s-1970s)

By 1973, the Japanese auto industry was well on its way to world leadership in manufacturing techniques, and it was concentrating on the production of small cars because the energy shock had shifted the pattern of demand. The oil price crisis of late 1973 had a substantial effect on the world auto industry, and production declined to 35 million units in 1974 (Shimokawa, 1994). After the 1979, when energy-price adjustment pushed demand patterns even further in the favour of Japanese manufacturers, western producers began to speak of the “Japanese Challenge” (Sobel, 1984). In the United States, the growing Japanese market share in the late 1970s was coming mostly at the expense of European small-car imports.

The general characteristic of the Japanese auto industrial structure was the fact that it was highly oligopolistic and government-managed from the beginning (Conybeare, 2004). The Japanese auto industry’s first transformation was ushered in by the Americans. Ford and General Motors established their Japanese plants in 1924 and 1927 respectively to assemble CKD (Completely Knockdown Kits) produced in Detroit. During the 1930s, however, the Japanese Government’s concern about foreign domination grew, as most of the vehicles in fully finished form were either assembled by or imported from the United States. For example, in 1931, 30,000 vehicles in Japan were designed and manufactured by Ford and GM for the Japanese market, while Japanese auto production was only 437 vehicles (Shimokawa, 1994).

The Japanese army was particularly anxious about the full-scale manufacturing capability of indigenous Japanese auto industry. The Law Regarding Automobile Manufacturing Enterprise of 1936 made this intent clear,

as it “excluded all foreign manufacturers, setting the conditions for an oligopoly market of domestic producers” (Conybeare, 2004, p. 9-10). By 1939, both Ford and General Motors had closed their Japanese operations (Lundqvist et al., 2003). However, the focus on war production and then the war itself foreclosed any immediate possibility of Japanese-owned producers building up an internationally competitive auto industry.

In the immediate postwar period, the Japanese Government was concerned about the desirability and particularly about the feasibility of developing an independent auto industry (Shimokawa, 1994). The Japanese Government preferred to have a concentrated auto sector and in the early 1950s even encouraged consolidation. By the end of the American occupation in 1952, the Japanese Government had determined to include the auto sector in the list of industries to be favoured with low-cost bank credit, preferential tax treatment, and careful protection of the domestic market. In addition, it reaffirmed the prewar practice of requiring that Japanese auto plants be Japanese-owned (Shimokawa, 1994).

In the 1950s and 1960s the Ministry of International Trade and Industry (MITI) stressed the conventional view of the auto industry as a high-volume business above all else (Shimokawa, 1994). To foster high volume it continually tried to consolidate the industry into two or three firms in the belief that each manufacturer should specialise in a certain size segment of the vehicle market (Conybeare, 2004). MITI argues that in this way Japanese producers could quickly obtain the necessary volume to reduce their costs, expand volume in the domestic market, and break into world competition (Sobel, 1984). However, progress in building an indigenous domestic industry was still slow at this stage, and Japanese auto companies generally resisted government consolidation arrangements like this (Conybeare, 2004).

In the early 1950s, although the Japanese producers obtained organisational techniques, designs and tooling from a number of western producers, progress in developing the products toward the minimal standard of quality and comfort for consumer acceptance in the United States and Europe was arduous (JAMA, 2009). Manufacturing volume and output per model in Japan were too low to compete against the economies of scale and productivity accruing to the US mass production system (Conybeare, 2004). Japanese industrialists realised they could not be competitive in world markets simply by following in US footsteps. A new production system was then led by Toyota Motor Corporation as Japanese car manufacturers responded to US industrial hegemony (Cusumano, 1988).

Here, William Edwards Deming (October 14, 1900 – December 20, 1993) played a critical role in the development history of the Japanese auto industry, although he was actually an American statistician, lecturer and business consultant (Hill & Lee, 1994). Since 1950, Deming had presented a series of speeches to the Japanese top management in the field of management science and theory, such as how to improve product quality, testing, design and services when competing in the global market. Deming was then famous for his contributions to Japanese later renown manufacturing capabilities, innovative products and quality-related management system, and is often regarded as one of the “national heroes” in Japan (Austensfeld, 2001; Hill & Lee, 1994).

By around 1960 the Japanese auto industry had begun to export a very basic product sold on the basis of very low price. But the initial Japanese efforts, around 1960, to export were not successful. These cars were not up to a minimum international standard and could not be sold merely on the basis of low price (Cusumano, 1988). Instead, Japan’s export success came through fine-tuning manufacturing systems to combine high-volume output with high quality and low labour content. Together, these developments represented a major breakthrough in production organisation that soon made it possible for the Japanese to establish a standard for all auto manufacturers. This breakthrough was the key to this third

stage of transformation. Japan's share of western markets jumped in several years (notably 1970, 1975, and 1979), which drew the attention of the automotive world to Japan (Cusumano, 1988). Different from American mass-production method which was focusing on maximising economies of scale and minimising product diversities for the purpose of cost reduction, the Japanese achieved efficiencies through flexible specialisation and just-in-time (JIT) manufacturing process (Cusumano, 1988).

Over the following 20 years, as an organisational model had been found in industrial and conglomerate groups, a new labour-relations model was developed in the form of company-based unions with lifetime employment in Japan (JAMA, 2009). Finally, a new manufacturing philosophy, based on the concepts of just-in-time (JIT) and total quality management (TQM), had taken hold, although these two concepts were actually brought in by Deming (Hill & Lee, 1994).

5.4.5 Transformations in New Regions (1970s-1980s)

The developing world includes a vast array of countries with widely differing cultures, political systems, and levels of industrial infrastructure. A number of these countries have developed substantial auto industries for recent years, and some are even now exporting, mostly to other developing countries, at low volumes (Lundqvist et al., 2003). Three examples (the Soviet bloc, Brazil and Korea) can be cited to show the problems facing countries with developing domestic auto markets and export ambitions during the period of 1970s-1980s.

(1) In the 1970s, the Soviet bloc and the low-wage developing countries emerged as the prime prospects although they offered limited success. In the 1930s, Ford first provided the necessary technical assistance for mass production in the Soviet bloc (Aervitz, 2007). However, the domestic automobile markets of the Soviet Union and its Eastern European satellites still remained small after the first two decades of the postwar era. In addition, the local production systems and product designs were not competitive compared with western offerings. The

indigenous producers gave no evidence of innovation that might launch them onto the world stage.

In the late 1960s, the Soviet Union and a number of the Eastern European nations embarked on a new course calling for large-scale imports of western manufacturing know-how, tooling, and vehicle designs. These imports were to pay for themselves by means of automotive exports to the West, often in the form of buy-back arrangements wherein tools and designs would be exchanged for finished autos and components (Aervitz, 2007). For example, Lada in the Soviet Union bought tooling from Fiat to produce under licence the 124 model, and soon Lada was exporting to Western Europe. Several other producers in Poland and Romania also followed the Russian example, obtaining designs and tooling from Fiat, Renault, and Citroen in return for cash or shipments of components and finished vehicles back to the western firms for sale in the West (Aervitz, 2007).

By 1980 the world's motor vehicles had grown to 320 million cars. Three major auto-producing regions (North America, Western Europe, and Japan) accounted for 87% of the world's automobile production, yet had only 16% of the world's population (Lundqvist et al., 2003). This fact demonstrates that these three major regions exported most of their products to the rest of the world.

However, during 1979-1982 a substantial market still existed in the Western industrialised economies for extremely low-priced autos even if, these were not very stylish or up to the latest Western standards (Aervitz, 2007). Through most of the 1970s Eastern-bloc exports to the West grew steadily, although from a tiny base (Lundqvist et al., 2003). Eastern-bloc exports to the West stabilised at a modest level, accounting for 1-2% of the new-car market in Western Europe (Aervitz, 2007).

In the late 1970s the eastern producers showed little capacity to independently design new vehicle models and manufacturing systems, and some of the European vehicle products were judged to be of inadequate quality for sale

in the West. Meanwhile, because western producers would not introduce their latest designs and tooling system, it was inevitable that the Eastern Europeans and the Russians would always lag one product generation behind the western market (Lundqvist et al., 2003).

(2) Since the 1920s, automobiles had been assembled with a low proportion of the manufacturing process taking place within Brazil – a totally protected auto market. In 1957 the Brazilian Government launched a “Brazilianization” plan for the auto industry that required a high level of local content (Ferro, 1995). Those multinational auto producers investing in Brazilian auto-manufacturing facilities were to be offered favourable tax treatments in return for greatly increasing their market share (Ferro, 1995).

By 1962 the average automobile sold in Brazil reached 93% local content requirements (RNCOS, 2008). However, this occurrence came at a high price for local consumers. In 1967, Brazilian cars cost 60% more than similar products produced in the United States and Europe, despite much lower wages. The problem was that the large number of producers was sharing a very small market (RNCOS, 2008). The Brazilian Government then fostered a skewed income distribution, creating a nationwide financing system with attractive low interest for purchasing cars. Finally, the importing of vehicles manufactured elsewhere was prohibited.

By the early 1970s, the Brazilian Government realised that Brazil might be able to join the ranks of world auto exports because the cost of Brazilian cars was dropping dramatically as auto production volume increased (RNCOS, 2008). The 1972 Special Fiscal Benefits Programme for Exports took the bold step of encouraging exporting from Brazil, involving agreements with multinational enterprises (MNEs). The Brazilian Government offered MNEs large tax breaks on domestic sales and the right to add new product lines for the Brazilian domestic market in return for promises to export given volumes of finished components

over the following years. Brazilian auto exports to the world then rapidly increased from only 2,000 at the start of the programme in 1972 to 135,000 in 1981 (RNCOS, 2008).

Brazil stands alone among the less developed countries in this achievement, but its future as a major auto exporter is far from assured for a number of reasons (RNCOS, 2008). A fundamental problem is that the Brazilian industry has no competitive edge in production systems or finished units beyond low wages, even though some products of given specification and quality seem to be higher than those in the developed countries. Second, Brazil's domestic market demands only a considerably simple automobile model which differs from other markets in the world, and most of its vehicles have to be exported to other countries. Thus its domestic market to digest its production capability seems quite limited.

(3) Korea is another example of an industrialising nation eager to break into the international auto market during this transformation period. Korea's auto industry began to develop later than Brazil's and it followed the alternative path of building up domestically-owned producers.

Initially, as a labour-abundant country lacking comparative advantage in producing autos, "Korea used protection from imports to force feed the industry" (Conybeare, 2004, p. 11). In 1962, Korea prohibited imports of completely built cars. At the same time, the Government decreed that only firms with majority domestic ownership would be licensed to produce cars in Korea (Lee, 1997). From this point, local content requirements were raised gradually as the domestic producers showed the capacity to meet them. In 1974, the Korean Government announced an ambitious plan to design and market indigenous products to compete against the established multinational producers in world export markets (Lee, 1997).

A modest recovery then followed, South Korea entered the world motor vehicle arena in the early 1980s as a low cost production site for American

multinational enterprises (MNEs) who had lost the compact car market to more productive and higher quality Japanese automakers. At that time, wage costs in the South Korean auto industry were only 10% that in the United States, due to the Korean Government subsidised the auto industry and repressed workers' movements to ensure that wages remained low (Amsden, 1989). Meanwhile, infrastructure for auto production – particularly steel and machinery industries transferred earlier from Japan – was also well established (Amsden, 1989). Korean automakers were organised into giant conglomerates (*chaebol*) capable of making massive investments in capital intensive production facilities.

However, the process of building Korea into an automotive export giant still took much longer, and the actual performance of the Korean auto industry was less spectacular than planned. Auto production increased slowly to 9,100 units in 1974, then further sharply dropping to nearly half in 1980 after a short time peak at 114,000 in 1979 (Lee, 1997). Scale economies were, therefore, unavailable, and production costs were very high despite low labour costs (Hill & Lee, 1994). Part of the problem was that the Korean Government's policy of supporting domestic auto producers (giving them, for example, favourable taxes, and export assistance) was not coordinated with its domestic treatment of auto purchases (Lundqvist et al., 2003). In fact, purchase taxes were assessed at 45% of the retail price ex-tax, annual registration taxes were more than 10% of purchase price, and gasoline was taxed at one of the highest rates in the world at that time (218% of the price ex-tax in 1977, 168% in 1982) (Lundqvist et al., 2003). Hence, the Government's consumption/demand policy was essentially anti-auto. Finally, the income distribution in Korea was much more egalitarian than that in Brazil, so the middle class did not have as much income to purchase new cars (Lundqvist et al., 2003).

Therefore, it was not surprised to see when the Korean Government removed protection in the 1970s and 1980s, its auto industry became vulnerable and came to rely on foreign MNEs. For example, Daewoo Motors, originally established in

1970, later set up a 50/50 joint venture with GM, with GM relinquishing its share in 1972 for US\$ 170 million (Conybeare, 2004).

The experience with auto manufacture in Eastern-bloc countries and less developed countries (such as Brazil and Korea) was mixed at this stage. Their domestic markets and production were growing rapidly before the worldwide economic slump of the early 1980s. However, they did not make the leap into the world arena as major exporters of finished units or components, nor had they shown any creative dynamism in their domestic industries that might combine with lower wages during this period (Conybeare, 2004). The limits of government assistance in seizing the initiative were also apparent from the examples cited above.

5.4.6 Current Major Trends (1990s-Present Day)

Since the 1990s, the global auto industry has grown larger and the effects of high vehicle ownership have become more apparent (Carty, 2008). Until 1997, sales of vehicles in the Triad economies (including Western Europe, Japan and North America) accounted for over 70% of global vehicle sales. However, of the three Triad regions, while the vehicle production increased by 4.2%, vehicle sales increased by merely 0.6% and experienced its stagnation in the auto industry between 1990 and 1997 (Humphrey & Memedovic, 2003). Both Western Europe and Japan suffered losses and their vehicle sales remarkably lagged behind in 1997 than they had previously been in 1990. Only North America enjoyed its benefits at the end of the 1990s, because of the booming economy in the United States, and the significant changes of consumers' tastes in the US market – from demanding passenger cars towards asking for light trucks (Humphrey & Memedovic, 2003). Humphrey and Memedovic (2003) explained the auto industry in the Triad regions had actually been plagued by low productivity, manufacturing overcapacity and cost pressure during this period, although it is mature.

In contrast, other emerging economies began to demonstrate their fastgrowing business performance which became a remarkable feature in this period (Lundqvist et al., 2003). Particularly, the rapid growth was concentrated in Latin America, Eastern Europe, the ASEAN countries, China and India. Taken together, the vehicle sales in these active emerging markets increased about 9% each year in the 7 years up to 1997 (Humphrey & Memedovic, 2003). In 2007, there were about 72 million vehicles sold worldwide (OICA, 2007): North America (19.4 million); Europe (23 million); Asia-Pacific (21.4 million); Latin America (4.4 million); the Middle East (2.4 million); and Africa (1.4 million). However, the emerging economies took an impressive vehicle market share (Global Market Data Book, 2008). From the perspective of global auto industry development, it is becoming obvious that the potential of the emerging markets are rapidly growing stronger than those of the Triad economies. Of these main markets, China, Russia and Brazil are more attractive.

Recent years have also seen other unique changes in the automotive industry. Traditionally, truck and sport utility vehicles (SUVs) are often loaded up with expensive options and thus have been the sources of making biggest profits for vehicle manufacturers (Carty, 2008). However, due to the fact that there are potential crisis worldwide such as rapidly rising fuel prices, drastic CO2 emissions mandates and increasing raw material costs, consumers are gradually changing their purchasing habits and shifted their preferences away from trucks and SUVs (PricewaterhouseCoopers, 2008). As a result the trend in the global automotive market is towards smaller and fuel-efficient vehicles on the road (SEMA, 2008).

It is thus not surprising to imagine that automakers are experiencing continuous pressures. For instance, Honda and Chrysler are experiencing troubles from the decline in sales of large vehicles (including trucks, pick-ups and minivans). Likewise, Toyota saw the sales of its light truck in 2007 went down by 16%. In contrast, Ford saw its two hybrid versions – Mercury Mariner and Escape

SUV– were selling well in the market, while Toyota’s hybrid version sales were up 51% in 2007 (Carty, 2008). Nonetheless, at the current stage of industrial transformation, only those automakers who are prepared well for these challenges can grasp opportunities to survive.

5.4.7 Summary

Unlike many other industries, the global motor vehicle manufacturing has created a distinct industrial landscape. From the review of the automotive history in the above sections, it appears that transformations are the norm rather than the exception in the history of the global automobile industry. Each transformation stage has been fuelled by extraordinary dynamisms within the industry, and each stage has had creative breakthroughs in some aspects of vehicle production systems, resulting in a powerful explosion of demand in either the domestic market or the rest of the world’s market (Lundqvist et al., 2003). That is to say, each transformation in different countries/regions has brought in new opportunities which shape the development path of the world automobile industry. Next section will move to the contextual descriptions in terms of the automobile industry transformation in one of the world’s most developed auto market – the United States.

5.5 The Automobile Industry in the United States

It is generally agreed that the large American motor corporations have played a major role in the world automobile industry for more than half a century, although the technical evolution was generally slow at the beginning, which required a number of years for the public to be familiar with the concept of a “car” (SEMA, 2008). In 1900, there were 76,000,000 people in the United States. However, automobile production had only increased to 5,000 cars, which means fewer than 4,000 owned automobiles at that time (Kennedy, 1974). Eight years later in 1908, the number of car production was reached to 63,000. In terms of families rather than of individuals about 1 out of every 5,000 American families owned an automobile (Kennedy, 1974). Here was the greatest potential market that any manufacturer could desire.

For the first 10 years of the twentieth century, most of the American corporations have passed through a series of fundamental technical progress (Kennedy, 1972). The early automobile technicians had contributed tremendous efforts in improving the reliability, endurance, power, and new speed of the cars. For example, Ransom Olds built his first steam powered car in 1894, and his first gasoline car in 1896 respectively (Kennedy, 1972). In 1902, Ransom Olds also initiated American series production with his “curved dash” Oldsmobile (Lundqvist et al., 2003). This car was tiny in comparison with typical European products and was explicitly intended for a mass market.

By 1906, Henry Leland had designed a Cadillac with completely interchangeable parts. This innovation won the Dewar engineering competition in England when three Cadillacs were completely taken apart by the judges, reassembled into three new vehicles, and driven 500 miles without mechanical failure (Rae, 1984). Leland’s design also established interchangeability as the automobiles design philosophy in the future.

By 1908, Henry Ford and his associates were combining the design and manufacturing ideas of Olds, Leland, and many others into a new car, the Model T. The Model T integrated certain advances which were to be backed up by a new manufacturing system, such as fabrication techniques and materials (Lundqvist et al., 2003). The main purpose was to simplify manufacturing procedures, reduce maintenance costs, as well as to adapt cars to primitive countryside driving conditions. The excellence of the design was augmented in 1914, by the introduction of the continuous production system, that is, the assembly line. New production machinery in the assembly process was linked to a “scientific management” approach to facilitate the continuous flow of materials which united many years of experimentation in two separate aspects of production – the division of manufacturing skills and the routinisation of complex work (Lundqvist et al., 2003, p. 16).

The Ford Motor Company used this new system of organisation and production machinery to lead the world auto industry into the age of mass production (Rae, 1984). Ford achieved an early dominance of the mass production and mass marketing sector of the industry. From 1,700 vehicles in the company’s first year (1903), production rose slowly to 10,000 in 1908 (when the Model T was introduced), but then exploded to 300,000 in 1914 (when the assembly line was fully installed) (Rae, 1984). By 1914, the industry was selling 548,000 cars, with the retail price down to about US\$ 1,000 per car. In 1916 the retail price had fallen again to about US\$ 800. However, a car was still considered to be too expensive to be afforded by average American families, except for a Ford (Kennedy, 1972).

After World War One broke out in 1914, the output of automobile production was almost tripled in 1916 (Kennedy, 1972). At that point, Ford still made 58% of the world output of motor vehicles from its American production base after the economic devastation brought by the war. In that year other American producers, notably the rapidly growing General Motors, accounted for an additional 2.1

million units, bringing the American share of world auto production in 1923 to 91% (Ling, 1990). In the early 1920s, Alfred Sloan at General Motors perfected the decentralised organisational techniques needed to manage the enterprise. American dominance in the world's auto industry was then nearly complete (Rae, 1984).

Throughout the 1920s the American share of world auto production remained at 84% or higher, and the US automobile industry was dominated by a few very large companies (Ling, 1990). In 1929 they exported 10% of their production (546,000 units) and captured 35% of the world auto market outside the United States. During this period, the auto manufacturers produced roughly 4 million passenger cars each year, and 23 million cars were sold by the end of 1929. It was then estimated that nearly three out of four American families owned a passenger car (Kennedy, 1972). After World War Two, the auto industry was even regarded as a pillar industry which would be benefit to the American economic growth (Cooney & Yacobucci, 2005).

Until the late 1960s, the so-called "Big Three", including General Motors, Ford and Chrysler, became emerged as major players in the world automobile industry. In 1973, which was considered as a peak year for these three large American firms, they made almost half of the world's annual production output. While the bulk of their output came from factories in the United States, each firm had developed assembly and some manufacturing plants in other parts of the world. In 1973, 34.4% of Chrysler production was made outside the United States and Canada, Ford produced 30.1% of its vehicles outside North America, and the proportion for General Motors was 20.5% (Rae, 1984).

The United States automotive industry has, however, changed significantly since the 1980s (SEMA, 2008). The "Big Three" have always been criticised that they do not deal with the environment-related and social issues in an appropriate way since 1980 (SEMA, 2008). For example, due to the operational losses

resulting from fierce business situations and worldwide financial crisis, the “Big Three” gradually closed many factories and cut job positions, despite the fact that about 600,000 employment opportunities in the US have generally been provided by the “Big Three”. Meanwhile, the “Big Three” operations are hindered by their relatively expensive labour costs, and their wage levels are much higher than those “transplants” in the US (referring to foreign-based vehicle production plants in the US). One example was the average annual wages for production workers at the “Big Three” were US\$ 67,480 in 2007; and US\$ 81,940 for skilled workers. Meanwhile, health care and pension costs also put extra burden of US\$ 1500 to the vehicle production costs (SEMA, 2008). These combined factors make it very difficult for the “Big Three” to lower vehicle sales prices. One of them, Chrysler had no better choice but became part of the German-controlled DaimlerChrysler car corporation in 1998. By the close of 2007, most of the passenger cars sold in the US were mainly come from the so-called “transplants”. Finally, in the US market, once-dominant position for the “Big Three” in the field of sports utility vehicles (SUVs) has been gradually replaced by Japanese and German auto producers (Lundqvist et al., 2003).

The “Big Three” used to emphasise the promotion of fuel-guzzling big cars. With the alarming of gasoline prices shot past US\$ 140 in 2008, the “Big Three” realised the potential difficulties in the retail sales when Americans would stop purchasing this type of expensive vehicles. For instance, GM reported sharp decreases in the retail sales of its SUVs down by 36.7% from 2007, while the sales of Chevrolet Aveo, Chevrolet Malibu and Pontiac Vibe were up in 2008 (Stockley, 2008). Following these sales trends, GM gradually closed its four truck assembly plants in North America (starting on June 3, 2008), while adding extra shifts at another two car plants instead. Meanwhile GM also cancelled its US\$ 2 billion strategic investment in a programme called “full-size SUVs updating” in 2009 and even undertook a general evaluation of its famous Hummer brand

(Moore, 2009)¹⁰. GM's experiences were not exceptional. Ford also experienced the same situations as it saw its SUVs sales went down 44% in 2009, comparing with a 20% increase in its car sales in 2008. The Ford's Lincoln-Mercury brand was the biggest loser as its sales were down 3.5% in 2007 (Espinoza, 2008).

The financial crisis started in 2008 brought about significant consequences as the consumers' credit was tightened and it became more difficult for average people with poor credit to get the approval from a bank to purchase a car. As a result, the "Big Three" lost most of their customers in the US auto market¹¹ and only dominated in the light truck sector. The worse thing was even in this sector, they were still being challenged by some foreign automakers with competitive prices and reliable quality (Espinoza, 2008).

These series of damaging blows caused the "Big Three" to the verge of bankruptcy, which generally had major effects on the structure of US automobile industry in recent years. However, bankruptcy of the "Big Three" would mean unbearable to the American economy and social stability. It was estimated that the bankruptcy would bring about a total loss of 3 million job opportunities in the US, including a loss of 240,000 high-paying jobs at the "Big Three", and a loss of 980,000 jobs at a large number of suppliers and network dealers, plus the extra loss of 1.7 million jobs throughout the economy (Cole, McAlinden, Dziczek, & Menk, 2008). Personal income in total would be dropped to US\$ 151 billion in the first fiscal year which would definitely cause a huge loss in tax revenue for the federal, state and local governments (Cole et al., 2008).

¹⁰ On June 2, 2009, Sichuan Tengzhong and GM signed a memorandum of understanding in terms of Hummer takeover. Tengzhong is a privately-owned industrial machinery group in Sichuan province, China. This Chinese company initially aimed to acquire the HUMMER brand valued at about US\$ 500m. As part of the transaction, Tengzhong pledged to retain Hummer's management while enlarging the brand's access to the Chinese market (Moore, 2009).

¹¹ The first signs emerged when foreign companies such as Volkswagen and Honda started importing cheap, well-made cars in the 1960s. The "Big Three" convinced Congress to impose quotas, while the foreign companies responded by opening their own plants in the US (Cooney & Yacobucci, 2005).

Intense debate was then underway to get a massive bailout from the Congress in order to save the US automobile industry. In late 2008, along with Chrysler, GM announced that it had hired some lawyers to make relevant arrangements about how to file a bankruptcy. GM stated as it was short of efficient cash for normal business operations, it might not survive past 2009 (“In Pieces”, 2009). It initially sought support from the Bush administration in 2008 when seeing “US\$ 30.9 billion in losses and its cash resources shrink by more than US\$ 19 billion” (Strumpf & Johnson, 2009, para. 25). However, with the bad news and rumours widespread everywhere, consumers gradually lost confidence of GM’s future even after the Obama government “promised to provide billions of dollars in financial assistance” to GM (Strumpf & Johnson, 2009, para. 26). Thus filing for bankruptcy was considered an unavoidable choice for GM. GM listed several options for liquidating or selling all of its undesirable assets and then reorganised its contracts with existing car dealers, unions and components suppliers (“In Pieces”, 2009).

On December 19, 2008, the Bush administration approved a financial assistance plan and gave GM and Chrysler US\$ 13.4 billion from TRAP (Troubled Assets Relief Program) funds. Under the terms of the Treasury Department, the two carmakers were required to submit recovery plans respectively for passing the emergency aid deal. On February 17, 2009, GM stated that it still need extra US\$ 16.6 billion, in addition to the US\$ 13.4 billion that it had originally received, in order to be leaner and more efficient (“In Pieces”, 2009). However, despite the support from former President George W. Bush, plus some Democratic and Republican party members, the US Senate vowed against any bailout plan and government financial assistance.

On March 5, 2009, Deloitte & Touche LLC, GM’s public accounting firm, issued an auditing report which emphasised its doubt about GM’s ability of continuous business operations. This independent report raised certain concerns about the possibilities of filing for bankruptcy protection based on its financial

assessment for GM (“Wagoner’s Fast Exit”, 2009). While seeing GM’s stumbling reaction to its own problems and crisis, the newly-elected Barack Obama government lost patience and decided to replace Rick Wagoner (the CEO of GM for almost 9 years) with Fritz Henderson as new CEO after “a government-imposed deadline of March 31” (Strumpf & Johnson, 2009, para. 27). The purpose was to let GM restructure and modify itself before a new set deadline – June 1, 2009.

Wagoner was mainly criticised for his “not confrontational” approach when dealing with the Unions (“Wagoner’s Fast Exit”, 2009). Meanwhile, the car industry taskforce pointed out GM’s progress for restructuring itself in recent years has been far too slow. Several areas were identified by the taskforce as it found GM either to be over-optimistic or in denial: domestic market share; the quality and ranges of GM’s products; GM’s business and investment operations in Europe; performance of car dealers; health care and pension liabilities plan. As GM’s future was not much clear, certain measures were considered must be done to keep GM in business (“Time for a New Driver”, 2009).

GM announced its restructuring plan on Monday April 27, and presented its final proposal at the end of May to persuade the Obama government to release billions more of dollars to save GM (“GM’s Latest Remodel”, 2009). GM suggested it would be appropriate to request another US\$ 11.6 billion from the US Government in addition to the US\$ 15.4 it has already received. Accordingly, the US Government would receive a 50% stake in GM¹², and the United Auto Workers (UAW) would also get a 39% stake. GM stated these proposed measures would definitely reduce its debt, and each year would save roughly US\$ 7 billion (“GM’s Latest Remodel”, 2009). However, putting an end to weeks of

¹² In December 2008, when GM secured a large slice of government bail-out funds to keep it alive, this car company was jokingly dubbed “Government Motors” (“GM’s Latest Remodel”, 2009).

expectations, GM finally filed for Chapter 11 bankruptcy protection on June 1, 2009 in order to redeem itself (Please refer to Coda at p. 356 for further details.).

Along with GM, Chrysler – the smallest of Detroit’s “Big Three” carmaker – also suffered bitterness although it did not just give up and did try its best to look around for any survival opportunities existed. Chrysler had certain serious problems which had already been pointed out by Obama’s car-industry taskforce, such as insufficient resources and funding, out-of-date vehicle models, poor reputation for quality, and over-dependence on the North American market (“Time for a New Driver”, 2009). Some car-industry analysts even criticised Chrysler’s recovery plan can’t be simply achieved under the current global economic recession (“Time for a New Driver”, 2009).

Since January 2009, Chrysler had negotiated with Italy’s Fiat for potential tie-up relations (“Wagoner’s Fast Exit”, 2009). Based on the framework of negotiations, Fiat was expected to provide cutting-edge technology in the form of fuel-efficient engines, small-car platforms and factory automation. In return, Fiat could get a 35% stake in Chrysler as a manufacturing and distribution base to expand its business in USA (“Wagoner’s Fast Exit”, 2009). Meanwhile, Chrysler further asked for extra financial support (US\$ 5 billion) from the US Government besides the US\$ 4 billion it had received earlier (“End Game”, 2009). On April 27th the United Auto Workers (UAW) union agreed to a series of concessions, such as the suspension of cost-of-living adjustments, and restrictions on overtime pay. Unluckily, despite these efforts, Chrysler still failed to avoid bankruptcy protection and had to close its operations at the end of April, 2009 (“End Game”, 2009).

In sum, as has been noted in the last several decades, the prospects for the US auto industry have been changed. GM, Ford, and Chrysler used to be dominant players in the world automobile industry, controlling more than 90% of the automobile business (“Time for a New Driver”, 2009). However they have done

poorly in recent years (SEMA, 2008). Some reasons could explain why they have been challenged by so many uncertainties and difficulties: the endless competition at domestic and overseas markets, increasing material prices, restructuring internal job arrangements and government regulatory requirements. In addition, the reality of escalating fuel prices has also changed consumers' demands – smaller and economic-type vehicles are becoming more acceptable and popular worldwide. These combined factors have resulted in a series of impacts on the US automobile industry. It is thus not surprisingly to see the bankruptcy of some vehicle companies such as GM and Chrysler. Meanwhile, it was also argued that in an industry with just three dominant players, it would be impossible to avoid a decline of the so-called “competitive spirit”. As Kennedy (1972) stated, “a hundred companies might cut one another's throats, but three companies are bound to tip their hats politely when they pass each other on the street” (p. 325).

5.6 Sustainable Development of the Global Auto Industry

It is now recognised that with the development of transportation technologies, millions of people worldwide have now gradually relied upon the mobility, convenience and integration provided by trucks, passenger cars and buses. The world economy also benefits from the development of automobile industry bring about an important source of employment opportunities and business activities. However, the automobile has also been accused of related negative effects, such as the emission of greenhouse gases on the road causing certain level of air pollution, traffic congestion and highway fatalities (PricewaterhouseCoopers, 2008). The following sections provide some of the major considerations regarding sustainable development issues of the global auto industry.

5.6.1 Regulatory Restrictions

More and more industries have now under great pressure to conform to environmental protection regulations. The automobile industry is no exception and has been increasingly perceived as one of the major sources of damaging the

air quality and public health (PricewaterhouseCoopers, 2008). Because of the growing number of cars on the roads, governments and international institutions have been busy with introducing legislation concerning vehicle emissions control.

It is reported that, since 2003, the European Union has regulated its standards of limiting carbon monoxide (CO), hydrocarbon (HC), nitrogen oxide (NO_x) and particulate emissions. From September 2009, according to the newly issued “Euro 5 Directive”, most new cars sold in the European Union market are required to use particulate filters on diesel engines (PricewaterhouseCoopers, 2008, p. 29). Similar regulations have also been applied in other developed countries (such as the US and Japan) and some developing nations in Africa, South America and Asia, working towards reducing fuel emissions by vehicles.

Current standards do not lay down any restrictions in terms of CO₂ emissions by vehicles, however, the world’s major automakers are being forced to be in align with government objectives and have to take gradual and integrative measures towards zero emissions through various technological improvements such as a changeover from petrol to diesel, the use of biofuel, and new air-conditioning systems (PricewaterhouseCoopers, 2008). For instance, in order to reduce the CO₂ emissions and decrease fuel consumption, the US President Barack Obama has mandated to invest and develop cleaner energy technology in the automotive industry, beginning in 2011 (Greenfield, 2009). Vehicle consumers are also encouraged to buy less gas-guzzling vehicles (PricewaterhouseCoopers, 2008). Through these various measures, global automakers can thus reduce their burdens of reducing emissions with governments, business partners and consumers.

5.6.2 Technical and Technological Challenges

Going into the twenty-first century, from a technical point of view, the new challenges is likely to be developing new auto technology, notably including “the optimisation of engines and transmission systems, new diesel engines, biofuels,

hybrid technology and fuel cells” to reduce the amount of potential emission (PricewaterhouseCoopers, 2008, p. 31).

However, some industrial analysts predict that there still exist key strategic challenges in terms of gradual technological modifications. First, although manufacturers are already developing the potentially disruptive technology of hybrid prototypes in the automotive industry, which is viewed as one of the prevailing trends in the next decade, hybrids are still considered not so fuel efficient – given that these require two systems to operate (PricewaterhouseCoopers, 2008). The second challenge is how to integrate the idea of minimising the manufacturing costs of future models while still in compliance with current standards. More concerns are also addressed, such as manufacturing capacity and brand concerns (PricewaterhouseCoopers, 2008).

It seems that global automakers will have to seriously think about potential strategies to face these above-mentioned challenges. These strategies will lead to a market restructure, resulting in losses for those that can not deal with difficulties. Only those that know how to adapt and seize the new opportunities can survive.

According to PricewaterhouseCoopers (2008), automakers must undertake massive efforts to transform the traditional form of truck-based autos and begin favouring more fuel efficient vehicles to gain a sustainable competitive lead. Although each new technology has its limits, innovation strategy is surely a primary solution to automakers.

5.6.3 Materials and Safety Practices

In the future, vehicles will be made of different materials. For example, the improved plastics and composite body construction will be widely applied for cutting car weight, allowing smoother surfaces and more complex shapes. Another material – ceramics – has also been under research which will also increase operating efficiency in applications such as pistons and turbocharger

rotors (PricewaterhouseCoopers, 2008). Innovation in these areas will facilitate the whole process of saving production costs and better manage fuel energy.

The second consideration is related to increasing vehicle safety. Government officials, global automakers, industrial experts, and insurance agencies always have considerable concerns about safety issues (SEMA, 2008). They have been trying to work out practical solutions to prevent vehicle collisions and reduce death rates on the road (Stockley, 2008). Generally speaking, vehicles are now expected to have certain features in the event of a collision. For instance, it is emphasized that vehicles should be equipped with airbags and side-impact protection functions to protect the occupants in the vehicles (“Stopping in a Hurry”, 2008).

Meanwhile, vehicles are required to be upgraded for having other mechanisms in certain dangerous situations. One case is the automated braking systems can help drivers avoid crashes in the first place. Germany’s Daimler is reported that it is doing some experiments on a radar-based monitor – called Distronic – in some of its Mercedes-Benz vehicles (“Stopping in a Hurry”, 2008). The vehicles with Distronic at high speed can automatically adjust their acceleration and braking at the same time to maintain an appropriate distance from other cars. If a collision seems likely, Distronic will signal a warning. When drivers try to press the brake pedal, the Distronic system will automatically applies the optimum pressure required to prevent hitting the car in front. If drivers fail to do so, the brakes can function automatically. In 2009, Daimler also introduced a device to detect drivers’ fatigue. It uses multiple sensors to store a driver’s personal physical and/or mental profile initially when he/she drives in a normal way. If that driver departs that particular profile, an alarm will be given (“Stopping in a Hurry”, 2008).

These so-called “intelligent” vehicle-safety systems have been conducting worldwide in the automotive industry, which can potentially and effectively avoid

so many traffic tragedies in the future and probably will save numerous lives during collision (“Stopping in a Hurry”, 2008). The VTT Technical Research Centre of Finland, a contract-research organisation based in Finland once calculated if these systems could be applied to all vehicles in Europe, it would reduce the number of people killed on the roads there by almost 17% (“Stopping in a Hurry”, 2008).

Those innovative safety equipments will gradually make their way from expensive vehicles to modest models, which can improve cars’ handling performance and make cars much more “aware” of their surroundings (“Stopping in a Hurry”, 2008, p. 85). Eventually, through technological improvements and progresses, experts generally predict cars will be getting better and safer.

5.6.4 Global Alliances Trend in the Auto Industry

The automobile production system across the world has seen major changes in the last two decades, which shows new forms of competition and cooperation established worldwide. Interfirm alliance developments such as the merger of DaimlerChrysler, joint venturing by GM-Toyota, Ford takeover of Mazda, and Renault equity stake in Nissan are almost impossible to keep up with (Global Market Data Book, 2008).

Researchers have already explained the major reasons that the international alliances form has been widely adopted in the auto industry (Glaister & Buckley, 1996). First, “scale economies” and “learning by doing” characterise the automotive industry for the purpose of reducing costs and achieving maximum profits. Alliances effectively allow vehicle production rationalisation while reducing the suspicions and risks of a full-scale merger and acquisition mode for firms in the same industry (Contractor & Lorange, 1988). Second, alliances can be tactically treated as a defensive tool to minimise fierce competition (Harrigan, 1985). Third, alliance formation could encourage the automobile companies to access and develop unfamiliar markets (Gannon, 1993). Fourth, alliances may

integrate the necessary know-how, skills and talents that cover different aspects in the automobile industry, which are pertinent to the manufacturing, scale and distribution outlets.

The Global Market Data Book (2008) provide several insights in a research report about the tremendous growth in the automotive industry in recent years, plus some challenges faced by current car manufacturers:

- First, since passenger car demand has grown quickly, competition has become more acute;
- Second, managerial and technical innovations have led to changes in the competitive priorities, increasing the concern for effective management, marketing promotion, higher quality products with lower costs and prices;

Due to that peculiarity, Kobayashi (1988) proposes the positive relationship between the need for continual updating of the carmakers' capabilities and the strategic alliances as facilitators. Glaister and Buckley (1996) state the global auto industry will still be characterised by alliance formation to a certain degree, although the competitiveness and alliance development may still imply the creation of new management challenges for the automakers in today's global environment.

Hayes, Pisano, and Upton (1996) also suggest that the alliance trend is strongly related to the aim of building skills in new market sectors. For instance, there has been the surge of the "lean approaches" to production and operations management. As a consequence, it seems the process of transformation and alliance adjustment is not at an end when global automakers today find themselves having to face various challenges (Anderson & Anderson, 2005).

5.7 Chapter Conclusion

The automotive industry stands for one of the important symbols of modern industry all over the globe. The influence of the automobile has been enormous, and the motor vehicle has made a very substantial contribution to human society in the modern civilised world. By providing more transport, it has affected the detailed location of commerce and industry. As a new mode of passenger transport, it has modified urban and rural areas, allowing new dimensions of personal mobility for commuting and recreation. Although new-vehicle sales and production dropped dramatically at times in response to broader economic and political conditions, they invariably rebounded and surged upward. Kennedy (1972) argued “... from a psychological standpoint, there is a great escape in driving a car” (p. 319). In fact, it is difficult to imagine how the current world would have developed without this invention in the 1880s.

This chapter looked at the transformation stages of the auto industry in the global and some specific country markets. This chapter initially stated that, from 1886 to 1898, although there was no real established auto industry in the strict sense, it was realised that the overall costs of transportation could be decreased through mass production and marketing. The time period since has thus been called “the automobile age” (Kennedy, 1972, p. 320). A century later, use and ownership climbed ever higher, mass automobility spread to more and more nations, and new operating capabilities were continually perfected.

After reflecting upon previous several transformation stages of the world automobile industry, this chapter then emphasised that the future of auto industry seemed more critical than its past. This chapter pointed out although the auto industry has achieved great achievements during the past decades, and although the automaking is considered as the largest manufacturing activity on the globe, since 2008, this view has changed – the automotive industry today is now actually facing dramatic pressures (PricewaterhouseCoopers, 2008). Questions have been

raised about the long-term prospects for the automobile and its industry. The day of new entrants on the world scene producing and exporting whole vehicles, with the transforming consequences of the Americans, the Europeans, and the Japanese, may even be past.

This chapter finally concluded for the auto industry, achieving a balanced global footprint and maintaining competitive advantage and sustainable development are particularly important (PricewaterhouseCoopers, 2008). Global automakers need to make pertinent strategies regarding how to keep their sustainable competitive position over time. Only those companies which can rapidly deal with uncertainties and be adaptable to innovative activities will prevail.

Chapter 6 The Chinese Automobile Industry

6.1 Introduction

The global automotive industry is now been experiencing transformations. PricewaterhouseCoopers (2008), the independent research organisation, estimates that the global car market dropped by 2.8 million vehicles in 2008, and further declined by 4.2 million to 66.6 million in 2009. The reasons for this slowdown are the weak global economy, the emergence of excess production capacity, and saturation in the main global markets (PricewaterhouseCoopers, 2008). This slowdown is being felt especially by MNE automakers which are experiencing declining sales in the three most developed economic areas and also the largest automobile sales markets – North America, West Europe, and Japan.

Facing these problems, MNE automakers are now seeking future opportunities in emerging markets, such as the South American, East European and Asia-Pacific regions. With their continuous economic development, increasing demand and growth potential, these areas are growing into major and important economic markets and will offer the next potentially great auto markets in the coming years (Carty, 2008). Amongst these emerging markets, global automakers are penetrating interactively into China, placing their hopes for recovery on a huge surge in demand for their vehicles. In fact, global businesses, including major auto companies, have all viewed China as a very attractive emerging market (Carty, 2008).

This chapter seeks to explore the features of and prospects for the evolution and restructuring of China's automobile industry, in order to contribute to the discourse on the influence of institutional factors on the growth of Chinese auto firms, which helps us better understand the changing market situations, key policy formulations, inward FDI activities as well as the embedded incentives of

technology (knowledge) transfer rationale in the auto IJVs in China. Section 6.2 begins by describing the role of inward FDI in China's auto industry. Section 6.3 focuses on the historical growth stages of the Chinese auto industry and the influence of foreign technology transfer from an institutional perspective; it also discusses how Chinese Government policies shape the development strategies of the Chinese auto firms. Relevant institution-based implications are presented at the end of section 6.3. The impact of the current global economic crisis on the Chinese auto industry is also described in section 6.4. Section 6.5 offers the chapter conclusion.

6.2 The Chinese Auto Industry and Economic Development

China's automobile market has now moved to a sustained growth state, and we remain confident in the overall prospects of China.

- Philip Murtaugh, Former Chair and CEO of GM China

If we stay out [of China's growth opportunities], we will miss our competitive position.

- Carlos Ghosn, Renault & Nissan CEO

6.2.1 The Role of the Chinese Auto Industry in Economy

China represents an important case of economic reforms in an emerging market. The annual rate of China's economy is growing at around 9%¹³, and the increase in China's GDP has been impressive when compared to that of other markets (Dow Jones Newswires, 2009). China's GDP was an estimated 30 trillion RMB Yuan (US\$ 4.4 trillion) in 2008, up 9% from a year earlier, and the GDP per capita reached 22,640 RMB Yuan (US\$ 3,320) (Wang, 2009). One of the fundamental causes of this dramatic performance lies in its progress of manufacturing sector in China (Zhang & Zhang, 2008). As part of the manufacturing sector, the Chinese auto industry represents "6% of the total value added of manufacturing in China in 2003, a near doubling of this percentage from its level in 1990" (CATARC, 2004, as cited in Gallagher, 2006, p. 22). The Chinese auto industry is especially contributing to economic development "with respect to employment and output" (Gallagher, 2006, p. 22).

¹³ China's GDP in the final 3 months of 2008 rose only 6.8% because of the impact of the global economic recession, which was a 7-year low and also down sharply when compared with the 10.6% expansion in the first quarter of 2007 (Dow Jones Newswires, 2009).

6.2.2 The Influence of FDI in the Chinese Auto Industry

One characteristic related to the progress of the Chinese auto industry is that the influence of a rapid expansion of inward FDI and entry of the international automakers into China (Wang, 2009). Before 1980, the Chinese auto market was entirely closed to the outside world. As the market prospects were not very clear and the auto-related FDI regulations were very strict, major MNE automakers were reluctant to commit a large amount of investment into this relatively uncertain market. Up to the end of 1989, only 20 equity-based Sino-foreign auto joint ventures had been set up in China.

This FDI inflow situation in the Chinese automobile industry began to change sharply from 1992 onwards due to the booming auto market¹⁴ and China's fast-growing economy. China began to consistently receive more FDI than any other developing country after the mid-1990s. In 1993, the accumulated number of FDI-involved auto companies was 120 (McGunagle, 2007). After 1994, foreign automakers started a new round of investment, and the accumulated number of FDI-involved auto companies skyrocketed to 500 in 1997, with the cumulated contracted FDI amounting to US\$ 7.39 billion. It was reported that over 800 domestic auto firms had been in receipt of FDI amounting to US\$ 12 billion at the beginning of 2001 (Zhang, 2002), and billions of dollars worth of FDI are in the planning stage in order to increase auto production capacity by 2010 (Wang, 2009). Hong Kong¹⁵, the US, Germany, France, Japan, Italy, South Korea, and Britain are the major FDI sources. In 2006, China accounted for 30% of the

¹⁴ Dating back to 1993, China's ratio of auto owners per capita was the lowest of any major country in the Asia-Pacific region. In 1993, there were only 680 people per car in China, compared to 131 in the Philippines, 70 in Thailand, 7 in South Korea and 3 in Japan.

¹⁵ Hong Kong has been the major FDI source for mainland China for the last three decades. One interesting thing that needs to be noted here is that there actually exists a substantial amount of "round-tripping" capital (estimated 15% of total Hong Kong investment in China) (Wei, 2000). This capital arguably originated from Chinese domestic capital, but is listed as Hong Kong-based FDI source, then it goes back to mainland China through Hong Kong, aiming to take advantage of the tax privileges and other incentives which are only available to foreign investment but not available to Chinese domestic investors (Dees, 1998). This may lead to overestimation of FDI inflows from Hong Kong into China.

growth in the global automobile industry (McGunagle, 2007). This growth has been driven by major investments in China by the top eight global auto manufacturers¹⁶ which were expecting the emerging markets to create the growth opportunities necessary for their firms (McGunagle, 2007).

Although FDI in the automobile industry seemed to be declining in 2005 and 2006, due to falling margins and continued restrictions, China is consistently attractive as regards absorbing more inward FDI. Even though it too has been experiencing the global economic slowdown since 2008, the Chinese auto market is still more attractive than the western markets because of its cost advantages and massive, potential consumer market (Mallela, 2009).

6.2.3 Relevant FDI Policies in China

Child (1994) and Yan (2000) comment that one particular characteristic of the inward FDI activities in China is that they are administered by a special set of regulations, including “1979 Joint Venture Law”, “1983 Implementing Regulations regarding Foreign Investment”, “1985 Foreign Economic Contract Law”, “1986 State Council Provisions” (also known as Twenty-Two Articles), “1990 Amendments to the Joint Venture Law”, “1993 Company Law”, “1994 Foreign Trade Law”, and “1996 Taxation Law of the People’s Republic of China”. However, since China joined the WTO, these above-mentioned policies have been viewed as “discriminating toward domestic companies, who frequently ask for the same treatment as foreign companies” (ChinaStakes, 2008, para. 5). For example, the so-called “two-year exemption three-year reduction” actually indicates that foreign manufacturing enterprises operating over 10 years in China can be granted a “tax exempt for 2 years starting from their first profitable year” and are only required to pay “only a half rate” for the following 3 years” (ChinaStakes, 2008, para. 3). Starting from January 1 2008, the Chinese

¹⁶ The largest investments were made by Hyundai and General Motors and followed by Toyota and Volkswagen, with the smallest investments being made by Renault-Nissan, Ford, and Honda (McGunagle, 2007).

Government decided to unify the corporate tax rate for both domestic and foreign companies, stating that the tax rate will be “reduced to 25%” (dropped from current 33%) for domestic companies; while foreign companies will finally “pay 25%” (increased from current 15%) after “a five-year transitional period” (ChinaStakes, 2008, para. 1).

6.2.4 FDI Approval in the Chinese Auto Industry

Inward FDI (IFDI) in the auto industry must get relevant government approval either at the state or subsidiary level, depending on the investment size or nature of the industry (Wang, Richet, & Wang, 2000). The 1997 “Guidance of Foreign Direct Investment in Industries” clearly set out the guidelines and categories, stating that the Central Planning Commission and the Ministry of Foreign Trade and Economic Cooperation (MOFTEC) (later reorganised as the Ministry of Commerce) were responsible for monitoring the approval of the investment projects, such as complete-built-up (CBU) passenger car projects, and key components projects (such as engines, ABS, air bags), or if the investment would be more than US\$ 30 million in capitalisation. For investment projects which fall below the threshold of US\$ 30 million, government agencies at the provincial level possess the decision-making authority to review and approve all FDI projects (Wang et al., 2000). Another feature of this screening process is the bigger the investment, the stricter the process, although the screening process at provincial level may be relatively simple and efficient (Huang, 1999; Jin, Qian, & Weingast, 1999). For example, it took four years to approve the Guangzhou-Peugeot project, and Shanghai-VW also spent six years completing the review procedures before setting up their auto joint ventures.

One important response to market and institutional changes in the auto industry was the restructuring of China’s central decision-making process and control management at the beginning of 1998 (Sit & Liu, 2000). The government organisation which used to deal with the auto industry – the Ministry of

Machinery Industry – was taken over by the State Administration of Machinery Industry in March 1998 as a result of government reform and simplification. The relevant staff numbers were reduced to 95 from 400 (China Business Update Enews, 2000). This structural adjustment of the central management system rearranged the screening procedures, but in a more efficient way. Together with the Ministry of Commerce, the State Economic and Trade Commission (under the supervision of the State Council) is now controlling the investment decisions and becoming the major industrial and trade regulatory body. In addition, several measures have been taken to release certain FDI limitations and also to encourage the scale of FDI in the Chinese auto industry.

6.2.5 Positive and Negative Features of FDI in the Auto Industry

Scholars agree that FDI has played key role in facilitating the growth of Chinese national economy and auto industry in a number of aspects (Buckley, Clegg, Zheng, Silver, & Giorgioni, 2007; Gallagher, 2006). First, it has provided job opportunities for Chinese workers in Sino-foreign joint ventures. Second, it has created sources of demands for auto materials and components which further benefitted the wider economy. FDI has also made contributions to the industrial development by improving local production, management methods and marketing systems during the last 30 years (Luo, 2001; Yan, 2000). Multinational enterprises (MNEs), with the provision of advanced production techniques, industrial know-how, and capital could also get permission to explore the market opportunities in China.

On the other hand, some industrial analysts also comment that FDI does not always stimulate positive economic development for the recipient developing country. Gallagher (2006) explained the reasons behind, this FDI is often attracted to the already productive sources of the economy, not the less productive ones. Some researchers emphasise that in the Chinese auto industry, while the joint venture structure did help the transfer of know-how and expertise to Chinese

local firms and gradually became the driving forces for the initial progress of the local state-owned enterprises (SOEs), there still remain problems in this complex structure (i.e., 50/50 equity-based joint venture requirements). Holweg, Luo and Oliver (2005), and McGunagle (2007) argue that the knowledge transfer activities, including vehicle designing capabilities to the Chinese firms, actually did not happen in certain Sino-foreign auto joint ventures.

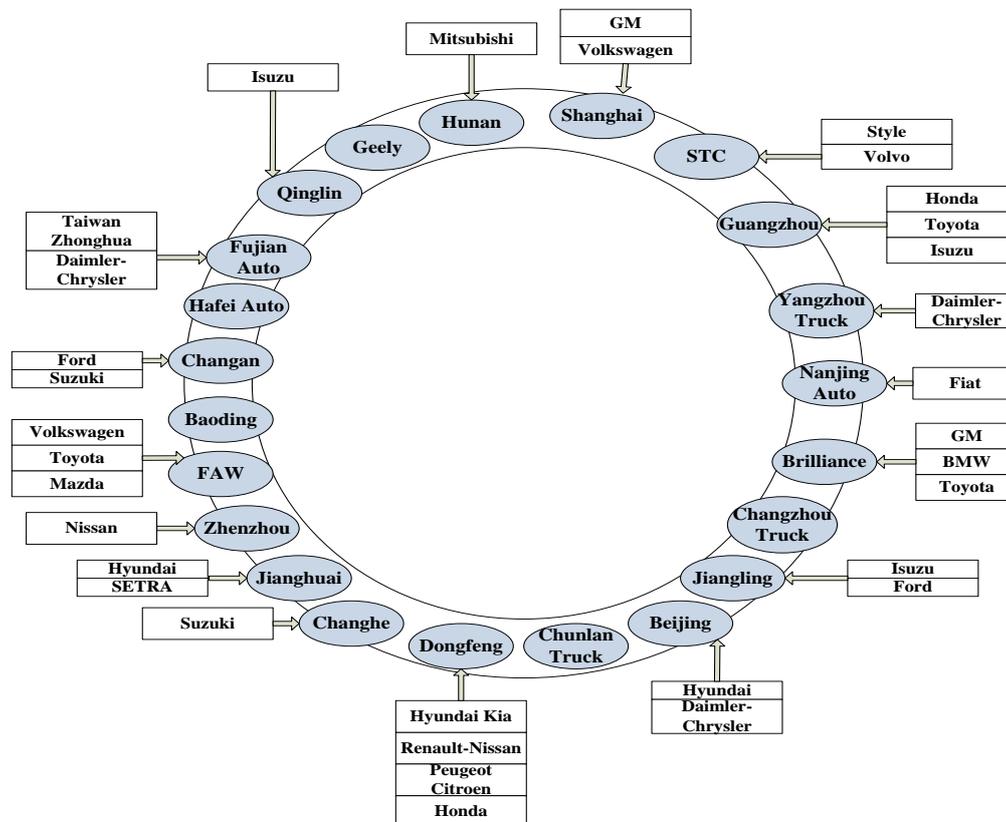
Furthermore, the nature and complexity of these multiple cross-border international partnerships also means considerable difficulties in management issues. On the one hand, some domestic Chinese auto companies established several joint ventures with different foreign companies; however, in reality these foreign companies are actually direct international competitors. On the other hand, there are some foreign automakers which have teamed up with different local Chinese companies, which are also domestic rivals.

In one case, Japanese Honda has been connected with two Chinese companies, one is the Guangzhou Automobile Industry Group and the other is Dongfeng Motor Company in Wuhan (Bursa, 2006). Both Chinese partners are competing with each other to acquire Honda's new model designs because of the limited vehicle product range introduced into the two JVs. It is hard for Honda to make a balanced decision as to these two joint venture operations in China, resulting in potentially unhealthy competition. This phenomenon could also explain BMW's case as it did not team up with the SOEs recommended by the Government; instead it finally partnered with Brilliance for the simple reason that Brilliance has no single partnership with any other foreign automakers, reducing BMW's worries that its technology might leak to other competitors (Guide to China's Auto Market, 2005).

6.2.6 Current International Partnerships in the Auto Industry

Not surprisingly, as China has become one of the largest markets globally, the world's auto giants from Europe, the US, Japan and Korea all flocked to enter the market. Nowadays, almost all of the global automaker giants like General Motors, Ford, Chrysler, Volkswagen, PSA Peugeot Citroen, BMW, Toyota, Nissan-Renault and Honda have freely made their decisions to select the appropriate cooperative Chinese partners, set up their footholds, and formed auto production sites in China. As far as the Chinese companies are concerned, more than 90% of Chinese state-owned auto companies have formed cooperative connections with foreign players to produce mainstream passenger cars (Alon & McIntyre, 2008). The current complex international partnership arrangements in the Chinese auto industry are demonstrated in Figure 6.1.

Figure 6. 1 Complex International Partnerships in the Chinese Auto Industry



Source: Adapted from Fetscherin & Sardy (2008).

Early movers, such as Shanghai-VW and Beijing-Cherokee have been enjoying significant benefits since the early 1990s. For Volkswagen (VW), with five joint ventures to manufacture cars in China, China represents its largest market after Germany at the moment (Ho, 2009). VW has been one of the top 50 foreign-invested companies listed by Chinese authorities for almost 24 years since 1985 (Ho, 2009).

6.3 Historical Development Path and Institutional Changes

Although the phenomenon of Chinese auto industry development has attracted the attention of scholars only recently, the roots of its growth and expansion can be traced back some five decades. The following sections describe how, from a historical perspective, the Chinese auto industry has gone through several major transition periods, and particularly, how it has sought to acquire manufacturing capabilities and skills from foreign carmakers under the rubric of government industrial policies.

6.3.1 Prewar Static Automotive Production (Before 1949)

Before 1949, there was actually no automotive production in China. The whole country was largely poor and backward in social, economic and industrial aspects, with a low technological base (Gallagher, 2003, 2006; Zhang & Taylor, 2001).

Initially automobiles were mainly imported from abroad and were only used by political elites and business tycoons in China. For instance, it was reported that the famous “revolutionaries Sun Yatsen and Zhou Enlai had driven US-made Buick cars” during that period (Gallagher, 2003, p. 13). As it was expensive to ship completed vehicles to the Chinese market, western carmakers only established a few crude assembly plants in Beijing, Tianjin, and Shanghai (these three cities later became important vehicle producing centres in China) to put both Chinese-made and/or imported vehicle components together for making cars (Harwit, 1995). At that time, western auto companies did not invest in China to the extent that they did in other developing countries. For example, GM opened

an assembly plant in India in 1928 and another one in Brazil in 1929; they only set up a company office in Shanghai that same year (Gallagher, 2006).

As far as the local Chinese manufacturers were concerned, they began to acquire vehicle producing expertise, but through other channels. One example was Chang'an Automobile (Group) Corp., originally built as part of the Qing Dynasty's "westernisation" experiment. It was named the "Shanghai Western-Style Artillery Bureau" in 1862 (Gallagher, 2006, p. 34). With the process of artillery production, Chang'an gradually accumulated certain experience in making other machinery equipments; it later began producing its first automobile in 1958 based on the Soviet Union technology.

During that period, which was full of constant political chaos, economic recessions and social struggles, the Chinese Government lacked real initiatives and consistent policies to develop its domestic auto industry (Harwit, 1995). The later stage of China's war of resistance against Japan during the 1930s, and then the civil war (1946-1950) further delayed the progress of the auto sector in China (Gallagher, 2006).

6.3.2 The Early Postwar Years (Early 1950s)

After 1949, the Communist Party won power and officially announced the establishment of the People's Republic of China. Under the leadership of Chairman Mao Zedong, China then began a radical industrial transformation. In order to reach the national goal of industrialisation and modernisation, the Chinese Government initially approached the Soviet Union, China's close northern neighbour and ally, for the purpose of introducing the Soviet industrialisation experience – the so-called "Stalinist heavy-industry development model" which was considered suitable at that time (Zhang & Taylor, 2001). Feinstein and Howe (1997) also emphasise, "For China, they had no reason to suspect the Soviet technological and industrial systems' superiorities" (p. 2). As China relied heavily on the Soviet Union during this period, the combination of

the internal abundant labour resources and external technical assistance from the Soviet Union played a great role in helping China to complete many large projects during 1950-1960, and as a result, China realised most of its economic plans during its first 5-year period (1953–1957).

In July 1953, with the objective of developing a Chinese automobile industry, the Chinese Government reached an agreement with the Soviet Union (Harwit, 1995; Zhang & Taylor, 2001). As a result, First Auto Works (FAW) was built and designed in Changchun (a north eastern city in Jilin Province) in 1953. The construction of FAW, which was China's first auto plant, was an example of industrial success, although the auto manufacturing knowledge, assembly lines, equipment, vehicle designs and relevant training programmes were transferred from the Russians. In 1956, FAW's first vehicle product the *Jiefang* (liberation) truck was released, providing 1,600 assembled units. This truck was based on the Russians' ZIS 150 Model (Gallagher, 2006).

Two years later in 1958, both FAW and Shanghai Automotive Assembly Plant (which has now been renamed the Shanghai Automotive Industry Corporation) made the Chinese-brand *Hongqi* (Red Flag) and the Phoenix sedan for the exclusive use of senior government officials. However, the production costs required huge central government subsidies; the resource allocation and even end-product deliveries were all centrally planned.

6.3.3 Small-scale Industrialisation (1958-1960)

Shortly after FAW opened, the *Great Leap Forward* campaign (1958-1960) began which was characterised by rash industrialisation with the encouragement of centrally planned decentralisation (Holweg, Luo, & Oliver, 2005). Chinese auto firms adopted the path of small-scale industrialisation, which ultimately proved untenable since they ignored the advantages of resource consolidation and mass production. This approach was in striking contrast to the European and

American auto companies and resulted in the establishment of more than a hundred small-sized vehicle assembly plants (Holweg et al., 2005).

The whole Chinese auto industry then suffered several problems: low levels of productivity and efficiency, a fragmented production system, diseconomies of scale, and absence of competition. Taking FAW as an example, FAW produced only 1,542 units in total between 1959 and 1981, i.e. 67 units came off the line on average per annum (Zhang & Taylor, 2001). The Chinese automotive industry gradually lagged behind other international auto producers and the technological gaps widened considerably from the 1960s onwards (Halberstam, 1986). Coincidentally, the Japanese and Korean auto firms began to grow rapidly and they developed their own indigenous capacities at this time, aiming to catch up with the European and American auto firms (Newman, 2004).

6.3.4 Two Decades of Independent Development (1960s-1970s)

During the 1960s, the international political circumstances also changed greatly – the final deterioration of Sino-Soviet friendship (due to the respective communist ideological differences and conflicts of national interest) in 1962 put China in opposition to both the two world superpowers – the USA and the Soviet – at that same time. A *Third Line* defense campaign was promulgated in 1964, its main purpose being to resist potential military attacks, through the relocation and dispersal of heavy industry and military bases to remote mountainous regions. Meanwhile, as the Soviet ended its technology and experts' assistance after 1960, China was consequently forced to pursue two decades of self-reliance and independent auto production capability development (Gan, 2003). All newly-built auto factories, such as the Second Auto Works (SAW), were then designed and constructed with the support of the existing auto plants (Shapiro, 2001).

During the period of the *Cultural Revolution* (1966-1971), the production of passenger cars was entirely shut down with no further investment – as sedans were regarded luxury and against the political ideology (CATARC, 2002). SAW

for instance began to construct plant and equipment in 1967, but it only started production in 1975 (Gallagher, 2006). According to official statistics, China's entire annual auto production during that period was less than 700 units (CATARC, 2002). The Chinese automobile industry thus had not made any progress at all since the 1960s. Not only had it lost or forgotten the manufacturing expertise, but there had also been no further acquisition of new technological capacities and innovative workers for many years (Gallagher, 2006).

Conversely, the 1970s represented the "Golden Age" for European, American, and Japanese auto manufacturers, as they were massive producers of auto units, profiting from increasing sales of vehicles year-by-year with the combination of "learning-by-doing" strategy, thus strengthening their innovation capabilities and competitiveness in the world auto market. For example, each American auto plant was manufacturing 200,000 – 400,000 units a year, and the total output of the automobile industry accounted for roughly one quarter of the country's GNP (gross national product) in the US (Halberstam, 1986). Hence the lost opportunity to the Chinese auto industry development was probably enormous (Gallagher, 2006).

6.3.5 Opening-up and Reform Period (Since 1978)

Since the opening-up and reform from 1978 onwards, the predominant concern of the Chinese Government has been to develop a socialist market economy, with an emphasis on developing productive power, market-based competition, and a gradual decentralisation of economic planning rather than political and ideological correctness (Gan, 2003). One can observe without any difficulty that this rapid economic reform and business systems development have created significant opportunities as well as unprecedented challenges for the Chinese automotive industry.

China's automobile industry began to experience its second "infancy" after China reopened its door to the outside world in 1978 (Gallagher, 2006, p. 37).

However, there were too many difficulties and problems need to be resolved after many years' political chaos and economic upheaval nationwide. Meanwhile, because of the rapid demands, imported cars outnumbered domestic production during the 1980s. One negative effect was the impact of the cost of imported cars on the country's foreign reserves which were about US\$ 2.64 billion in 1985 (Zhang, 2004). The shortage of car supplies in the early 1980s made the Chinese Government realise the necessity of modernising the country's automobile industry and at a minimum, establishing a more flexible programme of vehicle import substitution, as they found that most of the automobiles running on the roads were unattractive, out-of-date, unreliable and inefficient (Harwit, 1994).

Initially, China negotiated with the Japanese for help. The Japanese agreed. But as the Japanese were unwilling to cultivate a potential competitor in the future, the extent and duration of technical assistance to the Chinese auto industry were quite limited – they only exported a large amount of trucks during the early 1970s to the Chinese (Gallagher, 2006). During this period, the Chinese government also began to consider the feasibility of encouraging import substitution by approving technology licensing with foreign automakers and joint venture operations (Zhang & Taylor, 2001).

The first auto joint venture was Beijing-Cherokee signed in January 1984 between Beijing Automobile Industry Corporation (BAIC) and the American Motors Corporation (AMC). AMC was later taken over by Chrysler in 1987 and then Chrysler combined with Daimler Benz in 1998 (renamed DaimlerChrysler). As the Chinese Government restricted foreign ownership in automobile joint ventures to no more than 50%, AMC duly took a minority stake. In this joint venture, AMC provided new technologies in the form of completely knockdown (CKD)¹⁷ kits. Those CKDs were packaged in the US by AMC, and then exported

¹⁷ CKDs are “sets of automotive parts that are packaged in one country then exported to another for assembly” (Gallagher, 2006, p. 37).

to China for assembly by the JV Chinese workers. This joint venture was very important for the Chinese at that time as it reflected how the country could absorb foreign investment and technology while moving towards industrialisation, but without compromising key domestic influence (McGunagle, 2007). This partnership was also the “first major manufacturing sino-foreign joint venture of any kind after the Cultural Revolution” (Gallagher, 2006, p. 37). And it now still continues.

Shortly after Beijing-Cherokee, a second joint venture was also founded in October 1984 between Shanghai Automotive Industry Corporation (SAIC) and Volkswagen. The total capital was US\$ 4,483 million and Volkswagen took a 50% stake. Production started with the Santana model, then the Passat was added in 1999, the Polo in 2001, and the Santana 3000 in 2003 (McGunagle, 2007). This joint venture’s business operations have been more profitable than those of Beijing-Cherokee, and Shanghai-VW has proved to be the leading international joint venture in China ever since the mid-1980s (Gallagher, 2006). It produces 450,000 units of passenger cars annually – this production capacity is equal to the size of Volkswagen’s major manufacturing site based in Wolfsburg, Germany. Volkswagen gained an early-mover advantage and dominated China’s auto market for quite a long time, although the joint venture still mainly produces the old Santana model. This dominant position was only lost in 2005 when Shanghai-GM overtook other rivals with the highest auto production volumes (Ho, 2009).

Between 1984 and 1989, five influential joint venture agreements were consecutively established, namely Beijing-AMC, Shanghai-VW, Guangzhou-Peugeot, FAW-VW, and Tianjin-Daihatsu. These joint ventures helped reduce the consumption of foreign reserves due to the previous heavy imports of foreign cars (Zhang & Taylor, 2001). Meanwhile, because of these joint partnerships, China’s auto industry attracted a large amount of foreign investment – to those foreign auto-producing investors, China’s untapped market potential was irresistible (Zhang & Taylor, 2001). These joint projects were relatively successful during the

1990s, especially the Shanghai–VW project, which strengthened the confidence and interests of both the Chinese Government and foreign auto firms, and there was a flood of investment from both foreign and domestic sources into the Chinese auto industry. Based on official statistics, total investment from various sources was estimated at US\$ 60 billion in the passenger car sector in the 1990s (CATARC, 2002). With relaxation of central planning, domestic market demand for cars increased rapidly (Newman, 2004).

Most importantly, during this period, Chinese auto companies gradually obtained technologies to produce mini sedans through licensing agreements with certain foreign carmakers. For instance, Tianjin Automotive Industry Corporation produced the *Xiali* (Charade) mini cars in 1986, which was later widely used as taxi in a lot of Chinese cities. This vehicle model was actually based on Japanese Daihatsu technology. In another example, Chongqing Chang’an also introduced Japanese Suzuki’s technology in 1983 to make its own minisedans (Gallagher, 2006).

6.3.6 The 1989 Industrial Policy

The Chinese Government issued the “Outline of National Industrial Policy” in 1989, and identified five “pillar industries” in its Seventh Five-year Plan (1986–1990) drafted in 1984 consisting of machinery, electronics, petrochemicals, automotive, and construction sectors (Child, 2000; Zhang & Taylor, 2001). Pillar industries referred to those industries that were in the highest stage of national industrialisation, intending to drive the national economy growth, possessing the potential for high productivity, aiming to reach international quality standards, increasing market share internationally, and reflecting a certain degree of “comparative advantage” (World Bank, 1997, p. 39).

As far as the automotive sector was concerned, it was the first time for China to formulate such relevant industrial policies. Apart from the “pillar industry” concern, the automobile industry was actually the first sector to be fully supported

by this 1989 industrial policy, which was based on the following major considerations (CATARC, 2002, 2003): First, *Value-added effect* – it was calculated that the value contribution of the Chinese automotive industry was around US\$ 12 billion in the fiscal year of 2001, accounting for 5% of the added value brought by China's manufacturing sector. Second, *Employment-related considerations* – there were about 1.6 million Chinese working in the auto industry in 2002. Third, *Related industrial development* – “An automobile is composed of more than 10,000 various components”, as the automotive industry has related connections with certain industries such as “metallurgy, petroleum, chemistry, coal, light industry, electronics, and textiles” (Holweg, Luo, & Oliver, 2005, p. 14). It was thus reasoned that a better-coordinated automotive industry would facilitate the growth of many other industrial manufacturing sectors in China.

6.3.7 Rethinking the Auto Development (Early 1990- Mid-1990s)

In the early 1990s, while the Chinese Government wished to increase the production volume, the output of passenger cars still accounted for less than 10% of total vehicle output (Gan, 2003). In 1991 and 1992, the production of cars reached only 81,055 and 162,725 units respectively (Buckley et al., 2007). Although investments from both domestic and foreign sources flooded into China's automobile industry, the Chinese auto market was at a standstill until the mid-1990s, extensive increase in production and sales did not happen after the mid-1990s (Gallagher, 2006). From 1995 to 1996, the production of cars reached at 325,461 and 391,099 units respectively. Since 1995, the average annual growth rate in vehicle production in China has been around 15%, compared to the world average of 1.5% during the same period. Overall, the early 1990s to mid-1990s saw the passenger car production grow at an average growth rate of 27% annually (China Automotive Industry Yearbook, 1996), and passenger car production was doubling almost every two and half years (Luo, 2005).

During this period, there were two new joint ventures established. The first one was between First Auto Works (FAW) and German VW in 1990 with a total capitalisation of US\$ 2,925 million. The FAW-VW project located in both Changchun and Chengdu City with a strong industrial base, designed to produce the Jetta model followed by the Audi model¹⁸. The second joint venture was a 50/50 partnership agreement between Dongfeng Motor and French Citroen in Wuhan, Hubei Province. It was designed to produce the *Fukang* compact with a total capitalisation of US\$ 1,765 million (McGunagle, 2007).

During this period, the Chinese Government gradually realised that foreign auto companies did not actually teach their Chinese partners anything significant, and Chinese side has not acquired much needed up-to-date vehicle technology and R&D knowledge (Gallagher, 2006). The Chinese Government thus began to reconsider its auto industrial strategies in a specifically regulated way.

However, there were different views within the Government in terms of how to construct its auto industry (Gallagher, 2006). Some officials pointed out that the Japanese or Korean path was a viable choice, and China should learn from them to develop a world-class independent auto industry. After all, Japanese and Koreans auto companies both had developed independently and held their challenging or even surpassing positions when competing against their US and European counterparts after World War Two.

On the contrary, some officials believed that it could be late for China to possibly catch up with the foreign automakers. They argued that if foreigners would like to invest in China to manufacture and sell cars through joint ventures, this still be a good choice – at least China could benefit from job creation and associated tax revenues. Since the Chinese Government wanted to strengthen the

¹⁸ Full-scale production started in July 1996, with the Jetta CL and City-Golf. In 1996, Audi production began with the Audi A6. Production of the Bora started in 2002. In 2003, the Audi A4 model was added, along with the Caddy in 2005. Now besides Volkswagen, FAW also has a licensed technology tie-up with Toyota for several models (McGunagle, 2007).

SOEs automakers' competitiveness in the industry, it began to consider various regulations, including foreign equity limits, and local content requirements.

6.3.8 Formulating the 1994 Auto Policy

By promoting the indigenous car industry and accelerating its modernisation, the legitimacy for transferring foreign technology and management expertise has been established since 1978. The demand-led increase of imported cars in the mid-1980s, combined with the globalisation trends since the beginning of the 1990s, further forced the Chinese Government to initiate much more new and systematic legislation to deal with the economic relationships with foreign companies (Sit & Liu, 2000).

On February 19, 1994, “more than 10 years after the announcement of the first auto joint venture” (Gallagher, 2006, p. 39), the Chinese State Planning Commission (SPC) completed the first real and fundamental industry-specific document for the automobile industry – the “1994 Automotive Industry Policy”. Comparing with the 1989 policy, this 1994 policy took “a radically different approach in three significant ways” (Gallagher, 2006, p. 39):

1. Call for Long Run Consolidation and Integration

This 1994 policy intended to consolidate the scarce resources and investment to set up a few large-scale, internationally competitive national auto groups instead of the scattered small producers, by 2010 (Newman, 2004). The Chinese authorities sought to form a strategic arrangement of “Big Three, Small Three and Mini Two”, which was roughly similar to the American “Big Three Auto Group” model (Holweg, Luo & Oliver, 2005, p. 21). The Chinese “Big Three” refers to First Automotive Works (FAW), Shanghai Automotive Industrial Corporation (SAIC) and Second Automotive Works/Dongfeng Motor Company. The “Small Three” includes the Beijing Automotive Industrial Corporation, the Tianjin Automotive Industrial Corporation and the Guangzhou Automotive Industrial

Corporation. The “Mini Two” comprises Chang’an and Guizhou Aviation (Xia, 2002, cited in Holweg, Luo, & Oliver, 2005, p. 22).

2. Local Content Anticipation and Technology Transfer Requirements

This policy, for the first time, placed strict and integrated restrictions on auto-related FDI. It clearly specified localisation and knowledge transfer requirements for setting up joint ventures with foreign automakers. Foreign auto firms with their own product patents, strong manufacturing capabilities, ample financing resources, and independent global marketing channels would be regarded as potential cooperative partners. Joint ventures are required to have their own R&D centres, and balance their foreign exchange requirements independently. JV products must comply with international technical standards. Chinese equity in the joint ventures must be at least 50% to be able to exert more control and bargaining power. Finally, the parts and components in the joint ventures must be localised by at least 40%. More preferential status may be granted according the level of local content achieved (Holweg, Luo, & Oliver, 2005).

3. Market Creation and Encouragement of Consumption

This 1994 Auto Policy reaffirmed the legitimacy of private car ownership and purchasing with the intention of stimulating market consumption further. All of the foreign automakers were also required to go through the confirmatory procedures to gain government approval.

Reflecting upon the 1994 automotive policy, some scholars (i.e., Gallagher, 2006) comment it has not actually brought about the expected outcomes. For example, the consolidation of the auto industry for the purpose of market creation and consumption encouragement was not achieved (Gallagher, 2006), and it also seems that this scrutiny did not discourage foreign investment into China’s auto industry at all. Investment from both the Chinese Government and foreign sources flooded into the Chinese motor vehicle and related industries. For instance, in 1997, General Motors established the joint venture – Shanghai-GM – with

Shanghai Auto Industry Corporation (SAIC), which was GM's largest single foreign investment in China (See Chapter 7.). Also in 1997, Honda replaced Peugeot and negotiated with Guangzhou Automotive Company. In 1999, Ford cooperated with Chang'An Manufacturing Group. Based on the Chinese official statistical report, investment from all sources amounted to "nearly US\$ 60 billion during the 1990s" (CATARC, 2002, cited in Gallagher, 2006, p. 40). After the 1994 policy was implemented, almost all of the giant multinational automakers entered China to capture the fast growing market opportunities.

Furthermore, although China's Government had given a high degree of protection to the industry, not all Chinese auto producers had confidence to compete in the world market. In fact, there were few than expected vehicles were exported to other countries and regions during this period. Only one positive outcome noted by Gallagher (2006): the 1994 policy made the Chinese domestic components manufacturers "effectively created and developed" (p. 42). For example, "in 1994 only 24% of the VW Jetta parts were made by Chinese companies, but by 2000, 84% of the parts were Chinese-made" (Gallagher, 2006, p. 42).

6.3.9 The Impacts of WTO Entry in 2001

The impacts of China's WTO accession in 2001 in regulating the Chinese automobile industry can not be neglected, as Chinese membership of the WTO provides a special transition period for the auto industry (Conybeare, 2004).

Historically, the Chinese Government adopted certain important policy tools to regulate internal auto industry development and protect local firms. Now, being one of the WTO member countries, China had to conform with certain WTO regulations such as "the Trade-Related Investment Measures (TRIMs)" and "the Trade-Related Intellectual Property Rights (TRIPs)". These agreements aim to further open the Chinese domestic market to foreign operations, to seriously consider internationally standardised and more transparent procedures, and to

liberalise many of the past restrictions, such as high tariffs on imported vehicles in the early 1980s (Newman, 2004).

A condition of joining the World Trade Organisation (WTO) for China in December 2001 was to ease restrictions on foreign investment and products' entry into the economy (Richter, 2001). Thus China's accession to the WTO actually placed significant constraints on state policy towards the auto industry. Some major impacts upon the Chinese auto industry after entry into the WTO are demonstrated in Table 6.1 below:

Table 6. 1 Key Issue Comparisons (Pre and PostWTO Membership)

	PreWTO	PostWTO
<i>Tariff Rates</i>	was 200% in 1980s Changed to 80-100% in the 1990s	10-13% for parts/accessories; and 25% for complete cars on July 1, 2006
<i>Auto Import Limitations</i>	30,000 units per year	Eliminated after 2006
<i>Local Content Requirements of Auto Products</i>	40% for the initial year 60% for second year 80% in third year operation	Cancelled
<i>Foreign Financing for Chinese Customers</i>	Prohibited	Permitted
<i>Technology Transfer Imposed on Foreign Firms</i>	Required	Eliminated

Source: McGunagle (2007).

However, some researchers point out that whatever effort foreign producers are making to ally with domestic Chinese auto firms, "the Chinese government will continue to protect its domestic market despite WTO rules that encourage developing countries to open up their markets to competition" (Conybeare, 2004, p. 11).

6.3.10 Adjustment Period and Tenth Five-year Plan (2001-2005)

After 2001, the Chinese auto market grew even faster than before. In 2002, the total vehicle production reached 3.25 million units, which was a 38.83% growth compared with the outputs in 2001. For the passenger car segment, production volume was 1.09 million units in 2002, for the first time going over the one million units' mark – which was a 55% increase over 2001. Also in 2002, China's vehicle production volume was ranked fourth in the world (after America, Japan and Germany) (CATARC, 2003). This rapid growth, particularly in 2002 and 2003, attracted significant amount of foreign investments (Holweg, Luo, & Oliver, 2005). Those giant foreign automakers, whether they already had previous operations in China or not, all had ambitions to further increase their local capacity and production. In 2003, there were over 10 auto joint ventures operating in the domestic passenger car sector¹⁹, dominating most of China's passenger car production. Production volumes increased by about 39% in 2002 and by almost 37% in 2003 (Newman, 2004).

Although the above figures and facts are impressive, some observers comment that China's auto industry is still young (Davis & Diegel, 2002). Most of the Chinese automakers manufacture fewer than 100,000 units annually, and the total vehicle stock was just 10 million units in 2002 (CATARC, 2002), which was quite insignificant compared to the “17.2 million new cars registered in the United States” in the same year (Gallagher, 2006, p. 41). Meanwhile, the Chinese Government was concerned that the Chinese auto companies should not be over reliant on their foreign partners for introducing advanced technologies and management knowledge. Government then issued the Tenth Five-Year Plan (2001-2005) to encourage greater investment in technological innovation in the

¹⁹ Involving FAW-Volkswagen, FAW-Tianjin-Toyota, Beijing-Jeep, Beijing-Hyundai, Shanghai-VW, Shanghai-GM, Dongfeng-Citroen, Dongfeng-Nissan, Chang'An-Suzuki, Chang'An-Ford, and Guangzhou-Honda (Newman, 2004).

automobile industry and to use the auto industry to fuel economic growth in China after accession to the WTO.

The general guidelines of the Tenth Five-Year Plan (2001-2005) were “to meet the ever-increasing needs of the domestic market through opening up and accelerating self-development” (BIZChina, 2006, para. 1). Some specifically stated objectives include: to emphasise environmental protection and promote harmonious industrial development (The economy cars were regarded as the focus of development); to build a few local, famous brands based on Chinese independent intellectual property rights, and to be the dominant auto manufacturing country by 2010 (Thun, 2004).

This plan confirmed that strategic reorganisation of the automotive industry should be promoted. “Large corporations should serve as the backbone to realise the optimisation of the structure of the automotive industry and achieve mass production. More national technical centres should be set up to enhance technique-innovation and production-development abilities. Market surroundings would thus be improved and management based on the legal system will be strengthened to promote fair competition” (BIZChina, 2006, para. 1 & 2). Cooperation between influential corporations and distribution of resources were also to be encouraged and supported. Thus the plan definitely reaffirmed the principles for sharpening the competitive edge of China’s automotive industry to increase the China-made vehicle production volume to satisfy the domestic demands and to be ready to compete globally (Thun, 2004).

6.3.11 The 2004 Auto Industry Policy

In 2004, the total auto output in China’s market exceeded 5 million units, which was a 15.5% increase from 2003 (China Automotive Industry Yearbook, 2005). These facts and figures made China the fourth largest vehicle production country and the third most important national auto market at that time (Newman, 2004). However, with the increasing concern that the production supply capacity might

supersede demand, the Government started to consider economic “cooling-down” policies.

The Chinese National Development and Reform Commission also officially updated the 1994 Auto Industry Development Policy in May 2004 in order to further control the approval for investments in the auto industry²⁰. The new 2004 policy stated several new objectives above and beyond those in the 1994 policy (CATARC, 2004). This 2004 policy indicated, for the first time, foreign investors would be allowed to “control stakes of more than 50% in automobile joint ventures, if the joint ventures were built in China’s export-processing zones and aimed at overseas markets” (Gallagher, 2006, p. 44). The Government was attempting to use market-oriented mechanisms rather than simply administrative intervention to guide the industry’s strategic directions (Thun, 2004). For example, instead of previously imposed local content requirements which aroused some discontents among foreign firms, the Government now realised that this target could be achieved in tandem with overseas investors plus tax incentives under the current circumstances²¹ (Newman, 2004). The new policy also re-encouraged the improvement of the Chinese firms’ international competitiveness, as China hopes to accelerate the development of the independent capabilities of its automobile firms to safeguard the national interest of its auto industry while continuing to support domestic firms in cooperation with foreign partners (Newman, 2004).

With respect to technological innovation and capacity building, the policy stated that the industry should continue to abide by the principle of integrating imported technologies with self-developed technologies, and that the state should

²⁰ At the beginning of 2004, in order to reduce the side effects of overheated investment and to cool down the whole auto market, the Chinese Government had already adopted a series of measures, for example, discouraging further investments, slowing down bank lending to the potential car buyers, and price discounting (Gallagher, 2006).

²¹ To a certain degree the 2004 policy still retains some restrictions on the foreign firms’ activities within the domestic marketplace (Newman, 2004).

support R&D activities through preferential tax policies. The other major objectives stated were that automotive enterprises should build a few local, famous brands based on Chinese independent intellectual property rights; to increase the China-made vehicle production volume with continued industry restructuring to be ready to compete globally, and to make China the dominant auto manufacturing country by 2010. This new policy particularly stated that the industry should actively conduct research on electric and hybrid-electric vehicles, and the state should take measures in the areas of scientific research to create an enabling policy environment for the production and use of hybrid vehicles.

Although this new policy encouraged people to buy new energy efficient vehicles, as the Government emphasised harmonious industrial development and environmental protection with a goal of reducing average fuel consumption by passenger vehicles by 15% by 2010 (CATARC, 2004), it is still doubtful whether or not the fuel cell and solar autos can enter into the market. One major reason is the Chinese buyers have paid more attention to the final sale price and usage costs. As far as the individual customer is concerned, the hybrid is more fuel efficient, but its initial price and repair costs are also very high²² (Chen, 2009).

²² According to one survey, the production cost of hybrids is US\$ 7,000 to US\$ 10,000 higher than that of traditional internal combustion automobiles. The costs of pure electric automobiles and fuel cell automobiles are even higher (Chen, 2009). For example, the sale price of the hybrid type “Puris” was between RMB 260,000 (US\$ 38,000) and RMB 3 00,000 (US\$ 43,800), which was US\$ 10,000 higher than for internal combustion engines of a similar type. Another hybrid “CIVIC” was priced at RMB 269,800 (US\$ 39,400) in 2009, while the traditional new “CIVIC” was only RMB 176,800 (US\$ 25,800). Because of the low difference in engine performance between these two types of vehicles, most customers would not choose the “CIVIC” hybrid. After all the price difference was near to RMB 93,000 (US\$ 13,600). The third Chinese domestically developed hybrid vehicle “BYD” was priced less than US\$ 30,000. However, its price still seems “higher than that of other internal combustion engines of a similar type” (Chen, 2009, para. 11). In sum, although the Government has subsidised prices, the real price of new energy automobiles is still higher than that of internal combustion automobiles (Chen, 2009). Most Chinese customers would like to choose an automobile with high quality equipment and ignore fuel efficiency. Apart from the private buyers, taxi companies even with government subsidies find it hard to justify a decision to buy new energy automobiles. So it is not surprised to see, by the end of 2008, the total sales volumes of new energy automobiles for 3 years were under 3,500. For the year 2008, total sale volumes of new energy automobiles in China were “only 899”

6.3.12 Summary

The Chinese auto industry has been experiencing impressive changes over the past decades, contributing factors for the growth of China's gross domestic product, and also showing the characteristics of path dependency (Fetscherin & Sardy, 2008).

The above sections have reviewed the historical “stop-go” development path of the Chinese automobile industry since 1949, a path which clearly has been circumscribed by both gradual institutional reform in the country and global industrial changes. Initially, the Chinese Government relied on knowledge transfer and technical assistance from the Soviet Union to build up China's own modern automobile industry. As a result, First Auto Works (FAW) was established in 1953. From 1953 onwards, there were several local state-owned auto plants emerged in Shanghai, Nanjing, Jinan, and Beijing during the first five-year plan period for facilitating industrialisation. Due to the abrupt rupture in the Sino-Soviet friendship in 1960, the Chinese auto industry had been without foreign assistance and technology support for nearly 20 critical years until the “opening reform” in 1978.

During this period of isolation combined with increased political confrontations and military pressures in international societies, the Chinese Government fragmented the industry geographically, and also relocated its state-owned auto plants to the remote mountainous areas of central China (Gan, 2003). In other words, prior to 1978, the Chinese automotive industry paid more attention to producing trucks, rather than passenger cars, for cargo transportation and the needs of infrastructure projects, especially for the sake of defence requirements in time of war. After adopting the “opening up” policy in 1978, the Chinese Government emphasised economic development and transformation

(The sale volumes of hybrid “CIVIC” were fewer than 300 in 2008 in the Chinese market.), and Chinese new energy automobiles held “less than 1% market share” (Chen, 2009, para. 4).

(Zhang & Taylor, 2001). However, with the escalation of market demand, the auto industry suffered under many pressures, such as the requirements of industrial restructuring, lack of capital and technology development and scarcity of knowledge accumulation in car production. The only remaining assets in the auto industry were the outdated Russian truck production technology of 1960s (which could not actually fulfil the Government's specified objectives) referred to as "High Technology Starting Point, Mass Production with Deep Processing Capacity and Professional Working Style" (Holweg et al., 2005, p. 22).

The institutional environment in China began to change rapidly from 1978 onwards. The first change was the weakening of central government's role in the economic decision-making process, with a gradual shift towards a market-based economy rather than central planning control. Thus the open-door reform actually led to a mixed regulatory mechanism including both market-based competition and the legacy of a command economy. State-owned auto enterprises (SOEs) have been authorised more freedom in the decision-making processes.

The second change was that, in spite of the highly fragmented industry structure in the past, the central authority started to use market mechanisms to foster the formation of corporation groups to compete with global players, for example, the First Auto Works (FAW), Second Auto Works (SAW) and Shanghai Automotive Industry Corporation (SAIC), which now have a dominant share of the major auto market in China.

The third change referred to the encouragement of setting up JVs and foreign-owned enterprises, which were usually given preferential treatments such as a two-year exemption and a three-year tax reduction starting from 1979. The Chinese Government has emphasised the development of an appropriate infrastructure as a high priority and it is quite willing for foreign investors to add to these facilities – in transportation and communication, in energy capacity, and even in education. Due to the strict auto-related regulations, in certain

strategically important or pillar industry sectors (such as the automotive industry), the Chinese Government puts pressure on foreign MNEs to use equity joint ventures rather than wholly-owned foreign enterprises (WOFEs) (Conklin, 2006).

The Government initially began to encourage the formation of joint ventures to acquire more advanced technology and assistance from foreign automakers in the 1980s. However, there were still no formal and systematic policies for regulating the auto industry until late 1989 (Newman, 2004), followed by 1994, 2004 industry policies respectively.

In sum, the combination of the above-mentioned institutional dynamic processes and stimulating industrial features has led to a unique dynamic development path for the Chinese auto industry, providing a complicated while interesting scenario for focusing on the knowledge transfer in transitional economies such as China. Scholars such as Li and Tsui (2000) suggest that institutions matter, but how they matter remains contentious. Yang and Stoltenberg (2008) further propose that understanding the complexities and continuing institutional changes in China is the key for management and organisation scholars, as the different organisational development patterns are embedded in this complex environment, with its economic reforms, enterprise transformation, and China's changing policies over the past decades.

6.4 Countering the Challenges of Global Economic Slowdown

The 2008 economic crisis hit hard the automobile industry across the world. Traditional global auto giant companies lost their previous prosperity. The Chinese auto industry “did not escape” (MarketWatch, 2009, para. 11). It was reported that the rate of automotive production and sales began to drop after their continuous rapid growth in the second half of 2008. Data released by the China Association of Automobile Manufacturers (CAAM) showed the sales volume was down 14.4% from the record of 860,000 units (in January 2008) to 735,000 (in

January, 2009) (Haq, 2009). The growth in sales of passenger cars generally slowed to 7.3% in 2008 (Ho, 2009).

6.4.1 The Chinese Government Reaction and 2009 Auto Policy

In order to counter the effects of the global economic slowdown and to promote the industry's future development (PRLog, para. 4), the Chinese Government particularly unveiled a wide-ranging stimulus plan as part of a relevant policy ("The Revitalization of Chinese Automobile Industry") in February 2009. The package includes: (1) to reduce the sales tax into half (to 5%) on small cars with engine capacities below 1.6 litres; and (2) to provide subsidies amounting to US\$ 732 million to owners of older vehicles, if they would like to exchange their old cars for more fuel-efficient new ones (Yan, 2009).

The Chinese Government also promises to "provide finance and tax relief for new energy automobiles", and Government will "invest 10 billion RMB Yuan (1.46 billion US Dollars) from 2009 to 2011 to support the development and eventual mass production of new energy automobiles and electric vehicles" based on "technological innovations and the research of special parts" (Chen, 2009, para. 2). The 2009 Auto Policy stipulated that "all Chinese domestic automobile manufacturers must have certified automobile products offering new energy and energy alternatives", providing products such as "pure electric power automobiles, plug-in hybrids, special engines, power modules, driver components, and optimal design" (Yan, 2009, para. 1). In addition to such short-term measures, the Chinese Government has reemphasised the importance of supporting Chinese automobile manufacturers' global competitiveness by developing "independent brands and speeding up the export base construction of automobiles and accessories" (PRLog, 2009, para. 4).

6.4.2 Change the Difficulties into Opportunitites

The so-called "economic crisis" has implications offering both challenges and opportunities for Chinese automotive industry development. Inevitably, each

industry will meet with periodic circular fluctuations. After a period of rapid growth, the Chinese auto industry will enter a period of temporary stagnation, whether there is an international financial crisis or not. The current international financial meltdown has just triggered a new round of consolidation of the auto industry. In such consolidation, Chinese carmakers with low technological content and small scale might be discarded, and those better, more innovative carmakers with development potential will survive and grow stronger (Wang, 2009). Despite the international financial meltdown, some multinational car makers have even increased their investment in the Chinese market. Confidence in the auto market was firstly initiated by confidence in the Chinese economy. Although not unaffected by the global financial crisis, the Chinese economy is still growing rapidly. One important reason is that China has been rapidly growing in terms of production share of the world's auto market, and has not disappeared with the advent of the international financial meltdown. 2008 saw over eight million motor vehicles manufactured in China compared with 0.5 million in 1996 (Global Market Data Book, 2008). In the same year, China became the second largest car market in the world with total sales of 9.38 million vehicles, after only the United States (MarketWatch, 2009).

Demand in the Chinese auto market is also huge, as most people are in the phase of first car ownership. According to the "Official Report on 2007 National Economy and Social Development Statistics", China's private car population had been around 15 million units, 32.5% up year on year (Alon & McIntyre, 2008). Industry researchers point out that the demand for passenger cars in the near future is most likely to rise by a minimum of 20% a year (National Bureau of Statistics of China, 2008). With economic development and increased national incomes, more families can afford a car, which, to a certain degree, will determine the growth tendency of the Chinese auto market in the mid and long term (Wang, 2009).

6.4.3 Confidence in Mid- and Long-term Development

For years, as some industrial analysts comment, under the existing circumstances, China's automobile industry had essentially suffered from diseconomies of scale, limited model ranges, low technological capacities, and limited cultivation of skilled and innovative workers. "Various costs are rising in the Chinese automobile industry. As far as accessories are concerned, China has no advantage in high quality accessories. China even has to compete with India and Vietnam in the low quality manufacturing sector for batteries and tyres" (PRLog, 2009, para. 5). It seems that Chinese vehicle manufacturers were more like "truck-makers rather than car-makers" (Zhang & Taylor, 2001, p. 264). Existing vehicle production systems in China did not provide various automobiles with a high level of quality for consumers to choose (Holweg et al., 2005).

However, despite serious challenges and problems emerging in China's auto market, (such as traffic congestion, energy over-consumption, and environmental pollution), there are still some positive aspects to the Chinese auto industry. Chinese automobile manufacture has "an advantage of low cost compared with the developed countries, and it seems that China is becoming a manufacturing centre and cost centre" (PRLog, 2009, para. 5). The Chinese automotive market has also attracted all the major auto brands in the world, and multinational auto manufacturers regard the Chinese market as one of their most important markets globally. Other opportunities still lie in the further import of foreign technologies and human resources²³. Experts think the Chinese auto industry should make full use of these opportunities to attract more high-level international auto talent to

²³ It is reported that one of the Chinese private car makers - Zhejiang Geely Holding Group completed its acquisition of the Volvo car brand from Ford Motor on August 2, 2010 (China Daily, 2010, para. 1). Geely paid US\$ 1.3 billion in cash and issued a US\$ \$200 million note to complete the deal (China Daily, 2010, para. 3), which is reported the biggest overseas acquisition yet by a Chinese automaker (China Daily, 2010, para. 1).

work in China, and bring more advanced management ideas, technologies and experiences to China's auto industry (Alon & McIntyre, 2008).

Most importantly, the Chinese Government reconsidered the automotive industry policies and the competitive market environment was gradually formed; the Government began to encourage and support private car ownership to help to expand the passenger car market; vehicle prices kept going down and private car consumption became the major purchasing driver; consumption of related services, such as financing, repairs, and accident compensation were being provided; the construction of transportation infrastructure is being speeded up; and the Government has begun to relax its rigid control over foreign capital and domestic private investments in the auto industry.

6.5 Chapter Conclusion

China's auto industry represents an extraordinary case of economic development in a transitional economy over the past three decades beginning in 1978, an economy which has clearly been affected by both the gradual institutional reform in the country and global industrial changes. This chapter has provided an overview and the key characteristics of how the institutional environment impacts on the historical development path of the Chinese auto industry at the time of the study. Several major features are demonstrated as follows:

(1) The Chinese auto industry has contributed to the phenomenal growth in the country's economic development with an average annual growth rate of about 9%. This tremendous macroeconomic achievement, combined with the increasing impacts of globalisation of production and market expansion, has undoubtedly led to the increasing inflows of foreign direct investment (IFDI) in the form of international joint ventures (IJVs) between the auto-producing foreign MNEs and major Chinese state-owned firms (Gan, 2003; McGunagle, 2007).

(2) The Chinese auto industry emphasise the necessity of technology (knowledge) transfer and innovative learning, which can be regarded as an important aspect of maintaining competitiveness in industrialisation and global competition (Amsden, 2001; Gallagher, 2006). One of the obvious characteristics is that the impact of foreign technology introduction upon the development of China's automobile sector. This knowledge acquisition purpose especially can be reflected in state intervention and industrial regulations in the Chinese auto industry.

(3) The final characteristic is the role of the Chinese Government has traditionally played in the formulation of relevant auto industry policies (Yan, 2000). Even after extensive economic liberalisation and reform, government authorities still exerted their influence by intervening in business activities to meet specified targets in various industrial sectors, because the Chinese

Government wants to achieve a balanced effect, not only to increase economic and industrial modernisation through these liberalised policies (Henderson, Sheldon, & Thomas, 1994), but also to ensure that these national achievements are regulated in an appropriate way. China's auto industry has proven to be no exception (China Association of Automobile Manufacturers, 2004). These descriptions of the historical background and the current features of the industrial policies portray the rise of the automobile industry in China.

In sum, this chapter depicts the unique institutional environment combined with the globalisation context of the auto market, and emphasises the importance of knowledge resources for industry and market growth. This chapter particularly shows how the mechanism of FDI, Sino-foreign auto joint venture development, foreign technology transfer and relevant auto industry policies have impacted on the emerging development path of the Chinese auto industry (Holweg et al., 2005) – an important context in understanding the sources of success and failure in this emerging and promising auto market. The next chapter charts the historical developments of the case company – Shanghai-GM – in order to pursue a further understanding of interfirm knowledge flows by cooperative partner firms.

Chapter 7 Within-case Description and Findings

7.1 Introduction

This chapter introduces the historical background of one particular auto joint venture – Shanghai-GM – between GM and SAIC. This provides the context related to the cooperative management activities involving interfirm knowledge transfer practices in this thesis. The chapter is concerned mainly with the partnering companies’ profiles and case background, describing the dynamic development of the Shanghai-GM project since its formation to the date of the study. The within-case description and partnering companies’ background (based on a combination of both primary and secondary sources) underlines the ideographic nature of alliance networks and interpartner knowledge transfer practices in developing and building the alliance’s competitiveness.

This chapter is organised in the following way. It begins in section 7.2 with the background and characteristics of the two partnering companies; the preformation and negotiation of the IJV project are described in section 7.3; the formation and starting operations is mentioned in section 7.4; it is followed by the detailed descriptions of knowledge transfer and partnership events in section 7.5; “Intensive Interactions” introduces knowledge development and adaptation-related events in section 7.6; section 7.7 describes “Challenges and Difficulties” of transferring tacit cultural knowledge; section 7.8 identifies the managerial trust and partner relationship; section 7.9 describes “Further Rounds of Cooperative Knowledge Transfer”; The following sections emphasises “Alliance Achievements” (section 7.10), “Partners’ Satisfaction” (section 11), and “Various Locations in China” (section 12); “Knowledge Acquisition and Harvesting” notes the knowledge transfer results in section 7.13. This chapter concludes with section 7.14.

7.2 Characteristics of Partnering Firms

As GM loses market share in the US, GM must gain the lead in China ...
China now continues to be a very solid profit contributor.

- Frederick A. Henderson,

Former President and CEO of GM (2009-2009)

SAIC will be one of the top 10 car companies in the world ... Youngsters in
Europe or the US will consider a Shanghai Auto car in the next 10 to 15 years.

- Graeme Maxton, An Industry Consultant, Britain

Before identifying the dynamic reconfigurations and shifts of this joint venture project and the focused research on interpartner knowledge transfer practices, the two cooperative partnering companies and their preformation background are firstly reported in the following sections.

7.2.1 General Motors' Company Profile

(1) Initiation Stage – On September 16, 1908, General Motors (GM) was started in Flint, Michigan as a holding company. GM was initially controlled by William C. Durant, but it also had another co-founder – Charles Stewart Mott who joined “with his carriage company at the time of its creation”, which made him “the largest single stockholder in GM” (“General Motors”, 2010, para. 4).

In 1908, GM brought in Oldsmobile. In the year of 1909, GM began to acquire some other motor vehicle companies such as “Cadillac, Elmore, Oakland (later known as Pontiac)”. After 1909, GM acquired the Reliance Motor Truck Company of Owosso (in Michigan) and the Rapid Motor Vehicle Company of Pontiac (in Michigan), and later became GMC Truck. At the superficial level, it seems that GM had achieved great growth. However, these series of acquisitions meant that GM suffered “a large amount of debts”, which made GM gradually “lose bankers’ trust” in 1910 (“General Motors”, 2010, para. 4).

(2) Rapid Development Stage – Until Alfred P. Sloan took over as President and CEO in 1923 and when he was faced with 75 factories in 40 cities, GM grew rapidly in the American automotive industry and moved toward postwar global dominance (Lethbridge, 1992). Although GM was much smaller than Ford in 1923, from 1928 onwards GM sold more cars each year than any other company in the world. In 1956, GM became the world’s largest manufacturing company. This unprecedented growth lasted “through the late ’70s and into the early ’80s” (“General Motors”, 2010, para. 4). In 1983, GM announced it had made a top quality small car, and seven years later the first Saturn models were being manufactured under the most integrated and automated operation in the United States (Lethbridge, 1992). This Saturn project was expected to be the answer to the Japanese challenge at that time. There were no hourly-paid employees, and production workers were placed in teams. If a defect was spotted, the assembly line could be stopped with pull cords. Four or five models could be produced simultaneously, and the line was designed to promote quality, worker comfort, and efficiency.

(3) Reaching Peak Performance – With global headquarters located at the Renaissance Center in Detroit, Michigan, GM became the world’s second largest automaker in 2008, which “employed about 244,500 people around the world in 2009” (“General Motors”, 2010, para. 2). As a global company, GM once had a wide range of business operations, including “telecommunications, aerospace, defense, locomotives, diesel engines, automotive systems, heavy-duty automatic transmissions, business financial and insurance services worldwide” (KBizZle, 2005, para. 4).

GM used to own a broad brand portfolio, with brands such as “Buick, Cadillac, Chevrolet, GMC, Holden, Saturn and Vauxhall. In some countries, GM also distributed vehicles branded by Isuzu, Subaru, GM Daewoo and Suzuki”

through its own global marketing networks as a result of its cooperative agreements (“GM Background”, 2009, para. 3).

GM’s international operations were once divided into European, Asia Pacific, Latin America, Africa, and the Middle East regions. Its current largest national market is the United States, followed by China, Brazil, Germany, the United Kingdom, Canada, and Italy (“GM Company Profile”, 2010, para. 1). GM Asia Pacific, headquartered in Shanghai, provides oversight for GM’s Asian Pacific operations including mainland China, Taiwan, and Hong Kong. GM was the major shareholder in Daewoo (South Korea). It also had established several important and influential cooperative partnerships worldwide with “Toyota, Suzuki, Isuzu, Daimler-Chrysler, BMW, Shanghai Automotive Industry Corp., AVTOVAZ of Russia and Renault SA of France” (“GM Background”, 2009, para. 2). These global partnerships gave GM links to the global market.

Internally, GM offered a variety of continuous education and training opportunities for its employees, and “supported advanced education and certification through tuition assistance, EMBA programme, and technical education programmes” (KBizZle, 2005, para. 20). The “first three training programmes were available through GM University which was designed to align the company’s training investment with its business needs, and to disseminate best practices and core values” (KBizZle, 2005, para. 18). The formal training programme consisted of five components: “Foundation Skill Training (i.e., computer software, GM history and business orientations); Functional Specific Skills and Techniques; Leadership and Professional Development, and On-the-job Training” (KBizZle, 2005, para. 20). Through these efforts, GM had established a learning culture across the entire enterprise, which provided a solid foundation for reaching its peak performance in terms of business expansion.

Hence it was not surprising to see GM's manufacturing and sales once again hold an influential position in the vehicle sector. In 2002, GM sold "more than 8.5 million trucks and cars units, roughly 15% of the global vehicle market share" (KBizZle, 2005, para. 8). Its presence was significant in the main commercial areas, "with market shares equal to 26.7% in North America, 9.3% in Europe, 16.3% in Latin America, Africa and the Middle East, and 3.7% in the Asia-Pacific Zone" (Camuffo & Volpato, 2002, p. 337). In 2004, GM sold about "9 million cars and trucks in the global auto market, up 4%" ("GM Background", 2009, para. 1). In 2007, nearly 9.37 million GM vehicles were sold globally, "this was a 3% increase over 2006 and the second best global sales number in the company's history" ("GM Global Sales", 2008, para. 1). In 2008, "8.35 million GM cars and trucks were sold globally" ("General Motors", 2010, para. 2). By sales, GM was ranked as "the largest automaker in the US and the second largest in the world for 2008", overtaken by Toyota. It "manufactures cars and trucks in 34 countries" and its vehicles were sold "in some 140 countries". GM even had "the third highest 2008 global revenues among automakers on the Fortune Global 500" ("General Motors", 2010, para. 1).

(4) Comparing the Past with Current Situation – GM had made great business achievements during the past decades. Certain specific reasons could explain GM's past achievements: First, GM products were strictly differentiated according to the different consumer markets. For each different division, GM was to produce a particular brand. Hence the complete market was covered. In such a way a full advantage of the economies of scale could apply. Second, GM set out to be the style leader, and introduced annual model changes. Third, GM pursued a low cost strategy in the industry, and yet had quality standards which compared closely with the competition. As a leading global company in vehicle products and transportation-related services, the key business consideration of GM was to establish diversified while related corporate initiatives.

However, in recent years, GM had been experiencing serious business operational problems, struggling to keep hold of its market share. And finally, the mighty GM finally had to go into bankruptcy in order to redeem itself. On Monday June 1, 2009, GM “filed for Chapter 11 bankruptcy protection proceedings” (“General Motors”, 2010, para. 1). This arrangement was part of the Obama administration’s plan in order to let GM restructure itself and the federal government hold a majority ownership stake of GM²⁴.

Korzeniewski (2008) once gave two major reasons to explain GM’s tragedy: First, GM had been constantly struggling to unite the United Auto Workers (UAW) in an agreement in terms of the retired employees’ pension plan and healthcare costs. Second, although GM had the technology to produce more fuel-efficient vehicles, GM did not believe a significant portion of its customers would want to buy them. The filings were “testimony to the size and complexity of this 101-year-old company and to the scale of the problems that had finally overwhelmed it” (“The Bankruptcy of General Motors”, 2009, para. 2).

7.2.2 The Local Partner: SAIC’s Company Profile

In China, SAIC is a fully state-owned enterprise (SOEs) which was originally established in 1955 as the Shanghai Internal Combustion Engine Components Company (Its major historical changes and renaming are shown in Table 7.1 below).

Since 1978, SAIC has been managed by four different executives, and their service terms were four, eight, four and seven years respectively²⁵. Three of the four presidents were transferred from senior positions in the Shanghai Government and two vice presidents remained officials after leaving SAIC. Mr. Hu Maoyuan, the current Chairman and President of SAIC, is an exception. “His

²⁴ See also Chapter 5, Section 5.5 and Coda in Chapter 9.

²⁵ The fourth chief executive is still in the managerial position.

career started in one of the SAIC's factories and he has been in the management team since 1986" (www.saicgroup.com, cited in Liu & Tylecote, 2009, p. 531).

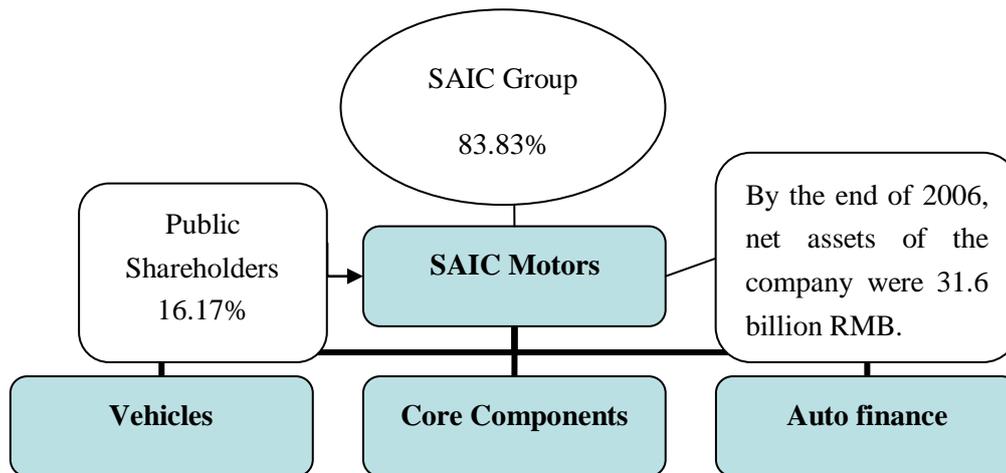
Table 7. 1 Major Historical Changes and Renaming in SAIC

Dec. 1955	Shanghai Internal Combustion Engine Components Company was founded.
March 1958	Shanghai Internal Combustion Engine Components Company was consolidated into Shanghai Powertrain Machinery Manufacturing Company.
Jan. 1960	Shanghai Powertrain Machinery Manufacturing Company was renamed Shanghai Agricultural Machinery Manufacturing Company.
April 1969	Shanghai Agricultural Machinery Manufacturing Company was renamed Shanghai Tractor Industry Company.
July 1984	Shanghai Automobile & Tractor Industry Company was inaugurated.
March 1985	Shanghai Volkswagen Automotive Co., Ltd. was founded.
March 1990	Shanghai Automobile & Tractor Industry Company was renamed Shanghai Automotive Industry Corporation.
Sept. 1995	Shanghai Automotive Industry Corp. (Group) was founded.
June 1997	Shanghai General Motors Co., Ltd. started its business.
July 2004	Shanghai Automotive Industry Corp. (Group) became a Fortune 500 company for the first time.
Dec. 2004	SAIC Motor Corp. Ltd. was launched.

Source: adapted from SAIC Annual Report (2005).

Together with First Auto Works (FAW) and Dongfeng Motor Corporation (DMC), SAIC is currently known as one of the leading and well-reputed major Chinese auto groups (Liu & Tylecote, 2009). It invests mainly in different lines of auto manufacturing products, such as passenger cars, commercial vehicles and auto components. It also engages in some auto related insurance services, car loans, and the retailing trade (SAIC Annual Report, 2007). The company's business assets' structure is shown in Figure 7.1.

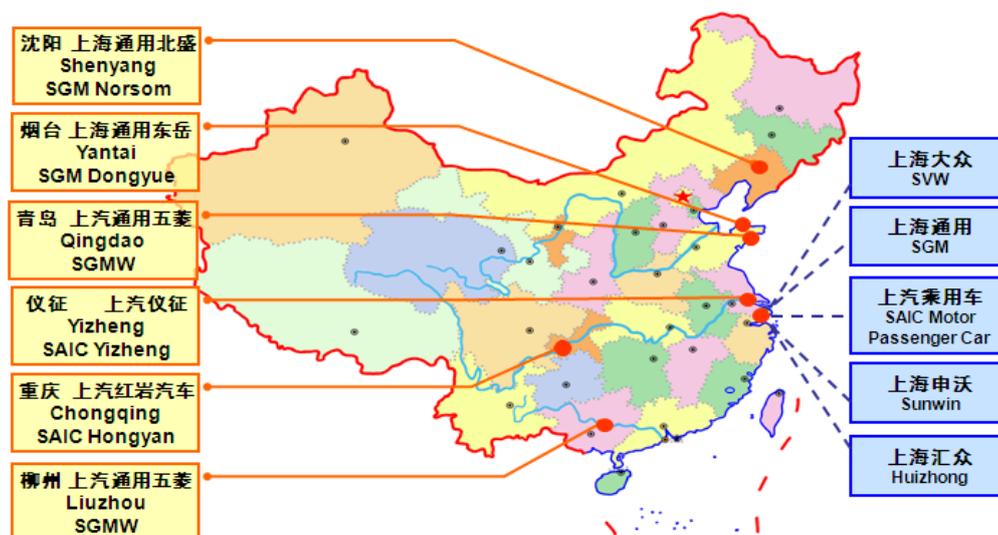
Figure 7. 1 Business Assets' Structure of SAIC



Source: SAIC Annual Report, 2007.

As a leading car manufacturer in China’s auto industry, the operations of SAIC are not just limited to the Shanghai area. It has already “established its own domestic manufacturing bases in certain cities in China – Shenyang, Qingdao, Yantai, Yizheng, Chongqing, and Liuzhou” (as shown in Figure 7.2 below) (“About SAIC”, 2009, para. 3), and holds major shares in Liuzhou Wuling Automotive Company in Guangxi and Jiangsu Yizheng Automotive Company, as well as shares in Anhui Chery (SAIC Annual Report, 2007).

Figure 7. 2 The Domestic Geographic Layout of SAIC in China



Source: SAIC Annual Report, 2007.

SAIC has also set up overseas branches or offices in the US, Europe, Hong Kong, Japan and Korea, including SAIC USA Inc. (in Detroit); SAIC Motor Technical Center (in Leamington Spa, UK); SAIC Europe GMBH (in Hamburg, Germany); SAIC Korea Co., Ltd. (in Seoul, Korea); SAIC Japan Co., Ltd. (in Tokyo); and SAIC Hong Kong Co., Ltd. (SAIC Annual Report, 2007).

Guided by its corporate values and strategies – customers’ satisfaction, competitive advantage through innovation, internationalisation, and people management²⁶ – and with opportunities emerging from the rapid growth of the Chinese auto market, the management of SAIC has demonstrated their forward-looking insights by sticking to the principles of strengthening strategic cooperation and joint venture activities with global original equipment manufacturers (OEMs). One famous international partnership example is between SAIC and German Volkswagen – Shanghai-VW, created in March 1985. Both VW and SAIC contributed a 50% stake, and the JV vehicle production focused on models such as Santana, Santana 2000, Santana 3000, Passat and Polo with current total market share roughly above 30% in China (www.saicgroup.com).

In recent years, combined with increased economic performance in China and strategic partnerships with global automakers, SAIC sped up its growth and made significant model development. It gained remarkable achievements in the passenger car sector, enjoying amazing profits. Some of SAIC’s financial achievements have been very impressive. In 1999, SAIC “generated RMB 88.29 billion Yuan (US\$ 10.63 billion) in sales revenue, with profits reaching RMB 6.2 billion Yuan (US\$ 746 million)” (“Shanghai Auto Leads”, 2000, para. 2). By 2000, the company had captured “45% share of the auto market in China and ranked first among Chinese auto companies” (“Shanghai Auto Leads”, 2000,

²⁶ The abbreviation of the group’s name stands for its corporate values: S-Satisfaction from customers; A-Advantage through innovation; I-Internationalization in operating; and C-Concentration on people (SAIC Annual Report, 2005, 2007).

para. 2). In 2005, it sold more than 1.05 million vehicles, of which more than 740,000 were passenger cars, and realised consolidated revenue of US\$ 14.37 billion. In 2006, SAIC “topped the Chinese automotive groups with a sales volume of over 1.34 million units of vehicles, of which 910,000 were passenger cars and 429,000 commercial vehicles”. SAIC was on the “Fortune 500” list (ranking 402) in 2007 as one of a few Chinese firms with its “consolidated US\$ 18.01 billion main business revenue” (“About SAIC”, 2009, para. 1).

In order to be one of the top global auto companies, along with such as Toyota, GM, Ford, and Volkswagen in the near future, SAIC has set its “target to produce over 2 million vehicles”, including certain percentage of self-developed and own-brand models, with “trade and export revenue of US\$ 5 billion by 2010” (Bursa, 2007, p. 22). While some industrial analysts argue this target seemed over ambitious for SAIC based on the fact that SAIC was only ranked seventeenth globally in terms of unit sales in 2003, other industrial analysts do believe this target is realistic (e.g., Bursa, 2006, 2007).

7.3 Origins and Formation of Shanghai-GM

7.3.1 The Preformation Strategic Considerations



Before the formation of Shanghai-GM in 1997, despite having worldwide revenues of US\$ 123 billion in 1991, General Motors was in crisis. By 1990 the company was suffering from low labour productivity, a reputation for making poor quality cars relative to the Japanese, lengthy new-model cycles, and particular problems with the United Automotive Workers’ union (the UAW) with whom there had been almost continual confrontation, sparked by the job insecurity caused by the large swings in demand in the industry (Keller, 2003).

In December 1991 GM announced the closure of 21 factories and the loss of 74,000 jobs, and by the end of 1995 GM anticipated that the North American workforce would be half the 1985 size, having lost US\$ 7.1 billion in the 1991 financial year, and with 1992 shaping up as the third successive year of massive losses. There were some internal arguments about GM's global market situation and new directions to go for future growth at that time. One GM executive recalled:

In recent years, USA is becoming a well structured and fairly saturated market ... [which] only offers a limited space for our business expansion and growth potential. Cars sales in the European market are also under pressure. I am pretty sure our long-term growth will be in Asia. Asia continues to be an important part of our expansion strategy and China is an example. We know there are tremendous demands here. We have to take advantage of that. (Interviewee A1)

Another GM manager agreed with his comments:

We are all observing that China's auto market is growing rapidly. Chinese sales of new automobiles grew 18% each year annually, this is a doubling in the number of passenger vehicles on the road every 4 years. I believe that China will be an export platform for vehicles and parts, and a global auto manufacturing and research centre. It is predictable and it is just a matter of time. GM should find a way to put a stake in China. This is a historical development opportunity. (Interviewee A3)

As GM management believed that Chinese "economic expansion would eventually create a middle class having the ability to afford a car" (Keller, 2003, para. 1), GM began to have contact with Chinese government officials in 1994²⁷.

However, GM was later reminded by a Chinese government official that it might be a little bit late for GM to access the Chinese auto market, as some other global auto competitors had already established their presence in China, from

²⁷ Retired GM Chairman John Francis "Jack" Smith Jr. once showed a keen interest in Asian auto market. Smith particularly "saw China's huge population as an opportunity". He went to China in 1994 and began a year of negotiations with government officials, including then-Vice-Premier Li Lanqing and SAIC (BusinessWeek, 2004, para. 11).

Volkswagen, the first investor to make business operations profitable in China, to Daimler-Chrysler, Ford Motor, Toyota, Honda and Nissan. Having seen its competitors already established in the Chinese market and the Japanese automakers coming on fast, GM could not keep waiting anymore and felt worried:

Things are getting much tougher for everyone. We need to worry about staying ahead of the competition, and how to keep our presence in China, from auto manufacturing to professional designing, fostering sales, business development and auto-related financial services. (Interviewee A4)

As the Chinese auto market was definitely seen as having big potential in the years to come for GM's further growth, in the same year of 1994, GM made a strategic decision and opened its GM China office in Beijing. In January 2005, GM even moved its Asia Pacific regional headquarters from Singapore to Shanghai in order to rationalise its China operations. Former GM Chairman and CEO Rick Wagoner commented on the significance of office location in China: "Establishing our regional headquarters in Shanghai recognizes how important China has become to our plans to expand our global industry leadership ... Having a strong presence in this dynamic and growing market is not an option, it's a necessity." (Automotive Intelligence News, 2004, para. 3).

Troy Clarke, former president of GM Asia Pacific, also noted, "We view aggressive expansion in China as a key part of our future growth around the world ... Singapore is an outstanding place to do business. But our business model has changed substantially since we originally located there in 1993." (Automotive Intelligence News, 2004, para. 5&7).

Given that China was suitable for investment and the Chinese Government has issued some important favourable foreign investment policies, the next step for GM was to decide in which way to enter into China's auto market.

After 1994, the Chinese Government began to consolidate the industry in order to "establish large-scale groups of vehicle manufacturing companies, and to

replace previous small-scale, scattered producers” (Holweg et al., 2005, p. 14). As fully-owned foreign ventures were not allowed in the Chinese auto industry, foreign MNEs had to form joint ventures with local Chinese firms in the passenger car sector²⁸. It seems that establishing collaborative linkages in the automotive industry in China was a must to fulfil certain legal requirements.

GM top management believed that the IJV business model could be an excellent platform for establishing and expanding business within China and GM actually had a lot of previous international alliance experiences. GM did not show any hesitation and followed the Chinese Government regulations.

To decrease the risks of operating in a particularly complex market like China, and to develop the necessary business contacts, the next step for GM was to find a suitable Chinese partner with a good understanding of how this region functions, and with the special competence which GM lacked. GM expected the candidate partner could demonstrate a certain fit, such as domestic sales networks and commercial distribution capacities required by the future interfirm cooperation.

The inquiry process for GM was not very lengthy, as GM could easily find a qualified local company – SAIC. Although SAIC was already involved in a partnership with Volkswagen, GM was still interested in SAIC, as GM found SAIC could have the right contacts in the automobile industry with various decision makers at different levels and believed SAIC’s competence and local know-how could be beneficial for both sides. One American manager reflected:

My impression in the beginning was that SAIC had done a pretty good job by taking the leadership in China’s automotive industry. They seem to be an efficient company as such after visiting there and seeing how they are operating everything. We think they have so many good people there, they

²⁸This ownership restriction policy was continued even after China’s entry into the World Trade Organisation at the end of 2001, and foreign firms cannot hold more than 50% of equity in any final car assembly operation, excluding the auto components industry (Buckley et al., 2004).

have positive working attitude and that's what was actually the big impression for us. (Interviewee A2)

Indeed, SAIC had many advantages at that time, which “was reputed to be the most profitable Chinese automobile company”, and had been publicly appointed by the Chinese Government as “the primary Chinese passenger car producer” (Gallagher, 2006, p. 66).

7.3.2 Initial Contacts and Partner Recognition

GM initially expressed their intention to establish a certain kind of partnership model with SAIC. Coincidentally, SAIC also showed great interest in setting up a new cooperative relationship with another giant auto player like GM. In fact, despite being a leading automaker in China during the past decades, and managing several successful joint ventures with foreign MNEs such as Shanghai-Volkswagen, SAIC believed that if the partnership with GM could be achieved, this would further improve SAIC's future competitive advantage both in China and on the global stage in a more positive way. These considerations have been discussed widely and eagerly at top management level in SAIC. One Chinese executive commented:

Facing globalisation, China's automobile sector has its own weaknesses. Most of our domestic automakers cannot compete against foreign companies at that time. Even now giant gaps still exist not only in the technology aspect, but also in the system and production knowledge, which are reflected in [things] such as small scale, irrational allocation of resources, and low efficiency. We are not at the same level of scale as our counterparts. We do not have enough time and power to establish an internationally competitive auto industry by ourselves. Therefore, we have a pressing task to sharpen our competitive edges. How to achieve our task? One effective way we consider might be to strengthen the cooperation with foreign companies. We hope this [partnership model] can give us a chance to get to know the advanced technologies and product development platforms, and international sales channels. These are what we really need [when thinking about joint venturing with foreign MNEs]. We must develop those capabilities through these ‘windows’ in order to survive. If we do not continually improve our

capabilities, profits will likely level off, and companies may be forced to close down, we are clearly aware of that. (Interviewee B1)

One most important consideration for SAIC at that time was that it was particularly interested in obtaining GM high-end vehicle models and wanted to expand its field of marketing operations and produce more top brand vehicles. One Chinese manager expressed his concern:

We have actually been cooperating with German Volkswagen for so many years, but we are only allowed to produce B class Santana model. It is a quite old model. We still lack some core proprietary technologies. These core technologies are essentially held by our current German partner. The technology-intensive new models like Audi series have been arranged to go to another Volkswagen's Chinese joint venture with FAW in Changchun. The Germans dominate many advantages in the Chinese auto production aspect. They strictly control new product and technology transfer, and always emphasise that the current introduced technology and vehicle models are sufficient to meet the demands of the Chinese market. That's definitely no good to us, [this situation] constrained new product development and technology progress. This made our vehicle products in Shanghai-VW only limited to low-end lines. We are not satisfied with that situation. We can't blame our German partner, but if we can't solve these problems, we will not be qualified as a "top three automaker" in China, not to say to compete in the world. This is actually also harmful to Volkswagen. They finally realised this problem several years later after facing severe domestic competition realities. (Interviewee B3)

Recognising these constraints and its potential needs, SAIC undertook several overseas auto plant visits starting in 1994 before taking GM's offer. On the one hand SAIC wanted to investigate the global auto market trends; on the other hand it tried to explore other new cooperative modes and to introduce certain competition mechanisms into its corporation. During the trip, SAIC purposely compared several big multinational companies (such as Ford, GM, Korean Daewoo, and Japanese Mazda), and tried to decide which foreign auto company would be the best potential cooperative partner.

SAIC listed several key selection criteria in searching for a suitable business partner, in terms of (1) a willingness to cooperate with SAIC; (2) the extent of its

supporting component localisation strategy in China; (3) whether it had detailed procedures and work plans for technical support and transfer; and (4) the conditions of technical transfer and new vehicle model introduction.

7. 3.3 Two Years' Negotiation

In 1994, as the vehicle models recommended by GM were assessed more suitable for the Chinese auto market, plus the detailed comparisons with other foreign auto companies' price offers and technology transfer conditions, SAIC finally expressed its determination to conduct detailed negotiations with GM. Both sides undertook a series of business talks in 1994.

The main negotiator from GM was the former Chairman and President of GM China Group – Philip Murtaugh. The Chinese side appointed a negotiation team composed of senior representatives from SAIC's top management team and relevant government officials. Key people from the two companies met at different sites, both in China and in the US. The main focus of negotiations was to formulate cooperative agreements in detail, to determine the investment percentage and the price of technology transfer from GM. As both parties were really interested in interfirm collaboration, the initial talks between them went relatively rapidly and smoothly to get to the main points. One Chinese manager stated:

We have followed the path of 'cooperating with giants and achieving win-win solutions' since the implementation of the reform and open-door policy. During the past several years, by enhancing cooperation with such world prestigious companies as Volkswagen, we have achieved certain strategic targets such as localisation of vehicle production. Our vehicle development strategy has been mostly achieved. But look at it deeply, we still haven't got enough technical secrets for producing some key components. Some of the critical parts, like the auto braking system and electrical products still suffer from customers' complaints. The quality of engine casting, car body sealing kit, and our R&D capabilities are still at the infant stage, we lack [a] whole range of theoretical knowledge and practical experiences in auto producing. All of these problems are potential bottlenecks for our future development.

That's why we are interested in cooperating with GM. It is a very good company with a global reputation in terms of like marketing expertise. (Interviewee B2)

On October 31 1995, SAIC and GM signed a basic letter of intent, expressing a willingness to construct a greenfield joint venture project in Shanghai with an estimated investment of US\$ 1.57 billion. Based on GM's core values – “integrity, continuous improvement, customer enthusiasm, teamwork, innovation, and individual respect and responsibility” (“Key GMC Facts”, n.d., para. 11), and SAIC's core values – “creating value for society, continuous improvement and high efficiency” (SAIC Annual Report, 2005, p. 1), both sides agreed to jointly establish a platform to achieve continuous improvements and competitive advantage in the areas of R&D, production and quality control systems, product differentiation and innovations, reduction in cost and time to sales and after-sales services (SAIC Annual Report, 2005).

For joint venture establishment, government permission and approval are required, and these are part of the bureaucratic process in China. SAIC took this responsibility and had discussions with relevant government departments in both Beijing and Shanghai, in the areas of investment percentage, capital allocation sources and potential benefits resulting from this joint venture project.

However, there were some misunderstandings and arguments at the initial application stage. Hu Maoyuan (the vice president of SAIC group at that time) paid nearly 50 visits in 1 year to the relevant government departments in Beijing to obtain permission and support. One Chinese executive also reflected:

Getting approval (for the Shanghai-GM project) was a hard process. First, this project is obviously big, involving huge investment indeed. Second, it was quite sensitive at that time (in 1995) to initiate a second passenger car joint venture because we have already had Shanghai-Volkswagen. So there was no further good reason to explain why we still need another JV partner with GM. Especially we were required to explain why this JV project will be producing medium to high-end sedans. We suffered great pressures and the

opposing letters and complaints against this (Shanghai-GM) project were just like heavy snow. Some people wrote letters to Beijing and complained that it was not necessary to produce the high-end passenger cars, it is a waste of money as there would be no market at all (in China). Facing such huge difficulties, our only choice was just to put our efforts into doing every piece of the job at this preparatory stage well and we tried to explain our thinking to the Government. We emphasised we did the right thing, and did follow the legal rules and regulations, and if managed properly, this project would bring benefits for our Chinese auto industry. (Interviewee B2)

7.3.4 Partnership Formation in 1997

Two years later in 1997, after an arduous process of applications, the joint venture agreement was finally created, and SAIC also obtained the formal approval from the central government. On March 25, 1997, former US Vice President Al Gore and former Chinese Prime Minister Li Peng witnessed the signing ceremony of the deal in Beijing (Gallagher, 2003). On June 12, 1997, Shanghai-GM was formally launched (Chinacarforums, 2007).

From the outset, Shanghai-GM was regarded as a priority project in international partnership between GM and SAIC. It was commonly reported that this JV project was the largest single Sino-American joint venture with an investment of US\$ 1.52 billion (Zhong & Hu, 2008), and GM was the “first American auto giant entering into China in 1997” (Hastings & Schafer, 2006, p. 36). The overriding goal of this cooperative Shanghai-GM project was to become the leading vehicle manufacturer with both domestic and international competitive advantage (Table 7.2 below describes the relevant information regarding this finalised JV project). One GM manager could not contain his excitement and expectations:

We are so excited, as we [were] entering into China now. JV investment by GM with SAIC will provide an excellent opportunity for both of us. We will not simply produce passenger cars, we also have set up a principle – we will definitely bring our best technology, most competitive vehicle models, the newest purchasing, sales and service system and management knowledge to China, to provide our ‘know-how’ for the local Chinese market, and do our

best to make things better in China. ... The situation will be better in the future through our joint contribution. (Interviewee A1)

Philip Murtaugh, former Chairman & CEO of GM China, also said in an interview with Xinhua News Agency on February 15, 2002, “GM investment in China with SAIC has created a win-win situation for both GM and China’s auto industry. ... The achievements made by Shanghai-GM will be highly commendable” (Xinhua News Agency, 2002).

Table 7. 2 Description of the Finalised JV Partnership Project

Total investment in dollars	US\$ 1.52 billion
GM-SAIC equity shares	50/50
Business Scope	To manufacture vehicle products, engines, transmissions and relevant components
Product market	To sell the above-mentioned vehicle products and components locally for import substitution, and also for exporting overseas
GM objectives	Business growth, market penetration, profit
SAIC objectives	Import substitution, technology gain, and business expansion, profit
IJV Management	American chairman, American Vice General Manager, Chinese president and plant managers
GM Key contribution	Manufacturing process and engineering, financing, overseas customer contacts, product model design
SAIC Key contribution	Plant startup, JV plant management, administration support (HR, legal, finance), domestic customer contacts, access to raw materials

Four basic principles of the cooperation:

1. Study each other’s culture;
2. Joint venture interests come first;
3. Standardisation of policies and procedures;
4. Practicing and promoting flexibility.

Source: This thesis

7.4 Starting Joint Venture Operations

7.4.1 Strategic Location Selection in Shanghai

The coastal city of Shanghai was then selected as a strategic location for joint venture's passenger car production. There were some good reasons for picking up Shanghai for passenger car production. It is one of the most dynamic cities in China with over 20 million people, where it has relatively developed infrastructure, and "the locals are renowned for their business acumen and attention to detail" (Gallagher, 2006, p. 66). Since the opening-up of China over the past 20 years, Shanghai has enjoyed national preferential policies for developing the Pudong area, and always been viewed as a leading city for FDI absorption and MNEs expansion in China. By 1997, Shanghai "had attracted more than US\$ 1.5 billion of FDI in the automotive sector", sharing one-fifth of the country's total inward FDI (Sit & Liu, 2000, p. 667). FDI inflows and MNEs' presence have helped Shanghai to become China's largest car production centre, which saw it producing over half of the total assembled passenger cars in 1997.

While the two sides were busy with negotiations regarding a general cooperative framework throughout 1997, certain detailed "site-preparation work", such as the selection and construction of the joint venture manufacturing site, was also carried out at the same time (Graham, 2000, para. 6). Philip Murtaugh once reflected upon his working experience at Shanghai-GM, "We made a decision to work out a joint venture contract and build the plant simultaneously [throughout the whole year of 1997]. It was a fairly high-risk approach. GM has never built a plant on this scale this fast in its entire history. In terms of the challenges of building a plant, we had about three [potential sites] but settled on this one, because of its location and the fact that it was the biggest one. ... We did everything in parallel." (Graham, 2000, para. 8 & 9)

7.4.2 Manufacturing Location Selection in Pudong

The manufacturing plant was set up in “Jinqiao Export Processing Zone in Shanghai Pudong District ²⁹ with an area of 800,000 square metres” (Chinacarforums, 2007, para. 6). It includes five shops (i.e., general assembly, power train, press, body, and paint), which is still recognised as “the most advanced of its kind in China” today (Zhang & Khabelashvili, 2002, p. 94). The plant was completed in a remarkably short period of time and was formally opened on December 15, 1998.

In the first phase of factory construction, Shanghai-GM was firstly designed to adopt GM’s “lean manufacturing-based system” which would deal with various aspects of production and quality management process in an efficient and effective way, including “materials purchasing, logistics, manufacturing, sales and after-sales service” (Chinacarforums, 2007, para. 3). Meanwhile, Shanghai-GM also adopted the “first flexible production line” in the Chinese automotive industry, which allows it to produce different while complete vehicles on a single manufacturing platform, including “press, body, paint and assembly, as well as the entire process of manufacturing powertrain, engines and transmissions (Chinacarforums, 2007, para. 3). Most importantly, Shanghai-GM was installed with a “most advanced information system (SAP IS-AUTO)”, which ensured Shanghai-GM was able to comprehensively integrate and optimise every aspect of the value chain creation to bring about results “seldom seen in the automotive industry anywhere in the world” (Chinacarforums, 2007, para. 8). This lean and flexible production system provided a firm foundation for Shanghai-GM’s expansion in the following years.

²⁹ Three decades ago, the Chinese government has determined that “the Pudong industrial area would be a showcase for the new China, a site that would be tailor-made to the needs of foreign investors.” (Graham, 2000, para. 9)

7.4.3 Considering Knowledge (Technology) Transfer

Following the designed cooperative technology transfer agreement, GM was then expected to transfer modern vehicle production technology and equipment, new vehicle models, the marketing know-how, R&D and management skills to Shanghai-GM with an aim to gradually realise its annual “manufacturing capacity from 100,000 to 200,000 units” for the Chinese local auto market in the coming future (Autoparts Report, 2003, para. 5). Table 7.3 below demonstrates the major aspects of interfirm knowledge transfer stages in the Shanghai-GM alliance case.

Table 7. 3 Interpartner Knowledge Transfer Stages in Shanghai-GM

<i>Stages</i>	<i>Contents</i>	<i>Transfer Routines</i>	<i>Implications</i>
Initial Knowledge Linkages	Technology, marketing skills, quality control, production documents, information systems, local knowledge	On-site visits, training, managerial arrangements, vehicle models introduction	Cooperative contract, partners’ initial trust, commitment
Challenge Stage	Cultural misunderstanding, language barriers	Training, communication, HR arrangement	Cultural knowledge and understanding is difficult, tacit, and time-consuming
Knowledge Development	R&D, new vehicle models’ introduction, technology adaptation	Personnel adjustment, knowledge exchange, training	Higher individual trust, social interactions, partnership realisation
Knowledge Harvesting	Mindset changing, technology transfer, internal innovation	Mutual learning	Partnership developing, shared understanding

Source: Interview Data

7.5 Starting Knowledge Transfer in Shanghai-GM

For the initiation stage (the period 1997-2003), technology transfer essentially included the following aspects: First came the introduction of the vehicle models, product technology and manufacturing operation procedures into Shanghai-GM. Second, staff members began receiving relevant on-site training in Shanghai-GM and GM's various manufacturing sites around the world. Third, offering initial technical competence development support for the newly-recruited local technicians in the joint venture whenever necessary. Fourth, each partner company dispatched qualified managerial personnel to the joint venture.

7.5.1 Introducing Vehicle Technology and Models

In December 1998, the first vehicle model – Buick – was introduced from GM. Buick was chosen because it was said to have a special place in the Chinese history – in the 1920s, the mayor of Shanghai had a Buick sedan, as did Sun Yat-sen, China's revolutionary hero in the early twentieth century.

The impact of the introduction of Buick model was enormous, although the technologies applied in the first Buick model were actually not the most advanced. At the time, the Chinese people only had a limited choice when looking for the middle-end passenger cars in the domestic market. The available models were only confined to Santana 1000, Santana 2000, Audi 100, Audi 200, FAW *Hongqi* (means Red Flag), Jetta sedans. These models' prices were relatively cheaper than Buick's, and "favoured by taxi drivers and mid-ranking officials for almost a decade since the early 1990s" (Graham, 2000, para. 20). But these models' qualities were widely considered "poor" and "outdated" (Gallagher, 2006, p. 68).

Seeing that the Buick models received a great deal of attention from the Chinese consumers, who all believed that the Buick was a "current" GM

technology (Gallagher, 2003, p. 12)³⁰, other auto producers felt great pressure and began bringing in new models into the Chinese market: VW, Honda and Audi responded with Passat, Accord and Audi A6 respectively, which were “priced directly against the Buick” (Gallagher, 2006, p. 69).

Impressively, in 1999, just 13 months later after introducing the Buick prototype to Shanghai-GM, a Buick *Xin Shi Ji* (means New Century) luxury car took shape, “starting with 47%” locally produced components, which was “in accordance with the 40% local content requirements” set by the Chinese government (Gallagher, 2006, p. 63 & P. 69). In April 1999, three other mid-sized luxury sedans, including Buick *Xin Shi Ji*, Buick GLX and Buick GL were also launched subsequently (Gallagher, 2006).

7.5.2 Training Provision and Expertise Transfer

Long before the first Buick car started rolling off the production assembly lines, some Chinese staff members had already been selected and dispatched to GM factories around the world (mainly in USA, Australia and Germany). They worked alongside GM crews with different ethnic and cultural backgrounds for receiving relevant training and production-related management courses.

Former Shanghai-GM plant manager Dennis Dougherty once publicly stated that he was quite pleased with these Chinese employees’ training results, “I got letters back saying, ‘where do you get these employees from? They are so keen they take their manuals home to read at night.’ I have worked for GM for 28 years and I have never had letters like that.” (Graham, 2000, para. 16)

For training purposes, Shanghai-GM was gradually equipped with:

- 1) TV monitors, text books, audio-tapes and videos for viewing training-related programmes;

³⁰ By 2000, Shanghai-GM had reached a 60% localisation rate for its Buick sedan (Graham, 2000).

- 2) Multimedia workstations, comprising a PC unit, a laser-disc player, keyboard and mouse. This was for the programme to use computer-based training packages and interactive videos;
- 3) Computer-based training. This programme used a mixture of text books, computer graphics and sound to create stimulating interactive training. It is particularly useful for learning PC applications;
- 4) Interactive-video. This combined the benefits of two media types: video and computer-based training. Video scenarios were used to demonstrate situations and techniques, combining animation, sound, movement, and then interaction. The stimulation of real-life circumstances within an interactive PC-based training programme was designed to help the Chinese to learn faster and retain the training messages.

The main reason to provide these training equipments and materials was for GM to upgrade the local Chinese employees' technical know-how and problem-solving skills. One manager emphasised:

GM training is multitask based and interactive. The trainee should be fully involved and can dictate the pace and direction of his or her training by responding to prompts and questions. Because of the individuality of responses, no two training sessions are the same and the training suits individual needs. (Interviewee B3)

Before receiving over 300 hours of training programme, "each would-be employee was screened initially for personality traits through behavioural and psychological tests and teamwork activities" (Graham, 2000, para. 17)³¹. Meanwhile, management asked relevant department supervisors what skills they considered important in the joint venture and what problems they considered detracted from the JV project's success.

³¹ Because the annual average salary was set by US\$ 4,000, which was "well above the city average and four times the national average", there was always "no shortage of applicants" during the JV starting operation period before 2000 (Graham, 2000, para. 17).

Based on their responses, a series of technical training sessions was devised to explore the significant aspects identified and to help provide a framework for further discussions within the JV. The sessions set out aspects such as the nature of joint ventures, communication skills' development, collaborative working environment, and the importance of learning. The sessions were well attended and attracted a good deal of interaction between presenters and those attending. One Chinese manager mentioned two advantages over traditional training methods:

First, it replicated what could happen in the workplace, allowing the company to test people; and second, it allowed employees to become familiar with the true working environment. (Interviewee B4)

Shanghai-GM management also trained their employees to work independently. As part of this process, the employees were trained to take more responsibilities for their areas of operations. JV management felt that this kind of training had the advantage of transferring not just technical and operational knowledge but also the more tacit elements. Management hoped employees could understand working procedures in depth through a series of training and education programmes. Individual skills' challenge and competence development projects were also carried out in several periods, and were finally extended to everyone employed in the joint venture, even though it cost a lot of money to develop these programmes, and to educate and train the employees in the JV.

7.5.3 Technicians On-site Visits

As part of the cooperative technology transfer requirements, GM sent its highly-skilled technicians to Shanghai to discuss with Chinese counterparts the technical, production, and general management issues. GM technicians normally stayed in Shanghai for 2-10 days at a time to teach whatever knowledge and capacities the local partner might need if the local Chinese faced some particular problems that needed solving. At the same time, a series of GM's overseas plants' visits took place, in the expectation that such visits would contribute to knowledge

accumulation for the Chinese staff as the JV progressed. It was a time-consuming process but did help GM to develop and change the Chinese partner's traditional way of thinking and performing their duties to a more appropriate way.

At this stage, GM showed its commitment to and patience with the transfer of knowledge and has made important progress. The support from GM was greatly appreciated by the Chinese partner:

GM helped us a lot. At the beginning, we were not very sure and uncertain about GM's long-term commitment, and some people suspected that GM would just come in and take the money. We actually saw some other western auto companies entering China, instead of upgrading production and introducing new vehicle models, they just started importing vehicle components from the parent company and assembling the parts into a vehicle then tried to sell it in the Chinese market in the name of joint ventures. This doesn't create any technical and managerial know-how introductions from outside at all. Seeing is believing. There was a real willingness from GM to create some good partnership with us. (Interviewee B3)

7.5.4 Expatriate Managers' Deployment

In 2000, GM appointed its expatriate managers and sent one of its top executives – Philip Murtaugh – as the GM China President and Managing Director to investigate the local Chinese auto market. Murtaugh also took other responsibilities: to determine the types of inputs GM should consider in the context of cooperative arrangements, and to coordinate the overall Shanghai-GM's extensive manufacturing and marketing operations.

Murtaugh once studied at General Motors Institute (GMI). In 1973, he joined GM after graduating from GMI and then served several positions in the United States and Japan as a vehicle production and management specialist. His important working experiences included "Director of Manufacturing for GM Overseas' Corporation in Japan, Executive Assistant to the Executive Director of product planning at ISUZU, President of IBC in Luton, England, and General Manager of GM China's Shanghai representative office" (Wharton Global Forum,

2004, para. 20). He was actually “part of the negotiating team” and “played a key role” in the launch of Shanghai-GM project (Wharton Global Forum, 2004, para. 20). In 2005, because of “personal reasons”, Murtaugh quit the post he had held as head of GM’s China operations for 5 years (from June 2000 until April 2005) (Xinhua News Agency, 2005, para. 7).

After Murtaugh’s departure, who would be the immediate predecessor became a key concern. On March 31, 2005, in order to continuously win the goodwill of its Chinese partner and customers, GM headquarters appointed Kevin Wale to replace Murtaugh’s position (effective May 1, 2005), coordinating “GM’s operations in mainland China, Taiwan, and Hong Kong” (MCAD, 2005, para. 7).

Kevin Wale, an Australia-born senior executive at GM Group, has been taking various managerial roles in “sales, marketing, planning, finance and general management” (PR Newswire, 2005, para. 2). Holding qualifications from the General Motors Institute (the same as Murtaugh), he used to be in charge of “GM European business as a vice president, and chairman of Vauxhall Motors”. Before that, he was responsible for GM Asia Pacific operations, covering “15 countries in the region” (Xinhua News Agency, 2005, para. 2, 3 & 4).

GM’s former CEO – Rick Wagoner – publicly commented on Wale joining GM China operations, “His [Wale’s] strong background in the region and ability to work with his partners” made him suitable to participate in developing China’s automotive sector (MCAD, 2005, para. 2). Troy Clarke, former GM Group Vice President and President of GM Asia-Pacific operations, also welcomed Wale’s return, “Kevin brings a great deal of leadership and international experience to his new position. ... His familiarity with China and Asia Pacific ... laid the groundwork for our current presence. We are excited to have him back” (MCAD, 2005, para. 4).

In the meantime when Shanghai-GM started up, SAIC also dispatched some experienced Chinese managers from SAIC headquarters to Shanghai-GM. Some of them even had previously worked for Shanghai-Volkswagen. They had been dealing with the Sino-foreign JV management issues for a number of years and had good experience of interpersonal communication skills and cross-cultural management styles, which were considered an advantage in operating this new venture from the SAIC perspective.

Hence, these expatriate managers dispatched from both sides were to create initial connections between GM and SAIC around which other relationships would later develop. As time passed, these links were deliberately cultivated in order to create a cooperative environment to support further transfers of industry-specific and organisational embedded knowledge.

7.6 Intensive Interactions and Knowledge Development

It is understandable that all of the foreign companies entering into China are attracted by the alluring huge potential market with a population figure of 1.3 billion. However, this population figure sometimes “can be misleading like all statistics” (Graham, 2005, para. 23). In reality, although China has been rapidly progressing in these three decades, the majority of the Chinese people are still living in under-developed rural areas with limited access to a highway transportation system. Their dreams of owning transportation in the foreseeable future may be just a bicycle. For those developed regions, it was estimated that about “300 million people will be looking for suitable cars for their one-child families” in the near future (Graham, 2005, para. 25), most of the Chinese people only hope to buy a new economy-type car to fulfil their immediate ambitions and to upgrade their living standards. Even for the “minority affluent enough” who can afford to buy a luxury car, they still have to consider which vehicle model is more endurable under the current conditions of Chinese roads (Graham, 2005,

para. 24). Although China has made great efforts, the national highway system linking its major city clusters and urban centres still needs to be further improved, and “there are not too many places to drive outside the major big cities” (Graham, 2005, para. 24).

These unique factors embedded in the Chinese auto market made GM seriously consider how to deal with the opportunities and challenges and how to adopt the next strategic move for the purpose of appropriately meeting the demands of the potential buyers. With its “customer-oriented and market-driven philosophy”, GM firstly decided to continuously launch comprehensive new product lines in the Shanghai-GM (Chinacarforum, 2007, para. 2), then it considered the critical issue of technological adaptation and product improvements after evaluating the real situations in China.

7.6.1 Continuous Introduction of New Vehicle Models

In 2000, only 2 years after launching Buick luxury series sedans, Shanghai-GM began to introduce a new low-cost compact sedan “called the Buick *Sai Ou* (Sail) with a 1.6-litre engine to tap into the burgeoning Chinese family-car market” (Osnos, 2006, p. 2). Priced initially at about 100, 000 RMB (US\$ 12,000), Sail was primally positioned “against the VW *Jetta*, Tianjin *Xiali*, as well as the VW *Santana*” in the market (Gallagher, 2003, p. 13). There was an emphasis on some new recreational family-friendly features in this car, such as “anti-lock brakes, dual air bags, and low price” (Osnos, 2006, p. 2).

For GM, launching this new product took some time, but it became used to the situation in China. After 1999, Shanghai-GM actually began offering “a new model each year” (“GM investment”, 2002, para. 5) as shown in Table 7.4 below:

Table 7. 4 A Portfolio of Vehicle Models Introduced (2000 – 2003)

Time/Year of Introduction	Vehicle Model	Main Features
May, 2000	Buick GS, Buick GL8	Driver-oriented sedan; First executive wagon made in China
August, 2000	Buick G	Equipped with a smaller engine
December, 2000	Buick Sail	First low-cost and small car, 1.6-litre engine, based on the Opel Corsa
October, 2001	Chevrolet	GL8-based model
November, 2001	Buick S-RV	Recreational vehicle
December, 2002	Buick Regal	Upper-medium sedan
April, 2003	Buick Excelle	First lower-medium sedan

Source: Based on “SGM Products”, 2007.

The new product lines gradually extended from the low-end Buick Sail subcompact car (priced later at US\$ 10,800) up to the high-end Buick Regal (US\$ 44,500). In between, consumers could also choose Buick Excelle (US\$ 20,000) and Buick GL8 (US\$ 33,600) (Bradsher, 2003). From the perspective of some auto industry specialists, “in offering such a wide range within a single division, GM has broken with the formula of Alfred P. Sloan, its famed strategist before and after World War II, who moulded the company’s separately acquired divisions into an orderly ladder extending from Chevrolets up to Cadillacs” (Bradsher, 2003, para. 2). One Chinese manager commented:

GM is committed to provide its most advanced models. This is quite different from other foreign carmakers. GM carefully chose the right vehicles for the Chinese market based on a series of investigation and research. The result is, these medium to advanced products became popular in attracting Chinese consumers. Now GM is launching Cadillac, one of its high-end models, in China. We are now actually manufacturing it in China according to

technology provision agreement. That was just what the Chinese Government and we wanted. (Interviewee B6)

Shanghai-GM thus promoted the sales just under the Buick brand with different engines-types during the years between 2000 and 2003, and began to lead the Chinese automotive industry.

7.6.2 Technological Adaptation and Product Improvements

Both GM and SAIC realised the importance of technological adaptation product model improvements and localisation relating to local market requirements. One manager recognised:

Our firsthand experience tells us customers here have their own tastes. They don't necessarily want a product straight from North America or Europe, particularly in lower-end segments. China itself has unique vehicle driving regulations and fuel conditions. Adaptation was crucial. (Interviewee A4)

Another GM manager also commented:

The road conditions in most of China's cities and country areas are unusually poor although they have been improved a lot in recent years. We have to face the realities. We need to change some original components such as the suspension system, the braking system in these new environments ... to add up some new functions. Lots of modifications have to be carried out. ... We actually have paid great attention to vehicle development and adaptation, and I think we have made incredible changes to our commitment to the development of our products over the last several years. I think it is great to provide a proper assistance for innovation and renewal. (Interviewee A3)

One Chinese manager also pointed out:

Indeed, we never ignore adaptation. Chinese auto market is quite unique, [it is] huge, but consumers in different areas have different choices. ... You can imagine how difficult our job it is to meet these various demands. Blindly introducing the vehicle models without thinking about local conditions, and without appropriate adaptation or localisation will definitely fail. So many lessons we have learned in the past. (Interviewee B4)

The first test vehicle model started with the Buick GL8. The Buick GL8 is a plush mini-van model; it was especially tailored to meet the requirements for chauffeur-driven Chinese executives and officials. Notably, because the

importance of fuel economy has gradually been realised and accepted by Chinese car purchasers, Shanghai-GM decided to reduce the engine size of Buick GL8 to “2.5 litres after the vehicles went into production” (Gallagher, 2003, p. 12). Meanwhile, certain engine sizes were limited from 3.5 litres to 2.8 litres, critically to accommodate so-called “Communist Party pecking-order etiquette” (Graham, 2000, para. 15). The reason is quite obvious – in China, high-powered models are normally picked up by high-ranking officials or senior company executives as their transportation tool. If the engines can be designed less than 3 litres, this will allow “less senior officials or managers to place an order for the [suitable type of] auto” (Graham, 2000, para. 15).

In order to meet adaptation expectations of Buick GL8, the managerial procedures, technical and operational systems were re-examined in Shanghai-GM in many occasions. Each time, the Chinese partner invited GM top executives and senior technicians to visit Shanghai plants and had on-site meetings to discuss effective ways of innovating the manufacturing activities and outcomes. These meetings reached certain major conclusions: (1) vehicle adaptation is a must; (2) the percentage of vehicle adaptation should follow the relevant government requirements; (3) JV employees need to be notified of the importance of adaptation and relevant production process changes; (4) a special joint team comprising both Chinese and American engineers should be formed under the guidance of Shanghai-GM board management; (5) the joint venture should keep expected levels of quality along with the necessary reasonable costs and adaptation of existing product ranges.

The second test vehicle model was with Buick Regal, which was also modified to meet the requirements of the China market. One GM manager recalled:

“In the US, the Regal was mostly for personal use. Here, almost half of them are chauffeur driven [for those Chinese officials or managers]. We made some changes for a more formal look.” (Interviewee A5)

Taking into account the fact that most of the Chinese middle-class owning a car “cherish conveying a wealthy image to their backseat visitors” (Osnos, 2006, p. 2), some extra changes were also made to both the exterior and interior designs. For example, the headlights are made bigger, “with three reflectors rather than one, because the Chinese think a more expensive car should have more lights” (Webb, 2004, p. 4). Inside, on a Buick Regal, large-sized DVD screens were added and adjusted (on the back of the front headrests) for the backseat guests. Meanwhile, certain details were also designed, such as built-in phones, rear-mounted heating, more air-conditioning controls, and dark-colored sunshades for privacy. Another particular change is that Chinese engineers “scrapped the US standard cup holder and replaced it with a tall, narrow silo, providing the exact specifications of the tea bottle toted by millions of Chinese drivers every day” (Osnos, 2006, p. 2).

Consequently, the final Buick Regal made in Shanghai-GM had about 600 design changes compared with the US version, after considering Chinese consumers’ unique tastes, “from strengthening the chassis to endure the appalling rural roads to making the ashtrays bigger for a nation of inveterate smokers” (Graham, 2000, p. 4). After these “improved” changes, it was reported that Regal’s sales increased dramatically – “from 37,325 units in 2002 to 89,988 in 2003” (Webb, 2004, p. 4).

7.7.3 Establishing PATAC - A Technical R&D Centre

Most importantly, in order to offer better-adapted vehicle products to customers and to fit the Chinese market, GM and SAIC jointly established a technical R&D centre, called the Pan Asia Technical Center (PATAC) constructed on March 25, 1997 (Webb, 2005). PATAC’s primary task is to adapt existing vehicle

architectures to the China market (Webb, 2005). With an additional investment amounting to US\$ 50 million, PATAC offered a range of auto design, engineering, and testing services for Shanghai-GM, including engineering of vehicle interiors and exteriors, powertrain calibration, emission systems, chassis tuning, and validation of components, and whole vehicles (Webb, 2005).

The establishment of PATAC R&D centre for developing products was viewed as a landmark in the closer cooperation and knowledge transfer between SAIC and GM, which was vital in convincing clients that the benefits of using better-quality cars more than justified a price that was slightly higher than that charged for other JVs' products.

PATAC was directly linked with GM global R&D resources and technical centres “in the US, Australia, South Korea, Brazil, the UK and Germany”, enabling GM to demonstrate its commitments by making *ex post* adjustments for which the initial agreement left a wide scope, and supporting valuable resources transfer to China (The Auto Channel, 2007, para. 6). One American executive commented:

PATAC is actually our first-of-its-kind joint venture technical centre with SAIC in China. It provides a broad range of engineering, testing, and validation services. Perhaps the greatest value of this R&D centre has been its work in reengineering and redesigning the introduced vehicles and turning them into locally popular models for Chinese customers. ... The reason is simple: in the long run, as business expands in the country, we must set up our own R&D organisations in China. A China-based product development centre will soon become a key competitive edge and will help us design car models that cater specifically to Chinese consumers' needs and shorten time to market. GM has healthy product development taking place in China and has had this for several years. In fact, our PATAC latest concept vehicle received attention in April (1997) at the Shanghai Motor Show. PATAC has been integrated into the rest of GM's global design organisation. The design director is a member of our global design team. This integration enables PATAC to apply best practices from around the world and carry out work for the rest of our global operations on a limited basis ... because of the expanding needs of our operations in China and our growing product lines in

the country. PATAC is doing the vast majority of its work for our domestic operations in China. (Interviewee A1)

PATAC was also highly welcomed by SAIC as an established in-house emissions testing centre with about 1000 Chinese engineers. One of the main concerns was, as commented by a Chinese manager:

It is true that we have an engineering talent pool, but the Chinese engineers lack certain experience in vehicle development, and we are still a very young vehicle producer compared to our 100-year history American partner. We are eager to develop PATAC as a part of our global vehicle engineering and design networks, although it takes time to accumulate the experience. (Interviewee B2)

He added:

Just like in many other industries, those companies in the automotive industry that react fastest to the changing market are those that tend to grow the fastest. Because of PATAC, GM has taken the lead in introducing new and upgraded vehicle models with further local modifications to meet the changing demands of the Chinese market and, most important, to do so in a timely manner. PATAC has actually played a critical role in our business expansions with GM in China by leveraging the global resources of the entire GM Group and tailoring them to the specific needs of our Chinese customers. For example, the Buick Regal and the Buick Excelle, which are all very popular models in China, have been reengineered by PATAC. These cars are now best sellers in the country. In order to remain successful and satisfy our long-term product development and testing needs in China, we will work with GM to continue to upgrade PATAC along with the Chinese market, and ensure that PATAC remains the most advanced auto design and research. (Interviewee B2)

Through these joint efforts, Shanghai-GM has been widely regarded as one of the most innovative Sino-American joint ventures since 1997 (Webb, 2005). Meanwhile, because of working closely together, the two partners came to know each other further, which did bring about various indications of cross-cultural conflicts that evolved over time. Senior managers and staff members of the two sides sometimes misunderstood each other on certain occasions.

7.7 Facing Challenges: Cross-cultural Misunderstandings

When the Shanghai-GM project was established in 1997, in order to solve any potential cultural misunderstandings and to ensure smooth communications with each other, several measures were considered and gradually adopted: (1) in the short term, recruiting qualified interpreters to solve communication problems between middle and/or top level managers from both sides; (2) in the medium term, offering a series of overseas training and language education programmes; (3) and in the long term, searching for and employing a new cadre of management from the local human resource market and newly graduated college students who had command of both Chinese and English. Other specified recruitment requirements include professional skills, positive attitudes, being ready to take responsibility for their actions, and motivation.

Shanghai-GM tried to employ English-speaking Chinese managers and provided competitive salary packages. However, it was actually not easy to find those competent people, because there are high demands for such talent in the local human resource market in China, even in the Shanghai area. Shanghai-GM eventually employed several experienced Chinese managers through a large scale nationwide job advertisement campaign. Some of those recruited even had an overseas tertiary education background. These managers could speak both Chinese and English fluently, were familiar with the Chinese laws and knew western cultural principles. During the interviewing process, they showed a very open attitude towards being prepared to take on responsibilities and to adopt an “open” market economy mentality.

After a certain period of interaction, both sides found that at the top management level communication was smooth, to a certain degree. However, some Chinese and American managers still noticed there existed certain cultural

gaps which seemed difficult for them bridge. One Chinese manager once experienced an awkward situation:

There is an awkward experience about Chinese and American staff jointly attending a meeting. At the beginning, because of language problems, and different working habits, Chinese staff always stayed together in a circle and discussed something in the workplace, and the foreign staff standing in another circle. It gradually caused some problems. Both sides sometimes don't know what happened in the other circle. Maybe you are actually talking about how to improve some working procedures; the other side may suspect you are trying to fool him [*sic*]. Once, the Chinese purchasing team was working extra hours in order to discuss how to solve some logistics problems, however, one American manager complained why all of your Chinese attended this meeting without letting him participate, he was unhappy and want to know what's happened. (Interviewee B8)

From the perspective of American managers, they also expressed their confusion about Chinese working behaviour and cultural misunderstanding in the workplace. One GM manager said:

I had already read several introductory books about Chinese culture and traditions before I came to Shanghai. I think I can handle certain communication problems (with the Chinese staff). Many Chinese people, especially those young graduate technicians and engineers can speak very good English, which made me very surprised. I think communication with the Chinese staff regarding the technical issues has not been a problem at all because specifications used in the automotive industries are internationally standardised. The main difference and difficulties are relating to the work procedures applied around the cultural understanding. Sometimes I was unable to understand the Chinese way of behaviour in the workplace or why Chinese sometimes behave like this. Most of the time, the communication is only limited to the surface level, [it is] not [at the] deep level. One example is some Chinese staff always like to directly report to my boss, he is also an American, even though I am actually in charge of this area, maybe you know, I am not the very senior. Or maybe it was because of the Chinese way of doing things or some characteristics in SOE ways. (Interviewee A5)

These misunderstandings caught the attention by GM and SAIC top executives. One Chinese executive wrote about his previous joint venture working experience in a published document:

This kind of suspicion, misunderstanding and unhappiness may lead to big problems day after day. At that time, I thought we should change that situation. Then I invited both sides to have a public meeting, and expressed my opinion – both sides should follow the mutual-agreed principles of Shanghai-GM working functions, whether he/she is Chinese or American. Anything happened in the workplace, if it is related to the other side, they (the other side) should also be invited to participate (in the meeting). The Chinese and American should be working together. This requirement gradually allayed suspicion and facilitated communications with each other. (Zhong & Hu, 2008, p. 132)³²

Through their efforts, GM and SAIC established communication channels, and gained experience in using them. GM managers gradually knew that it had to demonstrate “real cooperation” by employing certain local Chinese ways in the management of the business. The Chinese also recognised that cultural understanding and communication problems were not due to a lack of interest in cooperating on the part of both partners. Rather both partners had been used to a different system of managing and doing business for quite a long time, thus requiring efforts from both sides to change the traditional ways of thinking.

7.8 Managerial Attributes and Interpartner Trust Relationship

Reflecting on his time spent in Shanghai-GM, Hu Maoyuan, the first general manager of the joint venture and current President of SAIC Group, indicated top executives from GM and SAIC formed “close personal relationships” between each other – he and Philip Murtaugh were like old friends (Miesing, Kriger, & Slough, 2007, p. 115). Other Chinese executives also appreciated their friendship with GM expatriate managers. One Chinese manager stated:

We appreciate our friendship with GM. Our good relationship means an informal and high quality information channel between us. On the one hand, we need their fullest support and cooperation to keep joint venture operating properly. On the other hand, as new products keep coming up, GM also needs us. We in turn were being open and frank [with each other]. (Interviewee B1)

³² Based on original documents written in Chinese.

SAIC recognised the personal attributes of Murtaugh in contributing to SAIC's future success, as Murtaugh carried tacit managerial know-how, industrial and technical information, and interpersonal knowledge between the partner firms and built new links as he went (Zhong & Hu, 2008). It was then not surprising to see that after Murtaugh left GM in 2005, SAIC hired him immediately (publicly announced on June 18, 2006) as executive vice president to be responsible for SAIC's overseas market operations and co-chief executive of SAIC's subsidiary Ssangyong Motor Co. in Korea (Bursa, 2006) – SAIC held 51.3% of Ssangyong Motor equity as well as 10% of GM Daewoo in South Korea (McGunagle, 2007)³³. In a similar vein, Murtaugh also commented in public that the relationship between GM and SAIC has been fruitful, “we worked hard to make the relationship a good one. Each decision has been made with the goal of making the joint venture more successful.” (Gallagher, 2006, p. 74)

One American manager also cited GM's relationship with SAIC are successful:

Our Chinese partnership is strong. Partnerships are required by law in China and for GM it [the partnership] worked extremely well. We did receive support and help from SAIC. The local partner handled all contacts with the Government during the formation of the JV. SAIC is capable of dealing with those local affairs, and has a good working knowledge of how the society and authorities functioned. During the transition period, from signing the first contract till GM obtained all its permits, SAIC did a great job. Without the help of SAIC, the process would probably have taken much longer. (Interviewee A2)

The Chinese side appreciated GM's contributions to the JV. Hence GM gradually earned SAIC's trust. Meanwhile, with a positive attitude to each other, both sides found it easier to smooth many kinds of interorganisational cooperative issues, resulting in increased interfirm knowledge transfer in the following years.

³³On September 7, 2007, Philip Murtaugh left SAIC. On October 18, 2007, he was appointed by Chrysler as “CEO - Asian operations, including China and India” (Autobuzz, 2007, para. 1).

7.9 Further Rounds of Cooperation and Knowledge Transfer

After these years of cooperation, having commenced operations and transferred the necessary resources to the Shanghai-GM project, the JV management looked to develop additional skills in the workplace, realising that technology transfer was only one factor contributing to the JV's performance. The JV management was keen to promote effective working practices within the JV, and to raise awareness concerning mutual understanding and further cooperation. GM wants to continue collaborating with the local partner and has no intention of leaving the JV even if it has other promising alternatives. SAIC is also convinced that GM can really contribute both to the company and the country. In terms of how to move to the next stage for both GM and SAIC, one GM executive claimed:

We will introduce the fuel-efficient vehicle model to the JV in the coming years. The JV form will bring together two sides involving resource integration and bring the costs down. However, this will depend on the extent of our cooperation between GM and SAIC, and the support of the local government. (Interviewee A3)

The local partner had the same view and understood the intensive competitive situations in the Chinese auto market. One SAIC executive clarified:

In the future, we will concentrate on innovative activities, such as developing fuel-efficient, clean energy vehicle model. Developing such a kind of vehicle model really depends on the cooperative partnership with GM and local government support. But I am confident about that. Through the joint efforts with relevant stakeholders, we can complete this task at an early date. (Interviewee B1)

Hence, both GM and SAIC displayed interests in continue with the partnership and a readiness to seek other cooperative opportunities to produce and sell hybrid vehicles and transmission engines.

In June 2004, GM publicly announced that it would invest “more than US\$ 3 billion” to uplift relevant “new production capacities, R&D facilities, and auto financing business over the following 3 years in China” (China Daily, 2004, para.

1, 2 & 3). The money mainly came from profits generated from its China-based joint ventures, making GM's investment in China a total of US\$ 5 billion (China Daily, 2004). Philip Murtaugh once commented on this strategic move, "The new investment follows our principle of aggressively pursuing growth opportunities under the [Chinese] government policies. ... The new investment would increase GM's annual production capacity to nearly 1.3 million vehicles by 2007 from the 530,000 units in 2004, enabling GM to maintain its leadership in China". (China Daily, 2004, para. 8 & 10)

In October 2004, GM and SAIC jointly stated to explore the opportunities of expanding the "hybrid demo bus programme" which would be applied in the "mass transportation system of 2010 World Expo in Shanghai." (Green Car Congress, 2005, para. 3)

In late September 2005, GM and SAIC again co-sponsored the opening of an exhibition in Shanghai Science and Technology Museum (SSTM), aiming to educate the Chinese people on issues of "sustainable transportation", "hydrogen fuel cell technology" and "clean energy vehicles" ("GM Global Operations", 2008, para. 21 & 22). This 18-month-long public exhibition not only provided "pictures and videos" but also showcased "actual fuel cell vehicles and components", which was reported as "the most comprehensive display of its kind ever held in China." ("GM Global Operations", 2008, para. 23)

In October 2005, Rick Wagoner and Hu Maoyuan jointly signed a "Memorandum of Understanding" in Shanghai to seek opportunities for producing "energy-efficient and environmentally clean vehicles in China, beginning in 2008" ("GM Global Operations", 2008, para. 18). GM and SAIC believed that the two companies could take advantage of the R&D capabilities of their well-established PATAC technical research centre. PATAC's designers and technicians would be required to highly participate in hybrid vehicles

development programmes in Shanghai-GM, to “build complete demonstration vehicles, assess various hybrid concepts for near-term production and develop local competency in regenerative braking, electric power steering, and high-voltage battery systems” (Green Car Congress, 2005, para. 4 & 5).

In terms of following the environmental regulations introduced by the Chinese Government, aiming at curbing emissions and developing new technology-based vehicles, one GM executive claimed:

We have some concerns about the environmental regulations recently introduced by the Chinese Government. In October 2004, the Chinese Government issued “Limits of Fuel Consumption for Passenger Cars”. It is the Chinese first national standards aiming at curbing emissions and developing new technology-based vehicle³⁴. We fully understand and support this policy. This policy could achieve a good balance between sustained auto industry growth and protecting the country’s energy and environmental needs. So far, we have begun to meet the specific needs of the Chinese market and its vehicle users. Many of our products are among the best in terms of fuel economy. We call for the development of advanced technologies and support relevant programmes. All our products sold in China today meet Phase I of the Chinese Government’s fuel economy standards³⁵. In addition, we are taking into consideration the Phase II requirements as we continue to develop our future products for China. We see no major complications in meeting these requirements. We expect our products will be in compliance with these standards. (Interviewee A3)

On 29 October 2007, combined with the support of SAIC and Tsinghua University, GM announced it would to “provide a five-year, US\$ 5 million grant” to establish the China Automotive Energy Research Center (CAERC) (USCar

³⁴ China issued the compulsory “Limits of Fuel Consumption for Passenger Cars”, aiming to “cut litres per 100 kilometres by up to 10% by 2008” (started from July 1, 2005) in the first stage (**Phase 1**) (Zhao, 2004, p.2). The second stage (**Phase 2**) entered force on January 1, 2008, which “requires vehicle fuel consumption to drop by another 10% from the first phase level” (Zhao, 2004, p. 3).

³⁵ These standards reflect Chinese efforts to regulate the rapidly growing vehicle market in China. There were “35% of cars sold in China in 2008 met the 2005 standards, while only 4% of SUV’s and minivans met the 2005 standards (while no light trucks currently met the 2008 standard)”. Hence, most of the Chinese and foreign manufacturers in China are likely to “face increased costs and market constraints under these new standards” (Sauer & Wellington, 2004, p. 1 & 3).

News, 2007, para. 7). The three sides want to “bring together various resources”, and “work with various stakeholders in government, academia, and related industries to develop a comprehensive and integrated automotive energy strategy for China” (USCar News, 2007, para. 7).

On 19 April, 2009, inspired by “GM’s latest fourth-generation fuel cell propulsion technology” (“GM Technology”, 2009, para. 4), GM and SAIC jointly launched a new type of Shanghai Brand “zero-emission high-tech vehicles” (“GM Technology”, 2009, para. 2). This new type of vehicle “has been modified and improved to fit into the Shanghai Brand Fuel Cell Vehicles” (“GM Technology”, 2009, para. 4), which is originally based on the “Chevrolet Equinox fuel cell propulsion system” and would be demonstrated at 2010 World Expo in Shanghai (“GM Technology”, 2009, para. 2).

According to the company news released by PRNewswire on the same date (i.e., April 19, 2009), GM former Asia Pacific President Nick Reilly commented, “GM supports China’s move toward sustainability, and we are providing our latest fuel cell technology in line with our overall strategy of in China, with China, for China”(PRNewswire, 2009, para. 3). These Shanghai Fuel Cell vehicles “will be featured in the most extensive fuel cell demonstration programme ever conducted in China. This follows the [Chinese] Government’s call for the creation of a sustainable transportation system” (“GM Technology”, 2009, para. 3).

7.10 Alliance Achievements: So Far, So Good

Since its first day, the joint venture – Shanghai-GM – has been designed towards one strategic goal – “to become the leading domestic and an internationally competitive automaker” (Chinacarforums, 2007, para. 1). Leveraging GM’s world-leading technology and product resources, Shanghai-GM has delivered good quality vehicle products since 1997 in the respective segments, featuring “safety, comfort and environmental friendliness” (Chinacarforums, 2007, para. 2).

7.10.1 Increasing Various Vehicle Brands and Models

Shanghai-GM today builds and sells “a comprehensive and diverse product range of vehicles”, mainly under the brands like “Chevrolet, Buick, Cadillac, and Saab with a product line-up comprising 18 major product lines” (Chinacarforums, 2007, para. 2), as shown in Table 7.5. With the support of the computerised manufacturing system, these vehicles produced at Shanghai-GM passed certain international quality control assessments, such as SAC (conducted by Shanghai Audit Center of Quality System) and Det Norske Verritas (DNV). Shanghai-GM was also “granted the ISO/TS16949 certification in 2002,” thus became the “first automaker in China to achieve this distinction” (Chinacarforums, 2007, para. 3 & 8).

Table 7. 5 A Portfolio of Introduced Vehicle Models (After 2000)

Brands Name	Specific Models	Features
Buick 别克	Royaum 荣御	Premium sedan
	Park Avenue 林荫大道	Premium sedan
	LaCrosse 君越	Upper-medium sedan
	Regal 君威	Upper-medium sedan
	Excelle 凯越英朗	Lower-medium sedan
	Excelle HRV 凯越 HRV	Hatchback
	Excelle 凯越旅行车	Station wagon
	Enclave 昂科雷	SUV
	GL8 陆尊	Executive wagon
Chevrolet 雪佛兰	Aveo 乐骋	Hatchback
	Epica 景程	Intermediate sedan
	Lova 乐风	Small car
	Cruze 克鲁兹	Compact sedan
	Captiva 科帕奇	SUV
	New Sail 新赛欧	Small car
Cadillac 凯迪拉克	SLS 赛威	Luxury business sedan
	XLR	Luxury roadster
	SRX	Medium luxury utility vehicle
	CTS	Luxury sedan
	Escalade 凯雷德	Luxury utility
Saab 萨博	9-5	Sport sedan
	9-3	Convertible
	9-3	Spothatch
	9-3	Sport sedan
	Turbo255+	Sport sedan

Source: Based on www.shanghaigm.com and www.wikipedia.com

7.10.2 Expanding Various Production Locations in China

After over 10 years of operations, Shanghai-GM has set up four different manufacturing locations in the Chinese market (as show in Table 7.6).

Table 7. 6 Shanghai-GM's Various Production Locations in China

Vehicle Manufacturing Bases	Location Area	Square Metres	Year of Establishment	Annual Production Capacity
Shanghai-GM Jinqiao (North and South plants)	Pudong Jinqiao, Shanghai	792,000	June 12, 1997	320,000 vehicles; 510,000 engines; 80,000 transmissions
Shanghai-GM Dongyue	Yantai, Shandong Province	1667,000	Feb. 10, 2003 (Vehicle Co.); June 18, 2004 (Powertrain Co.)	240,000 vehicles; 360,000 engines; 300,000 transmissions
Shanghai-GM Norsom	Shenyang, Liaoning Province	413,000	Aug. 2, 2004	200,000 vehicles

Source: Based on <http://www.shanghaigm.com>

The purpose of establishing other joint ventures in other areas was to explore the “red hot” Chinese market or other potential business opportunities elsewhere (Hastings & Schafer, 2006), and to establish new, important contacts with new local potential customers. GM and SAIC believed that strategic cooperation of this kind in specific areas would complement their respective businesses in the passenger car sector.

It was also important for GM to maintain its current position in the Chinese market compared to its foreign competitors. Another important consideration was the risks involved in leaving an attractive segment of the market, which could prompt its competitors to invest. One GM manager commented:

We began to explore the Chinese auto market 6 years ago, as we cannot retain a leadership position without the foothold in Asia. Now we are happy to serve the Chinese consumers the GM way, and fortunately, the road is now open. It is now building its management group in China, with local people possessing knowledge, which GM didn't have. These people can be used as a bridge or a stepping-stone to Asia Pacific regions as well as to other countries. We view our future success in China as leveraging global resources on the one hand, and working with these people to meet the local market requirements on the other. This is the key part of our long-term global growth. (Interviewee A2)

7.10.3 Manufacturing Abilities and Sales Performance

Each year, Shanghai GM can produce a total of 480,000 vehicles, boasting itself a leading car manufacturer in China “both in scale and capacity” (Chinacarforums, 2007, para. 5). As to the marketing sales, Shanghai-GM was profitable in its first year of sales, and was operational 18 months after first breaking the ground in 1997 (Chinacarforums, 2007). In 2003, Shanghai-GM sold 201,188 vehicles. Its market share in China then increased to 9.8% (Xue, 2005), “placing Shanghai-GM among the top three passenger car manufacturers in China” for the first time (“SGM Products”, 2007, para. 6). In 2005, although Shanghai-GM experienced a sudden drop in sales and profit plunges for the first six months, its “annual production capacity still grew to 450,000 vehicles” (“SGM Products”, 2007, para. 5), and the sales volume jumping to 325,429 units. This performance represented a year-on-year increase of 28.7%, making Shanghai-GM the biggest Sino-foreign venture in 2005, overtaking Volkswagen’s venture with SAIC (“General Motors Revealed Sales”, 2006). After reaching the sales of 413,400 vehicles in 2006, Shanghai-GM then completed a comprehensive market network throughout China with “225 dealerships, and 236 after sales and parts centres created” (“SGM

Products”, 2007, para. 4). Shanghai-GM finally gradually reached an annual manufacturing output of 480,000 vehicles, demonstrating its potential as a leading player among car manufacturers in China (SAIC, 2005).

In 2008, Shanghai-GM suffered “a significant drop off” comparing with the previous 4 consecutive years’ growth which was “at least 27% each year” (Nunez, 2009, para. 2 & 3). Its total sales were only increased by 12%. Meanwhile, while GM’s “Chevrolet, Cadillac, and Saab all showed growth in China”, Buick suffered an overall sales decline (Nunez, 2009, para. 3). Some industrial analysts stated certain major reasons to explain why Shanghai-GM had such a disappointing performance in 2008. First, with the explosive vehicle sales growth in previous years in Chinese car market, some Chinese “car shoppers” have been transformed into first-time “car owners” (Nunez, 2009, para. 3). Second, it seems that GM’s “freshly-updated” models like Buick Excelle, did not deliver the expected achievements in terms of “styling, price, or fuel economy” (Nunez, 2009, para. 2). Hence, Chinese consumers began to look for other models instead, such as VW Jetta and Toyota Corolla.

In 2009, in order to boost the Chinese auto industry against the impact of global economic crisis, Chinese central government provided tax cuts and subsidies for buyers focusing on cleaner and fuel-efficient cars (also see section 6.4.1). In this sense, this policy pushed vehicle sales for car manufacturers (particularly smaller cars) in the domestic market. Shanghai GM was no exception and did quite well, seeing its sales “rose 63.3 percent to 727,620 units” in 2009 (CBS News, 2010, para. 8).

7.11 Cooperative Partners’ Satisfaction

As JV operations are managed properly, both SAIC and GM have earned a good return from the joint venture investment. In a relatively short time, as performance

exceeded the expectations the partners had anticipated from the JV, both GM and SAIC showed their satisfaction with the alliance results and declared openly on various occasions that they are satisfied with the knowledge transfer outcome in the JV.

7.11.1 GM's Attitude and Response

At the JV initiation stage, GM was exposed to “a barrage of criticism about the huge size of its investment, and the significant commitments to transfer technology and design capabilities to China” (Tao, 2009, p. 248). Critics pointed out that GM had enough trouble dealing with its home market problems. Critics suspected that it could be “a major gamble [to invest] in a communist country where rule of law is still an alien concept”. They also proposed one extraordinary fact – that GM once “pumped in US\$ 100 million before a solid contract was signed” in 1997 (Graham, 2000, para. 2).

Despite these criticisms, GM top management reiterated on numerous occasions that China would “become the biggest automotive market in the world within two decades”, and China represents “the single most important emerging market for GM” (Tao, 2009, p. 249). GM former Chairman John F. Smith Jr. once said “the time and place were right for investment” (Graham, 2000, para. 3). From GM's point of view, this joint venture has fulfilled its realisation investment objective during a period when many people believed that China was not ripe for heavy investment. One manager confessed:

The cooperation with SAIC fulfilled our expectations. We are satisfied with the cooperative results achieved. We have reached the objectives so far as the market has developed as anticipated. No major problems regarding the collaboration have been detected since the start. (Interviewee A1)

Managers who were directly involved in the start-up operations could not forget those nights and days when a piece of sleepy land on the outskirts of

Shanghai was finally turned into a “show case factory that churns out luxury Buick sedans” (Graham, 2000, para. 1).

As to the vehicle products’ quality, according to GM, Buick, the company’s main sedan model, is “built to the same high standards as those that roll off production lines in the US or Europe” (Graham, 2000, para. 14). GM agreed:

We are fairly content about the vehicle quality. We have seen a number of new vehicle models coming into China each year. To a certain degree, I can say the cars produced here [in Shanghai] are better than those produced elsewhere [in our other countries’ plants], although we all produce the same model. (Interviewee A3)

GM’s former Chief Executive, Richard Wagoner publicly stated that working together with SAIC “helped improve the cost base or competitiveness of all the products we produce” (MarketWatch, 2005, para. 4). GM would derive enormous benefits by developing a long-term understanding with its Chinese partner at many levels. Furthermore, Wagoner emphasised, if the formation of a joint venture could be successful, it would provide GM a platform in its efforts to pursue a sustainable “China Strategy”, which is to “leverage GM’s extensive global resources to provide transportation products and services that deliver the best combination of technology and customer care innovation” in China (“GM Global Operations”, 2008, para. 1).

The most positive result that GM experienced concerned its successful entry into the Chinese auto market. GM has increased its sales and market share, both of which have been the basic motives in entering into China. It has been successful up until now and considers the market to be very promising in the near future.

In both 2003 and 2004, China became GM’s most profitable auto market around the world (“GM overtakes Volkswagen”, 2005). In 2004, 25% of GM’s global profit came from the Chinese market. In 2005, GM’s sales in China

surged by 35.2% (compared to 2004) to 665,390 vehicles (“General Motors Revealed Sales”, 2006), and for the first time, GM’s sales and market share in China had overtaken that of Volkswagen as the number one automaker in China although “the profits and sales in the United States continued to plummet” (Hastings & Schafer, 2006). One GM manager said:

From a financial perspective, we are quite satisfied about what we have done so far. Let me show you some figures: market share in 2004 was 9.3%, now in 2005 about 11%. Today, GM has a sound base in China. China has become our second largest market in the world – it counts for 85% of our total revenue in Asia Pacific. (Interviewee A2)

Still in 2005, China surpassed Japan for the first time to become GM’s second largest global car market, behind only the US (Hastings & Schafer, 2006). GM thus created a market-leading position in China’s automotive industry in a manner that was quite satisfactory.

Thinking about the prospects in 2010, GM held confidence in getting positive results from the Chinese auto market, as Kevin Wale stated, “Despite the sales records in 2009, it looks as if 2010 will be even stronger. The industry outlook is strong and we expect more growth.” (CBS News, 2010, para. 4)

7.11.2 SAIC’s Attitude and Response

The JV was also considered successful from the perspective of the Chinese side. SAIC is very much goal-oriented. The cooperation with GM has largely satisfied its target as to increasing vehicle brands, production volume and sales growth in the domestic market, although many improvements are still possible. GM’s entering into the Chinese auto market in the form of joint venture provides benefits for its Chinese partners.

One of the expectations SAIC had in the IJV was the introduction of new vehicle models from GM which would help shorten R&D periods, and provide Chinese customers with the better passenger cars and services they required.

Although this has been a gradual process, GM has shown it is moving toward these goals – GM continuously introduced its diversified vehicle models, and continued to send its experts to China to support and upgrade the skills of the local partner. Through the joint venture project, SAIC gained access to these manufacturing techniques and skills in Shanghai-GM than would otherwise be available through the ordinary licensing of their technology.

The newly-built world-class manufacturing facilities, production lines and plant surroundings in Shanghai Pudong are also world-class, which have no big difference “from any similar modern facility in the world – apart from the Chinese-language announcements and signs and an overhead walkway” (Graham, 2000, para. 19).

SAIC was also satisfied with the performance of the IJV particularly as high-end quality vehicles could be made in the factory nowadays. It was inspiring watching new-brand whole passenger cars coming off the production lines “every 2 minutes and 2 seconds” (Graham, 2000, para. 19).

Meanwhile, the China-made vehicle products can be exported to overseas markets through GM’s global sales network, which brought in a satisfactory turnover for both SAIC and GM. In October 2001, the first batch of Buick GL10s entered the Philippines. Subsequently, in November 2002, Shanghai-GM signed a contract with GM’s Canadian CAMI to “export a large number of V6 engines to CAMI (effective in January 2003)”, representing the “beginning of Chinese made upper-end cars entering into a developed country” (Chinacarforums, 2007, para. 7).

Many things could still be improved, but the way Shanghai-GM’s business operations developed has been a successful part of its overall activities. One manager commented:

The operations in Shanghai-GM factory in terms of partnership, production volume, products range, vehicle quality, and productivity are impressive to us. (Interviewee B5)

7.12 Knowledge Acquisition and Harvesting

7.12.1 SAIC's Learning Outcomes

So far, as the above section 7.11.2 mentioned, SAIC has developed manufacturing expertise as a series of new vehicle models have been put into production in Shanghai-GM and sales figures have shown pretty well. Previously, GM had been giving clear instructions and advising the local partner on the western way of thinking in the automobile industry. After working together to develop several projects, SAIC has learned how GM thinks and operates as well as how a market economy functions. A GM manager noticed:

As far as I know the Chinese have one purpose for establishing the JV: they want to learn and finally have their own abilities to produce their own brand cars one day. My personal impression is that the Chinese are very open. They learn and interact [with us] quickly. We have also given clear instructions to advise the local partner on people's way of thinking in the car industry. For example, we do often educate Chinese employees to understand the concept of identifying and satisfying the customer's needs. But I want to emphasise that our Chinese partner, SAIC, is not just on the receiving end. Knowledge transfer is two way, and I think SAIC is bringing much to the table in terms of technology development, application engineering and in the critical area of supplier development, domestic market knowledge, labour and local cultural understanding. (Interviewee A2)

GM regularly conducts courses for joint venture personnel, and takes up various practical problems with the course participants. After several intensive meetings and regular contacts in the business sites in the JV, the local Chinese staff confessed that they learned about procedures for managing the after-sales-service concept.

We learned how an auto project is intensively structured, and which person we have to address it to in case of a specific problem. (Interviewee B1)

The local people obtained a clear idea about the product and production development in connection with the training of the service personnel and sales staff. Direct association with the personnel from USA has increased the sales and service competence of the local people. SAIC became familiar with aspects of marketing patterns in GM and learned how to increase operational efficiency in the JV. Most importantly, the Chinese staff members are taught how to upgrade their own technical know-how which is urgently needed in the modern auto factory. One Chinese manager claimed:

This is a lesson that we learned: the American did not want a lot of procedures except for a coordination procedure and a safety procedure. (Interviewee B9)

During these years of cooperation with GM, SAIC managers, designers and engineers have been able to design new cars and develop relevant capabilities. With the knowledge acquired from its JV experience with GM, SAIC is now developing its own-brand cars in parallel with its joint venture activities with GM and VW. Partly based on MG Rover's Rover 75 technology bought in early 2005, SAIC initially released what the company called a "modified version of MG Rover's Rover 75 – a luxury four-door sedan"³⁶ (Fairclough, 2006, para. 8). It is set to manufacture 200,000 of these sedans annually by 2010. SAIC's total producing capacity topped 1 million vehicles in 2005, and it wants to build "2 million vehicles a year by 2010, 600,000 of which would be its own-brand vehicles" (Bursa, 2006, p. 19).

SAIC now has 50.9% ownership in Korean Ssangyong and has intellectual property rights of the Rover 25 and 75 models, plus the K-series engine, which formed the basis for SAIC's future expansion (Bursa, 2006). As SAIC is

³⁶ SAIC bought the "Rover 75 design" from MG Rover Group Ltd in early 2005, "before this British company filed for bankruptcy in April 2005" (Fairclough, 2006, para. 8), while "Nanjing Automobile (Group) Corporation acquired the tooling for the car" ("Rover 75", 2010, para. 18)

interested in good company performance so it could secure a better position for its future internationalisation procedures. One Chinese manager emphasised:

During these years' cooperation [with GM and VW], we have developed relevant capabilities, experiences and resources in every field from manufacturing to sales, and have been able to design our new cars to a certain degree. The mass-production of our own-brand cars can further be emphasised in the following years. (Interviewee B10)

7.12.2 GM's Learning Outcomes

GM delivered and transferred to SAIC what it promised: *technology (knowledge) resources*. With the help of SAIC, GM has taken advantage of this joint venturing opportunity and become familiar with the local environment during the past 10 years. GM learned that China lagged behind in its technical development of automobiles. It learned how the market functioned, as well as the technical level in the Chinese auto industry. Meanwhile, GM has learned about the bureaucratic set-up in China and the need to live with bureaucracy. GM has gained experience in handling various relationships with the authorities at the local, regional and national level. One American manager emphasised what he considers the most important thing to remember when doing business with the Chinese was "relations or *guanxi*." "You need to have good relations or *guanxi* here," he said, "but you also need to devote a lot of time to them" (Interviewee A4).

GM realised that the local partner had a lot of contacts at all of these levels, which proved useful in the planning stages and later in the setting up of other JVs in other China's cities. SAIC introduced GM to the government parties and people with whom GM had to deal and negotiate. Especially in the preformation and planning stage, two parties worked closely and spent a lot of time meeting with relevant administrative ministers and leaders. It was very helpful for GM to acquire this local experience and knowledge. The bureaucratic pressure can be reduced to some extent, but largely has to be dealt with by the help of local experts. One GM executive stated:

During the past 10 years, SAIC has helped us become familiar with the local environment. We gained invaluable experiences. Our Chinese partner actually has a lot of contacts in the local area. For example, SAIC introduced us to the government parties that we have to deal with. These proved useful in the planning and later [JV] formation stage. Besides providing us with some great help in navigating China's challenging institutions, I think the important thing is we have good relations [with the Chinese]. Working with SAIC gives us invaluable insight into what local Chinese are looking for in a vehicle. We would not have learned these important things, had we not worked with our Chinese colleagues. (Interviewee A4)

7.13 Chapter Conclusion

This chapter examined the ways in which the case company Shanghai-GM, an IJV formed by SAIC (China) and GM (USA), approached interactive cooperation and interfirm knowledge transfer practices. The partners in this alliance brought together their complementary capabilities in automotive technology and management expertise to build an independent organisation with its own board of directors and staff members to facilitate knowledge sharing and alliance learning which consisted of the following four elements:

- 1) Contracts and agreements that articulated each member's responsibilities;
- 2) Interorganisational knowledge transfer stages and procedures;
- 3) A set of communicating channels, including training, expatriate managers' deployments and a conflict management system;
- 4) Partnership evolution at the interfaces between the participating firms.

The main issues identified were how to build efficiency and leverage the partners' strengths. SAIC was motivated by anticipation of foreign technology transfer in order to compete more effectively in the increasingly competitive auto market in China. GM wanted to take advantage of knowledge transfer-oriented cooperative arrangements. Working with SAIC enabled GM to reduce costs and expand business opportunities in the Chinese auto market, stemming the huge crisis in its home market.

This close collaboration helped the IJV partners to work better together in the Chinese car industry, and season by season, they learned how to improve the alliance performance and trust each other. As GM transfers the necessary knowledge throughout, the local partner's knowledge of the operation is satisfactory. GM also realised that things (such as doing business in China) did not happen or change overnight. Both partners thus maintained a mutual understanding of each other's capacities and requirements, and were supportive of

each other in the JV. The next chapter brings statistical results together with relevant discussions by following the CATPAC operating procedures mentioned in the methodology chapter.

Chapter 8 In-depth Textual Analysis and Findings

8.1 Introduction

The focus in Chapter 7 was on the historical background and developments of interfirm knowledge flows in Shanghai-GM. In the pursuit of an in-depth understanding in terms of interpartner interactions involved in the knowledge exchange, a process of textual analysis is undertaken in Chapter 8. The chapter has three main purposes:

First, based on multiple interviewees' responses³⁷ as per the proposed research questions, this chapter presents the CATPAC statistical results of the interview data, including the textual analysis of the relevant concepts and associations between different themes³⁸. CATPAC is useful for conducting textual analysis of knowledge transfer in IJVs for the following reasons (also see methodology Chapter 4): CATPAC does not require precoding of the text but allow the categories and patterns to directly emerge from the data. After transcribing the interview notes, the text is entered into the CATPAC programme which designs, monitors, and displays a mapping of statistical frequencies and word occurrences. The advantage of CATPAC is that its analysis includes Ward's (1963) hierarchical cluster analysis and multidimensional scaling of the words. CATPAC provides a network of the interrelationships among the words along with the meaning clusters of the identified words. The analyst can then identify dominant themes as represented in the entirety of the corpus (groupings of words). This tool reads and identifies the concepts conveyed in the text and produces perceptual maps directly from the text. The CATPAC software thus helps find linkages between word concepts which are reflected in the textual

³⁷ The interview results with the Chinese executives were all translated into English for the convenience of computer data entry.

³⁸ In terms of the overview and rationale of the CATPAC statistical analysis, please also refer to Chapter Four, Section 4.7.2 – 4.7.4.

documents. These features also reflect information about the relationships among the words, providing visual representations of the identified interrelationships.

Second, this chapter also analyses the implications of knowledge transfer and learning practices in the case of IJVs in order to identify sources of change-driven IJV reconfigurations and the prompted shifts in interpartner knowledge transfer practices. Each of the dominant themes is discussed. Relevant factors such as willingness to transfer, learning intent, partnership development and relationship capital that affect the knowledge transfer process, as well as the benefits gained and difficulties experienced during the logical stages of knowledge transfer, are discussed in this chapter.

Third, based on the research findings and a literature-based analysis, discussion on the final refinement of the tentative conceptual framework (originally presented in research model chapter) is addressed in section 8.12.

This chapter consists of the following sections: Section 8.2 to section 8.11 summarises the computer operating results by going over the main points of each of the proposed research questions (Refer to section 2.12.2.). Section 8.2 briefly explains the findings of the “Strategic Objectives and Motivation toward Cooperation”. This is followed by section 8.3, which presents the findings in terms of “Willingness to Transfer and Intent to Learn”.

The next sections are arranged as follows: “Existing Knowledge Base and Identification” (section 8.4); “Knowledge Connection and Complementarity” (section 8.5); “Knowledge Contribution” (section 8.6); “Knowledge Development and Adaptation” (section 8.7); “HR Training and Expatriate Managers Deployment” (section 8.8); “The Impact of Cultural Difference” (Section 8.9); “Knowledge Characteristics and Nature” (section 8.10); and “The Value of Interfirm Partnership” (section 8.11). Section 8.12 then examines the refinement of the tentative conceptual framework. Section 8.13 finally concludes this chapter.

8.2 Strategic Objectives and Motivation toward Cooperation

8.2.1 Statistical Frequency Results

Table 8.1 below displays the first dominant theme emerging from the data analysis, based on frequency statistics results that indicate interviewees' perception of "Strategic Objectives and Motivation toward Cooperation". The first set of summary statistics at the top left side of the page shows that the total number of words used by the 16 respondents during the interview process was 108³⁹. Total unique words used in the analysis were 23. The total episodes (102) are the number of windows that were used in the CATPAC analysis. The total number of lines analysed in the interview text was 53. The network options at the top right remained at their default settings.

In the left-hand column below the first set of data, the second group of statistics reports each unique word by frequency. These unique words are dually recorded in alphabetically order in the right column. For example, the word "Motives" under the "Descending Frequency List" has been listed as the most frequently occurring word in the interview text. "Motives" occurred 10 times, which was 9.3% of all occurrences. This suggests that "Motives" appeared 42 times (41.2%) of the scanned windows.

The columns at the right give the same information as found in the left hand columns, except the unique words are now listed in alphabetical order, and thus the word "Motives" is shown alphabetically (for immediate reference) among the other unique words. Several other words with high-frequency clustering together were the words "Market" mentioned 8 times (7.4%), "Chinese" which was mentioned 6 times (5.6%), and "Firms" was mentioned 6 times (5.6%).

³⁹ The exclude file was used to remove noncontent bearing words from the text.

Table 8. 1 Statistical Frequency Results

Total Words	108	Threshold	0.000
Total Unique Words	23	Restoring Force	0.100
Total Episodes	102	Cycles	1
Total Lines	53	Function	Sigmoid (-1 - +1)
		Clamping	Yes

Descending Frequency List					Alphabetically Sorted List				
WORD	FREQ	PCNT	CASE FREQ	CASE PCNT	WORD	FREQ	PCNT	CASE FREQ	CASE PCNT
MOTIVES	10	9.3	42	41.2	ALLIANCE	4	3.7	22	21.6
MARKET	8	7.4	45	44.1	CASE	4	3.7	13	12.7
CHINESE	6	5.6	32	31.4	CHINESE	6	5.6	32	31.4
FIRMS	6	5.6	27	26.5	COMMUNICATION	3	2.8	21	20.6
LOCAL	6	5.6	28	27.5	CONCERN	3	2.8	11	10.8
COST	5	4.6	27	26.5	COOPERATIVE	4	3.7	26	25.5
COSTS	5	4.6	24	23.5	COST	5	4.6	27	26.5
ALLIANCE	4	3.7	22	21.6	COSTS	5	4.6	24	23.5
CASE	4	3.7	13	12.7	DUE	3	2.8	21	20.6
COOPERATIVE	4	3.7	26	25.5	FIRMS	6	5.6	27	26.5
KNOWLEDGE	4	3.7	20	19.6	FOREIGN	3	2.8	21	20.6
PARTNER	4	3.7	28	27.5	FORMATION	3	2.8	21	20.6
PRODUCTS	4	3.7	20	19.6	GENERAL	3	2.8	17	16.7
STRATEGIC	4	3.7	21	20.6	KNOWLEDGE	4	3.7	20	19.6
TIME	4	3.7	27	26.5	LOCAL	6	5.6	28	27.5
COMMUNICATION	3	2.8	21	20.6	MARKET	8	7.4	45	44.1
CONCERN	3	2.8	11	10.8	MOTIVES	10	9.3	42	41.2
DUE	3	2.8	21	20.6	PARTNER	4	3.7	28	27.5
FOREIGN	3	2.8	21	20.6	PERSONAL	3	2.8	21	20.6
FORMATION	3	2.8	21	20.6	PRODUCTS	4	3.7	20	19.6
GENERAL	3	2.8	17	16.7	RESOURCES	3	2.8	21	20.6
PERSONAL	3	2.8	21	20.6	STRATEGIC	4	3.7	21	20.6
RESOURCES	3	2.8	21	20.6	TIME	4	3.7	27	26.5

At the left side of Figure 8.1, cluster one identifies the associations among the words: Alliance, Cooperative, Motives, Strategic, Knowledge, and Resources. Cluster two identifies: Case, General Communication, and Personal. Cluster three shows: Foreign, Products, Wanted, and Time. Cluster four includes: Chinese, Market, Due. Cluster five recognises: Concern, Transaction, Costs, Firms, Cost, Local, Partner, and Formation. Figure 8.1 reveals the patterns of association with perceptions of the “Strategic Motives and Willingness to Cooperate”, which are consistent with the interview transcripts. The significance of these clusters derives from their representation of the relationships between the unique words and the perceptions of the interview participants.

Given the primary intent of the research and the interview transcripts, the words “Chinese”, “Market”, “Transaction”, “Costs”, “Concern”, “Local”, “Partner”, and “Formation” cluster very sharply together in this analysis. These cluster solutions suggest that some of the most frequently elicited perceptions in the study involve these words. For example, GM wanted to work with a “local partner” to expand the “local Chinese market”, and to take advantage of the “low production costs”. Clearly, the comments made by the participants support the grouping of the perceptions the managers have of the willingness to cooperate.

8.2.3 Implications of Findings

In studying the interfirm knowledge transfer and learning phenomenon in alliances, it is essential to firstly consider the strategic motives as they can explain the degree of cooperative willingness, commitment, experience, flexibility, and adaptability, as well as the various types of knowledge resources engaged by the participating firms in the collaborative activities (Hyder & Abraha, 2003). Culpan and Kumar (1994) discussed three general motives of alliance formation, i.e., transaction costs concern, resources acquisition concern, and alliance competitive advantage concern. If transaction costs in the market are high, firms will enter

into collaborations to reduce the cost of each transaction. Acquiring knowledge resources, such as skilled, semiskilled manpower, and local market know-how can also be attractive motives for firms (Yan, 2000).

This research is conducted from the alliance perspective, and the motives of the involved partner firms can be identified to explain partnering firms' strategic behaviour with regard to international market presence, profit and cost considerations, and equity preference. Based on the historical, documentary accounts and the interview findings, this research offers evidence that since the early contacts between GM and SAIC, both sides showed motivation and positive attitudes toward establishing the cooperative partnership and wanting to make it work as quickly as possible.

The primary motive related to cost advantages. Producing vehicles in the US was extremely expensive for GM and rendering products uncompetitive, while the production costs in China were lower due to cheaper labour and material costs than in the US. These offered GM competitive pricing and it could thereby sell more of its products at a higher margin. This aim could be achieved by finding an efficient and competent partner [SAIC] and by establishing production in China where salary costs were low. As one American manager commented:

We believe that [interfirm] cooperation will create a huge potential. Of course, GM wants to see growth with sparks. From the perspective of cost reduction, the tough price competition in the US makes China a fresh start; we could buy the raw materials in China at a very low cost, this can't be achieved in US. All these could essentially help us increase the company's competitiveness. (Interviewee A2)

SAIC was also attracted by the lower costs when advanced technology and management expertise would be introduced. This finding extends the literature of transaction cost economics that the low cost advantage has always been an important motive for considering alliance formation for the MNC, but this data

also indicates that the local partner too benefits from cost advantages from the MNC.

Second, the researcher found that the main reason for GM to share their knowledge was to develop long-term working relationship with SAIC and acquire local knowledge when operating in China. GM intended to cooperate with SAIC, as the Chinese market provided considerable potential due to the fast-growing economic and industrial development of the country. One manager said:

We're not going to take big stakes just because we can use the Chinese manufacturing bases, or they have good connections. Considering the institutional differences, which were characterised by 50 years of socialist administration and deeply rooted bureaucracy, China's market was still considered to be complex and uncertain for us at that time; a suitable cooperative partner who could deal appropriately with the problems and constraints of day-to-day operations was really needed. Therefore, if we don't believe there is a good potential for us to make successful operations out of it, we wouldn't think about it. (Interviewee A4)

GM wanted to work with local partners to implement the Shanghai-GM project development plan, and to become familiar with the auto industry in China through the partnership with SAIC. GM preferred to share the risks with local associates as political and economic uncertainties exist in China. The local partner, SAIC in this case, considered its two options – the cooperative arrangement strategic choice or internal self-development route. SAIC recognised the new strategic cooperative partnership opportunities with GM for better technology access, competitiveness, and profitability enhancement for SAIC. SAIC clearly cited skill development and upgrade of competitiveness as one major motivating factor for getting involved in the JV with GM.

This is aligned with the Chinese Government commitment to upgrade the automotive industry for industrial growth and efficiency. This upgrade has opened up the scope for collaboration with GM since the parties assumed joint development of products through working together. In sum, although motives

between GM and SAIC varied to a certain degree due to different backgrounds, environmental conditions, internal and external capabilities, opportunities and constraints, both partners were clear on what they expected from the collaboration. It is, therefore, confirmed that the underlying motivational factor for the establishment of IJVs is to achieve a joint competitive position (Contractor & Lorange, 1988; Inkpen & Beamish, 1997; Lane & Beamish, 1990; Steensma & Lyles, 2000). Cooperative arrangements can thus be a means of using a new manufacturing process or a new capability (Ding et al., 2009a, 2009b; Drucker, 1992; Harrigan, 1986). Coproduction, common procurement, and other joint activities are becoming the means to attain increased efficiency, productivity, scale economies, and other benefits commonly attributed to interfirm cooperation which are particularly appropriate when projects involve great uncertainties, costly technological innovations, or innovative managerial practices as in the automotive industry in China.

8.3 Willingness to Transfer and Intent to Learn

8.3.1 Statistical Frequency Results

Table 8.2 below displays the statistical frequency results that indicate interviewees' perceptions toward "Willingness to Transfer Knowledge and Intent to Learn". The first set of summary statistics at the top left side shows that the total number of words used by the respondents during the interview process was 217⁴⁰. Total unique words used in the analysis were 25. The total episodes (211) are the number of windows that were used in the analysis. The total number of lines analysed in the interview text was 71. The network options at the top right remained at their default settings. The word "Market" under the "Descending Frequency List" has been listed as the most frequently occurring word in the interview text. "Market" occurred 20 times, which was 9.2% of all occurrences. This suggests that "Market" appeared 109 times (51.7%) of the scanned windows.

In the columns at the right, the word "Market" is then shown alphabetically among the other unique words. Several other words with high-frequency clustering together were the words "Local" also mentioned 20 times (9.2%), "Knowledge" which was mentioned 13 times (6.0%), and "Chinese" was mentioned 11 times (5.1%). Table 8.2 indicates that the words "Development" (11, 5.1%), "Gaps" (10, 4.6%) were also frequently clustered words in the text.

⁴⁰ The exclude file was used to remove noncontent bearing words from the text.

Table 8. 2 Statistical Frequency Results

Total Words	217	Threshold	0.000
Total Unique Words	25	Restoring Force	0.100
Total Episodes	211	Cycles	1
Total Lines	71	Function	Sigmoid (-1 - +1)
		Clamping	Yes

Descending Frequency List					Alphabetically Sorted List				
WORD	FREQ	PCNT	CASE FREQ	CASE PCNT	WORD	FREQ	PCNT	CASE FREQ	CASE PCNT
MARKET	20	9.2	109	51.7	ACQUIRE	6	2.8	39	18.5
LOCAL	20	9.2	101	47.9	CHINESE	11	5.1	66	31.3
KNOWLEDGE	13	6.0	53	25.1	CLOSE	8	3.7	56	26.5
CHINESE	11	5.1	66	31.3	COMPANIES	6	2.8	36	17.1
DEVELOPMENT	11	5.1	66	31.3	COMPETENCE	6	2.8	42	19.9
GAPS	10	4.6	62	29.4	CONTACTS	9	4.1	55	26.1
CONTACTS	9	4.1	55	26.1	DEVELOPMENT	11	5.1	66	31.3
TECHNOLOGY	9	4.1	62	29.4	END	6	2.8	42	19.9
CLOSE	8	3.7	56	26.5	ESTABLISH	8	3.7	53	25.1
ESTABLISH	8	3.7	53	25.1	FOREIGN	7	3.2	39	18.5
LEARN	8	3.7	45	21.3	GAPS	10	4.6	62	29.4
PRODUCTION	8	3.7	54	25.6	HIGH	6	2.8	42	19.9
PRODUCTS	8	3.7	50	23.7	KNOW	7	3.2	49	23.2
FOREIGN	7	3.2	39	18.5	KNOWLEDGE	13	6.0	53	25.1
KNOW	7	3.2	49	23.2	LEARN	8	3.7	45	21.3
ACQUIRE	6	2.8	39	18.5	LOCAL	20	9.2	101	47.9
COMPANIES	6	2.8	36	17.1	MARKET	20	9.2	109	51.7
COMPETENCE	6	2.8	42	19.9	MIDDLE	6	2.8	42	19.9
END	6	2.8	42	19.9	MODERN	6	2.8	40	19.0
HIGH	6	2.8	42	19.9	PARTNERS	6	2.8	38	18.0
MIDDLE	6	2.8	42	19.9	PRODUCE	6	2.8	42	19.9
MODERN	6	2.8	40	19.0	PRODUCTION	8	3.7	54	25.6
PARTNERS	6	2.8	38	18.0	PRODUCTS	8	3.7	50	23.7
PRODUCE	6	2.8	42	19.9	RELATIONSHIPS	6	2.8	36	17.1
RELATIONSHIP	6	2.8	36	17.1	TECHNOLOGY	9	4.1	62	29.4

Products, Middle. Group three shows: Chinese, Local, Contacts, Relationships, Establish, Companies, Foreign, Knowledge, Production, Partners.

Figure 8.2 reveals the patterns of association with perceptions of the “Willingness to Transfer Knowledge and Intent to Learn”. The significance of these clusters derives from the representation of the relationships between the unique words and the perceptions of the interview participants. Given the primary intent of the research and the interview transcripts, these cluster solutions suggest that some of the most frequently elicited perceptions in the study involve these words.

8.3.3 Implications of Findings

Researchers point out that a clear learning intent can be seen as an important determinant for facilitating learning from its allies (Ding et al., 2009b; Inkpen, 2002; Simonin, 2004; Szulanski, 1999, 2000; Zander, 1998). Another element with knowledge transfer concerns a partner’s willingness for knowledge sharing or protection against knowledge leakage (Ding et al., 2009b; Yan & Luo, 2001). Naturally, firms may be reluctant to share knowledge and each party wants to protect its knowledge from uncompensated leakage to the other or any third party (Becerra et al., 2008; Faems et al., 2007).

The Chinese side showed explicit learning intent in the case. The most important consideration was to develop another useful connection with a well-established world-class auto giant, and to learn GM’s modern technology, skills and know-how in order to produce and improve the quality of the middle or even high-end vehicle products. In the words of one Chinese manager:

With the rapid expansion of [the] Shanghai auto industry in recent years, we need to seriously consider how to build up another whole vehicle cooperative enterprise starting from the even higher level of technology. We are not just content with the current achievements, we need to further check our weaknesses and gaps. This is critical for keeping us in the leading position in the domestic passenger car market. These are our whole series of strategic

considerations, as we are willing to make precautions beforehand, and this is called “risk management”. (Interviewee B5)

One American manager who went through on-the-job training in Shanghai-GM also had the following observation:

Some Chinese engineers and workers showed eagerness to learn despite their language problems or lack of intercultural communication skills. They always ask questions and observe the American colleagues . . . how to handle various issues . . . I was surprised by their willingness and capabilities for answering my questions. (Interviewee A5)

There were two considerations for SAIC: First, SAIC wanted to keep up with the Chinese auto market’s sudden expansion. Second, such a new cooperative project would be useful to the state-owned company, the industry and the country. In the case, although the global auto industry has been developed for over 100 years and most of the vehicle products have been received extensive tests for the purpose of quality assurance, Chinese managers realise big gaps still exist in many aspects compared with their foreign automakers. SAIC was not content with its previous achievements. Most of the Chinese managers estimated at least 10 to 30 years would be needed to catch up with their world-class counterparts.

Hu Maoyuan expressed his feeling 10 years later in his book “Shanghai Automobile Industry – 50 years (1955-2005)”, which was published in 2008, “We had very strong confidence. Many people asked me why we wanted to cooperate with GM because at that time we’ve got another IJV with Volkswagen. But I had two main thoughts: first, we were having very old products in the auto market, and we wanted to seek new development. But that was not easy. So when I knew that there would be foreign investment to develop new products, I was very happy and I was very motivated as well. I wanted to go to do some new products. Second, I had worked many years and it was time for me to learn something new. That’s why I went to GM. We are ready to start from zero.” (p. 126)⁴¹

⁴¹ This is the researcher’s English translation based on the original contents written in Chinese.

In the case, the researcher found GM promised in the agreement to provide SAIC with relevant technology and resources needed for IJV development. GM promised to be a provider of critical technology and marketing knowledge for SAIC's own ambitious plans, and showed a strong willingness and commitment of providing its up-to-date vehicle manufacturing expertise to Shanghai-GM and interest to invest in China with SAIC, which was positively responding to SAIC's learning requirements. This contrasts with Volkswagen's reluctance to transfer its new models and technologies to its Chinese partner SAIC over many years.

GM also wished to gain access to important contacts at the political, government and ministerial levels in the local market, and to establish contacts with actors with the knowledge and experience required to handle these relationships. One American manager stated:

Accessing the experience of local partners are specific goals for us.
(Interviewee A2)

Thus, it can be concluded that supplying the necessary knowledge and skills to ensure JV operational and management efficiency and intent to learn the rules and regulations in China were both important motives for GM and SAIC. We can see both the Chinese firm and the American firm have clearly specific knowledge-related goals within IJVs, and this cooperative project was set up with a clear knowledge acquisition intent. The key objective was, effective and efficient alliance management and cooperative experience, and the cooperative partners could learn from each other. Clearly, the comments made by the participants support the grouping of the perceptions the managers have of the "willingness to share knowledge" within the Chinese automotive industry context.

8.4 Existing Knowledge Base and Identification

8.4.1 Statistical Frequency Results

Table 8.3 displays the statistical frequency results that indicate interviewees' perceptions toward "Existing Knowledge Base and Identification".

Table 8. 3 Statistical Frequency Results

Total Words	181	Threshold	0.000
Total Unique Words	25	Restoring Force	0.100
Total Episodes	175	Cycles	1
Total Lines	56	Function	Sigmoid (-1 - +1)
		Clamping	Yes

Descending Frequency List					Alphabetically Sorted List				
WORD	FREQ	PCNT	CASE FREQ	CASE PCNT	WORD	FREQ	PCNT	CASE FREQ	CASE PCNT
PARTNER	22	12.2	119	68.0	ACCESS	3	1.7	20	11.4
KNOWLEDGE	22	12.2	88	50.3	ATTRACTIVE	3	1.7	17	9.7
FIRM	14	7.7	60	34.3	AUTO	6	3.3	42	24.0
SELECTION	11	6.1	64	36.6	BASE	6	3.3	38	21.7
EXPERIENCE	9	5.0	52	29.7	CAPABILITIES	3	1.7	16	9.1
LOCAL	9	5.0	51	29.1	CHINESE	6	3.3	31	17.7
FOREIGN	8	4.4	49	28.0	EXPERIENCE	9	5.0	52	29.7
PARTNERS	8	4.4	51	29.1	FINDING	3	1.7	15	8.6
MARKET	7	3.9	44	25.1	FIRM	14	7.7	60	34.3
PLAYER	7	3.9	48	27.4	FOREIGN	8	4.4	49	28.0
AUTO	6	3.3	42	24.0	GIANT	4	2.2	28	16.0
BASE	6	3.3	38	21.7	KNOWLEDGE	22	12.2	88	50.3
CHINESE	6	3.3	31	17.7	LENGTHY	4	2.2	28	16.0
MARKETING	5	2.8	30	17.1	LOCAL	9	5.0	51	29.1
WEAK	5	2.8	35	20.0	MARKET	7	3.9	44	25.1
GIANT	4	2.2	28	16.0	MARKETING	5	2.8	30	17.1
LENGTHY	4	2.2	28	16.0	PARTNER	22	12.2	119	68.0
PREVIOUS	4	2.2	28	16.0	PARTNERS	8	4.4	51	29.1
RESOURCES	4	2.2	25	14.3	PLAYER	7	3.9	48	27.4
SKILLS	4	2.2	26	14.9	PREVIOUS	4	2.2	28	16.0
STRONG	4	2.2	26	14.9	RESOURCES	4	2.2	25	14.3
ACCESS	3	1.7	20	11.4	SELECTION	11	6.1	64	36.6
ATTRACTIVE	3	1.7	17	9.7	SKILLS	4	2.2	26	14.9
CAPABILITIES	3	1.7	16	9.1	STRONG	4	2.2	26	14.9
FINDING	3	1.7	15	8.6	WEAK	5	2.8	35	20.0

The total number of words used by the respondents during the interview process was 181. Total unique words were 25. Total episodes were 175. Total number of lines was 56. Network options at the top right remained at their default settings. The word “Partner” under the “Descending Frequency List” has been listed as the most frequently occurring word (It occurred 22 times.), 12.2% of all occurrences. This suggests that “Partner” appeared 119 times (68.0%) of the scanned windows. Several other words with high-frequency clustering together were the words “Knowledge” also mentioned 22 times (12.2%), “Firm” was mentioned 14 times (7.7%), and “Selection” was mentioned 11 times (6.1%).

8.4.2 Cluster Dendogram Results

Figure 8.3 below represents a perceptual map which shows the unique words in a one dimensional space. Five groups of words are clustered together, revealing the patterns of association with perceptions of the “Existing Knowledge Base and Identification”. Group one includes: Access, Chinese, Capabilities, Attractive, partners. Group two shows: Firm, Foreign, Local, Market. Group three demonstrates: Auto, Giant, Base, Strong, Marketing, Player. Group four has: Experience, Weak, Lengthy, Previous. Group five shows: Finding, Knowledge, Partner, Selection, Resources, Skills. The significance of these groups derives from the representation of the relationships between the unique words and the perceptions of the interview participants, which will be discussed in the following section.

objectives, leading to the ultimate success of a knowledge learning process (Lyles & Gudergan, 2006).

Tsang (2007) also argues that the basic understanding behind partner selection is to acquire the knowledge that is suitable and convenient to meet JV technical and managerial operations. The ability to do so relies heavily on their knowledge bases that are developed in a path-dependent manner (Tsang, 2007).

In the case, Shanghai-GM is an auto manufacturing plant, and the products and equipment are similar to that manufactured or supplied by both partner firms. GM was undeniably a giant auto company in the world. The Chinese partner – SAIC – is also not weak. SAIC also has already gained lengthy experience of working in previous collaboration with foreign firms such as Volkswagen. One American recognised:

SAIC is actually a well-known state-owned company and has a good knowledge of customer preferences and attitudes, good company control of the home market, and knows how to manage and deal with the economic situation. It is able to enter the agreements and contracts needed in a proper manner and in a short period of time. SAIC is very competent in its fields of operation, has technical skills of a general nature and is capable of developing car and engine products. (Interviewee A2)

In brief, both partners are highly experienced and have sufficient knowledge bases and skills in the auto industry field, i.e., strong manufacturing and marketing networks. In fact, neither of them could be rated as a weak player at vehicle production management. The above findings thus showed evidence that the existing knowledge provided excellent learning “window” for SAIC and GM.

This learning potential had three main values. First, larger initial investment and higher commitment in technology transfer from the foreign side should be more attractive and welcome to a local partner. Second, existing knowledge and initial experience enabled GM to effectively identify SAIC as its Chinese partner. Third, a foreign firm considering entering a country/market with high

uncertainties and/or risks can also give first priority to selecting the right partner, someone who can handle the local situation with certain knowledge and skills. In such a market, things can change quickly and new regulations affecting business activity come and go, making local partnering essential.

Luo (2000), Hitt et al. (2000), Shenkar and Li (1999) point out that in an emerging market, valuable technical capabilities, marketing knowledge, management expertise as well as capital and other intangible resources have the highest priority when local firms select joint venture partners. On the other hand, when a foreign firm looks for a local partner, it typically looks for local knowledge, market access, and low costs. Hence, if we assume joint venture formation is a mutual selection process among potential partners, and the selection criteria are along those dimensions above, then it is logical to anticipate that in order to get the best possible mix of the joint resources, foreign firms will bid for the most attractive local partners, and vice versa local firms will bid for the most attractive foreign partner.

In sum, the implication here that is central to the interpartner knowledge transfer is the initial selection process for a suitable partner, as the choice of cooperative partner will determine how well the partners work together and what existing knowledge resources are available to be identified and contributed. It is thus found that knowledge transfer should be linked to the criteria of partner knowledge base, as choosing a partner on the basis of its market position or local connections reflects competitive advantage and transaction cost perspectives respectively (Simonin, 2004).

8.5 Knowledge Connection and Complementarity

8.5.1 Statistical Frequency Results

Table 8.4 displays the statistical frequency results that indicate interviewees' perceptions toward "Knowledge Connection and Complementarity". The total number of words used by the respondents during the interview process was 124. Total unique words were 20. Total episodes were 118. Total number of lines was 41. The network options at the top right remained at their default settings. The word "Complementary" under the "Descending Frequency List" has been listed as the most frequently occurring word (occurred 12 times), 9.7% of all occurrences. This suggests that "Knowledge" appeared 59 times (50%) of the scanned windows. Several other words with high-frequency clustering together were the words "Knowledge" also mentioned 11 times (8.9%); "Resource" was mentioned 10 times (8.1%).

Table 8. 4 Statistical Frequency Results

Total Words	124	Threshold	0.000
Total Unique Words	20	Restoring Force	0.100
Total Episodes	118	Cycles	1
Total Lines	41	Function	Sigmoid (-1 - +1)
		Clamping	Yes

Descending Frequency List					Alphabetically Sorted List				
WORD	FREQ	PCNT	CASE FREQ	CASE PCNT	WORD	FREQ	PCNT	CASE FREQ	CASE PCNT
COMPLEMENTARY	12	9.7	59	50.0	CHINESE	5	4.0	25	21.2
KNOWLEDGE	11	8.9	55	46.6	COMPETITIVE	6	4.8	42	35.6
RESOURCE	10	8.1	33	28.0	COMPETITORS	3	2.4	9	7.6
JOINT	7	5.6	30	25.4	COMPLEMENTARY	12	9.7	59	50.0
VENTURE	7	5.6	30	25.4	DIFFERENCE	5	4.0	32	27.1
COMPETITIVE	6	4.8	42	35.6	DIRE	5	4.0	33	28.0
END	6	4.8	42	35.6	END	6	4.8	42	36.5
HIGH	6	4.8	42	35.6	ENVIRONMENT	5	4.0	35	29.7
NEED	6	4.8	41	34.7	FOREIGN	3	2.4	15	12.7
SHARING	6	4.8	41	34.7	HIGH	6	4.8	42	35.6
SKILLS	6	4.8	38	32.2	JOINT	7	5.6	30	25.4
SUPPLEMENT	6	4.8	36	30.5	KNOWLEDGE	11	8.9	55	46.6
CHINESE	5	4.0	25	21.2	LOCAL	5	4.0	35	29.7
DIFFERENCE	5	4.0	32	27.1	NEED	6	4.8	41	34.7
DIRE	5	4.0	33	28.0	PARTNERS	4	3.2	27	22.9
ENVIRONMENT	5	4.0	35	29.7	RESOURCE	10	8.1	33	28.0
LOCAL	5	4.0	35	29.7	SHARING	6	4.8	41	34.7
PARTNERS	4	3.2	27	22.9	SKILLS	6	4.8	38	32.2
COMPETITORS	3	2.4	9	7.6	SUPPLEMENT	6	4.8	36	30.5
FOREIGN	3	2.4	15	12.7	VENTURE	7	5.6	30	25.4

8.5.3 Implications of Findings

Scholars of international business strategy have emphasised the impact of resource complementarities – two (or more) firms that pool complementary resources enter into strategic alliances and can then create excess value (Chung, Singh, & Lee, 2000). The literature review chapter (Chapter 2) mentioned the resource-based theory which suggests that alliances may create optimal returns by integrating the involved partner firms' unique collections of resources, assets, and know-how, because no two companies have the same knowledge, skills and experiences (Das & Teng, 2000). Therefore, potential alliance partners are heterogeneous in nature (Barney & Clark, 2007), and they have resources that can not be easily acquired for the following reasons: (1) physical uniqueness – those natural resources and patents which by definition cannot be copied and imitated; (2) path dependency – these unique, scarce and valuable resources have been accumulated over time, thus it is both time and money-consuming for competitors to acquire them instantaneously through market transactions; (3) economic deterrence, a company can preempt its competitors by making a sizeable investment in assets (tangible or intangible). Beamish (1987) also comments that collective strengths based on knowledge complementarities describes the alliances' overall resource endowments and capabilities; it should contribute to better or worse alliance performance.

Knowledge complementarities can be initially identified between GM and SAIC at the preformation stage. First, SAIC had its business networks in China as an important SOE in the automotive industry while GM lacked these. However, SAIC was in need of advanced vehicle manufacturing technology because of the product upgrade consideration. GM's high-end vehicle model technology and marketing expertise were attractive for SAIC. In the case data, the Chinese

interviewees acknowledged GM's strength in marketing expertise, regarded as a knowledge complementarity opportunity.

However, the Chinese still emphasised that foreign carmakers cannot successfully promote the sales of vehicles without the inputs from local Chinese engineers and marketers. There is an Asian/Chinese innovative mentality in designing and promoting new cars, which means Chinese automakers may understand better than western companies the local Chinese market trends and consumers' tastes.

The Kunpeng (鲲鹏) concept CAV (compact activity vehicle), debuted at Auto Shanghai 2003 in April and featured at the North American International Auto Show in Detroit in 2004, was a good example. It was the first time a concept vehicle like Kunpeng CAV had been designed with Chinese elements in mind and demonstrated the rapid development of auto design in China. Although its name may sound strange by western standards, the Kunpeng illustrates innovative Chinese design acumen. The name comes from a legendary Chinese animal that transformed itself from a fish to a bird. “[This vehicle] combines the aerodynamics of a bird in flight with styling reminiscent of a fish in motion. True to its names, the design of a streamlined body incorporates fish eye-line headlamps and fin-like door handles” (Smith, 2004, p. 28).

It is thus found that knowledge complementarities between partners in the IJV are directly related to opportunities for learning. One Chinese interviewee emphasised:

Strategic partnership involves knowledge complementarities, and the subsequent knowledge transfer can be achieved when the knowledge complementarities were treated respectfully by both sides. In this way, cooperative partners can obtain combined achievements in the auto market based on joint inputs. (Interviewee B7)

This finding is consistent with Das and Teng's (2000) research that all the partners involved in forming the joint venture can bring a certain distinct set of resources, and it is the combined rich complementary resources will give the alliances a competitive advantage over their competitors. The implication here is that knowledge complementarities can be seen as the strategic move to get to the desirable position, and while collective strengths may change over an alliance's life span, we can expect to see the alliance performance change accordingly.

8.6 Knowledge Contribution

8.6.1 Statistical Frequency Results

Table 8.5 displays the statistical frequency results that indicate interviewees' perceptions toward "Knowledge Contribution". The total number of words used by the respondents during the interview process was 405. Total unique words were 20. The total episodes were 399. The total number of lines was 180. The network options at the top right remained at their default settings. The word "Knowledge" under the "Descending Frequency List" has been listed as the most frequently occurring word (It occurred 46 times.), 11.4% of all occurrences. This suggests that "Knowledge" appeared 195 times (48.9%) of the scanned windows. Several other words with high-frequency clustering together were the words "Customer" mentioned 29 times (7.2%), "Contacts" 28 times (6.9%).

Table 8. 5 Statistical Frequency Results

Total Words	405	Threshold	0.000
Total Unique Words	20	Restoring Force	0.100
Total Episodes	399	Cycles	1
Total Lines	180	Function	Sigmoid (-1 - +1)
		Clamping	Yes

Descending Frequency List					Alphabetically Sorted List				
WORD	FREQ	PCNT	CASE FREQ	CASE PCNT	WORD	FREQ	PCNT	CASE FREQ	CASE PCNT
KNOWLEDGE	46	11.4	195	48.9	ACCESS	13	3.2	91	22.8
CUSTOMER	29	7.2	186	46.6	ADMINISTRATION	13	3.2	91	22.8
CONTACTS	28	6.9	183	45.9	AVAILABLE	14	3.5	98	24.6
MANAGEMENT	28	6.9	131	32.8	CHINESE	16	4.0	94	23.6
PLANT	26	6.4	117	29.3	CONTACTS	28	6.9	183	45.9
LOCAL	24	5.9	152	38.1	CUSTOMER	29	7.2	186	45.6
DESIGN	19	4.7	107	26.8	DESIGN	19	4.7	107	26.8
PRODUCT	19	4.7	114	28.6	DEVELOPMENT	17	4.2	79	19.8
MARKET	18	4.4	99	24.8	DOMESTIC	17	4.2	119	29.8
DEVELOPMENT	17	4.2	79	19.8	ENGINEERING	17	4.2	105	26.3
DOMESTIC	17	4.2	119	29.8	KNOWLEDGE	46	11.4	195	48.9
ENGINEERING	17	4.2	105	26.3	LOCAL	24	5.9	152	38.1
PROCESS	17	4.2	97	24.3	MANAGEMENT	28	6.9	131	32.8
CHINESE	16	4.0	94	23.6	MARKET	18	4.4	99	24.8
PARTNER	15	3.7	88	22.1	MATERIALS	14	3.5	98	24.6
SUPPORT	15	3.7	104	26.1	PARTNER	15	3.7	88	22.1
AVAILABLE	14	3.5	98	24.6	PLANT	26	6.4	117	29.3
MATERIALS	14	3.5	98	24.6	PROCESS	17	4.2	97	24.3
ACCESS	13	3.2	91	22.8	PRODUCT	19	4.7	114	28.6
ADMINISTRATION	13	3.2	91	22.8	SUPPORT	15	3.7	104	26.1

8.6.3 Implications of Findings

Interfirm knowledge transferring is a costly process as it needs to be done continuously through a series of activities, including on-the-job training, managerial deployment arrangements, mutual interactions and communications. However, the knowledge contributed by each side through the formation of cooperative arrangements signals that it has strategic meaning to each partner (Inkpen & Pien, 2006).

In the case data, the knowledge transfer process at the IJV early cooperation stage included initial knowledge resource contribution from partner firms, and each partner represented a knowledge source in the automotive industry. In order to ensure the JV operations could start as early as possible, GM initially introduced relevant vehicle models, western management styles, staff training and modern manufacturing skills. When Shanghai-GM was further developed, GM continuously introduced up-to-date vehicle models. GM worked with the local partner to develop production schedules and to meet the local Chinese customers' requirements. GM expended much effort in this regard to make the "localisation" programme possible. This unequivocal knowledge contribution presented GM as a qualified cooperative partner with a strong knowledge base.

In the meantime, SAIC also provided locally available knowledge, and sufficient knowledge in the technical field, materials procurement and manufacturing capabilities for the installation of vehicle production lines. The local Chinese partner was responsible for employing qualified workers, well-educated sales people, experienced managers and engineers locally, as there was ample manpower, and skilled technicians in the field were available locally. One of the most important and essential contributions of SAIC was its expertise in managing the domestic market and contacts with the influential government officials in China's auto industry.

In this sense, the initial knowledge contribution created the effective connections and good opportunities for sharing observations and resources, because partnering firms can gain knowledge outside their traditional organisational boundaries and communicate their JV experiences with each other (Inkpen & Dinur, 1998). This knowledge contribution represents the effective knowledge link between cooperative partners, laying a good foundation for further knowledge converge and knowledge development at a later stage.

8.7 Knowledge Development and Adaptation

8.7.1 Statistical Frequency Results

Table 8.6 displays the statistical frequency results that indicate interviewees' perceptions toward "Knowledge Development and Adaptation". The total number of words used by the respondents during the interview process was 253. Total unique words were 20. The total episodes were 247. The total number of lines was 110. The network options at the top right remained at their default settings. The word "Knowledge" under the "Descending Frequency List" has been listed as the most frequently occurring word (It occurred 58 times.), 22.9% of all occurrences. This suggests that "Knowledge" appeared 202 times (81.8%) of the scanned windows. Several other words with high-frequency clustering together were the words "Development" also mentioned 22 times (8.7%); "Adaptation" was mentioned 17 times (6.7%).

Table 8. 6 Statistical Frequency Results

Total Words	253	Threshold	0.000
Total Unique Words	20	Restoring Force	0.100
Total Episodes	247	Cycles	1
Total Lines	110	Function	Sigmoid (-1 - +1)
		Clamping	Yes

Descending Frequency List					Alphabetically Sorted List				
WORD	FREQ	PCNT	CASE FREQ	CASE PCNT	WORD	FREQ	PCNT	CASE FREQ	CASE PCNT
KNOWLEDGE	58	22.9	202	81.8	ADAPTATION	17	6.7	100	40.5
DEVELOPMENT	22	8.7	129	52.2	ADVANTAGE	15	5.9	90	36.4
ADAPTATION	17	6.7	100	40.5	CHANGES	8	3.2	56	22.7
ADVANTAGE	15	5.9	90	36.4	CHINESE	10	4.0	45	18.2
COMPETITIVE	15	5.9	91	36.8	CLOSELY	6	2.4	39	15.8
INNOVATION	14	5.5	84	34.0	COMMUNICATION	7	2.8	49	19.8
WORK	14	5.5	92	37.2	COMPETITIVE	15	5.9	91	36.8
CHINESE	10	4.0	45	18.2	DEVELOPMENT	22	8.7	129	52.2
TRANSFER	9	3.6	45	18.2	FIT	8	3.2	52	21.1
CHANGES	8	3.2	56	22.7	FLEXIBLE	7	2.8	39	15.8
FIT	8	3.2	52	21.1	INNOVATION	14	5.5	84	34.0
PERSONAL	8	3.2	56	22.7	KNOWLEDGE	58	22.9	202	81.8
RECORD	8	3.2	56	22.7	MARKET	7	2.8	41	16.6
COMMUNICATION	7	2.8	49	19.8	PARTNER	6	2.4	32	13.0
FLEXIBLE	7	2.8	39	15.8	PERSONAL	8	3.2	56	22.7
MARKET	7	2.8	41	16.6	RECORD	8	3.2	56	22.7
RENEWAL	7	2.8	49	19.8	RENEWAL	7	2.8	49	19.8
TECHNOLOGY	7	2.8	44	17.8	TECHNOLOGY	7	2.8	44	17.8
CLOSELY	6	2.4	39	15.8	TRANSFER	9	3.6	45	18.2
PARTNER	6	2.4	32	13.0	WORK	14	5.5	92	37.2

8.7.3 Implications of Findings

Technology/knowledge differences between developing and developed countries require product modification to meet the local demands in the host market (Buckley et al., 2004), and the ability to adapt those products is regarded as a competitive advantage (Dunning, 1993). Recognising the knowledge development and adaptation significance is by no means absent in the case.

During the fieldwork interview process, the researcher found a number of managers touched on the importance of knowledge development, innovation and adaptation based on cooperation. GM realised local knowledge is important to adaptation – Philip Murtaugh once openly commented (as cited in Graham, 2000), “One of their [Chinese] primary objectives was to have GM bring in our management practices, so the Capitalist versus Marxist/Leninist culture clash wasn’t such a big issue . . . They wanted the western system. . . . We had to explain why we did things. They said that might work in Detroit, but this is the way things are done in China” (para. 11). One American manager also emphasised:

My understanding is one cannot expect to get the original system in without any changes. When entering [into] foreign countries, you must comply with the local situation . . . Changes are really necessary. GM adapted itself in the Chinese environment. (Interviewee A5)

For SAIC, its existing knowledge base, lack of market-orientation and new passenger car-models due to its deep roots in a planned economy gradually changed and developed when partnering with GM. This is particularly true and understandable in the Chinese automobile industry’s context – due to the complex environment including political, economic, social, and cultural factors. One Chinese interviewee recognised that:

A lot of product development practices that need to be done are based on many contextual and situational elements. . . . Some product development

procedures need to consider the local needs. But GM accepts suggestions from us. (Interviewee B2)

As both GM and SAIC have now come to see knowledge transfer practices as a way of managing transition and changes, the concept of knowledge development as a key source of competitive advantage is now recognised. Shanghai-GM is capable of integrating and utilising knowledge, a capability that has been linked to rapid alliance achievements. The case thus also suggests interfirm knowledge transfer in the IJV should not be seen as a way to hide weakness. Rather, if used prudently, such joint ventures can create and develop combined strengths and development (Harrigan, 1986).

In sum, the above interviewee quotes and the rapid localisation evident in the case description chapter are thus subject to questions of adaptation, reevaluation, improvisation, and mutation (Lyles, 1988; Miner et al., 2001). The contribution from this finding is the distinctiveness of many institutional changes and alliance context elements that require partner firms to constantly adapt their management process to new circumstances. The uniqueness of each IJV thus requires management to recognise that adaptation of best practices although the knowledge acquired then developed will often not occur easily (Szulanski, 1996). This view is also consistent with the resource-based perspective, believing that the ability to exploit, integrate and create knowledge is essentially leading to organisational success (e.g., Barney, 1991; Conner, 1991).

8.8 HR Training and Expatriate Managers Deployment

8.8.1 Statistical Frequency Results

Table 8.7 displays the statistical frequency results that indicate interviewees' perceptions toward "Human Resource Training and Expatriate Managers Deployment". The total number of words used by the respondents during the interview process was 68. Total unique words were 20. The total episodes were 62. The total number of lines was 29. The network options at the top right remained at their default settings. The word "Knowledge" under the "Descending Frequency List" has been listed as the most frequently occurring word (It occurred 12 times.), 17.6% of all occurrences. This suggests that "Knowledge" appeared in 53 times (85.5%) of the scanned windows. Several other words with high-frequency clustering together were the words "Personnel" also mentioned 7 times (10.3%), "Training" was mentioned 5 times (10.3%). "Staff" was mentioned 4 times (5.9%).

Table 8. 7 Statistical Frequency Results

Total Words	253	Threshold	0.000
Total Unique Words	20	Restoring Force	0.100
Total Episodes	247	Cycles	1
Total Lines	110	Function	Sigmoid (-1 - +1)
		Clamping	Yes

Descending Frequency List					Alphabetically Sorted List				
WORD	FREQ	PCNT	CASE FREQ	CASE PCNT	WORD	FREQ	PCNT	CASE FREQ	CASE PCNT
KNOWLEDGE	12	17.6	53	85.5	APPOINTMENT	2	2.9	14	22.6
PERSONNEL	7	10.3	35	56.5	ASSISTANCE	2	2.9	7	11.3
TRAINING	5	7.4	26	41.9	CASE	2	2.9	8	12.9
STAFF	4	5.9	26	41.9	COMMUNICATION	2	2.9	14	22.6
IJV	3	4.4	15	24.2	CONSIDERABLE	2	2.9	10	16.1
KNOW	3	4.4	15	24.2	COST	2	2.9	11	17.7
PARTNER	3	4.4	16	25.8	DEVELOP	2	2.9	14	22.6
PERSONAL	3	4.4	21	33.9	EFFECTIVE	2	2.9	10	16.1
SUITABLE	3	4.4	12	19.4	IJV	3	4.4	15	24.2
TECHNICAL	3	4.4	16	25.8	KNOW	3	4.4	15	24.2
TYPE	3	4.4	20	32.3	KNOWLEDGE	12	17.6	53	85.5
VENTURE	3	4.4	21	33.9	PARTNER	3	4.4	16	25.8
APPOINTMENT	2	2.9	14	22.6	PERSONAL	3	4.4	21	33.9
ASSISTANCE	2	2.9	7	11.6	PERSONNEL	7	10.3	35	56.5
CASE	2	2.9	8	12.9	STAFF	4	5.9	26	41.9
COMMUNICATION	2	2.9	14	22.6	SUITABLE	3	4.4	12	19.4
CONSIDERABLE	2	2.9	10	16.1	TECHNICAL	3	4.4	16	25.8
COST	2	2.9	11	17.7	TRAINING	5	7.4	26	41.9
DEVELOP	2	2.9	14	22.6	TYPE	3	4.4	20	32.3
EFFECTIVE	2	2.9	10	16.1	VENTURE	3	4.4	21	33.9

8.8.3 Implications of Findings

Human resource (HR) arrangements, such as technical experts, expatriate managers' deployment or the relocation of staff overseas for a period of time have been researched extensively, although linking HR assignment issues with the knowledge transfer have not been fully explored (Pollard, 2001). Several technology transfer-based studies allude to the importance of the "expert" as a mechanism for learning and knowledge transfer. However, HR assignments are not always successful and factors such as culture shock, organisational cultural differences, family and social difficulties, and poor preparation for the deployment are well-known problem areas.

In the case of Shanghai-GM, both of GM and SAIC may be vital sources of knowledge. Foreign "experts" are often used to assist in knowledge transfer stations, spending periods of time training local staff in new skills and routines. GM provided training at their establishment for venture employees. This type of training, whilst being costly, can be very effective for knowledge transfer and might also lead to the development of personal relationships and knowledge links at the later stage.

In the case, in order to enhance the capacity of the decision-making procedures and systems, GM and SAIC cultivated human resources with two attributes: first, they needed trustworthy people to whom they could delegate managerial tasks. Second, technicians in GM depended on SAIC to find and process information needed to support dialogues that enabled the former to appreciate the local context in which decisions were made, and the latter to absorb points of wider significance to those at home. These exchanges were conditioned by interpersonal knowledge and the experience that partners had gained while working together in Shanghai-GM or visiting manufacturing sites, and conversely,

by impressions formed by technicians while they worked in the parent firm before taking the expatriate assignments or during home leave.

Both partner firms intervened in the joint venture's personnel affairs in a judicious manner. GM did not force the JV personnel to cooperate, but rather had to let them develop overlapping channels to identify and evaluate interpersonal knowledge. SAIC also maintained a West-friendly attitude. This was vital because diversification depended upon arranging contracts with staff who possessed explicit technical knowledge and tacit know-how. In the case, both partner firms expressed the importance of certain human resource arrangements such as selecting suitable employees and dispatching managerial staff to support IJV operations, which, to a certain degree, facilitated the exchange of knowledge resources. As one manager confessed:

One of the impressions about HR practices in the JV is that we emphasise human resource rearrangements and personnel requirements [which are needed] to match with the attributes of individual candidates. If someone is not suitable to fill the position, they would be relocated to another position. (Interviewee B3)

It was also observed that in the case, arranging suitable expatriate managers from the parent company to work in the joint ventures was important for the cooperative partners to acquire jointly-developed knowledge and skills. Shanghai-GM is a social community in which individual managers interact with each other, and managerial skills and ways of doing things can be observed and shared. For instance, GM China Group, led by Murtaugh, acted as a channel for liaising with SAIC. After several rounds of contacts between the top management from both sides, Murtaugh quickly received the confidence of and compliments from the Chinese partner.

Murtaugh also formed "a very favourable" impression of Hu Maoyuan, the first president of SAIC, whom SAIC sent to negotiate with GM regarding cooperation procedures and advice on how to organise IJV's structure, culture,

and strategic operations. Hence, exchange of knowledge with the appointment and relocation of the right staff and relevant training programme became to serve some managerial functions in the joint venture. As one manager commented:

Knowing the nature of IJV knowledge transfer operations in China we attach considerable importance to getting the right type of person for the job . . . What was required was a good working knowledge of the managing side of the automobile industry plus considerable imagination. (Interviewee A3)

In this sense, managerial expatriate deployment can thus be considered a process of mobilising personal knowledge (Inkpen & Dinur, 1998). The rotation of managers through either from JV positions to the parent or parent positions to the joint venture helps make knowledge more fluid and easier to put into practice (Harrigan, 1986; Nonaka, 1994).

Experts like expatriate managers can also gain valuable knowledge from working in joint venture operations as “experts” or indeed in the management of the joint venture. Such knowledge could be shared with others (Pollard, 2001). They could also be a valuable source of knowledge concerning the working practices and management priorities of the parent organisations. Having considered the role of expatriates as “experts” in technology transfer, we move on to consider learning and knowledge aspects contained in the technology transfer process itself. Pollard (2001) notes that managers should be facilitators of knowledge transfer, as interfirm knowledge transfer requires management of both learning integration and the devolvement of integrating mechanisms, dealing with both emergent knowledge and the growth of stored knowledge. This view extends to managing knowledge and continual education, ultimately linking to innovation and creativity; that is, innovation and creativity flow out of knowledge. The guidance and interest of the company’s HR management is vital in both enabling and promoting knowledge development.

In sum, as international business has to utilise its own knowledge and further acquire and/or create more valuable knowledge so as to be more competitive in the global arena, and to realise potential synergy resulting from globalisation. Human resource arrangements and appropriate training provision in the IJVs which can facilitate knowledge transfer and core competency need to be seriously considered, although this process is not without challenges and difficulties.

For example, the expert may be perceived as an outsider and as someone to be obeyed, rather than as a teacher and a source of knowledge, which will affect the recipient's approach to knowledge transfer. The ability to transfer technology within a collaborative setting could be adversely affected if care is not taken in this area. In IJVs, the expert will be perhaps working with partner personnel, calling for additional skills in dealing with consensus rather than control. In this research, the role of the managers as "expert" in learning transfer is a good example of the impact of cross-cultural differences impacting on the transfer of knowledge across borders.

8.9 The Impact of Cultural Difference

8.9.1 Statistical Frequency Results

Table 8.8 displays the statistical frequency results that indicate interviewees' perceptions toward "Cultural Difference". The total number of words used by the respondents during the interview process was 262. Total unique words were 20. The total episodes were 256. The total number of lines was 141. The network options at the top right remained at their default settings. In Table 8.8, the word "Chinese" under the "Descending Frequency List" has been listed as the most frequently occurring word (It occurred 22 times.), 8.4% of all occurrences. This suggests that "Chinese" appeared 88 times (34.4%) of the scanned windows. Several other words with high-frequency clustering together were the words "Different" also mentioned 22 times (8.4%), "Economy" was mentioned 19 times (7.3%). "Cultural" was mentioned 18 times (6.9%).

Table 8. 8 Statistical Frequency Results

Total Words	262	Threshold	0.000
Total Unique Words	20	Restoring Force	0.100
Total Episodes	256	Cycles	1
Total Lines	141	Function	Sigmoid (-1 - +1)
		Clamping	Yes

Descending Frequency List					Alphabetically Sorted List				
WORD	FREQ	PCNT	CASE FREQ	CASE PCNT	WORD	FREQ	PCNT	CASE FREQ	CASE PCNT
CHINESE	22	8.4	88	34.4	BUREAUCRATIC	12	4.6	72	28.1
DIFFERENT	22	8.4	128	50.0	CENTRALISED	10	3.8	70	27.3
ECONOMY	19	7.3	115	44.9	CHINESE	22	8.4	88	34.4
CULTURAL	18	6.9	83	32.4	CDOOPERATION	9	3.4	59	23.0
PEOPLE	15	5.7	80	31.2	CULTURAL	18	6.9	83	32.4
CULTURE	14	5.3	88	34.4	CULTURE	14	5.3	88	34.4
PLANNED	14	5.3	95	37.1	DIFFERENT	22	8.4	128	50.0
STATE	14	5.3	89	34.8	DIFFICULT	11	4.2	77	30.1
BUREAUCRATIC	12	4.6	72	28.1	ECONOMY	19	7.3	115	44.9
WAYS	12	4.6	84	32.8	GUANXI	10	3.8	70	27.3
DIFFICULT	11	4.2	77	30.1	HIERARCHICAL	10	3.8	70	27.3
MARKET	11	4.2	45	17.6	LEVEL	9	3.4	41	16.0
UNDERSTAND	11	4.2	77	30.1	MARKET	11	4.2	45	17.6
CENTRALISED	10	3.8	70	27.3	PEOPLE	15	5.7	80	31.2
GUANXI	10	3.8	70	27.3	PLANNED	14	5.3	95	37.1
HIERARCHICAL	10	3.8	70	27.3	PROBLEM	10	3.8	65	25.4
PROBLEM	10	3.8	65	25.4	STATE	14	5.3	89	34.8
COOPERATION	9	3.4	59	23.0	THINKING	9	3.4	63	24.6
LEVEL	9	3.4	41	16.0	UNDERSTAND	11	4.2	77	30.1
THINKING	9	3.4	63	24.6	WAYS	12	4.6	84	32.8

“difficulties” arose due to the differences in the way of “thinking”, such as the attitudes of the JV partners towards working style in the IJV environment. Some Chinese and American managers noted that it was a costly and time-consuming process to change the mindsets of people coming from different cultural backgrounds. Thus it seems that the cultural element in the case had a considerable impact on the collaboration and knowledge transfer process. The next section discusses and analyses the role of culture, how firms handle the demands and constraints imposed by different business cultural environment, and with what result.

8.9.3 Implications of Findings

As knowledge transfer implies that technological capability on the part of the employee is the critical factor when choosing an individual for the task, it seems, therefore, that technical ability is the only factor, and some other attributes are often neglected. However, knowledge transfer in the international management setting should be concerned in relations to dealing with the cultural differences (Pollard, 2001). This role of “cultural differences” raises a number of knowledge transfer concerns. Pollard and Tayeb (1997) state “the provision of knowledge, the expectations of its recipients and the implementation of new techniques all have significant cultural dimensions” (p. 68). Pan and Tse (1996) also discuss cultural distance issues and collaboration motivations amongst others in their study of two foreign companies collaborating to enter a third market (China) in cooperation with a local company. They found this type of collaboration (i.e., interactions between individuals and the transfer of knowledge are carried out in an environment of cultural differences, whether the people are in face-to-face contact or not) raised a number of fascinating learning issues, both in learning to collaborate and learning about the new market and the venture partner in the market.

In the case of Shanghai-GM, cultural differences between partnering companies are obvious. One Chinese manager pointed out:

We had good relations with GM. But we have to admit there do exist some differences between us. This comes from different business cultures and company backgrounds. The long period of state-planned economy in China taught people to think in a way that is different from that in the West . . . The concept of marketing or sales did not exist in China before the “open door” reform. For example, the products’ delivery was not based on customer needs and to a certain degree, the local culture encouraged production but was less concerned with quality and improvement. This was not a big obstacle and there is nothing lacking in their level of competence, as Chinese firms gradually gained marketing knowledge through these years from the interaction with western investors. However, some problems still exist, as China experienced a planned economy rule for about 50 years . . . To survive in the international competition, it is required that firms act quickly so that buyers do not have to wait unnecessarily long for supplies. (Interviewee B6)

GM managers also noticed conducting business in China was different from doing so in the US:

Personal relationships (*Guanxi*) with the right people are of great importance in the Chinese culture. To develop such a relationship, one has to work and make efforts from a long time perspective – it is not something that can be done in 1 week or a short period . . . If one does not previously know the right people on the basis of other old relationships, one must work successively to get to know the right people more and establish relationships. This is so different from us. (Interviewee A4)

Another cultural misunderstanding was related to different ways of dealing with management issues in different contexts. GM found that although there were no serious misunderstandings that could make the operations difficult, and these challenges were dealt with in an appropriate manner, the old state-owned enterprises’ (SOEs) inheritance still had an impact on some Chinese people’s values. One GM manager noticed:

The local authority was helpful on judicial and formal aspects during the establishment of the joint venture between GM and SAIC, and the Government was favourable toward the establishment of a joint venture. In contrast to the West, the practice of taking responsibility and working

independently does not work well in China. Organisational structures are centralised and hierarchical and people always depend on the higher level for decisions and clear instructions. It is really difficult to delegate responsibility to the lower level. The level of bureaucracy in China is greater, and has slowed down the operations of the JV in many respects. JV managers have to deal with bureaucracy both in the company and in its relations to the authorities. The employees were also used to an authoritarian style of management: the boss was really a boss – the boss should take the decision: workers think they will be penalised if something goes wrong. The whole system is bureaucratic, and in a bureaucratic system people are made responsible when they make mistakes. If one never takes any initiative, one will never make any mistakes. (Interviewee A5)

GM and SAIC thus both noticed that the partners' different cultural backgrounds, plus deep-level communication problems, may affect the extent of interfirm knowledge transfer and cooperation, as many things were interpreted in completely different ways than they were intended. These findings have implications for the management of pathways of knowledge transfer between collaborating partners. When transferring knowledge across national boundaries; it needs to be done carefully so that it is received effectively.

Some other implications can also be drawn. Although interfirm diversities might inhibit the ability to work jointly and effectively unless the firms can overcome their differences, it also means that joint ventures from culturally-dissimilar countries can also have a higher potential for learning (i.e., the cultural knowledge). This is particularly true in international alliances/IJVs. It is thus critical to understand and manage both commonalities and differences across cultural and political divides when looking at knowledge transfer, although this will require more effort and commitment from management.

8.10 Knowledge Characteristics and Nature

8.10.1 Statistical Frequency Results

Table 8.9 displays the statistical frequency results that indicate interviewees' perceptions in terms of "Knowledge Characteristics and Nature". The total number of words used by the respondents during the interview process was 132. The total unique words were 25. The total episodes were 126. The total number of lines was 35. Network options at the top right remained at their default settings. The word "Knowledge" under the "Descending Frequency List" has been listed as the most frequently occurring word (It occurred 38 times), 28.8% of all occurrences. This suggests that "Knowledge" appeared 116 times (92.1%) of the scanned windows. Several other words with high-frequency clustering together were the words "Tacit" mentioned 17 times (12.9%), "Explicit" was mentioned 8 times (6.1%). "Transfer" and "Transferred" were also mentioned 8 times (6.1%) respectively.

Table 8. 9 Statistical Frequency Results

Total Words	132	Threshold	0.000
Total Unique Words	25	Restoring Force	0.100
Total Episodes	126	Cycles	1
Total Lines	35	Function	Sigmoid (-1 - +1)
		Clamping	Yes

Descending Frequency List					Alphabetically Sorted List				
WORD	FREQ	PCNT	CASE FREQ	CASE PCNT	WORD	FREQ	PCNT	CASE FREQ	CASE PCNT
KNOWLEDGE	38	28.8	116	92.1	BARRIERS	3	2.3	21	16.7
TACIT	17	12.9	92	73.0	CASE	3	2.3	21	16.7
EXPLICIT	8	6.1	47	37.3	CODIFIED	2	1.5	14	11.1
TRANSFER	8	6.1	41	32.5	COMPLEX	2	1.5	14	11.1
TRANSFERRED	8	6.1	49	38.9	COMPONENTS	2	1.5	14	11.1
MARKETING	4	3.0	24	19.0	CONTEXT	2	1.5	14	11.1
TECHNOLOGY	4	3.0	25	19.8	CULTURAL	2	1.5	14	11.1
BARRIERS	3	2.3	21	16.7	CULTURE	2	1.5	14	11.1
CASE	3	2.3	21	16.7	DIFFERENT	2	1.5	14	11.1
DIFFICULTIES	3	2.3	21	16.7	DIFFICULT	2	1.5	10	7.9
EASILY	3	2.3	18	14.3	DIFFICULTIES	3	2.3	21	16.7
EFFORTS	3	2.3	21	16.7	EASILY	3	2.3	18	14.3
FACE	3	2.3	15	11.9	EFFECTIVELY	2	1.5	14	11.1
LEARNING	3	2.3	21	16.7	EFFORTS	3	2.3	21	16.7
MANUALS	3	2.3	17	13.5	EXPLICIT	8	6.1	47	37.3
TACITNESS	3	2.3	15	11.9	FACE	3	2.3	15	11.9
CODIFIED	2	1.5	14	11.1	KNOWLEDGE	38	28.8	116	92.1
COMPLEX	2	1.5	14	11.1	LEARNING	3	2.3	21	16.7
COMPONENTS	2	1.5	14	11.1	MANUALS	3	2.3	17	13.5
CONTEXT	2	1.5	14	11.1	MARKETING	4	3.0	24	19.0
CULTURAL	2	1.5	14	11.1	TACIT	17	12.9	92	73.0
CULTURE	2	1.5	14	11.1	TACITNESS	3	2.3	15	11.9
DIFFERENT	2	1.5	14	11.1	TECHNOLOGY	4	3.0	25	19.8
DIFFICULT	2	1.5	10	7.9	TRANSFER	8	6.1	41	32.5
EFFECTIVELY	2	1.5	14	11.1	TRANSFERRED	8	6.1	49	38.9

The perceptual map is consistent with the interview transcripts. As the Chinese intend to acquire advanced “technology”, which is expected to be relatively “complex”, the issue of transferring “tacit” knowledge becomes pertinent. The Chinese partner was keen to have knowledge transferred by its American counterpart, particularly “tacit” knowledge such as management know-how, problem-solving and “marketing” techniques, and GM was willing to “transfer” their technologies “effectively”, but both sides did experience the burden of transcending the “cultural” and institutional “barriers” when working together. It has been noted that “tacit” “cultural” knowledge constituted a substantial part of the “difficult” knowledge, and “codified” technologies, such as “manuals” are more explicit and more “easily” transferred.

8.10.3 Implications of Findings

The integrative roles that the tacit knowledge and explicit knowledge played in the learning process have always been emphasised in the knowledge transfer literature (Kogut, 2000). With regard to the knowledge characteristics, researchers clarify the nature of knowledge, such as tacitness (Nonaka, 1994; Lam, 1997) and ambiguity (Simonin, 1999a, 1999b), and complexity (Zander & Kogut, 1995).

In the case data, although there were no serious misunderstandings and disagreements regarding the strategic orientation (See also section 8.9.3), the tacit nature of knowledge (such as cultural understanding) left much room for problems of interpretations on both sides. This finding is not different from previous research results, as Tsang (2007) argues if the transferred knowledge is tacit, the knowledge source organisation will likely face difficulties in trying to articulate the tacit components of knowledge to the recipient. The learning process in the recipient organisation can be complex and difficult. The difficulties could be aggravated if the partners come from countries that are very different in

terms of the culture, economic, and political environment. Obviously, it is much harder to transfer tacit knowledge than explicit knowledge (Ding et al., 2009b).

The tacit or implicit knowledge, which is important in the business operations, is context specific (De Long & Seeman, 2000). Complex and tacit knowledge has to be transferred through intimate interactions (Nonaka, 1994). The case in this thesis shows trust-based interactions allow partners to exchange complex and tacit knowledge (which will be further discussed in the next section), which further shapes the portfolio of interfirm strategic partnership.

In order to overcome the tacit knowledge transfer difficulties, SAIC and GM used a series of channels, such as training sessions and meetings at work, which served as important means through which tacit knowledge was transferred. These interactions followed by further common understanding between SAIC and GM enhances their absorptive capacity (Cohen & Levinthal, 1990) and facilitates the exchange of complex and difficult-to-articulated knowledge. These channels thus actually strengthened common understanding of collective goals and proper ways of acting in the Shanghai-GM joint venture system. In other words, commitment and dedicated efforts are required to ensure transfer of intangible know-how (Tsang, 2007).

8.11 The Value of Interfirm Partnership

8.11.1 Statistical Frequency Results

Table 8.10 displays the statistical frequency results that indicate interviewees' perceptions in terms of "The Value of Interfirm Partnership". The total number of words used by the respondents during the interview process was 288. The total unique words were 20. The total episodes were 282. The total number of lines was 183. The network options at the top right remained at their default settings. The word "Transfer" under the "Descending Frequency List" has been listed as the most frequently occurring word (It occurred 19 times.), 6.6% of all occurrences. This result suggests that "Transfer" appeared 124 times (40.0%) of the scanned windows. Several other words with high-frequency clustering together were the words "Market" also mentioned 18 times (6.2%), "Two" was mentioned 18 times (6.2%). "Trust" was mentioned 17 times (5.9%).

Table 8. 10 Statistical Frequency Results

Total Words	288	Threshold	0.000
Total Unique Words	20	Restoring Force	0.100
Total Episodes	282	Cycles	1
Total Lines	183	Function	Sigmoid (-1 - +1)
		Clamping	Yes

Descending Frequency List					Alphabetically Sorted List				
WORD	FREQ	PCNT	CASE FREQ	CASE PCNT	WORD	FREQ	PCNT	CASE FREQ	CASE PCNT
TRANSFER	19	6.6	124	44.0	CHINESE	17	5.9	92	32.6
MARKET	18	6.2	64	22.7	COMMITMENT	15	5.2	98	34.8
TWO	18	6.2	113	40.1	COOPERATION	14	4.9	93	33.0
CHINESE	17	5.9	92	32.6	DEMAND	11	3.8	77	27.3
TRUST	17	5.9	92	32.6	DEVELOPMENT	15	5.2	79	28.0
INDUSTRY	16	5.6	59	20.9	HIGH	12	4.2	77	27.3
RELATIONSHIP	16	5.6	95	33.7	INDUSTRY	16	5.6	59	20.9
WORKING	16	5.6	94	33.3	KNOWLEDGE	11	3.8	60	21.3
COMMITMENT	15	5.2	98	34.8	MARKET	18	6.2	64	22.7
DEVELOPMENT	15	5.2	79	28.0	PARTNERS	11	3.8	59	20.9
COOPERATION	14	4.9	93	33.0	PARTNERSHIP	14	4.9	82	29.1
PARTNERSHIPS	14	4.9	82	29.1	PROPERLY	12	4.2	84	29.8
TECHNOLOGY	13	4.5	91	32.3	RELATIONS	16	5.6	95	33.7
HIGH	12	4.2	77	27.3	REWARDS	11	3.8	77	27.3
PROPERLY	12	4.2	84	29.8	SOCIAL	12	4.2	72	25.5
SOCIAL	12	4.2	72	25.5	TECHNOLOGY	13	4.5	91	32.3
DEMAND	11	3.8	77	27.3	TRANSFER	19	6.6	124	44.0
KNOWLEDGE	11	3.8	60	21.3	TRUST	17	5.9	92	32.6
PARTNERS	11	3.8	59	20.9	TWO	18	6.2	113	40.1
REWARDS	11	3.8	77	27.3	WORKING	16	5.6	94	33.3

8.11.3 Implications

From the resource-based perspective, trust-based relationship affects the process of knowledge exchange, sharing, combination, and joint problems solving through creating a variety of necessary conditions, such as increasing openness, respect, friendship (Ding et al., 2009b; McEvily et al., 2003). These have been empirically supported in a number of interorganisational contexts (Becerra et al., 2008; Muthusamy & White, 2005). For instance, Zaheer and Venkatraman (1995) found that trust increases the scope of joint problem-solving and planning in strategic alliances. Through relationship-building processes, partners learn about each other's competency and develop confidence in one another, which leads to further increase in investments, risk sharing, and knowledge exchange (Becerra et al., 2008; Muthusamy & White, 2005). Such behaviours reciprocally increase the scope of the relationship, and enhance an enriched, meaningful mutual knowledge transfer between partnering firms in the alliances. This is especially true in a manufacturing industry such as the automobile industry. When working together in a new uncertain market, as managers have to decide the level of knowledge resources committed to the market, large-scale investment with more knowledge resources often signals increasing commitment to a market (Mascarenhas, 1997).

Two aspects in terms of relational capital issues can also be identified after the JV formation: on the one hand, there is GM's commitment in fulfilling demands from SAIC for the continuous introduction of new vehicle models. The continuous new technology transfer showed the trust and commitment held between SAIC and GM in the joint venture. On the other hand, both partners worked together to conduct vehicle product development and adaptation, which also helped to strengthen trust levels. As Ramos (2001) pointed out "all the terms of the Shanghai-GM joint venture were equal for both parties, from the number of

senior management representatives to distribution rights. This equality contrasts with the joint venture between SAIC and Volkswagen⁴² (para. 10).

In this case, GM and SAIC in the Chinese market developed important contacts with each other in the well-organised IJV network which they utilised in distributing the joint venture's products. The following quotation from a Chinese manager suggests there is a strong working relationship and intensive communication between both sides:

Although there are some misunderstandings and conflicts between the two partners, the cooperation in the areas of automotive technology transfer has always been very smooth. ... When the interests of the two partners conflicted, we did suggest intensive opinion exchanges, which became a big success. (Interviewee B3)

Because the partners were cooperating in order to deal with problems that cropped up in their day-to-day operations, fruitful contacts could be developed. Both firms managed to develop properly functioning networks through joint efforts with each other. These contacts proved to be of substantial importance and were already regarded as potential candidates for intimate collaboration in case of future expansion. One GM executive commented positively:

We believe that GM would catch up other competitors in the Chinese market rapidly through the collaboration with SAIC. We are quite happy that the forecast is holding, although there exists increasing sales price and production cost competition in China's auto market. (Interviewee A1)

It is interesting to note that GM and SAIC not only built an IJV partnership in the Pudong area where Shanghai-GM operated, but also managed to develop additional IJVs and transfer technology in other SAIC regions, such as in Shangdong Province. This case thus offers examples of building effective trust relationships in the IJV system, which to a certain degree reduced barriers such as the suspicion

⁴² In order to enter the Chinese market, VW initially made a deal with SAIC to grant sole distribution of the cars to a separate company, which was wholly owned by SAIC. Volkswagen eventually renegotiated the relevant terms with SAIC regarding the control over distribution. In 2007, an equally owned distribution company was created, which was after "16 years into their partnership" (Ramos, 2001, para. 10).

and protectiveness in the IJV knowledge transfer process. Through these contacts, both partners managed to gain access to some important customers, other companies, government authorities, domestic and international markets. These contacts have been beneficial for GM and SAIC, even when considering the possibilities of expanding into other related investment projects in China.

8.12 Refinement of Conceptual Framework

8.12.1 Rationale for Refinement: Knowledge Transfer Patterns

The phenomenon of organisational knowledge transfer activities has become a very important part of strategic thinking in business strategy and management area (Ding et al., 2009a, 2009b; Easterby-Smith et al., 2008; Peng, 2001). Although many different understandings about knowledge transfer concepts, processes and outcomes exist, some identified basic agreements have occurred: knowledge transfer outcomes are generally positive; and firms can even learn from their mistakes (Argyris, 1977); knowledge transfer could improve business decision-making and problem-solving through better understanding and knowledge acquisition, creation and transfer (Fiol & Lyles, 1985); guide future actions (Bandura, 1986), and increase the chances of an organisation's adaptation to the environment (Dodgson, 1993a, 1993b).

However, knowledge transfer is inherently complex and less clear-cut in practice. This complexity is compounded especially in the international strategic alliances/IJVs context (Easterby-Smith et al., 2008; Parkhe, 2006). As research on alliance knowledge transfer is important in business and management research, a full understanding of the knowledge transfer activities in alliances/IJVs thus requires a multidisciplinary approach. This study depicts the features and outcomes associated with the formation of knowledge-driven interfirm cooperative arrangements, whilst trying to identify distinct dimensions of the interfirm knowledge transfer process in alliances. This case-based research

concludes that alliances do provide an ideal platform for acquiring knowledge and learning, and suggests the relevant barriers and facilitating mechanisms which could affect the knowledge transfer process in alliances/IJVs. The linkages between the strategic alliances, interfirm knowledge transfer and relevant factors postulated in the research questions are identified as follows (which will provide a rationale for further refinement of the conceptual framework in the section 8.12.2):

(1) Alliance Linkages Are Valuable for Transferring Knowledge

International strategic alliances, in which two or more parties engage in the development and operation of a new business entity, can create synergies by combining resources to secure a competitive position within the global marketplace (Contractor & Lorange, 2002; Dymsha, 1988; Kogut, 1988a). Beamish and Berdrow (2003) state that alliance networks allow for knowledge flows between firms, and knowledge acquired also contributes to the alliance knowledge management. Alliances are often seen as efficient vehicles for knowledge transfer across organisational boundaries, especially for knowledge that is difficult to transfer because of its tacitness (Beamish & Berdrow, 2003; Ding et al., 2009b).

Shanghai-GM belongs to a category of coordinated joint ventures whose value-added comes from complementarities in capabilities (Bamford, Ernst, & Fubini, 2004). Management team members maintain constant interactions and this collaboration is helpful for interfirm knowledge transfer:

On one hand, as GM contributes auto technology and manufacturing experience into Shanghai-GM, SAIC is able to access the knowledge and experience of GM's business practices. On the other hand, SAIC, as a local company, supplies local market knowledge and supplies management, sales, services, technological engineering, most human resources requirements, and deals with market development and labour relations with government. In China,

in order to get the required yet time-consuming paperwork done, it is necessary to have this local knowledge, such as the Chinese market conditions, political and business systems awareness, and cultural, language and competition appreciation, and the ways of dealing with local business. Although it seems difficult for a foreign company with a different business and cultural background, with the helping hand of the local partner, it was much easier and efficient for GM to get “Chinese knowledge” to know the system and local business operation, and made GM gradually familiar with the Chinese market.

Thus, this joint venturing fundamentally provides good opportunities for both partners to expand their market share in China. These findings support Buckley et al.’s (2004) arguments that the most important need fulfilled by IJVs in China is perhaps the provision of expertise by the foreign partner and familiarity with the market environment by the host Chinese partner. As the advantages of the collaboration were many for both SAIC and GM, so they want to continue the collaboration as it is working well and generating a good income.

In sum, as the case suggests, alliances/joint ventures can facilitate better knowledge exchange and create combined strengths by offering partner firms a window on promising technologies such as automated manufacturing equipment and testing platforms – a position which is consistent with Ness’s suggestions in 2009.

(2) Alliance Knowledge Transfer is Two-way Learning Process

With knowledge transfer becoming ever more important, organisations having the ability to learn and gain knowledge will have a clear source of advantage. Ding et al. (2009b) and Ness (2009) note although interfirm partnerships provide opportunities for the partner firms to access the knowledge necessary for success, it is the interfirm transferring process which provide a lasting competitive advantage for partner firms.

In this case, both partners claimed they learned from being in the JV. First, the most important result of the cooperation is that the local partner and its employees have largely adopted GM's way of thinking. Previously, it was only the most senior managers who could reply, and the others were not authorised to respond or act. It became faster and easier to communicate and to get a response. As a result of the training and skills development, there are now people in the company who can take responsibility and reply to most inquiries that come from the American partner. With technical assistance from GM, its Chinese partner is now able to produce quality vehicle products acceptable to GM. The Chinese company is even able to independently develop its own branded vehicles after these years' knowledge accumulation.

Meanwhile, GM had to deal with a lot of local bureaucracy. In the beginning, this was difficult, but the American partner gradually learned how to tackle it with the local partner's support which is of benefit to the JV. These government contacts gave GM special status in the Chinese automotive industry through recognition in the form of several awards received from the national and local governmental authorities, and public sector institutions for its outstanding contribution to the economic development in China. Through working together with local partner, GM gained local market and cultural know-how and knowledge of how to interact with relevant government authorities. It also learned about the industrial policies and ways of communicating with key people (Zahra et al., 2000). This finding – learning from and with the local partners – is also referred to as “reverse knowledge spillovers” termed by Feinberg and Gupta (2004).

Different knowledge from each side complements each other, and both partners have a better understanding of their capacities and needs which has a positive influence on the cooperation as the partners learned how to properly

manage communications between them. The partners succeeded in building a company that could manufacture competitive products according to their contractual agreements, and introduced new, unique models successfully, reflecting that the partnership between GM and SAIC is a work in progress in China.

Thus, alliance knowledge transfer in this circumstance is an ongoing two-way learning process, and the knowledge exchanged between these two companies was gradually enlarged to such areas as market knowledge, managerial efficiency, production knowledge, and technological issues. This confirms that partners will actively engage in aggressive learning to acquire self-sufficiency as quickly as possible (Hyder & Abraha, 2003). This research demonstrates that learning can occur in a bidirectional manner, with both partners committed to a mutual exchange of knowledge for the purpose of developing competence.

Because their cooperative learning was so efficient, the partners could also develop other joint projects aside from the existing collaboration. Success in this type of learning strategy has been dependent on the stability, maturity and growth of the IJV. With the integration of global and domestic resources, Shanghai-GM vehicles represent the most advanced products in their segments. The partners' cooperative learning thus has a positive influence on the IJV performance. This cooperation made it easier to agree on long-term strategic planning.

(3) Alliance KT is a Complex System with Various Elements

In the literature, knowledge transfer and learning have been described as an important process for the alliance partners (Ding et al., 2009b; Hyder, 1999; Tsang, 1999; Ness, 2009; Varadarajan & Cunningham, 1995). However, knowledge transfer in the joint venturing process entails tremendous challenges and complexities due to different organisational contextual factors, cultures, and worldviews (Ding et al., 2009b; Yan & Luo, 2001). Organisations are

understandably protective of their knowledge assets, especially if the IJV partner is a current or potential competitor (Becerra et al., 2008). Scholars have sought to warn of the dangers of what they see as a giving away of competitive competencies. One means of protection is to “ring-fence” technology to be transferred within the venture agreement and limit access to particular areas of technology involved in the venture and to separate irrelevant company operations (Pollard, 2001; Becerra et al., 2008).

When knowledge is to be transferred within the alliance entity, both internal and external barriers may exist. Internal barriers may result from differences in learning style or different goals formulated by each partner. Once knowledge is transferred outside the entity, it also encounters a second level of external barriers that come from between the alliance entity and the parent organisations (Argote & Ingram, 2000). Both internal and external boundaries should be actively managed and have to be broken down in order to facilitate knowledge transfer.

Four antecedents of knowledge transfer in alliances can be identified in the case: knowledge source characteristics; knowledge recipient characteristics; the characteristics of the knowledge (tacit and explicit); and alliance contextual features. For example, knowledge resources that are identifiable and generalisable are easier to transfer. Trustworthy knowledge sources with strong knowledge bases are more reliable. Recipients with prior knowledge bases and learning intent have high levels of absorptive capacity, and are capable of experimenting with new competences. Finally, an alliance with appropriate structures and mechanisms, such as human resource arrangement, training, and communication may facilitate the reduction of cultural misunderstanding, thus encouraging interfirm transfers.

In the case data, SAIC and GM were exposed to several obstacles from the initial stage to the more involved stages of their knowledge transfer process. They

often faced a high level of uncertainty and both internal and external obstacles (Bauerschmidt, Sullivan, & Gillespie, 1985). Furthermore, SAIC and GM also encountered culture and language differences, technology gaps, and obstacles in understanding. All of these obstacles can influence knowledge transfer performance in global markets. The implication is that if companies lack adequate knowledge and abilities to solve these problems, they may have difficulties and lack confidence to make proper strategic decisions.

One of the questions addressed in this thesis was to look at how different organisational efforts have been made to enable knowledge transfer within the IJV. Sharing knowledge-embedded products involves the development of working relationships, personal interactions, movement, and strategic linkages (Ding et al., 2009b; Nonaka, 1994). Trust and managerial support are also considerations in fostering the effective sharing of knowledge (Inkpen, 1996; Holste & Fields, 2010). It is generally acknowledged that the greater degree of experimentation, risk-taking attitude and shared decision-making enables both partners to contribute to new knowledge procedures and processes (Ness, 2009).

This thesis supports the positive role of interpartner relationship as a facilitator of knowledge transfer. This thesis provides evidence of the important role relationship capital plays in interorganisational knowledge transfer and its subsequent impact on alliance performance. The results also suggest that knowledge transfer is an arduous process that requires significant levels of commitment from the contributor and receptivity from the transferee. Finally, the thesis empirically confirms the claim made by the knowledge-based perspective that knowledge is a key resource that contributes to enhancing financial returns and overall alliance performance.

Some other factors, many of which have been dealt with earlier such as the nature of the venture, its location, the strategic positions of the collaborating

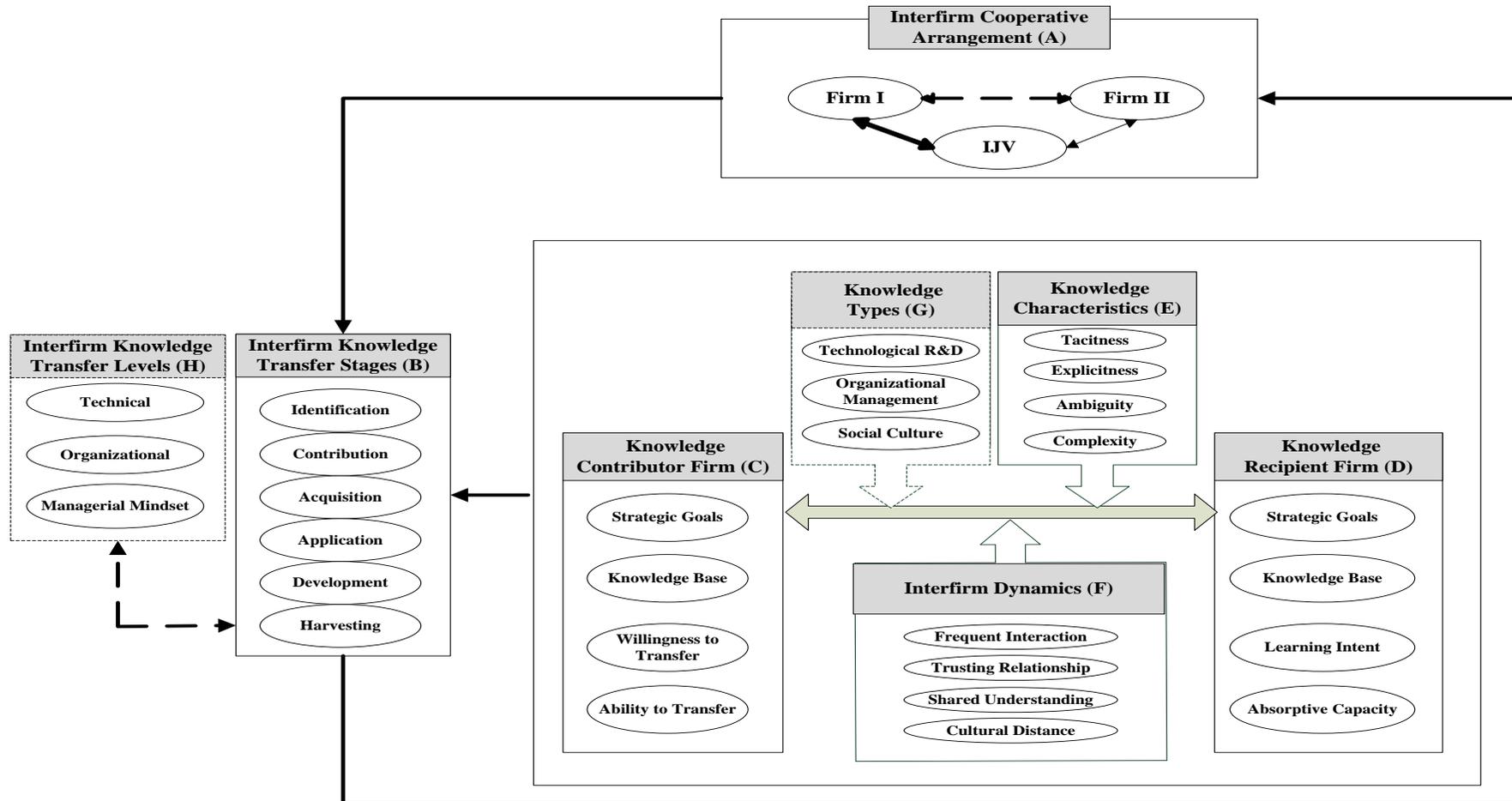
companies are of great importance. Much depends on the motivation of the collaborating firms and the staff involved. This research thus suggests that a series of mechanisms that facilitate the knowledge connections between the alliance partners need to be considered (Almeida, Song, & Grant, 2002; Ding et al., 2009b; Inkpen & Pien, 2006; Kogut & Zander, 1992). These various mechanisms discussed above serve as the basis and potential for partners to share and communicate their experiences, corporate philosophy, and new knowledge for operating successfully.

8.12.2 Refinement of Proposed Research Model

To date, interpartner knowledge transfer has occurred in the case between GM and SAIC. The IJV partnering firms are both gaining learning opportunities for business operations and knowledge development and/or adaptation process.

In Chapter 3, building on the resource-based theory, this research articulated and presented the original conceptual framework for the current study examining interorganisational knowledge transfer process and learning consequences. Through comparing the case's knowledge transfer patterns and a literature-based analysis, the insights gained into interfirm knowledge transfer in IJVs result in a refinement of the tentative conceptual framework (as shown in Figure 8.11). This research contributed several refinements to the proposed conceptual framework.

Figure 8. 11 Refined Model of Interfirm Knowledge Transfer



It is proposed by Foss, Husted and Michailova (2010) that “knowledge governance (i.e. choosing organisational structures and mechanisms that can influence the processes of using, sharing, integrating, and creating knowledge in preferred directions and towards preferred levels)” has not yet been well explored, although this concept has “recently become a distinct issue in management and organisation” (p. 456).

Following the suggestions by Edvinsson and Malone (1997) and Davidson and Voss (2002), this refined research framework suggests that some facilitating mechanisms may embody, empower, and support the sharing and transferring of knowledge. It is also necessary to identify relevant factors (both formal and informal) that may affect interpartner knowledge transfer in the IJVs from a holistic perspective. These factors (including frequent interaction; mutual communication; training; job rotation, and site visits) help turn individual know-how into knowledge for the organisation as a whole.

One important identified dimension in the Shanghai-GM case is willingness or intent to share knowledge (See Category C & D, Figure 8.11). The case shows that foreign and local partners had different things to learn and share, but both partners maintained similar learning intentions and objectives. This research suggests that the term “interfirm knowledge transfer” has been coined to describe a situation in which the primary objective of the partner firms is to learn and share knowledge. Although in some instances, learning is an unintended outcome that emerges over the life of the alliance, the knowledge gaps and skills differences between the alliance partners undoubtedly provide the learning opportunities (Ding et al., 2009b; Inkpen & Pien, 2006). Tsang (2007) also notes that effective knowledge transfer requires the source unit to recognise the knowledge needs of

the recipient unit. The local partner was interested in learning about the foreign technology and technology-related matters, and the foundations of the managerial mechanisms of GM. This desire is understandable considering the local partner has a more or less clear conceptualisation of the skills and technological knowledge they must learn to make technology transfer possible. Hence, a true willingness to share knowledge was apparent in the research framework.

Scholarly inquiries into interfirm knowledge transfer in alliances have also emphasised the important roles of the surrounding social contexts in resource exchanges. The surrounding social contexts can be, according to Nonaka and Konno (1998), physical (e.g., office, dispersed business space), virtual (e.g., email, teleconference) or mental (e.g., shared experiences, ideas, ideals). In addition, a social context can be formal or informal (Ding et al., 2009b; Foss et al., 2010; Powell, Koput, & Smith-Doerr, 1996). Formal social context requires some kind of articulation of tacit knowledge, e.g., a common language, metaphors or analogies. Informal social contexts, instead, imply the sharing of feelings, emotions and experiences or what Senge (1991) has called “shared mental models” (p. 174).

Based on the literature review and case analysis, the research framework illustrates another strand in this thinking (See Category G, Figure 8.11). An IJV can be seen as a space which concentrates and integrates all the knowledge created and acts as a frame in which knowledge is activated as a resource for creation (Nonaka & Konno, 1998), thus, the IJV’s knowledge is an emergent property of the social activities undertaken by each partner of the IJV. Nahapiet and Ghoshal (1998) label these attributes as three distinct yet interrelated aspects (the structural, relational, and cognitive). The *structural dimension* refers to the degree and frequency of social interaction between the firms; the *relational*

dimension refers to goodwill and reciprocity; and the *cognitive dimension* refers to shared understanding (Ding et al., 2009b; Nahapiet & Ghoshal, 1998). Foss, Husted and Michailova (2010), in particular, refer to social activities which include the structural dimension, that is, to the pattern of connections between actors and to the mechanisms organisations use to reach each other. The more extensive the set of social links between actors, the greater will be the set of external resources of knowledge that each actor can draw on. Social interactions in an exchange relationship thus facilitate learning by making it possible to exchange and combine not only codified knowledge, but also tacit knowledge (Nonaka, 1994).

This framework particularly recognises that transferring knowledge involves not only explicit technological knowledge but tacit cultural knowledge that can be shared through the development of working relationships, personal interactions, movement, and strategic linkages (Ding et al., 2009b; Nonaka, 1994). The distinguished different types of knowledge: namely, technological R&D knowledge; organisational management knowledge; and social cultural knowledge with various characteristics (such as uniqueness, tacitness and complexities) identified in the framework require management to recognise that access to a partner's knowledge base needs serious consideration, especially when much of the knowledge is often organisationally embedded (Ding et al., 2009b; Szulanski, 2000). Additional competence, abilities, and partnership-based cooperation are therefore required to overcome these challenges (Holste & Fields, 2010; Inkpen & Dinur, 1998).

These assumptions are validated and supported by several empirical studies (such as Holste & Fields, 2010; Inkpen & Pien, 2006). In order to facilitate and generate relational rents from network ties, this research suggests that three

aspects of social capital are required between cooperative partners in the learning alliances context to mediate the knowledge-specific flows (See Category F, Figure 8.11), i.e., the nature of ties (structure), trust (relational capital), and shared goals and understanding (cognitive), will act as the “convergent conditions” for “reciprocal” knowledge transfer to occur (Pavlovich & Corner, 2006, p. 178). This research suggests that alliances/IJVs facilitate knowledge flows because they function as mediators and repositories of knowledge providing necessary mechanisms. To facilitate greater flow of valuable knowledge across alliances, some partnership attributes are also considered important. This framework thus particularly recognises that trust and shared understanding are considerations in fostering the effective sharing of knowledge (Ding et al., 2009b; Holste & Fields, 2010; Pollard, 2001).

This refined framework suggests that relational embeddedness, as evidenced by parent support to the alliances and commitment between the partner firms, all enhance interfirm learning (Ding et al., 2009b; Lyles & Salk, 1996; Uzzi, 1997). It is the relational embeddedness between partner firms that creates a common identity that helps to “openly share different types of valuable knowledge and prevent unwanted spillovers to competitors” (Dyer & Nobeoka, 2000, p. 348), thus reducing knowledge transfer costs. Relational embeddedness creates the “logic of confidence and good faith” and provides the “cohesive force” (Meyer & Rowan, 1977, p. 340) that is imperative for creating an environment in which knowledge can flow, showing that social capital, a measure of embeddedness, positively impacts innovation.

Foss et al. (2010) once claimed that the knowledge sharing literature is “preoccupied with constructs, processes, and phenomena defined at a macro (collective, organizational) level and pay comparatively little attention to micro

(individual) level constructs” (p. 455). However, Foss et al. (2010) emphasized that an understanding of the micro-level individual activities may “yield novel insights in organizational-level phenomena” (p. 457). Based on the research findings, the refined framework argues that IJV knowledge transfer and sharing literature needs to distinguish various levels on which knowledge can be transferred or even developed: namely, the technical; organisational; and managerial mindset level (See Category H, Figure 8.11).

For example, the guidance and interest of the company’s top management with a strategic mindset are vital in both enabling and promoting knowledge development (Pollard, 2001). Managers in this case were facilitators for knowledge transfer. Conversely, knowledge transfer or even development requires management of both learning integration and the devolvement of integrating mechanisms, dealing with both emergent knowledge and the growth of stored knowledge. This process extends to managing knowledge and continual education, ultimately linking to innovation and creativity; that is, innovation and creativity flow out of knowledge. A manager with a behavioural-change outlook will often focus on the knowledge management processes needed to capture and transfer both the explicit and tacit organisation-level knowledge (Long & Seemann, 2000). In particular, following Argyris and Schon’s (1978) intuition about the paradox of organisational learning, we can state that the shared mental models become one of the enabling conditions for SAIC-GM interfirm knowledge transfer, in that they blend the learning processes which occur at different levels (individual, organisational, and interorganisational).

As the knowledge transfer process consists of making targeted interventions in the organisation’s knowledge base, the research framework offers an overview of the stages in the knowledge transfer process (See Category B, Figure 8.11).

The final tentative conceptual framework reflects the discovered empirically-grounded pattern and certain dimensions of interfirm knowledge transfer in alliance networks, including initial knowledge contribution, knowledge development, and interpartner learning trend beyond the alliance formation stage. This research framework suggests that the development of knowledge transfer understanding is an incremental process.

This framework opines that interfirm knowledge transfer in alliances refers to a complex set of arrangements, and the key element in knowledge transfer is recognising challenges leading to some technical, behavioural and mindset changes and/or the development of new knowledge (See the dash lines linking Category B and H, Figure 8.11). The revised model finally suggests that there exists a mediated relationship between the antecedents to interpartner knowledge transfer and learning performance, as managing knowledge resources effectively and efficiently is a key to the firm's competitive development (Despres & Chauvel, 1999; Ding et al., 2009b). The change in what an individual, a group or a firm can do is initiated by learning. Moreover, it is the use of the acquired technological, organisational, and social cultural resources (tangible or intangible skills and knowledge) that brings about a behaviour change at the individual, group, or firm level. This conclusion suggests that the IJV partners' ability to understand each other's knowledge needs and their ability to identify, acquire, integrate and develop that knowledge lead to interpartner learning which then influences the learning performance in IJVs (See the lines linking Category B & A, Figure 8.11).

8.13 Chapter Conclusion

This chapter presents the main findings and relevant statistical results using CATPAC as an analytical tool for the purpose of perceptual mapping.

First, partner firms in Shanghai-GM reinforce the development of international cooperation as a means of increasing knowledge exchange and adaptation such as enlarging the products' range, and developing new car models. In the case, the foreign partner primarily provides the financial investment and equipment; however, either or both members can have opportunities to access important resources such as technology, marketing channels, management expertise and skills.

Second, both partner firms are motivated to increase their knowledge transfer activities to achieve competitive advantage levels similar to those of other competitors. There is a relationship between the objectives of partners and the resources brought into the alliance: each partner firm tries to access to what the other puts into the joint venture. In other words, cooperative partners can become sources of knowledge in the alliance; partner firms are dependent on the alliance for knowledge and other types of resources with the potential for utilisation elsewhere. Thus there is a shift from a single company's perspective to the double or multiple companies' standpoint of sharing costs, risks and benefits and accessing new resources (Child, 2001; Ding et al., 2009b).

Third, IJV knowledge transfer actually occurred over a longitudinal period involving intensive interactions between the partners. Different types of knowledge were transferred over time from key technologies, management skills, followed by the tacit, social, cultural knowledge, which is also a critical barrier

during the process. As time passed, both partner firms demonstrate efforts and commitments in facilitating interfirm knowledge transfer practices.

Conversely, the IJV knowledge transfer performance also significantly influenced the nature of the interfirm partnership. While alliance partners may share the same interest in transferring knowledge, they are likely to differ in terms of their foci. Firms and managers are thus faced with the imperative of dealing intelligently with knowledge transfer practices. It is also emphasised that knowledge transfer and learning do not take place in a vacuum, but in specific social and organisational environments (including their own knowledge base, willingness to share, learning intent, absorptive capacity, knowledge protectiveness, and cultural distance; each impacts differently on knowledge transfer performance in alliances). Hence, firms may need to establish effective mechanisms, which would have an impact on interfirm knowledge transfer, and thus on competitive advantage. The next chapter will provide a summary of the research conclusions and key implications derived from the research findings.

Chapter 9 Summary and Conclusions

9.1 Introduction

The purpose of this chapter is to identify the main contributions of the research findings in relation to interfirm knowledge transfer in IJVs in the Chinese automotive industry. The discussion of knowledge transfer and learning process based on the case IJV draws extensively on the existing international business literature in a number of areas; knowledge which is further combined with new research from both the case company and the fieldwork interview findings.

This chapter is structured in the following way. Section 9.2 summarises the thesis and presents the detailed arguments of each chapter. Section 9.3 briefly explains the findings of the study. This chapter also considers theoretical contributions (section 9.4), managerial implications (section 9.5), research limitations (section 9.6) and the suggestions for future research (section 9.7). Finally, this chapter concludes in section 9.8 with a restatement of the research goals accomplished in this thesis.

9.2 Summary of the Thesis Chapters

Chapter 1 presented an outline of the major issues in relation to knowledge transfer in IJVs and the impact on the alliance firms at the strategic level. The background for the study was outlined to place the work in a wider context. The research objectives, research questions and relevant theoretical approach that provided the basis and framework for the research study were described and explained. The reasons for conducting the study were introduced, and the methodology and research approach employed were briefly described and explained. The contextual and theoretical limitations of the study were presented along with the structure of the thesis.

Chapter 2 presented an overview of the literature and the relevant theories concerning the area of study. It critically reviewed theories relevant to the research questions. The purpose was to illustrate the importance of interfirm knowledge transfer in IJVs and relevant knowledge transfer barriers and facilitating mechanisms and knowledge transfer stages for alliance partners faced with the new knowledge environments. Based on the review of the literature, this chapter considered the theoretical and practical implications of knowledge transfer in alliances and examined the particular characteristics of knowledge transfer and learning process as an additional way of looking at cooperative relationships. This discussion served as the theoretical starting point for defining the frame of reference and the building blocks of the conceptual framework proposed in the next chapter.

In *Chapter 3*, building on the research questions, the conceptualisation of the relationship between cooperative alliance arrangements and knowledge transfer on the one hand, and the knowledge transfer stages and relevant categories on the other hand, a framework of knowledge transfer within learning IJVs was provided. This conceptual research model justified the constructs and identified

the interrelationships among these concepts and categories. The main purpose was to extract suggestions and constructs from different literature perspectives that could be helpful in answering the research questions in the thesis. The aim was not to give an exhaustive overview, but rather to highlight the theoretical foundation of this thesis for conducting the empirical investigation.

Chapter 4 initially described the methodology used when obtaining and analysing the data needed for analysis. This chapter provided the justification for using the qualitative approach in this research. The fundamental exploratory approach of the research formed the basis upon which the methodological decisions were made. This exploratory study generates relevant concepts and elements based on the empirical findings from a holistic perspective rather than simply testing the extant theories.

Drawing on the relative philosophical theories about methodologies, plus the identification of research context and questions, this chapter also identified the case study as being the most appropriate method for this research. This kind of qualitative case research may permit deeper understanding and sharper delineation of concepts, and allow for theory building that focuses on the phenomena related to knowledge transfer performance in IJVs. Furthermore, the embedded alliances/IJVs structure and the evolution processes are context specific.

This chapter then described the software package used in this research – CATPAC – to provide statistical frequencies in portraying the results/findings of the research. A computer-assisted approach employed for the management and analysis of respondents' data has several advantages over manual systems, particularly where there is a need to handle large volumes of textual data in qualitative research, at high speed, with rigour and consistency, plus the repetitiveness of the research task (Silverman, 2000). This combination of

theoretical paradigms gives the researcher the opportunity to apply a wide range of data collection and analytical tools and to build the research from one stage to the next. This is an efficient way to advance the theory of IJV knowledge transfer noted by Easterby-Smith et al. (2008).

Chapter 5 and *Chapter 6* outlined the research context of the thesis. These two chapters explained the global, US and Chinese automobile industry and established a background for the study in outlining the significance and rationale for using the global, US and Chinese automobile industry as the research context.

Chapter 5 looked at the specific characteristics of the automotive industry in a global and US context to explore industry-related issues, highlighting its importance and significance in 100 years, and why society has so readily embraced the global automobile industry as a mechanism for economic and social development. After reflecting upon previous several transformation stages of the world automobile industry, this chapter emphasised that for nearly a century the future of auto industry seemed more critical than its past. *Chapter 5* concluded that the global automotive industry today is in the middle of a dramatic and unprecedented transformation since 2008. On one hand, questions have been raised about the long-term prospects for the automobile industry due to the weak global economy, the emergence of excess production capacity, and saturation in the main global markets. On the other hand, in trying to find solutions for these problems, MNE automakers are now turning to future opportunities in emerging markets, such as South America, East Europe, and the Asia Pacific regions.

Chapter 6 initially argued that among these emerging markets, global MNE automakers are penetrating aggressively into China, placing their hopes for recovery on a huge surge in demand for their vehicles. Global businesses, including major auto companies, have viewed China as a very attractive emerging market since the early 1980s. *Chapter 6* sought to explore the features and

prospects of the evolution and restructuring of China's automobile industry, which helps better understand the changing market situations, policy formulations, inward FDI activities as well as the embedded incentives of technology (knowledge) transfer rationale in the auto IJVs in China. This chapter provided an overview and the key characteristics of the institutional environment which impacts on the historical development path of China's automobile industry at the time of the study. The description of the historical development and the current features of the industrial policies portrayed the rise of the automobile industry in China. This chapter also depicted the key Chinese FDI policies in the auto industry, and summarised the Sino-foreign auto JVs patterns – an important context in understanding the sources of success and failure in this emerging and promising auto market. The unique institutional environment, combined with the globalisation context of the auto market, emphasised the importance of knowledge resources for industry and the IJV market growth. This chapter concluded that the mechanism of FDI, joint venture development, foreign technology transfer and relevant auto industry policies have impacted on the emerging development path of the Chinese auto industry.

Chapter 7 was concerned mainly with the partnering companies' profiles and case background, describing the dynamic development of the Shanghai-GM project since its formation to the date of the study. The within-case description and companies' background underlined the ideographic nature of alliance networks and interpartner knowledge transfer practices in developing and building the alliance competitiveness. This chapter examined the ways in which the partner companies approached interactive cooperation and interfirm knowledge transfer practices. The partner firms in this IJV brought together their complementary knowledge resources in automotive technology and management expertise with its own expatriate managers to facilitate knowledge sharing and alliance learning which consisted of four elements: (1) contracts and agreements

that clearly articulated each member's responsibilities; (2) interorganisational knowledge transfer procedures; (3) a set of communicating channels, including a personnel management system; (4) partnership evolution at the interfaces between the participating firms.

The main issues identified in *Chapter 7* were how partner firms jointly exploited the partners' strengths in order to build alliance efficiency. SAIC was motivated by anticipation of foreign technology transfer in order to compete more effectively in the increasingly competitive auto market in China. GM wanted to take advantage of knowledge transfer-oriented cooperative arrangements, working with SAIC to reduce costs and expand business opportunities in the Chinese auto market, as GM suffered a huge crisis in its home market. This chapter concluded that the close collaboration helped the partners to work better together in the car industry, and they also learned how to improve the alliance performance and trust each other. As GM transferred the necessary knowledge throughout, the local partner's knowledge of the operation was satisfactory. Both partners learned that things did not happen or change overnight. They also maintained a mutual understanding of each other's capacities and requirements, and were supportive of each other in the JV.

While the focus in *Chapter 7* was on the historical developments of the interfirm knowledge flows in Shanghai-GM, it was those features in the developments that the case firms shared that provide a basis to advance analysis in *Chapter 8*. In the pursuit of an understanding of common features a process of textual analysis was undertaken in *Chapter 8*. This chapter presented and discussed the statistical results of the empirical research conducted for the study following the CATPAC programme procedures, which was programmed to analyse data in a consistent, replicable, and unbiased way. CATPAC read the text, identified the most important words and concepts within written text, and

determined their patterns of similarity based on the way they were used in the text. This chapter identified sources of change-driven IJV reconfigurations and the prompted shifts in interpartner knowledge transfer practices. This chapter also analysed the implications of knowledge transfer and learning practices in the case of IJV. Each of the dominant themes was discussed. Data were presented in a way that could be identified, and commented on when necessary. Relevant factors such as willingness to transfer, learning intent, partnership development and relationship capital that affected the knowledge transfer process, as well as the benefits gained and difficulties experienced during the logical stages of knowledge transfer, were discussed in this chapter.

Chapter 8 presented main findings and relevant results: First, partner firms in Shanghai-GM reinforced the development of international cooperation as a means of increasing knowledge exchange and adaptation, such as enlarging the products' range, and developing new car models. Second, the partner firms were motivated to increase their knowledge transfer activities to increase competitive advantage levels similar to those of other competitors. There was a relationship between the objectives of partners and the resources brought into the alliance: each partner firm tried to access what the other put into the joint venture. In other words, cooperative partners became sources of knowledge in the alliance; partner firms were dependent on the alliance for sharing knowledge and other types of resources with the potential for utilisation elsewhere. Third, IJV knowledge transfer occurred over a longitudinal period involving intensive interactions between the partners.

9.3 Summary of the Research Findings

The knowledge transfer approach to business management necessitates the identification and valuation of knowledge, and its context-appropriate application, and the use of alliances has been seen to dramatically shape knowledge transfer patterns (Ding et al., 2009b; Tiemessen et al., 1996; Yan & Luo, 2001). It should be pointed out that the knowledge transfer processes are interrelated and used for illustrative purposes, and these are not explicitly separated from each other. The researcher recognised different yet interrelated knowledge flows, and each of these flows calls for related yet unique knowledge management processes within the alliance.

It was discovered in the thesis that interorganisational knowledge transfer is a multidimensional concept which has an impact on learning performance. The driving factors mentioned in the thesis formed the context in which knowledge transfer and interpartner learning were explored effectively in the research framework, and have been identified as a result of both an extensive literature review and discussions with managers from the case company. These factors created an environment for the learning IJV to gain a competitive advantage. In other words, the driving factors created not only the challenges but also the opportunities for the partner firms to successfully conduct knowledge transfer and learning. Schein (1993) argues that “current circumstances tell us that learning is no longer a choice but a necessity” (p. 85). Some commentators (i.e., Ding et al., 2009b; Van Wijk et al., 2008) would go further, arguing that the goal of transferring knowledge and learning the management knowledge and skills is necessary for firm survival.

Meanwhile, as knowledge transfer manifests itself through changes in the recipient’s knowledge-based performance, it is often considered as an unfolding stage through which one factor could be affected by another factor (Argote &

Ingram, 2000; Szulanski, 1996; Buchel et al., 1998; Berdrow & Lane, 2003). The learning itself depends on the partners' intent, alliance structure, communication, cooperative relationship and cognitive shared understanding which have potential roles in these mutual-learning activities and on the transfer of knowledge. This case research found that success in learning depends on certain factors, i.e., the willingness, intention, openness, and ability of the partners to share knowledge. This observation corresponds well with the work of Ding et al. (2009b) and Wang, Lee, Lin and Zhuo (2007).

This case research demonstrated that for companies relying on knowledge and innovation for their competitive edge, the formation of interorganisational cooperation to improve knowledge transfer performance is significant (Choi & Lee, 1997; Nonaka, 1991, 1994; Lynn & Rao, 1995). The effective management of knowledge is increasingly considered a vital ingredient in competitive success (Davidson & Voss, 2002; Foss et al., 2010; Grant, 1996; Spender, 1996). In the case study, learning is an ongoing activity rather than a discrete outcome, and knowledge transfer mediates the relationship between organisational features and various types of alliance performance. In conceptualising the probable linkages between knowledge transfer, learning, and performance, this research argues that different categories of knowledge transfer need to be distinguished and examined separately at different levels in relation to efforts and expected outcomes of the IJV learning. The results show that different types of knowledge were also transferred over time from key technologies, management skills, followed by the tacit, social, cultural knowledge, which was also a critical barrier during the sharing process. As time passed by, both partner firms demonstrated effort and commitment in facilitating interfirm knowledge transfer practices. Conversely, the IJV knowledge transfer performance also significantly influenced the nature of the interfirm partnership.

This research finally proposes that not only are certain IJV characteristics associated with knowledge transfer and learning, but that the degree of learning outcomes – knowledge development and effective knowledge application in the IJV – in turn, should be associated with better IJV partnership development. Organisations are repositories of knowledge resources, and organisational learning is regarded as a key technique to increase organisational performance as it helps an organisation to utilise knowledge to make continuous progress and improvement in organisational development (Badaracco, 1991; Inkpen & Dinur, 1998).

9.4 Theoretical Contributions

The past decades have witnessed a mushrooming of foreign investment and IJVs development in China as an emerging market, accompanied by a surge in interest on the part of international business research in China (Beamish, 1993; Child, 1991; Daniels, Krug, & Nigh, 1985; Pearson, 1991; Peng, 2006). As in other transition economies, domestic companies in China are increasingly resorting to joint ventures with foreign companies in the hope of acquiring valuable knowledge from them. Foreign entrants into transition markets also often prefer to establish joint ventures with local partners because of the cultural distance, regulatory requirements, political risks, and need for market access.

The various kinds of international business operations present a number of both challenges and learning opportunities for the cooperative partner companies, for example dealing with cultural differences in the context of working practices and procedures, management decision-making, and the transfer of technology (Ding et al., 2009b; Pollard, 2001). Meanwhile, the process of interpartner knowledge transfer also involves significant commitment on the part of cooperating firms in both the cost of transfer which usually includes the use of expatriate staff to provide training and a commitment to manage the changes

necessary to incorporate new knowledge in existing corporate working patterns (Pollard, 2001).

Ding et al. (2009b), Foss et al. (2010) and Yan and Luo (2001) noted that knowledge transfer and organisational learning has long been considered a major source for firm growth and knowledge acquisition. For example, the necessity for dynamic learning is magnified during international expansion because it helps the firm overcome the liability of foreignness when operating abroad. Barringer and Harrison (2000) further point out that although organisational learning theory is predominantly a behavioural discipline, international expansion does not only have certain economic implications (reducing costs and increasing revenues and profitability), but also provides learning opportunities for firms entering into a new market to acquire distinct skills and new concepts critical to global success.

Although the motives for establishing IJVs are fairly well established, interorganisational knowledge transfer aspects have generally been neglected in the literature (Ding et al., 2009b; Tsang, 1999; Inkpen & Pien, 2006). Few studies have been done to examine interpartner knowledge transfer in IJVs from a dynamic process perspective (Eunni et al., 2006), and the key factors and the process of interpartner knowledge transfer are less understood (Steensma & Lyles, 2000).

Consistent with a resource-based perspective, the researcher in the thesis argues that effective mutual learning stabilises the alliances/IJVs. Partners' managerial assistance and technical knowledge contribution had a positive influence on alliance success (Steensma & Lyles, 2000). This result confirmed the work of Hill and Hellriegel (1994) that there is a strong positive association between interpartner consensus and the venture's overall performance. Moreover, transferring knowledge resources also represents a long-term commitment on the part of alliances, and it tends to generate the goodwill of the foreign and Chinese

firms and relevant government authorities. Based on this exploratory case study, this research gained insights into interfirm knowledge transfer in IJVs, and the following contributions can be made to the existing interorganisational knowledge transfer and alliance learning as follows.

First, it adds a resource-based view to examine the interorganisational knowledge transfer and learning process in alliances/joint ventures in several ways: (1) knowledge transfer in IJVs is a two-way sharing process; (2) knowledge transfer spans various levels: technical, organisational, and managerial mindset level; (3) several key factors such as willingness, intent, knowledge base, and cooperative partnership play an important role in the interfirm knowledge transfer process.

Second, this research focuses on knowledge transfer within IJVs, which provides an important addition to the international management literature on the impact of relationship capital (including mutual interaction, trust, and shared understanding) on knowledge transfer. This thesis found that effective partnership facilitated knowledge transfer in the IJV. A partnership may have begun as a contractual agreement, but it still can result in a relationship that is close or special.

Third, this research looks at the relationship between tacit and explicit knowledge and provides an important step forward by differentiating them and also empirically showing their direct relationship. By differentiating between tacit and explicit knowledge, the thesis is able to advance the explanation developed by Lane et al. (2001). They found that trust is not related to learning; however, the conceptual model in this thesis suggests that trust, strong IJV network ties, and shared values and systems enhance the transfer of both explicit and tacit knowledge.

Fourth, by examining the interaction effects of network relationship, initial knowledge resource contribution finally brings about knowledge resource development; this research can contribute to reconciling the partnership-performance linkages within the strategic alliance literature. The results provide a value-added contribution to our knowledge of alliance learning operations beyond the formation stage.

9.5 Managerial Implications

With respect to the implications to management practices, the thesis suggests that interfirm knowledge transfer should consider key influencing factors in building a knowledge-sharing platform, which facilitates knowledge exchange and learning, to enhance competitive advantages.

The implications of the findings in the thesis for international managers include: a) the decision to implement a knowledge transfer strategy is a key strategic decision, but one which despite its importance, has not been well understood; b) managers need guidelines to cope with knowledge transfer if they expect to use this strategy effectively; and c) managers must understand the forces that increase the value of knowledge, so they can manage these forces to their best advantage. Given the accelerating pace of industry evolution and the increasing interdependencies among players within previously independent industries, managers must evaluate all of their strategy options carefully.

Regarding the use of mechanisms, on the one hand, international managers need to take the advantage of the opportunities such as formal contracts, on-site training programmes, expatriates and task forces deployments to enhance knowledge transfer. On the other hand, it is also desirable to utilise and promote certain socialisation mechanisms such as individual trust, commitment, mutual interaction and shared understanding for smoother and efficient knowledge transfer. The mere existence of such alliance network structure does not

automatically lead to knowledge flows. Through socialisation mechanisms, potential transaction costs or problems may decrease and partner firms exchange and develop better knowledge.

The research results also emphasise the importance of willingness to share, relationship building and management in dynamic and volatile environments which characterise transition economies. From a management viewpoint, knowledge transfer in a transition economy will not succeed unless both partner firms make a strong commitment and willingness to the venture. Relationships between foreign firms and Chinese partners play a crucial role. Contracts mean little when legal systems change rapidly and rules of the competitive game are in flux. Strong relationships will ensure that through both rough and smooth times partner firms can make progress toward their knowledge goals. The critical backdrop to this is a high degree of trust and the minimisation of conflict between partners. This commitment should be more than a pledge of equity, management talent, or technical personnel. This is especially true when conducting business in the Chinese environment.

Compared with SAIC's other joint venture partner – German Volkswagen (VW) – General Motors demonstrated a positive attitude and commitment toward its Shanghai-GM joint venture development. VW was reluctant and thought it was not necessary to provide the most up-to-date vehicle models and design capacities during the period of the cooperation with SAIC, gradually resulting in complaints and dissatisfaction from its Chinese partner. GM, however, grasped this JV opportunity and continuously introduced its world-class vehicle manufacturing expertise and newest models into the Chinese market, a decision which could explain why GM has been gaining profits in China in recent years since the establishment of Shanghai-GM. Foreign companies thus should proactively find ways to transfer crucial knowledge needed to shore up the competitive position of

the venture. Meanwhile, foreign entrants from developed markets also need to consider the cooperative learning opportunities to acquire the much-needed local knowledge from their joint activities with the local partners when conducting business and contributing their knowledge resources in the alliances, as knowledge transfer is not just a single way, which is evident in this case.

At the same time, the local recipient firms cannot remain passive; they must be receptive to the knowledge contributor's efforts, taking advantage of the learning opportunities when cooperating with foreign MNEs, digesting and transforming the acquired knowledge into their own strength, and further conducting innovation.

Given the importance of knowledge transfer strategies and the many remaining unanswered questions, there is a need for rigorous inquiry that joint ventures might be undertaken with various expectations for success. It is important to recognise that firms have varying strategic objectives, strengths, knowledge resources, and other important differences that will temper their choice of which industries to enter, which firms to choose, and how to make their decisions concerning interorganisational knowledge transfer. If managers are open to change, interpartner activities can be a way of building strengths through innovation in their managerial practices and methods of diffusing technology.

Managerial practices can be modernised through contact with innovative information systems and administrative techniques used by other firms, as with cooperative ventures that bring together international partners. Firms need to treat learning as an explicit objective of international cooperative arrangements and create mechanisms and systems by which interpartner learning opportunities can take place (Faems et al., 2007; Yan & Luo, 2001). Only if partners can overcome inhibitions regarding interorganisational knowledge transfer and develop systems to use them effectively, their firms can build strengths and gain knowledge by

cooperating, as in the case example in the Chinese automobile industry. It is important to recognise the nature of those differences and changes when all actors should be working together for mutual gains. Finally, it is important to distil the skills of managing knowledge transfer into patterns that suggest which knowledge management practices are most likely to prosper and to relate these patterns to an alliance framework for creating and managing knowledge successfully.

In sum, the economy of the twenty-first century is closely linked to the knowledge-based competitiveness. With increasing global competition, we have moved to a world where knowledge transfer and learning are significant. Through the knowledge processes, managers seek to increase employees' expectations and their capabilities in dealing with constant changes from diverging and unpredictable forces. If many of the difficulties relating to knowledge transfer can be recognised and analysed, it could be easier to develop knowledge transfer guidelines.

9.6 Research Limitations

This research explored several major elements influencing the transfer of knowledge in IJVs in the Chinese auto industry context. However, there are several limitations in this research.

First, as the researcher uses one industry/market setting in a transition economy, the generalisation of results to wide contexts should be made with caution. Transition economies have some common features, such as “gradual transformation from a planned economy to a market economy, opening up to the outside world, embracing the inward foreign direct investments, and state-owned enterprises' privatisation” (Tsang, 2005, p. 442). However, there are still differences among transition economies and other emerging economies because of cultural, political, social, and historical factors. Research findings “collected in

one transition economy may not be wholly generalisable to another” (Tsang, 2005, p. 442).

Therefore, the propositions drawn from the literature and the choice to focus on one industry initiated in one transitional economy – China – does limit generalisation of the results to other settings, and it is necessary to expand the geographical scope and study other transition economies. By so doing, it is possible to obtain a more in-depth understanding of the common characteristics of transition economies as a whole. The statements are tentative and await further testing and verification.

Second, the thesis findings are only based on top executives’ comments. However, it is necessary to interview other average employees in the joint venture(s) to obtain their perceptions regarding interpartner knowledge transfer practices.

Finally, this thesis is only a small-sample exploratory case study, which is only focusing on an existing IJV knowledge transfer “survivor”, while screening out those IJVs that have been purposely dissolved despite having undertaken successful knowledge transfer practices. Thus the findings reported in this thesis should be carefully considered. Future research could be done using multiple case analysis techniques.

9.7 Suggestions for Future Research

Considerable research has investigated the transferability of knowledge within an organisation, a complicated issue given the “sticky” nature of knowledge and organisational complexity. Despite the proliferation of research on interorganisational knowledge transfer, knowledge transfer is still a complex phenomenon and the body of theory on alliance knowledge transfer as a whole is underdeveloped – to the extent that there are many competing perspectives (Easterby-Smith et al., 2008; Inkpen, 2002). However, on the other hand, these

perspectives offer a range of insights that can be brought together sufficiently to distinguish key concepts and arguments from which a future research can be derived. The researcher has thus identified several interesting research tasks worth pursuing in the future and a number of suggestions for further research can be made as follows:

First, knowledge transfer in both developed and developing countries with established market economies has received the most attention (Steensma & Lyles, 2000). The overall evolution from centralised economy to decentralised economy is a common phenomenon in many transitional economies and emerging markets. China's automobile industry has experienced a remarkable development in the last two decades and its institutional environment is very different from that of a developed economy. Local firms in the Chinese automobile market have experienced the evolutionary process of variation, selection, retention, and struggle in the past two decades. Thus, a longitudinal study on their strategic behaviours in a rapidly changing institutional environment and their knowledge transfer performance or survival consequences can help us answer the fundamental questions in the international business strategy field (Peng, 2000): Why do firms differ? How do firms behave? What determines the international success or failure of firms? Focusing on local firms can avoid some of the limitations experienced in this research, since more observations of these firms can explore more complex knowledge transfer processes. For example, a more detailed field study can be done in the future to uncover other complex factors that are influencing the success and failure of knowledge transfer in the Chinese automobile industry.

Second, this thesis emphasises the important role of "willingness to share" based on trust, interaction and shared understanding in the knowledge transfer process. However, as some researchers comment (i.e., Adler & Kwon, 2002;

Holste & Fields, 2010), building willingness is a cumulative process and costly to remain. Meanwhile, knowledge management efforts may need to “include a finer grained view of the nature of the social networks impacting on the knowledge transfer process” (Holste & Fields, 2010, p. 128). Hence, future research looking at the issue of how to build social capital or social networks may have valuable academic and practical implications

Third, together with more interfirm knowledge transfer from various industries in different country combinations, a future study can derive a more generalised research framework from these studies. Extending this research model to other industries (or automobile industry) in other transition economies such as Mexico, Brazil, Poland, and the Czech Republic where significant knowledge transfer activities can be found is a further possibility.

9.8 Chapter Conclusion

This thesis examined the particular characteristics of knowledge transfer and learning process as an additional way of looking at cooperative relationships. The focal point of this chapter was to provide conclusions for the thesis. Several limitations and key implications were explored for both theory and management practice in strategic partnerships, knowledge transfer and learning issues.

The case provided several main insights as follows. First, Shanghai-GM has to address environmental challenges to accommodate the knowledge transfer framework in a comprehensive manner. Second, the case identified a learning process after the initial technology transfer; indeed some interviewees suggested that a good deal of learning had still to be done. Third, the case shows the importance of a partnership commitment to provide not only resources for knowledge development and adaptation but also in playing their part in indicating their importance for the future of the venture. This case shows in detail how the IJV evolves by means of sequential adjustments – the partners created an enduring thread that connected the existing IJV to new network allies. Meanwhile, the mixture of contractual elements devised for the initial knowledge transfer agreement between GM and SAIC favoured culture over legal specifications and monitoring mechanisms, and thus was consistent with the contract arranged between them.

This thesis concludes that knowledge flows in alliances are related to the interorganisational cooperation process. In collaborative environments, this knowledge process involves the sharing of knowledge between the venture partners working together to increase their total knowledge base, a base that has the potential to affect innovative decision-making and strategic behaviour based on past accumulative organisational knowledge.

The thesis argues that in learning IJVs, the transfer of knowledge should be seen as a central tenet for all business partners, not merely be confined to the research and development area (Denton, 1998). The abilities to take knowledge from other organisations or other parts of the organisation and learn from what they are doing are, therefore, important.

However, such knowledge activities are complex enough within the same national environment but the knowledge process when transplanted to foreign locations poses further difficulties, especially when knowledge is acquired and institutionalised in a cross-border context. Firms can thus enhance their competitive position by cooperation, since within alliances there is a provision for mechanisms for knowledge transfer, and gain access to new knowledge and capabilities (Pollard, 2001). For instance, if the partners' marketing know-how is regarded as a resource, then market access can be achieved by using the partner firm's distribution networks.

Clearly, the major relevant concern here is how interactions contribute to knowledge transfer at individual, group firm and/or alliance level. These research findings are expected to contribute to theoretical understanding about interorganisational knowledge transfer practice, and offer new insights to enhance the current body of research on this topic.

Coda

Until 2008, before being overtaken by Japanese Toyota, GM was the No. 1 vehicle producer in the world. During its operational peak period, its annual sales of cars and trucks once reached over 9 million, distributed in 34 countries and regions. GM once had 234,500 employees working in 463 subsidiary factories around the world. In the US alone, “US\$ 50 billion a year” could be spent for “purchasing parts and/or services from 11,500 American vendors” and “US\$ 476 million could be used for employees’ salaries every month” (“The Bankruptcy of GM”, 2009, para. 2). However, GM’s glory based on the above astonishing facts and figure could not cover up another truth: “against its US\$ 82.2 billion worth in total assets, GM had liabilities of US\$172 billion” (“The Bankruptcy of GM”, 2009, para. 3).

However, it was still a mission impossible for GM’s leadership to meet these demands from the government and “a bankruptcy filing” was bitterly but obviously unavoidable (Strumpf & Johnson, 2009, para. 30). That judgement day finally came – GM had to apply for its Chapter 11 bankruptcy protection on June 1, 2009. This filing “labelled an end for GM” (“The Bankruptcy of GM”, 2009, para. 2).

GM’s bankruptcy was considered “the fourth-largest in US history and the largest for an industrial company” which brought about a dramatic impact on US industrial world (Strumpf & Johnson, 2009, para. 2). GM’s dramatic downfall also meant “about 34% “of GM workers (over 21,000 employees) would lose their jobs, and the car dealers would be reduced to 2,600 from 6,100 (Strumpf & Johnson, 2009, para. 21). With the disposal of its European business operations and sell up some of its famous brands, such as Opel, GM was “no longer a truly global car company”, although GM still retain most of its factories in Latin American and Asian countries (“GM Goes Bust”, 2009, para. 3).

Reflecting upon its past, although GM once boasted a series of world famous brands vehicles, its reputation had been suffering for several decades when it made “bad cars, mismanagement and union intransigence” (“The Bankruptcy of GM”, 2009, para. 25).

Turning to Chrysler, which used to be one of the “Detroit Big Three”, its prospectus is still not very promising (“The Bankruptcy of GM”, 2009, para. 16). Chrysler tried to establish a partnership with Fiat to avoid the disaster of bankruptcy, and as a return, Fiat can “have 20% of the new company” (later increasing to 35%), and “a union trust is permitted to own 55% and the Government 10%” (“The Bankruptcy of GM”, 2009, para. 16), Chrysler is still suffering huge debts and other liabilities.

It seemed that only Ford Motor Co. avoided bankruptcy at this stage. Ford once stated that it “remains absolutely committed to continuing to make progress on transformation plan without accessing emergency taxpayer assistance from the US government” (Strumpf & Johnson, 2009, Para. 23). Ford once also mortgaged “all of its assets in 2006 to borrow roughly US\$ 25 billion”, which gave it “a financial cushion that GM and Chrysler lacked” (Strumpf & Johnson, 2009, Para. 22). However, Ford “has still been stung hard by plunging sales of cars and trucks in recent years” (Strumpf & Johnson, 2009, Para. 22).

In sum, the “Detroit Big Three” that made over half of the cars on America’s roads a few decades ago”, are now experiencing a new era of transformation (“GM Goes Bust”, 2009, para.7). With the world auto market share shrinking and global economic decline, the future prospects for the American auto industry are not optimistic and it all seems that their competitiveness was weakened by so many problems. The key challenge is, whether or not American Detroit can “revive its good name” (“GM Goes Bust”, 2009, para.7), or rely on automobile sales in the emerging markets, such as China.

On August 18, 2010, GM filed an application to make an initial public offering (IPO) of the ‘slimmed down version’ of GM to the US Securities and Exchange Commission. It was reported by Reuters on August 19, 2010 that GM wants to “distance itself from government ownership” (Reuters, 2010, para. 13) and “attracts private investors” (Reuters, 2010, para. 11), as “government ownership has hurt GM’s public image and sales” (Thomas, 2010, para. 12). Starting “as early as October” (Thomas, 2010, para. 2), GM plans to raise up to US\$ 20 billion in the IPO process, making it one of the biggest IPOs ever in the US history (Reuters, 2010).

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Appendix A Ethical Approval Application

Waikato Management School
Te Raupapa



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

1. Title of Project:

Knowledge Transfer and Learning in International Joint Ventures in China
(*Original Title*)

2. Researcher(s) name and contact information:

Name: Qiang (Ken) Ding (PhD Candidate)
Department of Strategy & Human Resource Management,
Waikato Management School,
The University of Waikato
Email: qiang_ding@hotmail.com

3. Supervisor's name and contact information:

Dr. Michele Akoorie,
Department of Strategy & Human Resource Management,
The University of Waikato
Tel: 0064-7-8384466, extn. 8642, Email: mema@waikato.ac.nz
Dr. Kathryn Pavlovich,
Department of Strategy & Human Resource management,
The University of Waikato
Tel: 0064-7-8384837, Email: KPAV@waikato.ac.nz

4. Brief Outline of the Project (what is it about and what is being investigated):

In the research project, the student researcher will review the literature in order to assess what is already known about knowledge transfer as a result of cooperative arrangement. The researcher will address the question of what modes of knowledge transfer are and should be used to enhance value creation through joint ventures. Based on the analysis, the researcher will present an organisational learning model.

5. Methodology:

The student researcher will be using qualitative case study with an interview method and other sources of evidence to assist with gathering the archival secondary data.

6. Expected Outcomes of the Research:

The student researcher will write a PhD thesis report based on the collected information. Under the supervision and direction of the PhD supervisors, the convenor and Waikato Postgraduate Studies Committee, the research report will be published in whole / in part outside the Waikato University environment.

7. How will the participants be selected and how many will be involved?

Convenience or purposive samples will be selected on the basis of willingness and availability of prospective participants. Participation is entirely voluntary. For the research project, the researcher will focus on one IJV case company – Shanghai GM and about 20 interviewees will be involved.

8. How will the participants be contacted?

Participants are likely to be key IJV managers and government officials who will be selected as key informant persons to offer multiple perspectives on the same cases of knowledge transfer and managerial learning. The student researcher will approach prospective participants personally, either face to face at research sites or by phone, email, or letter as appropriate. The consent form and information for Chinese participants will be translated into Mandarin by the researcher who is a bilingual English/Mandarin speaker.

9. Explain incentives and/or compulsion for participants to be involved in this study.

There is not incentive or compulsion. Participation is entirely voluntary.

10. How will your processes allow participants to:

1. refuse to answer any particular question, and withdraw from the study at any time;
2. ask any further questions about the study, which occur during participation;

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3. be given access to a summary of the findings from the study when it is concluded.

Participants will be explained the nature of the research by the student researcher and given an information sheet and an opportunity to ask questions before and during the research. They will be told they could withdraw at any time without having to give any reason and that if they wish, the student researcher would provide them with a summary of the findings when the study is concluded. For Chinese participants, the interviews will be conducted in Mandarin. For American participants, the interviews will be conducted in English.

11. Explain how any publications and/or reports will have the consent of participants and how the anonymity of participants will be protected.

It will be explained to participants that their names will not be used in the thesis report unless they have given permission. Interview participants will be asked to sign a consent form. No person other than the student researcher, the PhD supervisors and Waikato Postgraduate Studies Committee may have access to the completed consent forms.

12. What will happen to the information collected from participants?

The completed consent forms, the tape recordings and interview transcripts will be archived securely for an indefinite period with adequate measures to protect confidentiality.

13. Anticipated date to begin data collection.

The beginning of November, 2005.

Appendix B Consent Form for Participants

I have read the Information Sheet for Participants for this study and have had the details of the study explained to me. My questions about the study have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I also understand that I am free to withdraw from the study at any time, or to decline to answer any particular questions in the study. I agree to provide information to the researchers under the conditions of confidentiality set out on the Information Sheet.

I agree to participate in this study under the conditions set out in the Information Sheet form.

Signed: _____

Name: _____

Date: _____

Researcher's Name and Contact Information:

Qiang (Ken) Ding, Department of Strategy & Human Resource Management
Mobile Phone: 0064-21-1073378, Email: qiang_ding@hotmail.com

Supervisor's Name and Contact Information:

Dr. Michele Akoorie, Department of Strategy & Human Resource Management

Tel: 0064-7-8384466, extn. 8642, Email: MEMA@waikato.ac.nz

Dr. Kathryn Pavlovich, Department of Strategy & Human Resource Management

Tel: 0064-7-8384837, Email: KPAV@waikato.ac.nz

Appendix C Interview Guide for American Managers

The following guide is to be used in the case interview. The general headings provide structure to the interviews, while the detailed questions are to be used primarily as a “check” in the interview process to ensure comprehensive data collection.

Outline of Interview Question Areas

- For the interview, your practical experiences, personal perceptions and thoughts regarding the following research project areas would be valuable to me. You do not need to have specific knowledge and expertise about these items.
- If you cannot give me the direct answer to a particular question right now, I would appreciate it if you could email me your response as soon as possible.
- I can terminate the interviewing process if you have particular reasons or you need time to think about some issues and you have the right to answer the questions according to your judgment.

1. IJV Company Demographics (SGM)

1. Your position and title
2. Level and percentage of the investment in the IJV (GM and SAIC respectively)
3. The number of employees in the IJV
4. Numbers of expatriates from GM, their positions and responsibilities
5. Description of the products/services produced and sold by the IJV
6. The organisational structure in the IJV
7. Market share of main products in the IJV

2. International Experience of GM (In general)

2.1 Please tell me about GM's international business development and expansion activities in recent years.

2.2 Please tell me about GM's experience of operating in an international environment (not country-specific). The number of countries in which GM has been operating abroad, and the current situation of operations.

2.3 What criteria does GM use when selecting a market for the international activities?

3. Knowledge and Experience in IJV Context (In China)

3.1 Please tell me how GM came to be involved in IJV operation with SAIC. When was that?

3.2 What are the factors influencing GM's decision to enter into Chinese auto market?

- Gain faster entry to the Chinese market;
- Facilitating the international expansion;
- Conforming the incentive of the Chinese Government policies to attract FDI;
- Obtaining a faster payback on investment;
- Co-opting or blocking competition;
- Economies of scale scope and /or rationalisation;
- Technology exchange.

3.3 What are the main reasons that GM wants to set up the IJV form in China? (Comparison with licensing, agents, representatives, cooperative agreements with foreign firms, joint ventures, wholly owned enterprises).

3.4 What are the factors affecting GM's decision to select a Chinese partner?

- Chinese partner's production capacity and technology
- Chinese partner's ability to negotiate with the host government
- Chinese partner's established marketing and distribution system
- Chinese partner's strength of management
- Chinese partner's knowledge and experience of business practice in the
- Chinese context
- Chinese partner's knowledge of Chinese business culture

3.5 What are the factors influencing GM's decision on IJV location?

- Proximity to the Chinese partner;
- Proximity to the target major market;
- Availability and access to basic natural resources;
- Availability and access to low cost labour;
- Access to financial incentive provided by Chinese Government for particular regions (such as Economic Development Regions);
- Availability of skilled employees;
- Availability of better infrastructure, such as transportation, communication, stable supply of electricity.

4. External Environment and Knowledge Transfer

4.1 How would you describe the Chinese business environment?

- Political risk perceived by GM expatriates;
- Influence of changes of the Chinese Government's policies related to FDI on IJV operation;
- Influence of issues concerning legal system on IJV operation;
- Issues of local infrastructure (e.g., transportation, communication, land use, electricity, water supply).

4.2 Are the above issues difficult/easy to understand or not? How did they affect doing business here? Generally – your opinion from what you know so far.

5. Industrial Knowledge and Structure in China

5.1 How would you describe the automotive industry in China?

- Market scale and sales growth in the auto industry;
- Entry barriers in the auto industry for FDI set up by Chinese Government.
- Competitive situation in the auto industry

5.2 How would you describe other competitors at the moment?

5.3 Is it fiercely competitive or there is a huge space for future development?

6. Production strategies and Technology Transfer in IJV

6.1 Please give me some information about the following issues.

- Sources of production machinery and equipment
- Extent of technological-advance of machinery
- Sources of engineers and technicians
- Education background and career experience of engineers and technicians
- Percentage of expenditure on R&D in total sales
- Influence of R&D on IJV's competitive advantage
- Influence of R&D on IJV's sales growth and market share
- Quality of control for IJV products and services

6.2 In the IJV context, have you learned some skills or knowledge from your Chinese partner and adjusted your technical expertise according to the Chinese local conditions?

6.3 How do you organise technology transfer and knowledge management? What are the techniques or strategies used by GM to "safely" transfer technology to your Chinese partner? Please give me some examples.

6.4 Does GM's strategy change to adjust for changes in the technology transfer?

6.5 How do the IJV's business activities change to fit changes in the technology transfer in the Chinese market? Examples

6.6 Is the technology transfer process part of the future internationalisation strategy in the IJV?

7. Knowledge Transfer Regarding Marketing Methods

7.1 Please give me some information about the following items.

- Numbers of personnel in marketing section
- Strength and weakness of IJV's products compared to those produced by other firms in the same industry
- Marketing channels and distribution of marketing offices
- Methods of after-sale services
- Importance of marketing management, as applied to the IJV (e.g. marketing research, marketing planning, competitive analysis).

7.2 In the IJV context, have you learned some skills or knowledge from your Chinese partner and adjust your marketing expertise /mindset according to the Chinese local conditions? Is it difficult to understand or not? Why?

8. Knowledge Transfer Regarding Human Resources Management

8.1 Please give me some information about the following items.

- Difference of IJV employees' recruitment methods and procedures;
- Employees' education background and skill level;
- Level of remuneration for employees compared to those of Chinese partner;
- Stability and turnover rate of employees;
- Issues concerning labour discipline, dismissal and reward;
- Training programme and promotion.

8.2 In the IJV context, have you learned some personnel skills or knowledge from your Chinese partner and adjusted your personnel expertise according to the Chinese local conditions? Is it difficult to understand or not? Why?

9. Learning Issues in IJV

9.1 Have the learning objectives been clearly stated in your company?

9.2 Is the planned duration of the cooperation consistent with achieving the learning objectives?

9.3 Does learning take place within the IJV? If so, which aspects of it or at what levels does it occur?

9.4 Are problems in the IJV perceived as learning opportunities?

What does it mean by "learning for shared understanding" in IJV (SGM)?

9.5 Is the knowledge acquired in the IJV to be used? And how?

9.6 Do you think learning positively affects performance?

9.7 How can the learning outcomes be transformed into real competitive advantages?

9.8 How can IJV (SGM) set up the learning culture to help you to gain knowledge from each other?

10. Culture difference between Partners on Knowledge Transfer

10.1 Please give me some information about the following items.

- Extent of culture distance perceived by partners in IJV operation
- Extent of culture distance perceived by partners in IJV performance
- Influence of culture difference on partner's objectives set for IJV operation
- Influence of culture difference on human resource management
- Influence of culture difference on marketing methods and management

10.2 How to deal with the above issues of culture difference for American expatriates?

10.3 What part, if any, do you think cultural differences play in conducting business in a foreign market such as China? (These might include, for example, language and communication, business practices, business protocols, etc).

10.4 How would you describe the organisational culture difference in GM and SAIC?

10.5 Have you set up a unique IJV's culture during these years of cooperation?

If yes, is the IJV's culture shared by all employees?

10.6 How do you perceive and monitor the cultural difference which may have potential impact on the JV's knowledge transfer and learning?

11. Communication and Interaction

11.1 Do you often feel misunderstood when you interact with the Chinese managers? And how do you tackle these problems? (through meetings, private discussion, etc.)

11.2 How is knowledge (tacit and explicit) and expertise transferred and distributed in SGM? Can you give me examples of the organisational routines in your company? (procedures, manuals, policies, directions).

11.3 From your experience, what are the main factors and instruments that encourage and facilitate transfer of knowledge between local partners and in IJV?

11.4 What are the main difficulties and barriers in transferring knowledge that have to be overcome between the partners?

11.5 How can barriers to knowledge transfer be dismantled?

Appendix D Interview Guide for Chinese Managers

(Translation)

The following guide is to be used in the case interview. The general headings provide structure to the interviews, while the detailed questions are to be used primarily as a “check” in the interview process to ensure comprehensive data collection.

Outline of Interview Question Areas

- For the interview, your practical experiences, personal perceptions and thoughts regarding the following research project areas would be valuable to me. You do not need to have specific knowledge and expertise about these items.
- If you cannot give a direct answer to a particular question right now, I would appreciate it if you could email me your response as soon as possible.
- I can terminate the interviewing process if you have particular reasons or you need time to think about some issues and you have the right to answer the questions according to your judgment.

1.IJV Company Demographics (SGM)

- 2 Your position and title
- 3 Level and percentage of the investment in the IJV
- 4 The number of employees in the IJV
- 5 Numbers of Chinese managers from SAIC, their positions and responsibilities
- 6 Description of the products/services produced and sold by the IJV
- 7 The organisational structure in the IJV
- 8 Market share of main products in the IJV

2. International Cooperative Experience of SAIC (In general)

- 2.1 Please tell me about SAIC’s business development and expansion activities in recent years.
- 2.2 Please tell me about SAIC’s experience of operating in an IJV environment, the number of IJVs in which SAIC has been operating in China, and the current situation of operations.

3. Knowledge and Experience in IJV Context

3.1 Please tell me how SAIC came to be involved in IJV operation with GM. When was that?

3.2 What are the factors influencing SAIC's decision to cooperate with GM?

- Gain bigger market share in the Chinese market;
- Conforming with the incentive of the Chinese Government's policies to attract FDI;
- Obtaining a faster payback on investment;
- Coopting or blocking competition;
- Economies of scale scope and /or rationalisation;
- GM's production capacity and technology
- GM's strength of management
- GM's knowledge and experience in the auto industry

3.3. What are the factors influencing SAIC's decision on IJV Location?

- Proximity to the Chinese parent company;
- Proximity to the target major market;
- Availability and access to basic natural resources;
- Availability and access to low cost labour;
- Access to financial incentive provided by Chinese Government for particular regions (such as Economic Development Regions);
- Availability of skilled employees;
- Availability of better infrastructure, such as transportation, communication, stable supply of electricity.

4. External Environment and Knowledge Transfer

4.1 How would you describe the Chinese business environment in terms of?

- Political risk;
- Influence of changes of the Chinese Government's policies related to FDI on IJV operation;
- Influence of issues concerning legal system on IJV operation;
- Issues of local infrastructure (e.g., transportation, communication, land use, electricity, water supply).

4.2. Are these above issues clearly explained to the American managers?

4.3 How about American managers' reactions to these issues?

4.4 Are these issues difficult/easy to explain to them or not?

4.5 How did it affect IJV business here?

Your opinion from what you know so far.

5. Industrial Knowledge and Structure in China

5.1 How would you describe the current automotive industry in China?

- Market scale and sales growth in the auto industry
- Entry barriers in the auto industry for FDI set up by Chinese Government.

5.2 Competitive situation in the auto industry

- How would you describe other competitors at the moment?
- Is it fiercely competitive or it is a huge opportunity for future development?

6. Production strategies and Technology Transfer in IJV

6.1 Please give me some information about the following issues.

- Sources of production machinery and equipment
- Extent of technological-advance of machinery
- Sources of engineers and technicians
- Education background and career experience of engineers and technicians
- Percentage of expenditure on R&D in total sales
- Influence of R&D on IJV's competitive advantage
- Influence of R&D on IJV's sales growth and market share
- Quality of control for IJV products and services

6.2 In the IJV context, have you learned some skills or knowledge from American managers and adjusted your technical expertise accordingly?

6.3 How do you organise technology transfer and knowledge management? How do you think of the techniques or strategies used by GM to "safely" protect technology transfer to Chinese partner? Please give some examples.

6.4 How do the IJV's business activities change to fit changes in the technology transfer in the Chinese market? Please give some examples.

7. Knowledge Transfer Regarding Marketing Methods

7.1 Please give me some information about the following items.

- Numbers of personnel in marketing section
- Strength and weakness of IJV's products compared to those produced by other firms in the auto industry
- Marketing channels and distribution of marketing offices
- After-sales service methods
- Importance of marketing management, as applied to the IJV (e.g. marketing research, marketing planning, competitive analysis).

7.2 In the IJV context, have you learned some skills or knowledge you're your American partner and adjusted your marketing expertise /mindset according? Do you accept all of these skills or not? Why?

8. Knowledge Transfer Regarding Human Resources Management

8.1 Please give me some information about the following items;

- Difference of IJV employees' recruitment methods and procedures;
- Employees' education background and skill level;
- Level of remuneration for employees compared to those of American managers;
- Stability and turnover rate of employees;
- Issues concerning labour discipline, dismissal and reward;
- Training programme and promotion.

8.2 In the IJV context, have you learned some personnel management skills or knowledge from your American partner and adjusted your Chinese personnel management expertise accordingly? Is it difficult to understand or not? Why?

9. Learning Issues in IJV

9.1 Have the learning objectives been clearly stated in your company?

9.2 Is the planned duration of the cooperation consistent with achieving the learning objectives?

9.3 Does learning take place within the IJV? If so, which aspects of it or at what levels does it occur?

9.4 Are problems in the IJV perceived as learning opportunities?

9.5 What is meant by “learning for shared understanding” in IJV (SGM)?

9.6 Is the knowledge acquired in the IJV used? And how?

9.7 Do you think learning positively affects performance?

9.8 How can the learning outcomes be transformed into real competitive advantages?

9.9 How can the IJV (SGM) to set up the learning culture to help you to gain knowledge from each other?

10. Culture difference between Partners on Knowledge Transfer

10.1 Please give me some information about the following items.

- Extent of culture distance perceived by partners in IJV operation
- Extent of culture distance perceived by partners in IJV performance
- Influence of culture difference on partner’s objectives set for IJV operation
- Influence of culture difference on human resource management
- Influence of culture difference on marketing methods and management

10.2 How do Chinese managers deal with the above issues of culture difference?

10.3 What part, if any, do you think cultural differences play in conducting business with American managers in China? (These might include, for example, language and communication, business practices, etc.).

10.4 How would you describe GM and SAIC organisational culture differences?

10.5 Have you set up a unique IJV's culture during these years of cooperation?

If yes, is the IJV's culture shared by all employees?

10.6 How do you perceive and monitor the cultural differences which may have potential impact on the JV's knowledge transfer and learning?

11. Communication and Interaction

11.1 Do you often feel misunderstood when you interact with the American managers? And how do you tackle these problems? (through meetings, private discussion, etc.)

11.2 How is knowledge (tacit and explicit) and expertise transferred and distributed in SGM? Can you give me examples of the organisational routines in your company? (procedures, manuals, policies, directions).

11.3 From your experience, what are the main factors and instruments that encourage and facilitate transfer of knowledge between local partners and in IJV?

11.4 What are the main difficulties and barriers in transferring knowledge that have to be overcome between the partners?

11.5 How can barriers to knowledge transfer be dismantled?