An Investigation of the Appropriateness of Internet Technology for Inter-firm Communication in the Thai Tourism Industry

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A thesis submitted in fulfilment of requirements for the degree of

Doctor of Philosophy

University of New South Wales

2007

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Dedicated to my parents, Thongchai and Yupa, my grandmother, Arney

and my partner, Chadi

ACKNOWLEDGEMENTS

ABSTRACT

The aim of this thesis is to investigate the appropriateness of B2B technology transfer in developing countries, particularly in Thailand. This study seeks an understanding of how Thai culture affects the appropriateness of B2B technology adoption for inter-firm communication in Thailand. A research model was developed for investigating this issue via a strategic fit lens. The proposed model extended the Task-technology fit (TTF) model by Goodhue and Thompson (1995) by integrating interorganisational theories and theories of national culture. This research takes the view that, to achieve a high utilisation of B2B technology adoption, firms in developing countries need to adopt effective IT strategies that align with their local environment. Hence, this research proposes that cultural fit is a major influence on the perception of appropriateness of B2B technology adoption in Thailand.

The study was conducted using both qualitative and quantitative approaches. The first study, the qualitative study, was conducted as a preliminary study by interviewing officials in the Thai government and companies in the tourism industry. The objectives were to explore and identify the cultural dimensions that impact on the appropriateness of B2B technology adoption in Thailand. The resulting dimensionalities of cultural fit are: personal relationships; long-term relationships; interorganisational trust; ability to communicate in the English language and materialism. The second study was conducted via a quantitative approach and scales were developed to validate the proposed research model. Data were collected through a survey questionnaire, and analysed by using Structural Equation Modeling with Partial Least Squares (PLS) method.

This study found that cultural fit does influence the appropriateness of B2B technology adoption in Thailand. A better perceived fit between Thai culture and B2B technology results in higher technology utilisation. In addition, the results of moderating effect analysis found that, although task-technology fit had no direct impact on utilisation, task-technology fit did have indirect impact on utilisation by moderating the impact of culture. Nevertheless, the results indicated that task-technology fit still had a greater impact on firms' perceived performance than utilisation.

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CHAPTER 1 INTRODUCTION

1.1 Background of the study

It has been predicted that Internet based business to business information technology (B2B technology) will accelerate the globalisation process and enable firms in developing countries to have wider and cheaper access to the global marketplace (Humphery 2002; Humphery, Mansell, Pare and Schimtz 2003; Kraemer, Gibbs and Derick 2002). In this study, the scope of B2B technology refers to the use of Internet technology for conducting inter-firm communication including e-marketplace and e-mail and excludes EDI. According to the World Bank (2006), developing countries are "low and middle-income countries in which most people have a lower standard of living with access to fewer goods and services than do most people in high-income countries". Thailand, the focus of this study, is classified as a developing country. The United Nations (UNCTAD 2001, 2002a, 2002b, 2005) believes that B2B technology will lead to a dramatic change in business organisations, and that, if these organisations do not change their way of doing business, they may not be able to survive in the digital economy. However, evidence shows that developing countries have a low level of B2B technology adoption. There is little evidence to support the assertion that these countries have gained net benefits from implementing this technology (Humphrey et al. 2003; Kraemer et al. 2002; Pare 2002, 2003; Tregurtha and Vink 2002). There is also doubt as to how B2B technology will provide firms in developing countries with new trading opportunities (Humphrey et al. 2003).

For businesses in the developing countries, B2B technology seems to be a predominantly western practice, derived in particular from the U.S., which has evolved from western cultural values (Hasan and Ditsa 1999; Roger 1995). Many e-commerce technologies and business models which originated from developed countries (Western society) may not be successfully implemented in developing countries (non-western societies) (Seror 1996; Straub, Loch, Evaristo, Karahanna and Srite 2002; Vatanasakdakul, Tibben and Cooper 2004). Shore and Venkatachalam (1996) state that

information system practices advocated in one culture may have limitations when directly transferred to another culture. In the case of developing countries in Asia, one of the most interesting factors that create a significant difference between western and eastern societies is the socio-cultural environment (Bhabha 1994; Scarborough 1998). The diversity of socio-cultural factors can be understood by the rich variety of ways in which members of a society assemble their systems of beliefs and values, of working and surviving, and of living in relationships with others (Anderson 1996). This diversity can be seen from the way of living, and attitudes and values which have at least partly been derived from economic pressures and educational background.

Due to cultural differences, the local context is important for technological planning and implementation (Anacleti 1996; Bunker 2001; McGrath 2004; Rogers 1995). Hofstede (2001) asserts that successful technology transfer, from advanced western countries to developing countries, needs to consider the appropriateness of technology in the local context. However, there has been little research related to socio-cultural impacts on the success of B2B technology transfer in developing countries, and whether transfer of this technology to these nations is appropriate to their local context. There is very limited study of international technology transfer of B2B technology (Kshetri and Dholakia 2002). This research, therefore, aims to investigate the appropriateness of B2B technology transfer, and, in particular, to locate the research in Thailand with reference to the Thai tourism industry, taking into consideration the role of Thai national culture in technology adoption.

1.2 Rationale and motivation

This research was motivated by the gap between the theoretical claims for B2B technology in western countries and the practicality of its adoption in developing countries. Developing countries have high hopes of adopting B2B technology to create wealth and to bridge the digital divide between rich and poor countries (UNCTAD 2001, 2002a, 2002b, 2005). Government institutions of these nations have attempted to integrate e-strategies in their key industrial sectors as new national trade strategies. Previous research (Humphrey et al. 2003; Kraemer et al. 2002; Pare 2002, 2003,

Tregurtha and Vink 2002) argues for a greater understanding of the process of B2B technology and makes strong suggestions as to why B2B technology implementations have significantly slow uptake. Recurring themes from previous research into this area (Ekasdornkorn, Phalavonk and Corbitt 2003; Gray and Sazogni 2004; Jirachiefpattana 1997; Rotchanakitumnaul and Speece 2003; Thannasakit 1999) are reinforced by the researcher's own working experience in Thailand and publications on this topic (Vatanasakdakul and Cooper 2003; Vatanasakdakul et al. 2004). They indicate the need for further understanding of the cultural impact of B2B technology and its adoption in Thailand. The conceptual basis of this research has been developed from the accumulation and interaction of a series of ideas derived from the literature and personal knowledge and experience. These are the ideas on which the research has been shaped:

- the importance of B2B technology adoption to developing countries;
- the importance of appropriateness in IT adoption in developing countries;
- the need to better understand the cultural aspects of B2B in the age of globalisation and the Internet; and
- the limited existing research of B2B technology adoption in Thailand where the previous three ideas can be explored.

1.2.1 Importance of B2B technology adoption to developing countries

"For as long as B2B does not take off in developing countries, e-commerce value will remain negligible" (UNCTAD 2002a, p.9).

The growth of the Internet and B2B technology worldwide has promoted a new hope for developing countries to exploit their competitive advantage and to leap frog in their social and economic development in the new economy (APEC 2002; Steinmueller 2001; UNCTAD 2001, 2002a, 2002b, 2005). This new economy is also known as the digital economy, the Internet economy and the information economy. According to Turban, King, Lee, Wakentin and Chung (2002, p.45), it refers to "the economy that is based largely on digital technologies, including digital communication networks (Internet, intranets, etc.), computers, software and other related information

technologies". The United Nations (UNCTAD 2005) asserts that in such an economy, ICT policy plays an important role in shaping economic growth, productivity, employment and business performance. The importance of e-commerce to social and economic growth in developing countries is demonstrated by the following comment:

> *"E-commerce will help countries improve trade efficiency and facilitates the integration of developing countries into the global economy. It also allows businesses and entrepreneurs to become more competitive. And it provides jobs, thereby creating wealth"* - *Mr. Kofi A. Annan, former secretary-general of the United Nations (UNCTAD 2002a, p.iii).*

The development of e-commerce, in particular, B2B technology plays a major contribution to the overall e-commerce growth. B2B comprises 95 percent of all e-commerce revenue and global B2B is predicted to grow between 54.4 percent and 81.5 percent annually (UNCTAD 2002a). Pare (2003) comments that B2B technology is often assumed to provide opportunity for business organisations in developing countries to enhance their international profile by having greater global access and reducing transaction costs. This optimistic view has brought world attention to a radical shift in the way in which firms trade with one another. The opportunity to direct a one-to-one trading relationship and to derive benefits from minimising the use of an intermediary is set as the new direction of global business (Humphrey et al. 2003; Kraemer et al. 2002).

On the one hand, there is no doubt that developed countries have gained benefits and success in driving the globalisation process. On the other hand, there are many concerns about using e-strategies for social and economic development in developing countries, where lack of technological infrastructures seems to be a major problem (UNCTAD 2002a). Table 1, which shows a United Nations forecast of total e-commerce revenue, indicates the respective weights of developed and developing regions in the global e-commerce growth. As mentioned earlier, B2B comprises 95 percent of all e-commerce revenue (UNCTAD 2002a). The share of developing countries is a very small proportion, which is 4.6 and 6.7 percent of the global e-commerce market, in 2002 and 2006 respectively. Asia and the Pacific lead in the adoption of e-commerce among developing countries, with 5.1 percent of the total growth, while the North American region is the fastest growing among developed countries with 58.2 percent.

Table 1 A forecast of total e-commerce (B2B and B2C)

Region	2002 (Billions of dollars)	%	2006 (Billions of dollars)	%	CAGR *(%) 2002-2006
Developing Asia and Pacific	87.6	3.8	660.3	5.1	65.7
Latin America	7.6	0.3	100.1	0.8	90.5
Transition economies	9.2	0.4	90.2	0.7	77.0
Africa	0.5	0.0	6.9	0.1	91.1
Total developing countries	**104.9**	**4.6**	**857.5**	**6.7**	**69.1**
North America	1 677.3	73.1	7469.0	58.2	45.3
Developed Europe	246.3	10.7	2458.6	19.2	77.7
Developed Asia and Pacific	264.8	11.5	2052.1	16.0	66.8
Total developed countries	**2188.4**	**95.4**	**11979.7**	**93.3**	**53.0**
World total	**2293.5**		**12837.3**		**53.8**

CAGR: compound annual growth rate. Totals may not add up because of rounded decimals.
(Source: UNCTAD 2002a, p.8)

There is some doubt as to how B2B technology creates a change in the structure of the economies in developing countries, and whether such changes will increase or decrease the capacity to bridge the "digital divide" between rich and poor nations in terms of social and economic development (Crenshaw and Robison 2006; Gregorio, Kassicieh and De Gouvea Neto 2005; Guillen and Suarez 2005). Most e-readiness studies primarily focus on the technological constraints faced by firms in developing countries. Guillen and Suarez (2005) claim that the global digital divide is caused by the uneven development of the Internet throughout the world. The United Nations (UNCTAD 2005) addresses the concern about the inequality of access to the Internet, lack of human capital/skill and poor network security of these developing countries, which are important for firms in these countries to participate effectively in the global economy. Gregorio et al. (2005) take the view that the Internet, in fact, may enable foreign entrants into the local market, which is not a favour to local players. Pare (2003) comments that it is not clear whether access to the Internet and the World Wide Web is proving a means of turning initial contacts between suppliers and buyers into new business opportunities.

Nevertheless, due to the changes in the new economic pattern, technology seems to be an icon of modernisation that drives economic growth. Modernisation is viewed as a characteristic of western society, which reflects wealth and success (Roberts and Hite 2000). Review of the literature indicates that developing countries are poor because they lack technology, big capital, and modern social organisation (UNCTAD 2002a).

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Consequently, developing countries seem to have no choice if they want to stay competitive in the digital business environment, but to invest in developing infrastructures such as telecommunication, law and regulation and education to support these changes and to mimic new technologies and business models in their countries (Roberts and Hite 2000). Many countries establish their national IT policies addressing the importance of building these technical infrastructures in order to mimic IT strategies, models and technology from western countries. For example, APEC emphasised that East Asian countries must have a strong telecommunications infrastructure in order to attract business that aims at the global market. APEC (2002) asserts that once the infrastructure is in place, it has to be sustained in the face of constant technology development. The three main strategies that most developing countries have adopted are: 1) build awareness, education and training; 2) provide access to infrastructure; and 3) create laws and regulations (Archibugi and Pietrobelli 2002; ECRC 2002; Humphrey et al. 2003).

Many developing countries will soon have access to these technical infrastructures. According to the statistics shown in the report on the Information Economy by the United Nations in 2005 (UNCTAD 2005), the number of Internet users continued to grow substantially. The gap between the percentage of Internet users in developing countries and developed countries has decreased in 2004 compared to 2000. In 2000, the Internet users in developing countries consisted of 25 percent of the total world Internet user population and it had increased to 38 percent in 2004.

Despite the fact that the ability to access the Internet in developing countries is a prerequisite for the development of e-commerce, the number of Internet users does not necessarily indicate the volume of B2B activity expansion. The United Nations observes that even though B2B technology is also growing in developing countries, it is increasing at a lower rate than the number of Internet users (UNCTAD 2002a). In a survey of 12 developing countries conducted by the Untied Nation (UNCTAD 2002a), e-mail was the only Internet activity in which more than 50 percent of the respondents engaged in the last six months. The other forms of B2B technology, which are not included in this research, such as Internet based EDI, are rarely mentioned (UNCTAD 2002a). Pare (2003, p.123) asserts that B2B is often based on a very technologically

deterministic assumption, namely that "the application of and access to the Internet and the World Wide Web are likely to be sufficient to reduce transaction cost associated with trading in internal marketing to a level that creates new trading opportunities for many developing country producer firms".

Recently, the United Nations has urged governments and business organisations to identify strategies to ease the transition of developing countries to an information economy (UNCTAD 2005). Perhaps a question for these countries is not a choice of whether to adopt B2B technology, but to determine how to find the right strategy to deploy it. A concern addressed by this research is that, if developing countries succeed in building these infrastructures, and they are able to launch the same online service models as in western countries, will it be utilised by local users? After a long-term investment in national plans and strategies, education, and infrastructures, where will this lead these nations and will they actually get net benefit from B2B technology? To address this concern, the next section presents the need to better understand the issues of appropriateness of IT adoption, which includes Internet and B2B technology adoption in developing countries.

1.2.2 Issues of appropriateness of IT transfer in developing countries

International technology transfer is an option for developing countries to acquire newer technologies into their nations (Autio and Laamanen 1995; Ayres and Willams 2004; Glass and Saggi 1998). Cusumano and Elenkov (1994) view the international technology transfer process as the process of its acquisition, adaptation and improvement through incorporation across national boundaries. However, it is postulated that not every transfer process is successful or expected to upgrade the technological capability of a receiver country (Ayres and Williams 2004; Glass and Saggi 1998). Steinmueller (2001) asserts that technology transfer may be limited by the lack of experience of companies in the learning and adaptation process where skills are acquired. Glass and Saggi (1998) point out that multinationals often transfer older technologies to safeguard themselves against future competition.

The difficulties of achieving successful technology transfer are among the principal reasons for not achieving sustainable growth (Musa, Mbarika and Meso 2005). One of the key issues for developing countries in sustaining the technological development is choosing appropriate technology for their local context (Scheraga, Tellis and Tucker 2000). Appropriate technology is a term that represents a particular view of society and technology. It recognises that different cultural and geographical groups will have different technologies that are appropriate to their circumstances (Bruun 1996; Seror 1996; Shore and Venkatachalam 1994, 1996). Boaden and Lockett (1991) define the appropriateness to information technology transfer as encompassing technology itself and human behaviour, as well as work and organisation arrangements associated with its implementation. In brief, the appropriate technology transfer issue in developing countries significantly involves socio-cultural aspects influencing human behaviour in the use of technology in the local context. This research uses the terms *cultural fit* interchangeably with appropriateness. In this research, cultural fit represents a socio-cultural aspect of a local context influencing the adoption of B2B technology. It is defined as the degree to which individuals perceive a match of the use of B2B technology to their culture.

An increasing number of information systems applications are transferred and implemented across national and cultural boundaries. A concern is that firms in developing countries seem to choose inappropriate technology for their needs, which leads to the failure of technology transfer (Ahiakpor 1989; Bruun and Mefford 1996). Much of the literature on technology transfer in developing countries points to this problem and addresses the need to consider socio-cultural factors in the technology implementation process (Demeester 1999; Martinsons and Westwood 1997; Scheraga et al. 2000; Seror 1996; Shoib and Nandhakumar 2003). Shore and Venkatachalam (1996) comment that while several studies have focused on the implementation problems associated with technology, the culture's role in the transfer process has been neglected. Bruun and Mefford (1996) introduce a framework to assist the firm to choose appropriate production technology by incorporating the cultural element. Furthermore, the nature of information and communication technology, particularly the Internet, promotes a new way of communication. Westmyer, DiCioccio and Rubin (1998) propose an interesting point that communication competence may be achieved by

choosing an appropriate computer-mediated communication channel that is socially and culturally acceptable.

The past decade was marked by steady advances in the ubiquity of Internet and e-commerce throughout the industrialised world. The emergence of a significant digital divide between developed and developing countries is reproducing existing patterns of inequity with regard to these new technologies (Steinmueller 2001). Developing countries seem to be struggling to find where they stand in the digital economy. To achieve sustainable development of IT adoption by developing countries, this research proposes that it is essential to understand the appropriateness aspect of technology transfer from western countries to their nations. The approach to encouraging the success of B2B technology adoption should not be only based on the technological deterministic assumption as discussed in the previous section. Instead, how developing countries apply B2B technology to fit their local socio-cultural context is proposed to be the central determinant of sustainable development and success. This research proposes that 'Think globally and Act locally' should be the approach to B2B technology adoption in developing countries. The next section presents the influence of globalisation and its implications on cultural appropriateness of B2B technology adoption.

1.2.3 Importance of culture in the globalisation process

"Although globalisation has come to the world, most of the world's businesses are not globalised." (Chaney and Marin 2000, p.2).

Rapid globalisation has motivated firms, in particular, multinationals to exploit B2B technology capabilities on a global scale (Kshetri and Dholakia 2002). The concept of globalisation has received much attention in the digital economy (Mattsson 2003; Rosenbloom and Larsen 2003). According to Gibbs et al. (2003, p.5), globalisation is generally regarded as "a universal process of homogenisation in which countries tend toward a common way of producing and organising economic life with resulting common social outcomes". Capineri and Leinabach (2004, p.645) refer to globalisation as the increasing interconnectedness and geographical scale of economic social and

political interaction. Barrett, Jarvempaa, Silva and Walsham (2003) agree that globalisation involves an increasing interconnection between societies, economic integration between business, and time-space compression, facilitated by standardised mechanisms and systems. Grant and Bakhru (2004) comment that globalisation will dissolve national boundaries, and national markets will merge into a single world market. Mattsson (2003) contends that globalisation of a firm can be viewed as an already highly internationalized firm which increases the integration of its activities and its resources between different geographical markets.

An interesting issue about Internet technology is that it seems to be a strategic tool in intensifying the globalisation process (Kraemer et al. 2002). Chidambaram, Whitman and Cheraghi (1999) assert that with the aim to be a part of globalisation, this may reflect on the understanding that organisations around the world should have a common protocol such as using the same technologies in order to become a part of a global supply chain. Gibbs et al. (2003) observe that the interconnection of electronic trading in financial markets can be done using an electronic data interchange standard, which can result in allowing trading to be completed quickly and creating global interconnectedness between markets. In addition, an e-marketplace is promoted to increase an international trade profile without geographical boundaries. For example, Expedia and Travelocity, which are tourism web portals, serve the world market through a completely electronic service (Grant and Bakhru 2004).

Globalisation has also resulted in the emergence of a hypothesised 'world culture' concept. The world culture is "the idea that as traditional barriers among people of different cultures break down, emphasising the commonality of human needs, one culture will emerge, a new culture to which all people will adhere" (Chaney and Marin 2000, p.2). As a result of this possible homogeneity in the globalisation process, developing countries and researchers tend to have less concern about the role of local culture on B2B technology transfer from western to non-western countries. Some assume that the adoption of this technology in developing countries will be driven by global competition and multinational corporations (MNCs) (Gibbs et al. 2002).

Nevertheless, some research highlights the tension and the contested power relations between global ICT and local use of technology. Barrett et al. (2003, p.487) address the question: "does globalisation enabled by ICTs imply that the world is becoming a homogeneous arena for global business and global attitudes, with differences between organisations and societies disappearing?" They strongly believe in the importance of local diversity in understanding globalisation and ICTs. Grant and Bakhru (2004) agree that national diversity in the pursuit of differing social and economic outcomes will prevail and prevent convergence from taking place. In addition, some fear that the Internet is only a tool of western (especially the U.S.) economic and cultural hegemony (Gibbs et al. 2003). For example, the majority of global e-marketplace players are dominated by U.S. based companies such as Amazon, Yahoo and MSN (Grant and Bakhru 2004).

Furthermore, the importance of understanding the appropriateness of local culture on B2B technology adoption can be addressed by consideration of the characteristics of B2B technology as a communication medium. Culture and communication are interdependent (Adler 2002; Chaney and Martin 2000; Jandt 1998; Samovar, Porter and Stefani 2004). Neuliep (2000, p.12) asserts that "culture shapes communication and communications are cultural bonds". Although there is no universally agreed-upon definition of communication, the fundamental concept involves the exchange of meaning (Adler 2002; Irwin 1996; Neuliep 2000). According to Chaney and Martin (2000, p.5), communication is a process whereas culture is "the structure through which communication is formulated and interpreted". For example, Triandis (2000) found that western individualist cultures are mostly concerned with the content of communications, whereas eastern collectivist cultures are mostly concerned with the context of communication. It is important to note that Internet technology eases access to the global market and this calls for a significant increase in the need for communication cross-culturally. This raises the question of cultural adaptation of the communication message (Adler 2002; Deresky 2003; Jandt 1998).

Moreover, for developing countries, understanding socio-cultural influences in the adoption of B2B technology is important to bridge the digital divide. According to Kling (2000, 2001), in overcoming the digital divide problem, it is necessary to consider

both technological infrastructure and social infrastructure. Technological infrastructure can be built and transferred, but the challenge is how local people respond to these new technologies due to cultural differences (Anacleti 1996; Ishemo 1996; Rogers 1995). Ishemo (1996) asserts that technologies are not culture-free. Even though technologies can bridge the gap between natural resource and human need, they can be useless if they are not specific to local needs. The following section addresses the suitability of this study in the Thai context.

1.2.4 Thailand and B2B technology adoption

Thailand is a developing country, which is located in South East Asia. Internet facilities have been available since 1987. However, it was not widely used in businesses until the first Internet service provider (ISP) was established in 1995 by the 'Internet Thailand Company' (Pramongkit, Muangthanya and Chaikiart 2001). Recently, the Thai government has been attempting to use e-strategies for its economic development. The Thai government has established a national IT 2010 plan and aims to use e-strategies as part of a new national trade strategy. According to the national IT 2010 development plan, the Thai government supports five major areas: e-government, e-commerce, e-industry, e-education and e-society (ECRC 2000; NECTEC 2002a, 2002b, 2002c, 2002d, 2002e; NSTAD 2000).

Thailand has plans to improve the utilisation of information technology. The number of Internet users reached approximately seven million in 2004, which is equal to approximately 12 users for every 100 population (NECTEC 2005). Internet users are concentrated in Bangkok, which is the capital city of Thailand, and in other big cities. In recent years, Internet users have spread to all regions outside Bangkok. There is no gender divide - both men and women have nearly equal access to the Internet (NECTEC 2005). In addition, the population in the 15-24 age group represents more than half of Internet users. The average user spends around 10-11 hours per week online and the most popular activities are searching for information, using e-mail, reading news and current issues and online games. Furthermore, the domestic Internet traffic has

increased considerably from a mere 57.8 gigabytes per day in 1988 to 7,618.6 gigabytes per day in 2004 (NECTEC 2005).

Although the number of Internet users has increased, and the Thai government has established the national IT plan to encourage Internet and B2B technology adoption in the Thai business sector, particularly in small and medium enterprise (NECTEC 2005), Thailand has not yet succeeded in implementing e-strategies and faces a slow uptake of B2B technology adoption among businesses. According to a national e-commerce survey in 2001 by the National Electronics and Computer Technology Centre (NECTEC 2002a), there were a total of 6,460 Thai websites. Among those websites, there were only 3,765 active and accessible websites. In addition, 88.85 percent (3,335) of the active websites are mainly used for promotional purposes only. This represents an early stage of the adoption of e-commerce as these websites provide information about companies and their products. The other 11.42 percent (430 websites) provide additional value added services such as online reservation and online payment systems, which is a step towards the adoption of an e-commerce strategy. A more recent survey in 2005 found that the annual average e-commerce transaction value for B2B and B2C was at 58,529.16 million baht (2,167.75 million AUD). In addition, the same study revealed that B2C is not well established in Thailand and only 20 percent of Internet users ever purchase online. Furthermore, research on e-commerce adoption in Thailand (Intrapairot and Srivihok 2003; Rotchanakitumnaul and Speece 2003) found that Thailand is still struggling to maximise the adoption of B2B technology and that net benefits such as cost reduction and improved competitiveness have not been realised. It is worth noting, however, that very few studies have attempted to explain the low level of B2B adoption in Thailand (NECTEC 2005; Rotchanakitumnaul and Speece 2003).

Interestingly, Koannatakool (2002) believes that the basic technical infrastructures such as telecommunications, hardware and software are no longer a major problem in the adoption of the Internet in Thailand. The main point to be addressed is how Thais can adapt knowledge and technologies from the western world to maximise the benefits in social and economic development (Koannatakool 2002). In addition, research by Gray and Sanzogni (2004, p.22) in reviewing Thai national e-commerce plans and strategies, has come up with the question, "How do you change cultural impacts on technology

developments? This seems to be the real and imposing question in Thailand". There is still little research that investigates how socio-cultural factors impact on B2B technology adoption in Thailand.

In summary, the adoption of B2B technology is important to the development of the digital economy of developing countries. However, the fact that success has not been achieved in developing countries indicates that models for B2B technology adoption taken from developed economies may not be appropriate. It is in this context that the researcher proposes to investigate the appropriateness of B2B technology transfer to Thailand, in particular from the cultural fit/appropriateness perspective.

1.3   Research questions, aims and objectives

This study aims to investigate the appropriateness of B2B technology adoption in Thailand, more specifically in the Thai tourism industry. It also aims to probe the impact of Thai national culture on technology adoption in that industry. The main research question is:

Does cultural fit/appropriateness influence the adoption of B2B technology in a Thai business context? If so, how?

Broadly, the objectives of this research are:

1. To propose and validate a model to investigate the issues of the appropriateness of B2B technology adoption in the Thai tourism industry;
2. To investigate the impact of Thai business culture on the appropriateness of B2B technology in the Thai tourism industry;
3. To determine the factors influencing B2B technology utilisation in an interorganisational context;
4. To understand the impact of fit/appropriateness on the utilisation of B2B technology and on the performance of the firms in the industry.

1.4 Significance of the research

This research seeks to contribute to the literature in several ways. Firstly, it focuses on the appropriateness of B2B technology from the perspective of developing countries and highlights the need for examining the cultural impact in this research area. Secondly, this research incorporates the cultural fit concept to the task-technology fit (TTF) model and extends the model to be used in the interorganisational context. Thirdly, it is one of the first research projects investigating the adoption of B2B technology in the Thai tourism industry. Fourthly, the outcome of this research seeks to bring about better understanding of the role of the impact of national culture on B2B technology adoption in Thailand. The research also seeks to raise awareness, in Thailand and other developing countries, that more consideration is needed in relation to cultural aspects when adopting new B2B technology from western society. The results from this study may contribute to building e-strategies that suit local contexts and thus gain net benefits and increase participation in the new economy.

1.5 Organisation of the thesis

The thesis consists of six chapters.

Chapter 1: Introduction
This chapter addresses the research issues and the motivation of this study. It provides an overview of the importance of B2B technology adoption in developing countries, the issue of appropriateness of IT transfer in developing countries and the importance of culture in the globalisation process. In addition, an overview of B2B technology adoption in Thailand and the motivation to conduct this study in Thailand are discussed.

Chapter 2: Literature review
This chapter begins with a review of previous research in B2B technology adoption. It presents a comprehensive critical review which reveals knowledge gaps in the B2B technology adoption literature and argues that it is important to shift the focus of

investigation to the cultural appropriateness of B2B technology adoption. The chapter then investigates the existing literature on theories of fit, in particular the task-technology fit model, interorganisational theories, and national cultural theories in order to form the research model. In addition, the literature on Thai cultural values is discussed. The research model is developed along with the discussion of the research questions and related hypotheses.

Chapter 3: Methodology

This chapter describes the methodology employed in this study. The selection of the case, which is the Thai tourism industry, is discussed. In addition, discussion on the research design in three main stages is presented. This includes: 1) a preliminary study to identify the dimensionality of Thai business culture; 2) the data collection and the development of a survey questionnaire; and 3) an overview of structural equation modelling with the partial least square (PLS) method, the technique employed in the data analysis.

Chapter 4: Results

This chapter presents the empirical results of the data analysis. The analysis of survey responses is discussed. In addition, the evaluation of the measurement model including the validity and the reliability of the survey instrument are addressed. Furthermore, the results from the analysis of the operational research model and the research hypotheses are examined.

Chapter 5: Discussion

This chapter presents detailed analyses of the structural model and the testing of the hypotheses. It addresses and analyses each research question posited in Chapter 2 and the results from the PLS analysis on the operational model in Chapter 4. In addition, the implications of culture for the adoption of B2B in the Thai tourism industry are discussed. Moreover, discussions on the adoption of B2B technology in Thailand, including recommendations and strategies to succeed in technology adoption, are presented.

Chapter 6: Conclusion

This chapter presents a summary of the thesis. It discusses the contribution of this research including the theoretical and practical implications. In addition, the limitations of this research and possible directions for future research are addressed and discussed. Furthermore, the issues of generalisation are presented.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

This chapter presents the integration of the literature review in the domains of B2B technology adoption, developing countries and culture. It reviews how and why culture has become an important factor in B2B technology transfer to developing countries, especially Thailand. It aims to present the gaps in the literature and the development of a research model and hypotheses.

The literature review can be divided into five main parts. The first section presents the scope of B2B technology determined by this research. In addition, the issues emerging from existing literature on B2B technology adoption in developing countries and studies on B2B technology adoption are discussed. The second section presents a discussion of the different frameworks and background relevant to this study that enables a review of theories. The theories of fit, in particular the Task-technology fit (TTF) model, and the need to extend the TTF model by incorporating interorganisational theories and national cultural theories to suit the context of this study are discussed. The third section presents a review of interorgansiational theories and the issues related to B2B technology adoption from the interorgansiational theories' perspectives are identified and discussed. The fourth section presents a review of national culture theories. It investigates various theories of national culture used in IS research and the role of national culture in B2B communication and relationships. Thai cultural values and their impact on IT and B2B technology adoption are also discussed. The fifth section presents the conceptual model of this research. In addition, the research model is presented along with discussion of each conceptual construct and emerging hypothesis. Finally, a discussion on the control variables is presented.

2.2 Review of B2B technology adoption research

Due to the rapid change in Internet technology, research relating to the characteristics of B2B technology is constantly evolving (Bloch and Catfolis 2001; DeMaio 2001; Huggins 2001; Laseter and Bodily 2004; Lavenburg 2005; O'Reilly and Finnegan 2005). Prior to the Internet, the term B2B was commonly known as Interorganisational Information Systems (IOS) including Electronic Data Interchange (EDI). EDI makes possible an electronic standardised communication among firms and it has been a basis for Supply Chain Management (SCM) (Kaefer and Bendoly 2004; Thatcher and Foster 2002). With the Internet, the scope of B2B was extended beyond EDI. Krishnamurthy (2003, p.81) asserts that "the exchanges between firms in the B2B setting take place in two areas: EDI/Extranets and B2B e-marketplace". B2B e-marketplaces are described as "all online marketplaces where buyers and sellers congregate to exchange goods and services for money" (Krishnamurthy 2003, p.82). Richards and Devinney (2005) refer to the B2B e-marketplace as B2B exchanges, and the common features of B2B e-marketplaces are auction and matching buyers and sellers' needs.

Most of the research on B2B e-marketplaces in the context of developing countries (Humphrey et al. 2003; Kraemer et al. 2002; Pare 2002, 2003; Tregurtha and Vink 2002) suggests that they are e-hubs for potential buyers and sellers interacting online. Humphrey (2002, p.3) defines the B2B e-marketplace as "a location where potential buyers and sellers interact within the context provided by a particular application". Humphrey et al. (2003) suggest different types of applications in B2B e-marketplaces including direct links to companies' websites, online auctions, requests for quotes and online forums. For this study, the B2B e-marketplace is viewed as a digital intermediary for bringing buyers and sellers together on-line to find new trading opportunities, but does not emphasise back-end computer integration between trading partners.

To serve the purpose of this study, B2B technology is classified into two levels: transaction and communication as illustrated in Figure 1. The transaction level refers to the use of Internet technology for inter-firm transactions, and the communication level refers to the use of Internet technology for inter-firm communication. B2B transactions

include interorganisational information system transactions such as EDI (Turban et al. 2002). The theoretical foundation of B2B transactions is based on discussion about automated computer-to-computer communication systems in supply chain management (e.g Al-Naeem and Benatallah 2004; Fodor 2004; Grey, Olavson and Shi 2006; Hunter, Kasouf, Celuch and Curry 2004; Premkumar 2000), while B2B communication is more focussed on the use of computer-mediated communication in interorganisational contexts (e.g. Kettinger and Grover 1997; Pickering and King 1995; Vickery, Droge, Stank, Goldsby, and Markland 2004). Pickering and King (1995) define computer-mediated communication as person-to-person communication which is often in text or graphic form over computer networks. Examples of B2B communication include e-mails and e-marketplaces, which are the main alternatives to traditional communication channels such as the telephone, face-to-face meetings and postal mail (Kettinger and Grover 1997).
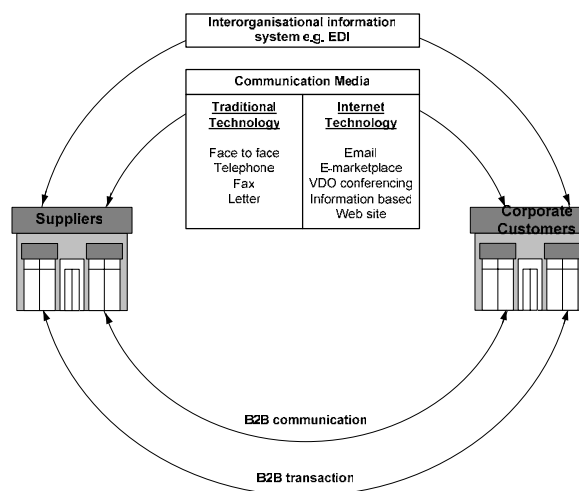
Figure 1 Scope of B2B technology

The main differences between transaction and communication levels are in their objectives and nature of application. At the transaction level, the interorganisational information system involves an information flow among two or more organisations; its major objective is efficient transaction processing such as transmitting orders, bills and payments, using EDI, Internet or extranets. It involves high cost, thus confining its adoption to large firms and pre-established relationships between two trading partners. There is no negotiation, just execution of transactions (Le 2001; Turban et al. 2002). In contrast, at the communication level, B2B technology allows sellers and buyers to negotiate, submit bids, agree on orders, and finish the transaction online or off-line (Le

2001; Turban et al. 2002). O'Reilly and Finnegan (2005) assert that traditional IOS models predominately operationalise one-to-one relationship, while e-marketplaces are mainly characterized as one-to-many and many-to-many relationships.

Because the adoption of B2B technology adoption in developing countries remains limited, this research defines B2B technology as the use of Internet technology for business to business communication only and excludes the features of IOS, including EDI. This research focuses on the use of B2B technology at the communication level that is on the B2B e-marketplace and e-mail for inter-firm communication purposes. A detailed discussion on B2B technology adoption in developing countries is presented in the next section.

2.2.1 B2B technology adoption literature in developing countries

There is a considerable amount of research attempting to analyse the adoption of B2B technology (e.g. Dai and Kauffman 2002; Rask and Kragh 2004; Subramani 2004; Subramaniam and Shaw 2002; Teo and Ranganathan 2004). Existing studies in the B2B technology literature tend to be drawn from the experience in developed countries, and existing theories are also implicitly grounded in this context (Hemple and Kwong 2001). For instance, Rao, Perry and Frazer (2003) assert that the Internet does not appear to hinder interorganisational relationships in the Australian service industry. In fact, it improves business performance and satisfaction with the exchange partner's performance (more detailed discussion is presented in section 2.4). Nevertheless, it is argued that emerging economies or non-western economies present a significantly different business context to developed economies, with differences in physical infrastructure, financial support, technical know-how, business philosophy and culture. This may lead to challenges facing firms in emerging economies to adopt similar approaches, i.e. western approaches' to technology adoption (Hemple and Kwong 2001; Vatanasakdakul et al. 2004).

Further, despite the critical importance of B2B technology in shaping e-commerce and economic growth in developing countries as discussed in Chapter 1, it is clear that there

is very little literature on B2B technology adoption in developing countries (Humphrey et al. 2003; Kraemer et al. 2002; Pare 2002, 2003; Tregurtha and Vink 2002). Table 2 provides a summary of major research on B2B technology adoption in developing countries, which highlights the key findings and research methods of the various studies. It is interesting to note, in Table 2, that the majority of B2B technology adoption literature in developing countries tends to focus on the developing countries in the African region and the adoption of B2B e-marketplace there (e.g. Humphrey et al. 2003; Kraemer et al. 2002; Moodley 2002a, 2002b, 2003a, 2003b; Moodley and Morris, 2004; Pare 2002; 2003; Tregurtha and Vink 2002). Furthermore, some interesting issues related to B2B technology adoption in developing countries are discussed below.

As mentioned earlier, the review of literature found that B2B technology adoption in developing countries is still very limited and characterised by a slow uptake. The adoption of B2B e-marketplace and e-mail has been the focus of this research area. Pare (2002, 2003), for example, investigated the adoption of B2B e-marketplaces in two industrial sectors, garments/apparel and horticulture/agriculture in South Africa, Kenya and Bangladesh. The study involved an analysis of 117 B2B e-marketplaces. There was a slow uptake of the e-marketplaces and the primary use of B2B activities was limited to information exchange via e-mails. Other researchers such as Humphrey et al. (2003) conducted interviews with 38 informants in garment and horticultural firms in the same three countries on the adoption of B2B e-marketplace. They found that email is still the primary application of B2B that firms use for exchanging information. For example, buyers were using email to request quotes, exchange cost and price details, disclose supplier appraisals, communicate business forecasts and plan for new capacity. Furthermore, research conducted by Tregurtha and Vink (2002) on B2B e-marketplace adoption in the South African horticultural export industry also reached similar results. In yet another study, Moodley (2002a), confirmed that in the South African context, Internet platforms are being used mainly to supplement existing EDI and through the use of websites and email to provide general information and communication services. The Internet and e-mail are used mainly as means for supporting existing business relationships rather than exploiting opportunities for establishing new relationships.

Table 2 Summary of the major literature on B2B technology adoption in developing countries

Source	Region/ Countries	Types of Study	Findings
Gibbs et al. 2002	* Brazil, China, Denmark, France, Germany, Japan, Mexico, Singapore Taiwan, and the US.	In depth case studies prepared by scholars and experts in each country	- B2B seems to be driven by global forces, while B2C seems to be more of a local phenomenon. - Telecommunication liberalization is likely to have the biggest impact on e-commerce. Making ICT and Internet access more affordable to firms and consumers, increasing pressure on firms to adopt e-commerce to compete. - E-commerce legislation does not appear to have an impact on decision making regarding adoption.
Kraemer et al. 2002	* Brazil, China, Denmark, France, Germany, Japan, Mexico, Singapore Taiwan, and the US.	Telephone survey 2,139 establishments	- Firms that are highly global have higher levels of B2B adoption. - Firms that are highly global have experienced greater performance improvements since adopting e-commerce in terms of efficiency, coordination and commerce that low global firms. - Firms that are highly global should take opportunities in local markets than trying to use the Internet to reach far-flung international markets. If these firms want to expand into global markets, they should adopt Internet technology for inter-firm communication to break into the global production networks for multinational corporations than selling directly to foreign consumers.
Humphrey et al. 2003	South Africa, Kenya and Bangladesh	Interview 38 key informants in Garment and Horticultural firms which have adopted e-marketplace.	- A primary B2B application was email and used to exchange information and to enhance global supply chain. - Inadequate and costly domestic telecommunication infrastructure and slow connection speeds are the key inhibitors of Internet technology for inter-firm communication adoption. - B2B technology adoption is to enhance the relationship with trading partners but little help to forge ongoing relationship with new firms. - Extensive registration with e-marketplaces but the results were disappointing for most of the firms.
Pare 2002, 2003	South Africa, Kenya and Bangladesh	Attribute analysis 117 e-hubs	- E-marketplace is not as effective in reducing transaction costs or enhancing opportunities to access global market. - There was a slow uptake in e-marketplace and the primarily use of B2B activities is only information exchange.

Tregurtha and Vink 2002	South Africa	Semi-structured, faced to face interviews with 18 firms active in horticultural export sector	- The use of B2B activities is limited to email for maintaining contact with trading partners and infrequently for ordering process.
			- Reasons for not using Internet to sell products internationally are
			  o Current marketing strategy is optimal.
			  o Marketing via Internet is not the industry's way of doing business.
			  o Problem with poor technical infrastructure and low speed access.
			  o Maintaining longstanding relationship with their export agents and satisfaction with the current way of doing business.
			- Reasons for not register with e-marketplace
			  o No need to find an additional marketing channel
			  o Perception that the potential buyers using these trading sites are not serious business partners.
			  o Value personalized high tough business relationship
			  o Price sensitivities in fruit products.

This research also included some developed countries.

Table 2 Summary of the major literature on B2B technology adoption in developing countries (*continued*)

Source	Region/ Countries	Types of Study	Findings
Moodley 2002a	South Africa	Interview with 120 firms, and 31 industry experts	- Internet platforms are being used mainly to supplement existing EDI and through the use of websites and email to provide general information and communication services. - Internet and e-mail are used mainly as a means for supporting exiting business relationships rather than exploiting opportunities for establishing new relationships.
Moodley 2002b	South Africa	Secondary data analysis	- The current pressures from globalisation and the challenge to direct overseas market expansion underscores the importance of e-commerce for the local wood furniture sector. - Deepening poverty, high unemployment; widening inequity; a weak and rapidly eroding export base and low and even negative growth affect B2B technology adoption.

Moodley and Morris 2004	South Africa	Survey questionnaire to 64 firms with 61 percent response rate; followed by face-to-face Interview with 19 industry experts	- B2B technology is not likely to enable a reduction in overall transaction costs that is sufficient to facilitate entry to new global markets for the South African Wooden Furniture Manufacturing sector.
			- Survey findings suggest that there is a dissonance between what the firms consider to be the expected benefits of B2B technology and their own implementation and use of B2B applications. There are two main reasons for their inactions:
			  o their inability to develop an opposite e-commerce model which is tightly integrated into their respective value chains
			  o the formidable, unanticipated barriers impeding their progress to a functional e-commerce system.

Hample and Kwong 2001	China	Single case study	- Telecommunications infrastructure is not a constraint for business users in Southern China, but the e-marketplace creates new services that do not exit in the traditional market; and this may not necessary comply with the current business practices.
Reimers 2003	China	Theoretical paper	- Present a theoretical concept of sustainable B2B technology scenarios in the Chinese context from the institutional theory perspective. However, this has not been tested.

Several studies have questioned the benefits offered by B2B technology including cost reduction and access to new business opportunities in the global market. These benefits seem not to have been achieved by developing countries (e.g. Humphrey et al. 2003; Moodley 2002a, 2002b, 2003a, 2003b; Moodley and Morris 2004). Humphrey et al. (2003) found that the arrival of B2B technology adoption enhanced the relationship with trading partners, but offered little help in forging ongoing relationships with new firms. In the context of South Africa, Kenya and Bangladesh, Pare (2003) observes that B2B e-marketplaces are not effective in reducing transaction costs and enhancing opportunities to access global markets. He comments that the readiness of access to technology, such as the Internet and the World Wide Web, is not likely to enable a reduction in overall transaction costs that is sufficient to facilitate entry into new global markets by developing countries. Similarly, Moodley and Morris (2004) assert that B2B technology is not likely to enable a reduction in overall transaction costs that is sufficient to facilitate entry into new global markets for the South African wooden furniture manufacturing sector.

Some researchers found that the benefits gained from B2B technology adoption depend on the level of global access of firms in developing countries. Gibbs et al. (2002) point out that global competition seems to be the most significant force in driving B2B technology adoption across countries. Likewise, Moodley (2002b) asserts that firms in the South African wood furniture sector are under pressure from globalisation and the challenge to direct overseas market expansion. Kraemer et al. (2002) assert that firms with high global access tend to gain more benefit from e-commerce adoption in terms of better collaboration and productivity, while firms with low global access gain less benefits from the technology. B2B technology reinforces existing international competitive advantage rather than enabling local firms to compete with global firms in international markets. Firms in developing countries have not gained business opportunities in the global market or in the regional markets from adopting B2B technology (Gibbs et al. 2002). This could be due to the fact that, in developing countries, small and medium enterprises (SMEs) dominate the local economy (UNCTAD 2005).

The implication of the weak bargaining power of SMEs and firms in developing countries has given large multinationals (MNCs) a strong influence in forcing SMEs to adopt B2B technology. This issue is highlighted by Kshetri and Dholakia (2002) in their studies of global diffusion of B2B technology. They suggest that there is no detailed study on the international transfer of B2B technology. However, they observed that the transfer of B2B technology was most likely to be driven by large multinationals (MNCs) transferring technology to their foreign subsidiaries. For instance, American multinationals such as Wal-Mart and JC Penny require their foreign suppliers, mainly from developing Asian countries, to adopt Internet technology in order to take part in B2B transactions.

Furthermore, developing countries in the Asia Pacific region are predicted to be leaders in the adoption of e-commerce when compared to other developing countries (UNCATD 2002a); however, it seems that there is very limited research in this area. This is highlighted by Teo and Ranganthan (2004) who assert that B2B technology adoption research in Asia remains limited. In addition, most research projects in IT and e-commerce adoption in Asia are generally conducted in ethnic Chinese contexts, such as Singapore, Taiwan, Hong Kong and Mainland China, which are relatively well developed economies and are not representative of all Asian countries (Rotchanakitumnaul and Speece 2003). Moreover, research conducted by the Asian Pacific Economic Corporation (APEC 2002) on e-readiness in East Asian economies found that the more developed countries, such as Singapore and Korea, lead the region in their abilities to use Internet based technologies to sustain their economic engines. The rest of East Asia seem to be underdeveloped in technologies and have not yet succeeded in using Internet based technologies to leverage competitiveness in the new economy (APEC 2002).

Two particularly relevant B2B studies were conducted in China and show interesting results. Hemple and Kwong (2001) investigated the experience of i-Metal.com, which set up a non-ferrous metals exchange primarily oriented at observing the non-ferrous metals industry in China. They found that telecommunications infrastructure is not a constraint for business users in Southern China, but the e-marketplace creates new services that do not exist in this traditional context. This may not necessary comply with

the current business practices. Hemple and Kwong (2001) addressed a need for further research on the applicability of western best practice and its direct applicability in China. Reimers (2003) attempted to develop a theoretical concept of sustainable B2B technology scenarios in the Chinese context from the institutional theory perspective. However, this has not been tested yet.

In the next section, this research explores other studies on B2B technology adoption. The literature review discusses various theoretical backgrounds used to investigate the B2B technology adoption.

2.2.2 Research in B2B technology adoption

The review of literature revealed that various theoretical frameworks, for example organisational learning theories, the risk benefit framework and theories of media richness, have been adopted to investigate B2B technology adoption. Despite divergences in results, one common theme underlying the various streams of research in B2B technology adoption is the inclusion of perceptions of the firms' performance (e.g. Kaefer and Bendoly 2004; Rao et al. 2003; Subramani 2004; Vickery, Droge, Stank, Goldsby and Markland 2004). In addition, another common theme of research attempts to investigate the motivation for utilisation of B2B technology (e.g. Hunter et al. 2004; Rask and Kragh 2004; Zahay and Handfield 2003).

Despite the different theoretical perspectives drawn to explain the firms' performance in their adoption of B2B technology, one of the issues pointed out by researchers is the connection between inter-firm relationships and firms' performance. Subramani (2004) adopted theories of organisational learning and transaction cost to propose a model explaining suppliers' use of a supply chain management system (SCMS). He gathered data from 131 suppliers using SCMS implemented by one large service provider. The results indicated that the use of IT in the supply chain can foster a closer buyer-supplier relationship. In a study by Kaefer and Bendoly (2004), it was found that the success of B2B technology depends on the transactional efficiencies gained through the use of EDI and non-EDI such as online auctions and online marketplaces. Firms seem to have

gained better benefits from adopting EDI than non-EDI. Traditional EDI systems have been geared towards establishing long term partnerships, where volume economies are critical. Instead, the non EDI e-commerce technologies are often associated with a much larger community of potential short-term partnerships.

Lee, Pak and Lee (2003) assert that firms may receive different business value and benefits from B2B technology depending on how organisations use the online network. They classified two different types of B2B technology adoption: B2B basic and B2B collaborative. The B2B basic, also known as the traditional interorganisational information systems (IOS), refers to the implementation of electronic networks simply to automate the exchange of commercial documents, whereas the collaborative B2B provides an opportunity to create new inter-firm operations with channel partners. Based on their survey conducted in the United States grocery industry, they found that the performance of firms using the B2B collaborative technology displayed an increased level of interdependency between firms. In contrast, the level of interdependency was not significantly increased as a result of the B2B basic.

According to Vickery et al. (2004), the richness of communication media has implications for the firms' performance. They adopted the media richness theory, which attempts to model how individuals make choices about which medium to use when communicating in an organisational context. They extended their study to investigate the performance implications of communication media such as face to face, telephone and electronic media in a B2B service environment. This B2B service environment is characterised by high levels of complexity (uncertainty, variability, equivocality) and network interdependence. The findings indicated that media richness can affect firms' performance when businesses interact in a complex environment. They also found a direct impact of media richness on performance in relation to improving suppliers-customers relationships and indirect impact on satisfaction and loyalty.

One important aspect of B2B technology adoption is the consideration that firms give to investment decision making about the perceived benefits (Dai and Kauffman 2002); nevertheless, other factors, such as technical infrastructure, perceived risk and trust, are also important for the utilisation of the technology. For example, Zahay and Handfield

(2003) studied the effect of the organisations' capabilities for technical learning in predicting adoption of B2B technology. They used organisational learning as the theoretical framework to investigate B2B technology adoption. The results indicated that organizations which possessed not only the technical capabilities for automation but also the ability to learn and share information would be the most likely to adopt B2B technology. Hunter (2004) adopted a risk and benefit framework to study the adoption of B2B technology. They classified decision making about purchasing through B2B technology into four dimensions based on the risk importance and risk probabilities.

Furthermore, the issue of interorganisational trust is regarded as a key factor in the adoption of B2B technology (Schoder, and Haenlein 2004; Ratnasingam 2003; Ratnasingam and Phan 2003; Zabkar and Brencic 2004). According to Ratnasingam and Phan (2003, p.40) interorgnanisational trust is "the confidence of an organisation in the reliability of other organisations, regarding a given set of outcomes or events". Ratnasingam (2003) asserts that trust in trading partners and trust in security-based mechanisms in e-commerce are both influences on the adoption of B2B technology.

There are very few in-depth studies related to culture and B2B technology adoption and there are very limited studies on B2B e-commerce in the Asian context (Teo and Ranganathan 2004). For instance, Hsiao (2003) investigated technology fears in attitudes towards the adoption of the e-marketplace in Singapore. He examined the issue of distrust and fear through a socio-cultural analysis at the societal level. He suggested that companies seeking to expand their e-marketplace in Asian countries should consider the distrust/fear factors analysis as it may be a useful guide to minimize resistance to e-marketplace adoption. Teo and Ranganathan (2004) conducted a survey of 108 firms in Singapore, and found that problems in the adoption of B2B technologies included the difficulty in measuring benefits, fear of granting suppliers and customers access to corporate systems and insufficiently skilled staff.

In addition, Thatcher and Foster (2003) suggested a framework indicating factors influencing B2B adoption decision in the electronics and textiles industries in Taiwan. The framework consists of:
1) organizational factors (IT sophistication, top management support and firm size);

2) industry factors (importance of responsiveness, importance of cost cutting, multinational companies and trendsetting companies);

3) government (policies promoting B2B); and

4) culture (power distance, uncertainty avoidance, individualism, masculinity, time orientation and high vs low context).

They found that organizational, industrial and governmental factors do indeed influence B2B technology adoption decisions and cultural factors have indirect impacts.

2.2.3 Summary of the gaps in B2B technology adoption literature

The review of literature suggests that developing countries are under global pressures to adopt B2B technology (Gibbs et al. 2002, Kraemer et al. 2002). However, several studies have questioned the potential of B2B technology to promote economic development in the developing countries. A careful analysis of the literature leads to the conclusion that developing countries have neither gained international profile nor reduced transaction cost (Hample and Kwong 2001; Humphrey et al. 2003; Moodley 2002a, 2002b, 2003a, 2003b; Moodley and Morris, 2004; Pare 2002, 2003; Tregurtha and Vink 2002). The up-take of B2B technology has been slow and the primary Internet application for inter-firm communication is e-mail, while the e-marketplace is seen as a new strategy to gain new business opportunities. Most of the research has been conducted in the African region, and very little in Asia, and the little that has been done is mainly in the Chinese context. Deepening poverty, high unemployment, widening inequity, a weak and rapidly eroding export base and low and even negative growth seem to be hindering the development of B2B technology in Africa (Moodley 2003a), while this does not seem to be a significant issue in the Chinese context (Hample and Kwong 2001). However, the further research on cultural appropriateness needs to be addressed (Hsiao 2003; Teo and Ranganathan 2004).

Among the important issues mentioned above, the main research gaps identified are: 1) much of the research reported in the literature on B2B technology was conducted from the perspective of developed countries. There are, however, limited studies on B2B technology adoption in developing countries; 2) the literature focuses on the failure of

B2B technology adoption in developing countries, but not on the issue of appropriateness of B2B technology transfer to developing countries, while cultural differences seem to be a significant issue in international technology transfer, particularly in the Asian context. In addition, there is no research concentrating on the appropriateness of B2B technology transfer to Thailand; and 3) the review of B2B technology adoption literature makes clear that there are not many pieces of research which have taken a closer look at cultural implications on B2B technology adoption. To explore the issues of appropriateness of B2B technology transfer in Thailand, the review of theories of fit, in particular, the Task-Technology fit (TTF) model is presented in the next section.

2.3   Theories of fit

2.3.1 The concept of fit in strategic management

The concept of 'fit' or 'congruence' is at the centre of the strategy literature. Fit is rooted in the concept of 'matching' or 'aligning' organisational resources with environmental opportunities and threats (Bahee 1992; Henderson and Venkatraman 1999; Venkatraman 1989; Venkatraman and Camillus 1984). In the domain of organisation theory, this concept has led to the development of contingency theory (Donaldson 2001; Venkatraman and Camillus 1984). Contingency theory was developed in the 1950's (Weill and Olson 1989). It seeks to find the best way to form a business strategy by considering the components of an organisation, which must fit well with each other to produce optimal performance (Donaldson 2001; Drazin and Van de Ven, 1985; Ginsberg and Venkatraman 1985; Selto, Renner and Young 1995; Venkatraman, 1989). Below is a summary of contingency theory by the original authors, Kast and Ronsenzweig (1973 cited in Weill and Olson, 1989, p.60):

> *"The contingency approach attempts to understand the interrelationships within and among organisational subsystems as well as between the organisational system as an entity and its environments. It emphasises the multivariate nature of organisations and attempts to interpret and understand how they operate under varying condition."*

Research has suggested a number of contingency variables of interest to contingency theory. Drazin and Van de Ven (1985) assert that contingency theory explains workgroup performance within organisations. They suggest three primary components of organisations: context, structure and process. Context refers to organisational size, culture, environment, technology, tasks and methods. Structure refers to an organisation's formality or the flexibility of the organisation's structure such as bureaucracy. Process refers to the control of communication and information flow. Each organisation has its own best fit of context, structure and control. In early research, Leavitt (1965) suggests a concept of 'dimensional fit' by introducing four contingency variables: processes, people, structure and technology. Hence, the concept of fit in contingency theory suggests that the performance of an organisation depends on the fit of an organisation's characteristics. The deviate form of fit is called 'misfit'.

The concept of fit can be viewed in different perspectives by "the degree of specificity of the theoretical relationship between variables, in the number of variables in the fit relationships, and whether the concept of fit is anchored to a particular criterion variable" (Zigurs and Buckland 1998, p.322). Drazin and Van de Ven (1985) suggest three approaches to fit: fit as congruence, fit as interaction, and fit as internal consistency. Fit as congruence assumes a premise underlying congruence between context and structure. Fit as interaction is the interaction of pairs of organisational context structure factors and its implications for performance. Fit as internal consistency is the internal consistency of multiple contingencies and multiple structural characteristics and its implications for performance. Venkatraman (1989) later proposed a classical framework for the concept of fit in six perspectives, which are fit as matching, fit as covariation, fit as gestalts, fit as moderation, fit as mediation and fit as profile deviation. Zigurs and Buckland (1998) summarised the perspective of fit proposed by Venkatraman (1989) in Table 3.

Table 3 Six perspectives of fit defined by Venkatraman as tabulated by Zigurs and Buckland

Perspective	Underlying Conceptualisation	Description	Example Proposition
Fit as matching	Matching	A match between two theoretically related variables is defined, without reference to a criterion variable.	The match between strategy and structure enhances administrative efficiency.
Fit as covariation	Internal consistency	A pattern of covariation or internal consistency among a set of underlying theoretically related variables is defined, without reference to a criterion variable.	The degree of internal consistency in resource allocations has a significant effect on performance.
Fit as gestalts	Internal congruence	Gestalts are defined in terms of the degree of internal coherence among a set of theoretical attributes, involving many variables, but not specified with reference to a criterion variable.	The nature of internal congruence among a set of strategic variables differs across high and low performing firms.
Fit as moderation	Interaction	The impact that a predictor variable has a criterion variable is dependent on the level of a third variable, which is the moderator.	The interactive effects of strategy and managerial characteristics have implications for performance.
Fit as mediation	Intervention	A significant intervening mechanism (i.e. an indirect effect) exists between an antecedent variable and the consequent variable.	Market share is a key intervening variable between strategy and performance.
Fit as profile deviation	Adherence to a specific profile	A profile of theoretically related variables is specified and related to a criterion variable.	The degree of adherence to a specified profile has a significant effect on performance.

2.3.2 Fit in Information System research: Task-Technology-Fit Model

The concept of fit has been applied to management information systems (MIS) research (Bergeron, Raymond and Riward 2001; Christiaanse and Venkatraman 2002; Henderson and Venkatraman 1999; Venkatraman 1989). Chan, Huff, Barclay and Copeland (1997) extend Venkatraman's fit framework into the IS area. They conducted research to measure the level of fit among business strategic orientation, IS strategic orientation, and IS strategic alignment. They investigated the implications for perceived IS effectiveness and business performance. Both matching and moderation models of IS strategic alignment were tested and compared. The matching model relied on the degree of parallelism between 'Strategic Orientation of Business Enterprise' (STROBE) and 'Strategic Orientation of the Existing Portfolio of IS Applications or Realized IS strategy' (STROEPIS) influencing both business performance and IS effectiveness. The

moderation model implied that the greater the value of STROBE, the greater the impact of STROEPIS on business performance; the greater the value of STROEPIS, the greater the impact of STROBE on IS effectiveness. To achieve a high degree of fit, STROEPIS did not need to parallel STROBE, but acted as catalyst.

Perhaps the most well known theoretical model in IS research, which was derived from theories of fit, in IS research is the Task-Technology Fit (TTF) model. TTF adopts fit in the moderation perspective. The TTF model was first presented by Goodhue in 1992. It draws the link between information technology and individual performance, which is "an assertion that for an information technology to have a positive impact on individual performance, the technology must be utilised, and the technology must be a good fit with the tasks it supports" (Goodhue and Thompson 1995, p.213). Fit refers to the degree to which a technology assists an individual in performing his or her portfolio of tasks (Goodhue 1998; Goodhue and Thompson 1995).
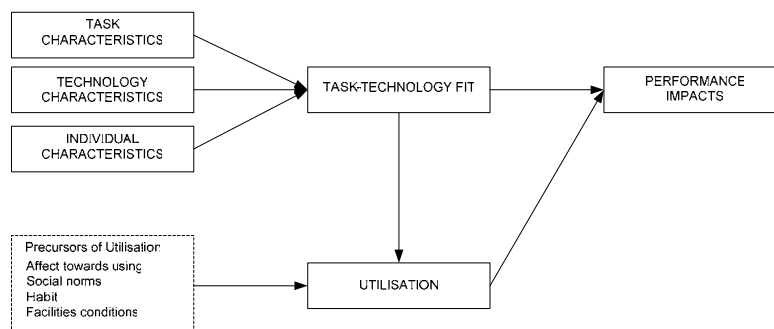
Figure 2   The Task-Technology Fit model by Goodhue and Thompson

Figure 2 illustrates a graphical model of TTF. TTF is the correspondence between task, technology and individual characteristics. Technologies are viewed as tools used by individuals in carrying out their tasks. Tasks are defined as the actions carried out by individuals in turning inputs into outputs. Goodhue and Thompson define two task characteristics in their research, which are routines and interdependency of tasks. Characteristics of individuals include their IT training and competence, computer experience, and motivation to using technology, all of which could indicate how effectively users utilise technology (Goodhue and Thompson 1995).

Goodhue and Thompson (1995) outline the link between fit and utilisation. Utilisation is defined as "the behaviour of employing the technology in completing tasks", while the measures of the utilisation often emphasise the frequency of use or the diversity of applications employed (Goodhue and Thompson 1995, p.218). They assert that the model focusing on fit alone does not give sufficient attention to the fact that a system must be utilised before performance impacts can be delivered. Utilisation is a complex outcome based on many other factors besides fit such as habit, social norms, and other situational factors. The precursors of utilisation are based on Fishbein and Ajzen's theory of reasoned action. Fishbein and Ajzen (1975) suggest that the behaviour of intention could be predicted from knowledge of consumers' attitudes, social normative belief and personal belief. Utilisation could be predicted from knowledge of behaviour of intentions and the judged influence of extraneous events such as time constraints, technology constraints, competitive promotion and economic constraints.

According to Goodhue and Thompson (1995), utilisation is extremely difficult to measure. In many field situations, use of a system may be mandated as part of a job description. For instance, employees often have no choice but to use the systems provided by the organisation. In their research context, Goodhue and Thompson (1995) operationalised this construct by asking users to rate how dependent they were on a list of systems available in their organisation. The study found that TTF had stronger impact on performance than utilisation.

Utilisation was then further tested in volitional and non-volitional use. Staples and Seddon (2004) conducted a test of the linkage between TTF and the precursors of utilisation in two settings: voluntary use and mandatory use. They found that social norms had a significant impact on utilisation in the mandatory use setting, while the beliefs about use had a significant impact on utilisation in the voluntary use setting. However, the results are somewhat similar to Goodhue and Thompson (1995) in that TTF has a stronger impact on performance than utilisation. Besides, Agarwal and Prasad (1997) attempted to explain the relationship between perceived voluntariness in the technology acceptance. They assert that mandating the use of a system can increase initial system utilisation. Through an appropriate incentive system, for example, and

directives from superiors, organisations may be able to overcome the hurdle of first-time use. However, the effects of such pressure may not be sustainable over time.

Major research in TTF is presented in Table 4, and seeks to highlight research methods, research objectives and key findings of relevant studies. It can be seen that the fit between task and technology has been defined in many contexts. Originally, Goodhue and Thompson (1995) defined eight dimensions to measure TTF: quality, locality, authorization, compatibility, production, timeliness, reliability, ease of use/training and relationship with users. These dimensions were derived within three main task domains which are 1) the user task domain of IT-supported decision making 2) responding to changed business requirements with new and modified systems and 3) executing day to day business transactions (Goodhue and Thomson 1995). Furthermore, Gebauer and Shaw (2004) used functionality, portability, system performance and system support as TTF dimensions to conduct a survey study on the mobile electronic procurement system on 100 Fortune companies. Karimi, Somers and Gupta (2004) investigated the impact of environmental uncertainty and task characteristics on user satisfaction with data by using IS and organizational theories. They defined TTF in three main dimensions which are: satisfaction with data, satisfaction with IS and satisfaction with IS support. Vlahos, Ferratt and Knoepfle (2004) conducted a survey of German managers to investigate their use of IT and their perceptions of the value provided by computer-based information systems. They defined TTF as decision roles and decision steps to measure the fit to decision making tasks. D'Ambra and Rice (2001) attempted to investigate the impact of the web for non-work based information tasks. They found that the predictors of performance include greater weekly usage, finding information on hobbies and interests, ability to find more information on the web that is current, reduced shopping cost and travel, finding otherwise difficult to locate information and fun/entertainment.

Table 4 Summary of major literature on Task-Technology Fit model

Source	Types of study	Objectives/Research questions/ Hypotheses	Findings
Benslimane et al. 2002	Survey questionnaire	To examines the application of the task technology fit (TTF) model to World Wide Web usage for e-commerce. This paper presented the results from instrument validation. The data was collected from 110 corporate buyers from over 100 organisations across industries.	- The study presented the instrument validation which classified corporate buyers' tasks into searching, ordering, follow-up, payment, usage, non-routine usage, reduced search costs and reduced processing cost.
D'Ambra and Rice 2001	Focus group and survey questionnaire	To develop an integrative model and conceptually-based scales for evaluating the extent to which web services satisfy information needs that arise outside the traditional organisational/work domain.	- They found that the predictors of performance include greater weekly usage, finding information on hobbies and interests, ability to find more information on the web that is current, reduce shopping cost and travel.
D'Ambra and Wilson 2004	Survey questionnaire	To introduce an uncertainty factor in the TTF model to investigate the adoption of World Wide Web for International Travel by surveying 217 travellers.	- They found that the use of web for travel tasks for uncertainty reduction as an information resource and for mediation all have a significant impact on users' perception of performance. -
Dennis et al. 2001	Survey questionnaire	To develop a new model for interpreting Group Support System (GSS) effects on performance.	- They introduced the Fit Appropriation Model (FAM) as an integration of TTF and theories of appropriation.
Dishaw and Strong 1999	Survey questionnaire	To integrate TTF model with Technology Acceptance Model (TAM).	- The integrated model explains much more of the variance in the dependent variable, utilisation, than did either TAM or TTF alone. While TAM provides excellent explanation of intention to use, it is much weaker for actual use. Thus, TAM's weaknesses in explaining IT utilisation may be primarily attributable to its lack of explicit inclusion of task characteristics and how well the IT meets the requirements of that task. - Some aspects of utilisation are determined by users' perceptions of the usefulness and ease of use of the tools and general attitude toward using the tools, while other aspects are affected by the matching of specific tool functionality to the specific needs of a task.
Fuller and Dennis 2004	Longitude experiment	To better understand the influence of task-technology fit on collaboration technology effectiveness and efficiency.	- The results indicated that initially, teams using poor-fitting collaboration technology had lower effectiveness and efficiency, satisfaction and perceptions of fit than teams using fitting collaboration technology. However, the perception of fit in the poor fit team increases overtime, while the fit team remains consistent. Task-technology fit may be more relevant as a predictor of effectiveness and efficiency in contexts where the tasks and the collaboration technology are less malleable.
Gebauer and Shaw 2004	Exploratory and combines qualitative and quantitative data	To investigate the impacts of mobile electronic procurement application implemented in a Fortune 100 company and this covers the impacts of mobile technology characteristics on application usage, the impacts of task characteristics on application usage, and the impacts of application usage on business processes.	- Poor technology characteristics, as perceived by potential users, have inhibited application usage to a great extent. - The impact of task characteristics on usage, the study found that users valued two things most: notification and mobility. - Mobility could predict the usage of the mobile application.

Table 4 Summary of major literature on Task-Technology Fit model *(Continue)*

Source	Types of study	Objectives/Research questions/ Hypotheses	Findings
Goodhue 1995	Survey questionnaire	Use TTF model to elaborate for a specific task domain, focusing on the way technology, individual characteristics and task characteristics lead to higher or lower user evaluations. Proposition 1: Characteristics of information systems/services will affect user evaluation (UE) of TTF. Proposition 2: Task characteristics will affect UE of TTF. Proposition 3: Individual skills and abilities will effect UE of TTF Proposition 4:The interaction between task and technology (and individual) will affect UE of TTF.	- Users were found to be influenced directly by system, task and individual characteristics. - Users will give higher evaluations based not only on inherent characteristics of a system, but also on the extent to which that system meets their task needs and their individual abilities (e.g. task-technology-fit). Thus, a single system could get very different evaluations from users with different task needs and abilities.
Goodhue. Littlefield and Straub 1997	Survey questionnaire and interview	To determine the extent to which the Integrated Information Centre (IIC), and the technologies and services which it provided, had a performance impact on faculty and students engaged in academic work.	- The analysis of the survey data has produced ambiguous results on the impact of IIC. The statistically significant changes detected in the survey (availability, fit, utilisation and impact for email and voice mail, and availability for tables of content) occurred in both the treatment and the control groups. They did not detect any unique effect of the IIC.
Karimi et al. 2004	Survey questionnaire	To investigate the impact of environmental uncertainty and task characteristics on user satisfaction with data. To investigate how environmental uncertainty impact user's task characteristics, and whether task characteristics mediate the impact of environment uncertainty on user satisfaction with data.	- Environment uncertainly has a positive impact on task characteristics, - Task characteristics have a direct and mediating impact on user satisfaction with data.
Klaus et al. 2003	Focus group, Survey questionnaire	To synthesises TTF and TAM models and tests whether they are applicable to the Web.	- TAM applies very well to predict the Web user's performance, but TTF model procedures a weak relationship.
Massey et al. 2001	Experiment	To address the importance of culture towards perception of fit in the global virtual team (GVT). They conducted an experiment involving 150 participants located in the U.S., Japan, and Europe.	- They found that culture difference had impacted significantly on perceptions of communication task-technology fit.
Murthy and Kerr 2004	Experiment	To examine the relative effectiveness of alternative modes of audit team communication (e.g. face-to-face, bulletin board, chat tool) in a task requiring the exchange and processing of uniquely held information. H: Problem solving performance in a hidden-profile task will be highest for teams interacting using a bulletin-board system, followed by teams using a chat system, followed by teams interacting face-to-face.	- Team using the bulletin board tool outperformed teams using the chat tool and teams communicating face-to-face. - There were no significant differences between teams using the chat tool and teams interacting face-to-face.

Table 4 Summary of major literature on Task-Technology Fit model *(Continue)*

Source	Types of study	Objectives/Research questions/ Hypotheses	Findings
Vlahos et al. 2004	Survey questionnaire	H1: The TTF for the managerial decision roles of resource allocation and entrepreneur is at least as strong as that for the decision roles of disturbance handler and negotiator. H2: The TTF for the decision steps of evaluating the outcomes of each alternative and identifying problems and issues is that at least as strong as that for the steps of generating alternative courses of action, ranking the alternatives and choosing one, and implementing the chosen alternative. H3: The TTF for making short-term decisions is at least as strong as that for making tactical and strategic decisions. H4: The TTF of IRS is stronger than that of other types of computer based information systems (CBIS).	- The greatest TTF was related to resource allocation, evaluating alternatives, identifying problems, and making short-term decisions. - For middle and top managers, information reporting system (IRS) which provide regularly scheduled reports, had greater TTF than more flexible inquiry and analysis systems, such as decision support systems (DSS)
Yuan et al. 2003	Survey questionnaire	To investigate the adoption of IT among American Convention and Visitors Bureaus in the tourism industry.	- The results reveal that organisational properties, leader characteristics, and technology-activities fit are major influences that drive the direction of evolution in the use of IT. The technology-activities fit comprised three different aspects: the perceived usefulness of a specific application, the perceived usefulness of Internet technology for supporting certain organisational activity and the extent to which an impact of Internet technology on certain activities is perceived.
Zigurs and Buckland 1998	Survey questionnaire	To develop a theory of task/technology fit in GSS environments based on attributes of task complexity and their relationship to relevant dimensions of GSS technology.	- Tasks have been classified into simple tasks, problem tasks, decision tasks, judgment tasks and fuzzy tasks.

The TTF model has been extended by introducing new factors and integrating it with IT adoption models. For instance, D'Ambra and Wilson (2004) introduced the uncertainty factor in the TTF model to investigate the adoption of the World Wide Web for international travel. They found that the use of the web for travel tasks for uncertainty reduction as an information resource and for mediation both have a significant impact on users' perception of performance. Yuan, Gretzel and Fesenmaier (2003) studied the adoption of IT among American convention and visitors bureaus in the tourism industry. The results reveal that organisational properties, leader characteristics, and technology-activities fit are major influences that drive the direction of evolution in the use of IT. The technology-activities fit comprised three different aspects: the perceived usefulness of a specific application, the perceived usefulness of Internet technology for supporting certain organisational activity and the extent to which an impact of Internet technology on certain activities is perceived. The study analysed the adoption into the different stages, in which emerge laggards, sophisticated followers, knowledge adopters, early light adopters and late light adopters. They found that the longer the groups use IT applications, the more likely they are to recognize the fit between technology and their activities and to perceive higher degrees of usefulness.

Additionally, some researchers attempt to integrate TTF with the technology acceptance model (TAM). TAM is one of the most influential models in IT adoption research. It was developed by Fred Davis and Richard Bagozzi (Davis 1989, 1993; Davis, Bagozzi and Warshaw 1989) with influence from the theory of reasoned action (TRA) by Fishbein and Ajzen (Fishbein and Ajzen 1975). TAM attempts to predict why people accept or reject information systems. The model hypothesizes that actual system use is affected by behavioral of intentions, which are themselves affected by attitude towards use. Finally, TAM posits two particular beliefs, perceived ease of use and perceived usefulness, to explain the attitude towards use. TAM postulates that the acceptability of use of an information system is determined by these two factors.

Some researchers propose that TTF and TAM models complement each other and could be integrated. While TAM focuses on the attitudes towards using IT which are based on perceived usefulness and ease of use of the IT, TTF focuses on the fit between tasks and the functionality of IT. Dishaw and Strong (1999) integrated TTF and TAM to explain

software utilisation and its link with user performance. They found that the integrated model explains much more of the variance in the dependent variable, utilisation, than did either TAM or TTF alone. While TAM provides excellent explanation of intention to use, it is much weaker for actual use. Thus, TAM's weaknesses in explaining IT utilisation may be primarily attributable to its lack of explicit inclusion of task characteristics and how well the IT meets the requirements of that task. Klaus et al. (2003) investigated the TTF model and TAM in the use of web-based information systems for non-work based information tasks. They conducted focus groups and distributed a survey questionnaire to 222 students. They found that TAM applies very well to predict the web user's performance, but the TTF model produced a weak relationship. However, this result is based on a sample of students rather than practitioners.

Recently, with the increase in the use of information technology to support teams, researchers have begun to apply TTF in order to investigate the effects of collaborative technology used in a team environment on performance. For example, Murthy and Kerr (2004) conducted an experiment by applying TTF to compare the effectiveness of communication media such as face-to-face, a bulletin board and chat tools in a task requiring the exchange and processing of uniquely held information. They found that teams using the bulletin board tool outperformed teams using the chat tool and teams communicating face-to-face. In addition, there were no significant differences between teams using the chat tool and teams interacting face-to-face.

Furthermore, the adoption of the Group Support System (GSS) in an organisation is another stream of TTF research. Unlike the TTF which adopts fit as moderation, Dennis, Wixom and Vandenberg (2001) assert that the concept of fit in GSS studies focuses on fit as a profile deviation approach, in which an idea profile of GSS capabilities is defined for a set of different task profiles. Generally, group tasks were defined as "the behaviour requirements for accomplishing stated goals, via some process using given information" (Zigurs and Buckland 1998, p.361). These authors aimed to develop a theory of task/technology fit in GSS environments based on attributes of task complexity and their relationship to relevant dimensions of GSS

technology. As a result, they classified tasks into simple tasks, problem tasks, decision tasks, judgment tasks and fuzzy tasks.

The task-technology fit has been applied with the appropriation/adaptation perspective to investigate the fit in GSS adoption. The term appropriation/adaptation has been used in Structuration Theory, which explains organisational adoption of computing and information technologies (DeSanctis and Poole 1994). It refers to "the processes through which users manipulate and reshape their technologies to accomplish work and the ways in which such actions draw on the particular social contexts within which they work" (Majchrzak, Rice, Malhotra, King and Ba 2000, p.570). Dennis et al. (2001) introduced the Fit-Appropriation Model (FAM) to analyse the effectiveness of GSS on group performance by integrating the TTF (Zigurs and Buckland 1998; Dennis and Valacich 1999) with the appropriation approach from the Structuration theories (DeSanctis and Poole 1994). They argued that a GSS is inherently a social technology; thus, the way in which individuals and groups use technology may also are affected by the fit of the technology with the group's habitual routines, which they referred to as the appropriation, not only the task technology fit alone. Fuller and Dennis (2004) conducted a longitudinal experiment on the effectiveness of GSS. The results indicated that initially, teams using poor-fitting collaboration technology had lower effectiveness and efficiency, satisfaction and perceptions of fit than teams using fitting collaboration technology. However, the perception of fit in the poor fit team increases over time, while the fit team remains the same.

There are very limited studies applying the concept of fit to IT adoption in interorganisational contexts. A study by Bensaou and Venkatraman (1995), which is one of the first pieces of research in this area, proposes a model of interorganisational relationships based on the fit between information processing needs and information processing capabilities. The information processing needs arise from environmental uncertainty, partnership uncertainty and task uncertainty, while information processing capabilities include structure, process and information technology. O'Reilly and Finnegan (2005) conducted the study on B2B e-marketplaces in the cotton industry. They pointed out that because of the increase in complex relationships, the performance of e-marketplaces not only depends on the fit between the information processing needs

and information processing capabilities, but also between the value added and value demanded, governance and investment, and trust and security based mechanisms. Benslimane, Plaisent and Bernard (2003) adopted the TTF model to examine World Wide Web usage for business to business transaction. The data were collected from 110 corporate buyers from over 100 organisations across industries. The findings classified corporate buyers' tasks into searching, ordering, follow-up, payment, usage, non-routine usage, reduced search costs and reduced processing cost.

2.3.3 Some issues with the TTF model for this research

The literature review reveals that the TTF model plays an important role in IT adoption research. The author recognises an alternative theoretical model, Technology Acceptance Model (TAM) which also derived from the adoption and diffusion of innovations literature (Davis 1989, 1993; Davis, Bagozzi and Warshaw 1989). Yet, to serve the purpose of this research, The TTF model was selected. This is because TTF attempts to explain the success and failure of IT adoption from the contingency approach, while the TAM model only focuses on the perceived ease of use and usefulness to predict IT adoption and not specifically to investigate the concept of fit/appropriateness. Hence, TTF enables researchers to have a better understanding than TAM in terms of the issue of fit/appropriateness in technology transfer.

There are three main issues in the current TTF model identified by this research. Firstly, the concept of fit in the TTF model has been focused at both the individual level and the intraorganistional level (eg. D'Ambra and Rice 2003; D'Ambra and Wilson 2004; Fuller and Dennis 2004; Yuan et al. 2003). However, very few studies apply the concept of fit in the interorganisational context (Bensaou and Venkatraman 1995; O'Reilly and Finnegan 2005). Only one piece of TTF related research was found, and it only attempted to classify the corporate buyers' tasks in the procurement process (Benslimane et al. 2003).

Secondly, although Goodhue and Thompson (1995) highlight the importance of a socio-cultural aspect in determining the utilisation and the performance in the adoption of IT,

this dimension including cultural issues has not been adequately explored (Dennis, Wixom, Vandenberg 2001). A study by Massey, Montoya-Weiss, Hung and Ramesh (2001) addressed the importance of culture in the perception of fit in the global virtual team (GVT). They conducted an experiment involving 150 participants located in the U.S., Japan, and Europe. They found that cultural differences had a significant impact on perceptions of the fit between communication tasks and technology. However, to the knowledge of the researcher, there has been no further investigation into how national culture influences the concept of fit in the interorganisational context.

Lastly, the TTF model has not yet been tested in the context of IT adoption in developing countries. Once again, to the knowledge of the researcher, only one study that applies the concept of fit in technology adoption in developing countries has been undertaken by Heeks (2002). Heeks developed a framework that applied the concept of fit in an attempt to explain the high rate of failure of information systems transfers to developing countries. The model draws on contingency theory in order to advance the notion of the so called 'design-actuality gaps', explained as a match or mismatch between IS designs and local use actuality.

This research proposes that the TTF model may be suitable for investigating the appropriateness of B2B technology adoption in Thailand. The researcher supports the argument put forward by Henderson and Venkatraman (1999) that the inability to generate value from IT adoption is, in part, due to lack of alignment between IT and firms' internal and external business environments. Hence, to achieve a high utilisation of B2B technology adoption, firms in developing countries need to adopt effective IT strategies that align with their local environment. The development of the proposed research model, which extends the TTF model, has addressed the following issues:

- The contingency variables affecting the adoption of appropriate B2B technology in the interorganisational context require further investigation. The interorganisational theories including interorganisational relationships will be further investigated to address the issues of interdependency and B2B technology adoption;

- According to the literature review on appropriateness of technology transfer to developing countries, culture has significant implications for the success and failure of technology transfer. Thus, this research proposes to incorporate national cultural theories in order to examine the cultural fit/appropriateness on the adoption of B2B technology in Thailand.

Consequently, the next sections will investigate interorganisational theories and national culture theories and will explore how to incorporate these concepts into the TTF model.

2.4 Interorganisational theories

The growth of B2B technology highlights the importance of understanding interorganisational theory (Premkumar 2000). Interorganisational theory underlines the importance of interorganisational networks. Interorganisational networks, in turn, are the result of complex interactions between companies in a relationship over time and are based on the concept of interdependency (Ford, Gadde, Hakansson and Snechota 2003). Here, interdependency is understood using the notion of game theory, known as 'strategic interdependency': "the ability of each participating actor to gain his ends is dependent on the behaviour of other participating actors" (Jonsson 1986, p. 42).

The attempts to connect all the trading partners into the electronic supply chain have addressed several issues. According to Ford et al. (2003), the trading relationship among firms and the degree of fit between the technologies used by them influence the B2B technology adoption decision. Thus, for B2B technology adoption the nature of the business relationship is important. Rao et al. (2003) assert that the impact of the Internet on interorganisational relationships has received little attention in the academic literature. Some interorganisational relationship issues highlighted by this research include information sharing, the power of a larger firm to force adoption on a smaller one, changes in interorganisational relationships and the level of interdependency. These issues are presented below.

One of the prime benefits claimed for B2B technology is that information will be freely shared among trading partners, a question arises as to what extent can information be shared (Premkumar 2000). This is a critical issue in the real world as information is the key factor for businesses to operate and to gain competitive advantage. Even though technology provides the ability to share information, firms may not want to share their information for several reasons. It will be difficult to convince trading partners to adopt an information system for inter-firm communication and collaboration, unless there is a clear benefit for all partners (Premkumar 2000).

Using advanced computer systems to connect trading partners in an electronic supply chain may create resistance from trading partners in terms of the distribution of benefits. The integration may not provide the same benefits to all the parties (Premkumar 2000), as can be seen in the case of Electronic Data Interchange (EDI), where the initiator firm takes the proactive role in convincing the smaller firm to adopt EDI by using the veiled threat of loss of business through their position of power in the interorganisational relationship (Premkumar 2000; Subramani and Venkatraman 2003).

The complexity of interorganisational networks in the B2B e-marketplace has focused more attention on the interdependency among firms. The nature of the B2B e-marketplace model results in more complexity in the interorganisational relationship than the traditional IOS. While traditional IOS models predominately operationalise one-to-one relationships, e-marketplaces are mainly characterised as one-to-many and many-to-many relationships (O'Reilly and Finnegan 2005; Turban et al. 2002).

Teo, Wei and Benbasat (2003) classified and validated the pressures that exist in an institutionalized environment influencing organisational predisposition toward an information technology-based interorganisational linkage. They identified three interorganisational relationship factors influencing IT adoption, which are mimetic, coercive and normative pressures. Memetic pressure refers to "the prevalence of a practice in the focal organisation's industry and the perceived success of organisations within the focal organisation's industry" (Teo et al. 2003, p.21). Coercive pressures are defined as "formal or informal pressures exerted on organisations by other organisations upon which they are dependent" (Teo et al. 2003, p.22). Normative pressure underlines

the assumption that "a focal organisation with direct or indirect ties to other organisations that have adopted an innovation is able to learn about that innovation and its associated benefits and costs, and is likely to be persuaded to behave similarly" (Teo et al. 2003, p.23).

In summary, investigating the adoption of B2B technology requires a sound understanding of the interdependency concept. Because of the complex relationship in the interorganisational network, this research proposes that besides the fit between task and technology, one needs to consider the nature of the business relationship in the adoption of B2B technology.

2.5   National culture

There is substantial research (e.g. Chang 2003; Dwyer, Hani and Hsu 2005; Fan and Zigang 2004; Hewett, Money and Sharma 2006; Hofstede 1991; Komin 1991) suggesting that national culture can be used to discuss differences in behaviour patterns in different countries. To investigate the impact of national culture on B2B technology transfer from western countries to organisations in Thailand, it is necessary to identify the implications for national culture in the utilisation of B2B technology and for the firms' performance. This section presents a review of the literature on national culture, including definitions of culture, a sample of key cultural frameworks, and the impact of national culture on interorganisational communication and relationships.

2.5.1 Defining national culture

National culture has been defined in many ways. Anthropologist Clifford Geertz (1973, p.89) described culture as a "historically transmitted pattern of meanings embodied in symbols by means of which men can communicate, perpetuate and develop their own knowledge about and attitudes towards life". Hofstede (1991) defined culture as the collective programming of the mind that distinguishes one group from another. He identified and validated five independent factors of national cultural differences. These

are power distance, individualism, masculinity, uncertainty avoidance and long-term versus short-term orientation. According to Triandis (2000), national culture reflects the core values and beliefs of individuals formed during childhood and reinforced throughout life.

Some researchers argue that national boundaries do not necessarily correspond to the boundaries of culture. Myers and Tan (2002), for example, agree on the important impact of culture on information systems adoption, but strongly argue that there is no necessary alignment between culture and the nation-state. They propose that IS researchers should adopt the dynamic view of culture as contested, temporal and emergent. Schwartz (1999) asserts that national culture can usually be observed from a relatively homogeneous society within a shared culture, in which there are strong forces towards integration of culture. These could include a single dominant language, the educational system, army, political system, shared mass media, markets, services and national symbols. He argues that it is difficult to generalise about national culture in heterogeneous nations, where ethnic groups form distinctive cultural groups that live separate and substantially different lives.

To serve the purpose of this research, the definition of national culture by Komin (1991), a prominent researcher in Thai culture, is adopted. Discussing Thai culture, Komin (1991, p.687) notes that "characterising a national culture, of course, does not mean that every person in the culture arranges all the characteristic dimensions in the same order of importance. Therefore, in describing Thai national characteristics, we are only referring to the common characteristic elements within the Thai culture – the national norms, or group norms in the case of describing a particular group". The details of Thai national culture will be further discussed in section 2.6.

According to Kedia and Bhagat (1988), the impact of culture on the transfer of technology can be viewed at both national and organizational levels. Mattsson (2003) takes the view that a distinction can be made between organisational culture and national culture. Organisational culture is more changeable than national culture. Organisational cultures differ within the same nation. National culture is deeper and less adaptable than organisational culture, where the latter is influenced by the former.

Hofstede (1989, p.391) believes that "national cultures are programmed into us first, that is, right from the day we are born... Organisational cultures are acquired last, after we have joined an employer, usually in adult age".

Since national culture influences the core values formed early in life, it is deeper and less flexible than organisational culture. Organisational cultures within the same country may be limited to the organisational influence, for example size of organisation and CEO perspective. Moreover, the focus of this research is on international technology transfer. Accordingly, for this study, the role of national culture in B2B technology transfer from western countries to organisations in Thailand is emphasised, while the organisational characteristics that may influence the technology adoption are also acknowledged. In addition, as this research context is the use of B2B technology, the impact of national culture on interorganisational communication and relationships is highlighted. The next section presents a review of key national culture frameworks.

2.5.2 Overview of culture frameworks

In an attempt to analyse the cultural phenomenon, researchers have proposed cultural frameworks, which can, in some form, operationalise and measure culture (Hall 1973; Hofstede 1980, 1991, 2001; Hofstede and Bond 1988; Singh 2004; Trompenaars 1993, 1996). For instance, Corbitt, Peszynski, Inthanond, Hill and Thanasakit (2004) suggest a code system based on Social Construction Theory to view culture. They suggest that national culture can be better understood by seeking out the dominant codes that frame the pervasive discourse in a culture. Straub, Loch, Evaristo, Karahanna and Srite (2002) propose a framework to measure culture based on the Social Identity Theory. They take the view that the multiplicity of diverse cultural influences received by an individual contributes to an idiosyncratic set of values. Shore and Venkatachalam (1994) introduce the concept of a cultural prototype, which is a framework to analyse IS applications transferred from one culture to another. They believe that the complexity of IS technology transfer relates to the gap between national cultures and the nature of the application measured by its level in the information hierarchy. Besides these examples, Table 5 below presents a sample of widely accepted culture frameworks that have

served to identify national cultural differences, and that have been influential in the current IT adoption literature. The research framework developed for this study has drawn from several of the cultural dimensions identified in these cultural frameworks.

Table 5 National culture frameworks

Researchers	National culture dimensions
Hall (1973)	High context vs. Low context
Hofstede (1980, 1991, 2001) Hofstede and Bond (1988)	Individualism vs. Collectivism Power distance Masculinity vs. Femininity Uncertainty Avoidance Time orientation
Triandis (2001, 2004) Triandis and Gelfand, (1998)	Individualism vs. Collectivism
Trompenaars (1993, 1996)	Universalism vs. Particularism Collectivism vs. Individualism Affective vs. Neutral relationship Specificity vs. Diffuseness Achievement vs. Ascription Oriented towards time Internal vs. External control
Schwartz (1994, 1997, 1999)	Conservatism Intellectual autonomy Affective autonomy Hierarchy Egalitarian commitment Mastery Harmony

2.5.2.1 Hofstede

Hofstede (1980, 1991) proposed a cultural framework which many researchers and practitioners have recognised as the most influential (Corbitt et al. 2004; Myers and Tan 2002; Steenkemp 2001). Hofstede (1980) investigated national culture differences across subsidiaries of IBM covering more than 70 countries between 1967 and 1973, involving 117,000 questionnaires and 88,000 respondents. He identified and validated four independent factors on which national cultures differ. These factors are power distance, individualism, masculinity and uncertainty avoidance. He later added the dimension of long-term vs. short-term orientation, after his collaboration with Bond (Hofstede and Bond 1988).

Table 6 Hofstede's national culture dimensions

Factors	Description
Individualism / Collectivism (IDV)	Individualism pertains to societies in which the ties between individuals are loose. Collectivism pertains to societies in which people from birth onwards are integrated into strong, cohesive in groups.
Power distance (PDI)	The extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally.
Masculinity/ Femininity (MAS)	Masculinity pertains to societies in which social gender roles are clearly distinct. Femininity pertains to societies in which social genders roles overlap.
Uncertainty avoidance (UAV)	The extent to which the members of a culture feel threatened by uncertain or unknown situations.
Long term /Short term orientation	Values associated with Long Term Orientation are thrift and perseverance; values associated with Short Term Orientation are respect for tradition, fulfilling social obligations, and protecting one's 'face'.

(Source: Adapted from Hofstede 1980, 1991)

Table 6 presents the culture dimensions identified by Hofstede (1980, 1991). The first dimension is individualism/collectivism (IDV). According to Hofstede (1980, 1991), individualism pertains to societies in which the ties between individuals are loose, while collectivism pertains to societies in which people, from birth, integrated into strong, cohesive groups. In the collectivist society, members of the society are concerned with a group interest rather than individual interest. The distinction between in-group and out-group is strong. With the distinction between in-group and out-group, treating one's friends better than others is natural and ethical, and sound business practice. Secondly, power distance (PDI) is defined as the extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally. Thirdly, in the masculinity/femininity (MAS) dimension, Masculinity pertains to societies in which social gender roles are clearly distinct, whereas Femininity pertains to societies in which social gender roles overlap. Fourthly, uncertainty avoidance (UAV) refers to the extent to which the members of a culture feel threatened by uncertain or unknown situations.

Additionally, Hofstede and Bond (1988) identified a fifth cultural dimension, referred to as long-term/short-term orientation. Values associated with long-term orientation are described as thrift and perseverance, and values associated with short-term orientation are respect for tradition, fulfilling social obligations, and protecting one's 'face'. These cultural dimensions were explored in Hofstede and Bond's 22 country study, which focused on traditional Asian values, and was based on a survey questionnaire, the Chinese Value Survey (Hofstede and Bond 1988). The survey questionnaire was derived from the concept of Confucian Dynamism, which identifies a core set of Asian

values, which relates to the work of the great Chinese philosopher, Confucius (Fang 2003; Robertson 2000). People in nations that have high Confucian Dynamism scores, for example in Thailand, China, Korea and Japan, tend to be associated more with the following values: persistence, ordering relationships by status, thrift and having a sense of shame. People in nations with low scores on this dimension reveal a cultural orientation toward the present and past, as for example, in Canada and the United States (Hofstede and Bond 1988).

Hofstede's cultural framework has been tested and confirmed by many studies and the results suggest that they can reliably be used to classify countries according to their national cultures and to determine the cultural distance between them (Drogendijk and Slangen 2005). These studies often used Hofstede's cultural framework to examine the differences between western culture and non-western culture (e.g. Chang 2003; Fan and Zigang 2004; McGrath, Macmillan, Yang, Tasi 1992; William and Tower 1998). For example, Christie, Kwon, Stoeberl and Baumhart (2003) investigated the relationship between Hofstede's five cultural dimensions and business managers' ethical attitudes in India, Korea and the U.S. They found that national culture had a strong influence on business managers' ethical attitudes in all the countries. Holt (1997) conducted a comparative study of values among Chinese and U.S. entrepreneurs in order to find out whether Chinese entrepreneurial values are similar or different to those held by U.S. entrepreneurs. Furthermore, Niffenegger, Kulviwat and Engchanil (2006) observe that individualism and power distance have the most impact on the leadership roles in management, while uncertainty avoidance and masculinity can explain the distribution of power in organisations. Time orientation is often applied to economic performance and reform.

Hofstede's framework has been used in a number of disciplines outside the core sociology and anthropology disciplines such as marketing, management, accounting and information systems (Hewett et al. 2006). In the information system discipline, Hofstede's cultural dimensions have frequently served to identify cultural variations in IT adoption research (McGrath et al. 1992; Thanasankit 1999, 2002). Much of the previous research indicates that cultural differences impact on IT adoption and transfer from one cultural context to another and this leads to the different IT adoption outcomes

(e.g. Hasan and Ditsa 1999; Rau and Liang 2003; Scheraga, Tellis and Tucker 2000; Seror 1996). For instance, Shane (1992) and Shane, Venkataraman and MacMillan (1995) conducted a cross cultural study seeking to better understand the link between cultural values and the innovativeness and inventiveness of a society. They found that individualistic societies should be more inventive than collective societies as members in such a society have more freedom to generate creativities. A society that has a high hierarchical structure tends to have more control systems, less trust and more rules and procedures. This results in less innovativeness. In the more recent studies, Lim, Knowk, Chung and Mathew (2004) found that individualist countries with a lower level of uncertainty avoidance showed higher Internet shopping rates than collectivist countries. Van Everdingen and Waarts (2003) investigated the effects of national culture on the adoption of Enterprise Resource Planning (ERP) software by mid-size companies in ten European countries. They found that national culture had significant influence on a country's adoption rate. Tung and Quaddus (2002) compared the adoption of Group Support Systems (GSS) between Singapore and Australia.

Although Hofstede's cultural framework has significantly increased our understanding of national culture and its implications in many research fields, scholars have become increasingly critical of his work in recent years (Baskerville 2003; Drogendijk and Slangen 2005; Schwartz 1994, 1997). Schwartz (1994, 1997) argues that the data collected from IBM employees were not representative of the general population of the nation, for example in terms of education, technological background and exposure to modernisation. In addition, he points out that Hofstede's survey does not contain all of the relevant questions as it was not originally designed to identify dimensions of national culture. Baskerville (2003) strongly disagrees with Hofstede's assumption in equating nation states with culture. Hofstede often refers to cultural norms or societal norms, using the concepts of culture and society interchangeably. This contrasts with the ethnographic studies, which assert that a nation can have more than one or many societies. More recently, these would be described as one or many cultures or ethnicities within a nation state.

Streams of literature have developed around or in coordination with Hofstede's cultural dimensions, especially in relation to individualism-collectivism, as evidenced by the

work of Triandis (Hewett et al. 2006). Triandis (2000, 2001, 2004) and Triandis and Gelfand (1998) further define Hofstede's dimension of individualism/collectivism into horizontal and vertical perspectives. In horizontal individualist cultures, people want to be unique and want to do their own thing, while in vertical individualist cultures, people want to be unique and also want to be "the best". In contrast to individualism, members in the culture based on horizontal collectivism merge themselves within their groups, while in vertical collectivism, people submit to the authority of the in-group.

2.5.2.2 Trompenaars

A more recent examination of national culture than Hofstede's was accomplished by Trompenaars (1993, 1996), reporting a ten-year study examining the responses of over 15,000 managers from 23 countries. His research approach, similar to that of Hofstede (1980), identified seven cultural dimensions that demonstrate how people in different cultures relate in the work place. First, individualism/collectivism: an individualist society is described as having a prime orientation to the self, while collectivism is described as having a prime orientation to common goals and objectives. Second, universalism vs. particularism: people in a universalistic society tend to feel that general rules and obligation are a strong source of moral reference, whereas people in a particularistic society value particular circumstances as more important than rules. Third, affective vs. neutral relationship: in an affective society, people are able to express whatever they think or feel openly, while a control of expression is necessary in a neutral society. Fourth, specificity vs. diffuseness: in a society characterised by specificity, it is important to keep business separated from other aspects of life. In a diffuse society, people recognise that the integration of different aspects of the total person can stabilise and deepen relationships. Fifth, achievement vs. ascription: in an achievement oriented society, people are rewarded on the basis of skill, while in an ascription oriented society, people are rewarded on the basis of seniority and experience. Sixth, orientation towards time: planning plays a major role in future-oriented cultures, while collective historical experiences and day-to-day experiences tend to direct people's lives in the past and present-oriented cultures. Lastly, internal vs. external control: in a society characterised by internal control, people focus on the

things that they are good at, while in a society characterised by external control, the focus is on responding to the needs of their customers.

2.5.2.3 Hall

Understanding culture and communication is important (Adler 2002; Chaney and Martin 2000; Jandt 1998). According to Chaney and Martin (2000), communication is a process whereas culture is the structure through which communication is formulated and interpreted. The anthropologist, Edward Hall (1973), points to the interrelationship between culture and communication. He distinguishes cultures on the basis of their ways of communicating, and distinguishes between high context communication (HC) and low context communication (LC). In an HC society, little has to be said or written because most of the information is either in the physical context or is internalized in the person (Hall 1973). In contrast, in a LC society, the mass of information is vested in the explicit code. Although people in LC societies recognise the non-verbal message, they tend to focus more on the verbal message. People in LC societies feel the need to speak in a way that is consistent with their feelings (Irwin 1996).

Hofstede (1991, 2001), points to the relationship between HC/LC societies and individualist/collectivist societies. He contends that the HC society is often found in collectivist cultures, while the LC society is typical of individualist cultures. Triandis (2000) asserts that western individualist cultures are mostly concerned with the content of communications, whereas eastern collectivist cultures are mostly concerned with the context of communication. For example, the negotiation process in business is different between a western individualist culture and an Asian collectivist culture. This is evident in American business contracts which are much longer than Japanese business contracts (Hofstede 1991, 2001). In yet another illustration, Australians may feel frustrated in their attempts to negotiate in Asia. Asians prefers to have a start-up period of negotiation and this may take days. Usually it involves getting-to-know-you, small talk and hospitality such as lunches, or an evening reception which is considered very important to negotiate for business deals (Irwin 1996).

2.5.2.4   Schwartz

Schwartz (1994, 1997, 1999) introduces a culture framework, which is claimed to overcome many of the apparent limitations of Hofstede's work (Drogendijk and Slangen 2005; Schwartz 1994, 1997, 1999). Steenkemp (2001) asserts that Schwartz's framework provides items which provide similar meaning across cultures and is broader than Hofstede's framework. Schwartz's framework is based on an empirical analysis of country-level responses from a survey of school teachers and college students from 67 countries. He first identifies 65 cultural values across the culture and then reduces these to 45 useful values. As a result of data analysis, he introduces seven cultural dimensions which are: conservatism, intellectual autonomy, affective autonomy, hierarchy, egalitarian commitment, mastery and harmony. These value dimensions contribute to cultural understanding in the context of this study.

2.5.3 Discussion of literature on national culture

The review of frameworks to understand national culture has drawn attention to some interesting points. It recognises that there are criticisms of Hofstede's framework. However, Hofstede's framework is still considered to be influential and significant in that it provides a basis for many other cultural studies, including the work of Triandis (2000) and Trompennaars (1996). Hofstede's framework is well established in many research and disciplinary areas (Steenkemp 2001).

The literature review reveals a similarity in the approach of existing cultural frameworks (Hall 1973; Hofstede 1980, 1991, 2001; Tridians 2000; Trompennaars 1996; Schwartz 1994, 1997, 1999). In identifying cultural phenomena, these researchers attempt to propose cultural categories for analysing culture, which can in some way operationalise and measure culture (Singh 2004). At the same time, it seems that some of these dimensions are somewhat overlapping in their concepts. For example, Hofstede's (1991) definition of the individualism/collectivism dimension is somewhat in line with Triandis (2000, 2001, 2004), Trompennars (1996) and the HC/LC of Hall (1973). Singh (2004) asserts that one limitation of all these cultural categorisation

studies is that they categorise culture only on the basis of dominant cultural value orientations. In fact, culture cannot only be studied at the level of cultural values, but also at the level of cultural forms, propositions, recipes, routines, customs, and systems of customs.

Most of the previous cultural research in IT adoption is often seen to involve a comparison across two or more separate cultures of focal phenomena (e.g. Hasan and Ditsa 1999; Karahanna, Evaristo, and Srite 2002; Rau and Liang 2003; Scheraga et al. 2000). Much of the research was conducted using pre-defined ranking of cultural dimensions to indicate cultural differences between nations and their implications on IT adoption. For example, individualist societies appear to be more inventive than collectivist societies (Shane 1992). However, the understanding of how cultural fit/appropriateness influences the utilisation of B2B technology and firms' performance has not been explored. This research, therefore, proposes to take a step in the direction of investigation of the inclusion of the cultural fit issue, which enables researchers to have a better understanding of fit between culture and technology. The cultural fit issues outline various factors emerging from the effect of Thai national culture in business on business communication that may impact the use of B2B technology. The next section will further discuss Thai national culture.

2.6 Thai cultural values

In the past few decades, researchers have attempted to describe and analyse Thai behaviour and social systems (Embree 1950; Khan 2005; Sriussadaoirb-Charoennagm 1999). The apparent complexity in explaining the patterns of social interactions and the difficulty in understanding the dynamics of community development processes in Thailand have been much debated. In most cases, researchers cite Buddhism (which has been a basis of the development of Thai culture) to support their arguments (Komin 1991).

This section provides a review of Thai culture through Hofstede's (1991) framework. However, according to Niffenegger et al. (2006), the use of Hofstede's framework alone

to assess any culture seems insufficient for efficient understanding. This is true, in particular in Thailand where the culture is rooted in Buddhism. Hence, this research strengthens the discussion on Thai culture by incorporating Komin's framework (1991), which has been widely accepted in IS research to explain Thai culture. By discussing both Hofstede's and Komin's cultural frameworks, the researcher is able to provide a fruitful literature review discussion from both authors' points of view. Hofstede (1991, 2001) discusses Thai culture from the westerner's perspective, while Komin discusses it from a local Thai researcher's perspective and criticises many wrongly perceived interpretations of Thai culture from western perspectives (Komin 1991). Furthermore, the influences of materialism and western values on Thai modern culture are also highlighted and discussed. The review of existing literature on Internet and e-commerce adoption in Thailand is presented, and the impact of Thai culture on technology adoption is discussed. Lastly, drawing from the existing literature, this research posits Thai cultural values that may impact on B2B technology adoption in Thailand.

2.6.1 Overview of Thai society

Thailand's population is relatively homogeneous. More than 85 percent speak a dialect of Thai and share a common culture. Up to 12 percent of Thais are of significant Chinese heritage. Malay-speaking Muslims from the south comprise another significant minority group (2.3 percent). Other groups include the Khmer and the Mon, who are substantially assimilated with the Thai. Theravada Buddhism is the official religion of Thailand and is the religion of about 95 percent of the population (Library of Congress 2005).

Thailand is the only country in South East Asia that has never been under a western colonial power. Studying the historical background of developing countries in Asia reveals that most of these countries were western colonies. Colonisation affects the development of culture (Bhabha 1994, p.114). Countries that have been conquered by western countries are most likely to have a hybrid characteristic in their cultures. 'Hybridity' represents the partialising process of two contradictory sets of knowledge that have been integrated in any one cultural value (Bhabha 1994, p.115). Unlike these

countries which are more accustomed to western culture, Thailand preserves its own rich culture.

One of the results of the lack of western colonisation is the inability of Thai people to communicate in a foreign language (Chieochan, Lindley and Dunn 2003; Corbitt 1999). The Thai language is the national and only official language of Thailand. In contrast, a high proportion of the population in Singapore, Hong Kong, Myanmar, and Malaysia can communicate in the English language as a result of British colonisation. Indonesians can often communicate in Dutch as a result of colonisation by the Netherlands (Irwin 1996). Gibson (1997) asserts that Thailand is the only South East Asian country where most of the people speak and read only their national language. Thai people study English in middle school, but most can only read simple English words. Because of the uniqueness of the Thai language and its characters, Thai people find it is difficult to learn other languages (Gibson 1997).

2.6.2 Hofstede and Thai cultural values

Despite possessing its own uniqueness of culture, Thailand resembles most Asian countries according to Hofstede's cultural dimensions (Hofstede 2001; Niffenegger et al. 2006). Hofstede (2001) describes Thailand as having high cultural values in collectivism, power distance, uncertainty avoidance, long term orientation and femininity society. Among these values, power distance and uncertainty avoidance seem to have the highest ranking.

Thai culture has high power distance, which is constructed by a high hierarchical structure and centralised control (Hofstede 1991, 2001; Thanasankit 1999, 2002). The high power distance in Thai cultural values indicates an inequality of power and wealth within the society. A society with high power distance is often seen as one with distinctive roles for superiors and inferiors. Superiors (*Poo-Ar-Vu-Soor, Poo-Yai* = Superiors) refers to people who are older or have higher authority or knowledgeable people. Thus, it is important for inferiors to respect their superiors, which is often referred to in the Thai language as *Kao-Roub-Poo-Ar-Vu-Soor* or *Kao-Roub-Poo-Yai*,

where *Koa-Roub* means Respect (Suparb 2000). These hierarchical relations are also a feature of the workplace where bosses or superiors have absolute power. Questioning or arguing with superiors shows disrespect. There is a big gap between bosses and subordinates, where subordinates are afraid to propose new ideas if they are likely to be different from what their boss is thinking (Hofstede 1991; Thanasankit 1999, 2002; Vatanasakdakul et al. 2004). In contrast, in western countries, such as Australia, which are low in power distance, subordinates are more likely to contradict their supervisors' ideas and are willing to present their ideas for consideration (Thanasankit 1999).

High uncertainty avoidance indicates a society's low level of tolerance for uncertainty. This implies that Thai society does not readily accept change and is very risk adverse. Societies that are high in uncertainty avoidance (e.g. Thailand) possess an intolerance for and anxiety about uncertain or ambiguous situations. In contrast, in a low uncertainty avoidance society (e.g. the U.S.), members do not fear the future and tolerate risk easily. They are willing to sever existing relationships and enter into relationships with new partners. Holmes and Tangtongtavy (1995) assert that Thai people avoid taking on more responsibility and avoid taking risks, because risk means bringing more uncertainty into situations and increasing people's responsibility. In addition, Rohitratana (1998) contends that in risk-adverse societies, subordinates tend not to get involved in decision making processes. They prefer to avoid confrontation with their superiors or even with other employees at the same level.

Thailand has the highest score for femininity among Asian countries (Hofstede 1991). The predominant values in the Thai culture are the "feminine" values of caring for others. Thailand is more likely to be a society where tenderness in relationships is the characteristic emotional trait. In Thai society, which is characterised by femininity, maintaining warm relationships with people is very important (Hofstede 1991). Thannasakit (1999) asserts that this value of femininity can be seen in the concepts of *Bun Khun* (etiquette or transactional relationship) and *Kreng Jai* (considerate), which are often used to maintain good relationships between people.

Thailand has a reputation for being a collectivist society, where the majority of a group prevails over the interests of the individual (Hofstede 1991). In the Thai collectivist

society, people usually support a social structure where people are born and live in extended families. Relationships between subordinates and superiors are perceived in moral terms similar to a family link. This is in sharp contrast with western individualist societies where identity is based on the individual.

Similarly, as in many countries in Asia, such as China, Korea and Japan, maintaining long-term relationships is important in Thai society. Thailand is a long-term oriented society and this is also known as a high Confucian value, whereas the UK, the U.S., New Zealand, Canada, Australia and Germany are cultures oriented more towards the short-term (Hofstede 2001; Fang 2003). In long-term oriented societies, relationship building and market position are essential in doing businesses, while in short-term oriented societies, short-term results are the bottom line (Hofstede 2001).

2.6.3 Komin and Thai cultural values

One of the most important pieces of research on Thai culture has been conducted by Sutaree Komin (1991). She conducted an extensive survey analysis in 1978 which resulted in the categorisation of Thai national characteristics into nine value clusters. Table 7 outlines these values, which are ego orientation, grateful relationship orientation, smooth interpersonal relationship orientation, flexibility and adjustment orientation, religio-psychical orientation, education and competence orientation, interdependence orientation, fun-pleasure orientation and achievement orientation.

Table 7 Komin's framework of Thai national cultural values

Thai Cultural Dimensions
1. Ego orientation
2. Grateful relationship orientation
3. Smooth interpersonal relationship orientation
4. Flexibility and adjustment orientation
5. Religio-psychical orientation
6. Education and competence orientation
7. Interdependence orientation
8. Fun-pleasure orientation
9. Achievement orientation

(Source: Komin 1991)

Thailand is an ego orientation culture (Komin 1991). An ego orientation culture deals with face saving and criticism-avoidance values. According to Komin (1991, p.132),

"the people have a very big ego, a deep sense of independence, pride and dignity. They cannot tolerate any violation of the ego self". Therefore, maintaining face and self image is important to the Thai people. The terms '*Kour-Na-Tek*' and '*Kour-Sear-Na*', which mean afraid of losing face, and the term '*Sak-sa-Na*' which means saving face, are often used. Examples of losing face include having one's daughter marry a poor man, and having one's son work in a lower position than one's friends. In addition, the concept of face is also connected with violence (Irwin 1996). One of the explanations is that Thailand, as a Buddhist country, opposes any form of violence and avoids creating conflict. Face-to-face personal criticism is viewed as violent behaviour and will result in loss of face (Irwin 1996). According to Irwin (1996), the word 'No' is seldom used because it refers to confrontation. It also seems to be the case that Hofstede has earlier described one of the characteristics of a collectivist society as one in which confrontation with another person is considered rude and undesirable (Hofstede 1991).

Since face-saving and criticism avoidance are very sensitive issues for the Thai people, preserving one another's ego is the basic rule of all Thai interaction and this comes under the concept of *Kreng-jai*. The closest meaning of Kreng-jai is "to be considerate, to feel reluctant to impose upon another person, to take another person's feeling (ego) into account" (Komin 1991, p.136). It underlines the significant influence of everyday interpersonal behavioural patterns on the Thai people. According to Komin (1991), this Kreng-jai concept is the most difficult concept for foreigners to comprehend and it is often misinterpreted as *Kreng-klua*, which means fear. Niffenegger et al. (2006) assert that the concept of Kreng-jai is in strong contrast to western values of achievement and materialism in a business context. Successful western enterprises are based on the success that one deserves from material rewards, such as profitability and unwillingness to compromise. With the kreng-jai value, the Thai people are most likely to compromise their interests to avoid uncomfortable situations.

In Thai culture, where relationships are very important, it is not surprising to find a number of relationship related values (Komin 1991). Thai culture shows a grateful relationship orientation, which implies that the Thai people always seek a sincere and reciprocal relationship of kindness through the *Bunkhun* (indebted goodness) relationship. The *Bunkhun* relationship is based on the value of gratitude. It is a process

of reciprocity of goodness done, and the ever-readiness to reciprocate. *Bunkhun* must be returned, often on a continuous basis and in a variety of ways and it cannot be measured by quantity in material items. Grateful to *Bunkhun* constitutes the root of any deep and meaningful relationship and helps to explain the social connections in the Thai culture where in-groups and many circles are thus built and evolve and reinforced. Thanasakit (2002) relates the concept of *Bunkhun* to the femininity value of the Thai culture, where relationship is based on trust and emotional stability. *Bhunkhun* can be exploited too and used in establishing power in the Thai society. In the workplace, supervisors often build power and connections through *Bunkhun* to subordinates. Subordinates return *Bhunkhun* (*Saang Bunkhun*) by showing their supports to their superiors. This process creates good and harmonious relationships, which then enables successful in-group building processes.

Orientation to smooth interpersonal relationships, also known as the social smoothing concept, is another important dimension in relationship building in Thailand. Komin (1991, p.143) asserts that "this orientation is characterised by the preference for a non-assertive, polite, and humble type of personality as well as the preference for relaxed and pleasant interactions which accounts for the smiling and friendly aspects of the Thai people". Komin (1991) argues that this value is not dominant in the American values. This can be demonstrated by the concept of *Jai yen* (calm, easy-going not easily excited) and *Mai pen rai* (contented, nothing really matters). These concepts are often explained by the Buddhist teaching of the 'Middle path', 'Detachment', 'Equanimity', and extinction of desires and emotion. Triandis (2000) misinterpreted *mai pen rai* when he translated it as 'never mind' in English (Triandis 2001). It is argued that this term does not always mean 'never mind'. Generally, Thai people avoid speaking directly about what they have in mind so as to avoid conflict.

Thai culture is flexibility and adjustment oriented. According to Komin (1991, p.165), "this flexibility value in response to situations and opportunities manifests itself as a core value regulating a number of conspicuous values and behaviour patterns." Because of this value, it is not surprising to find 'decision-shifting' as a behavioural pattern, for example vote switching, position switching and switching of principles. She concludes

that most of the motivations of these switching behaviours are influenced by personal conflicts based on oneself, the in-group and the situation.

The influence of Theravada Buddhism in Thailand clearly shows itself in a religio-psychical orientation value. Komin (1991) found that 93 percent of respondents perceived religion as playing a significant role in their everyday Thai life. Niffenegger et al. (2006) suggest that understanding the influence of Buddhism is useful in dealing and doing business with the Thai people. Buddhism is generally considered to be a religion that emphasises coexistence and tolerance.

Thai values have placed an emphasis on the importance of education. Komin (1991) identifies Thai culture as a culture with an education and competence orientation. However, she argues that in Thailand, education has been perceived more as a 'means' of climbing up the social ladder and of gaining higher prestige and higher salary, rather than an end value in itself. In other words, the Thai people view the importance of education as a means to upgrading their social status.

The Thai community values the spirit of community collaboration, which Komin (1991) refers to as an interdependence orientation society. Collaborative behaviour is a dominant behavioural pattern, particularly in the rural community, where brotherhood spirit often manifests itself in helping one another and for being interdependent and mutually helpful. This research argues that the interdependence orientation value stimulates a strong distinction between in-group and out-group. Hofstede (1991) asserts that this is the characteristic of collectivist society; as a result treating one's friends better than others is natural and ethical, and sound business practice. He adds that sociologists also call this way of thinking 'particularism'. Trompenarss (1996) contends that in the particularistic society, bonds of particular relationships (family, friends) are stronger than any abstract rule and the response may change according to circumstances and the people involved. This is opposed to 'universalism', in which "preferential treatment of one customer over others is considered bad business practice and unethical" (Hofstede 1991, p.66).

With a fun-pleasure orientation value, Thailand has been known as the "Land of smiles" with its people enjoying the everyday routine pleasures of life with a happy carelessness, not letting troubles touch them easily and not doing anything that is not *Sanuk* (to have fun, to enjoy oneself and to have good time) (Komin 1991). Komin (1991) takes the view that this value is a means to support and maintain the interpersonal value system of the Thai people.

Lastly, an achievement orientation: Komin (1991) observes that this achievement orientation as a Thai value differs from achievement in a western perspective. For western individualist culture, achievement means "one perservers aggressively towards one's goal and succeeds in a rag-to-riches, self-made man manner" Komin (1991, p.208). Thai culture gives prestige and social recognition as goals for success in life, with work and relations as necessary means. While western culture emphasises the task itself and professionalism as achievement goals, Thai culture emphasises the social recognition and believes that working alone would not lead one to the Thai sense of achievement.

2.6.4 Materialism and western influence on Thai culture

Prior to the 1990s, Thailand experienced very little cultural change during its existence for centuries (Niffenegger et al. 2006; Sagarik 1986). In addition, as a result of the lack of western colonisation, Thailand has successfully preserved its rich culture. The literature review on Thai culture clearly suggests the importance of Thai Buddhism and reveals many sharp contrasts between Thai and western cultural values (Hofstede 1991; Komin 1991; Niffenegger et al. 2006; Thanasakit 2002). But the twentieth century brought the introduction of new western technology, values and capital flows (Niffenegger et al. 2006). This unavoidable influence has not been much discussed in relation to the new shift in Thai cultural values and the increase in materialism value in the Thai culture. Therefore, this study addresses a need to explore this issue in relation to the adoption of information technology.

The appreciation of western values in East Asian countries, including Thailand, is significant in the modern world. East Asian countries have placed importance on acceptance of western values, culture and thought in many ways. Modernization is viewed as a characteristic of western society, which reflects wealth and success. Mahbubani (1998) stresses that East Asian countries believe that the only way to become a modern country is through emulation of the west. Asian countries tend to place western countries on a superior level and imitate western values. Wong and Ahuvia (1998) observe that East Asian countries are particularly avaricious consumers of luxury goods, and are fast becoming the world's largest brand-name luxury goods market. Malaysians are willing to spend huge sums of money on weddings where the guests arrive in limousines, and Japanese consumers are flooding into Louis Vuitton, Chanel, and Gucci showrooms. It is tempting to conceptualize this as western-style materialism (Wong and Ahuvia 1998).

For centuries, Buddhism had a significant influence in Thai society and its economic development. Buddhism emphasises the non-materialistic way of life (Komin 1991). There has been a change in Thai cultural values in the past decades as Thai society has absorbed western values and wants Thailand to become a modern country. Niffenegger et al. (2006) assert that it is becoming clear that a tradition of spirituality based on Buddhism, i.e. a deal to give more than one seeks and to resist material attachments, has been overpowered by western values, which emphasise the need for achievement and material rewards. Komin (1991) and Suparb (2000) agree that Thai people generally value material symbols, as they are seen as 'forms' of being as 'modern' (*thansamai* – in Thai language) and 'developed' as western countries.

Behaviors of Thai people in consuming western products can be explained by western materialism theories. According to Richins and Dawson (1992), the concept of materialism is often treated as a cultural variable for the purpose of comparing cultures or examining institutions within a culture of consumption. Sahlin (1976 cited in Richins and Dawson 1992) refers to materialism as "a cultural system in which material interests are not made subservient to other social goals". Richins and Dawson (1992) developed and validated a scale to measure the degree of materialism and it has been further tested by other researchers (e.g. Giacalone and Jurkiewiz 2004; Griffin Barbin

and Finn 2004). They classified materialism under three perspectives: acquisition centrality, acquisition as pursuit of happiness and possession-defined success, which are summarised in Table 8 below.

Table 8 Types of materialism

Types of Materialism	Description
Acquisition centrality	Materialists place possessions and their acquisition at the centre of their lives.
Acquisition as pursuit of happiness	Materialists place possessions and their acquisition in the sense of pursuit happiness.
Possession-defined success	Materialists tend to judge their own and others' success by the number and quality of possessions accumulated.

(Source: Richins and Dawson 1992)

In terms of IT development, technologies seem to be the icon of modernization and drive economic growth in the digital economy. Some modernization theorists say that the developing countries are poor because they lack technology, capital, modern social organisation and value (Roberts and Hite 2000). The Thai people admire the technological progress of developed countries and have adopted western technologies as a symbol of success (or the so called Possession-defined success) (Niffenegger et al. 2006). This research argues that the ego orientation of the face-saving value, and the education and competence orientation, addressed by Komin (1991), have accelerated the degree of material acquisition as a symbol of success. In addition, the flexibility and adjustment orientation makes easier the changes in the twentieth century of the Thai people and makes the influence of western culture easier to be picked up and transferred in Thailand. However, Wong and Ahuvia (1998) take the view that even though Asian society consumes the same products as western societies, this does not mean that consumers buy them for the same reasons. The material items can be easily moved or copied, but their meaning is difficult to transfer across cultures because people in different cultures may perceive values differently.

The concept of materialism leads to a question on the cultural fit/appropriateness of IT transfer in Thailand. It is not clear whether the increase in western material values will create conflict in Thai culture and whether this will lead to a positive or negative impact on the adoption of B2B technology in Thailand. This research supports the argument put forward by Wong and Ahuvia (1998) and adapted to the technology adoption context that realization of benefits gained from adoption of technology may vary in

different cultures. Therefore, besides the national cultural frameworks by Hofstede (1991) and Komin (1991), further investigation of the materialism value is proposed to be added to the analysis of IT adoption in this study. The next section presents the literature review on Internet and e-commerce adoption in Thailand.

2.6.5 Internet and e-commerce adoption in the Thai context

The adoption of the Internet and e-commerce in Thailand is relatively new compared with other South East Asian countries such as Singapore and Taiwan (Gibson 1997). Nevertheless, a long term implementation and the slow adoption of Internet and e-commerce in Thailand have urged researchers and practitioners to rethink the way that Thais should adopt these technologies. In recent years the investigation of Thai culture on the Internet and e-commerce adoption has become a new research interest. Researchers have begun to question the cultural barriers and actual benefits gained from the technology.

Similar to Asian cultures, businesses in Thailand operate in a personal relationship oriented approach. This factor seems to play an important role in Internet and e-commerce adoption in Thailand. Rotchanakitumnaul and Speece (2003) assert that, because the Thai culture is characterised by femininity and high context communication values, the strong orientation towards human relationships becomes a crucial issue. Thai people prefer communication based on informal and personal relationships. Thongjeen and Speece (2002) conducted in-depth interviews with 15 owners, CEOs and managers of SMEs in Thailand to examine the critical factors in e-commerce adoption among SMEs. They found that the personal contact network (PCN) or connections are fundamental in how business operates in Thailand. Larpsiri and Speece (2003) indicate that sales representatives in the insurance industry use Internet and intranet technologies to support the development of interpersonal skills rather than replacing sales representatives with the technologies. Thus, the influence of the personal relationship can make the Internet less attractive in the Thai context.

The issue of English language has been found to be a barrier in the adoption of Internet and e-commerce in Thailand. An interesting piece of research in e-learning adoption in Thailand by Tetiwat and Huff (2003) reveals the misfit of e-learning and Thai cultural values. They conducted in-depth interviews with 22 Thai educators, who had experience in managing online courses in 12 Thai universities. Despite the fact that the English language is taught in schools as the second language, most Thai students and educators perceived English language as an obstacle. English is time consuming for them to read and to understand the content, and it is difficult for them to express their ideas in any language other than Thai (Tetiwat and Huff 2003). This finding also supports Gibson (1997), who conducted a study on the development of IT in Thailand using interviews to survey journalists in Thailand, as well as extensive document analysis. He observed that most of the Thai people only communicated in the Thai language, and they lacked the ability to communicate in the English language. This has a significant impact on the ability to acquire new knowledge and to quicken the development of IT in Thailand. Furthermore, Hongladarom (1999) conducted a study on the use of the Usenet newsgroup, soc.culture.thai, which is an online discussion forum. She found that Thai people feel interior and lacking confidence when communicating with native English speakers because their English is not good enough to enable them to talk as fast or to argue as effectively as the native speakers; this results in a reluctance to participate. In addition, she observed that Thai people like to mix Thai words in English alphabets, which those in the global community do not understand.

Tetiwat and Huff (2003) assert that the high power distance and the krengjai value in the Thai teaching and learning system seems to be incompatible with the online education system. Unlike western education systems that encourage systematic analytical thinking and questioning, many Thai teachers do not encourage their students to speak out, make comments and propose new ideas. Challenging the ideas of teachers is viewed as disrespectful behaviour. Thus, students do not dare to argue with teachers and everything that teachers say is always right and absolute. Teachers have high control of the environment of the classroom. In addition, with the krengjai value, students always feel reluctant to interrupt or disturb teachers and to avoid asserting their opinions and asking questions when they do not understand. As a result, students feel it inappropriate to email teachers and reluctant to use an online discussion forums.

Researchers have found that the high uncertainty avoidance characteristic in Thai culture has an influence on IT adoption in Thailand. Thannasakit (1999) studied the impact of Thai culture on requirements engineers. The study was conducted using the ethnographic approach which involved interviews with eight software developers in Thailand. He found that Thai culture was high in power distance, group focus, emotion and relationship focus, and was characterised by a dislike of uncertain situations. This is in line with the statement made by Hofstede (2001) that early adoption of the Internet would take place in cultures characterised by weak uncertainty avoidance. In contrast, Jirachiefpattana (1997) believes that because of high uncertainty avoidance value, Thai people accept technology more easily than most other developing countries in order to seek security and to prevent ambiguous environments.

Two research studies were conducted on the adoption of Internet banking and the results suggested that trust has significant influence on the adoption (Ekasdornkorn et al. 2003; Rotchanakitumnaul and Speece 2003). Rotchanakitumnaul and Speece (2003) conducted a qualitative research project by interviewing seven corporate customers who had adopted Internet banking and eight non-adopters. Interestingly, they found that the adopters did not use the Internet banking extensively, even though they have technology capability. They conclude that trust and lack of legal support are the most critical factors in the adoption decision. Trust includes confidence in computer security to prevent fraud in financial transactions on the web and banks' capability to solve problems if any arise. Corporate customers still prefer face to face contact with the banks. They prefer to deal with banks that have many branches because they feel more confident and it is more convenient for them to go to the branch when a problem occurs. Ekasdornkorn et al. (2003) assert that even Thai credit card holders do not buy online because of the distrust of the system. They feel that online payment is not secure enough to reveal their credit card information over web pages.

Another research study on Internet banking adoption was conducted by Jaruwachirathanakul and Fink (2005). They conducted a quantitative study by sending a survey questionnaire to 600 individuals in 40 large organisations in the Bangkok area. They found that the features of the website and its perceived usefulness are regarded as

the most significant encouragement factors in Internet banking adoption in Thailand. The external factor, which is measured by the Internet infrastructure, government support, industry regulator and support from trading partners, is the most significant factor in discouraging Internet banking. This external factor is more important than culture and personal preference, which were measured by the importance of face-to-face communication and services from the banks and influence from friends.

Furthermore, the studies from Chieochan and Lindley (1999) and Chieochan et al. (2003) on the impact of IT and e-commerce in the agriculture industry found that Thai agricultural cooperatives have been slow to adopt IT and e-commerce technology. They suggested that national factors including the status of national economy, policies, social cultural factors and human resources as well as organisational factors including business size, competitiveness and information intensity are important factors in the adoption.

Intrapairot and Srivihok (2003) conducted a research project on e-commerce adoption among SMEs in the Thai tourism industry. They conducted a web site survey on 150 Thai tourism web sites. The result revealed that half of them were incomplete, inactive or contained too little data. The level of e-commerce adoption for business transactions is quite low. They categorised the functions of the website to include four main activities: advertising, ordering, payment and delivery. They concluded that the main barriers are: lack of awareness, unsecured product ordering process, uncertainty about payment systems and the security system, lack of legal support, poor communication infrastructure, no certification authority and the language problem.

In summary, only in recent years has research on the implications of Thai culture for IT and e-commerce adoption been given attention. The results of research address the importance of Thai national culture in Internet and e-commerce adoption in different application contexts. However, the relationship between Thai culture and B2B technology adoption has not been extensively discussed. Thus, this research aims to offer further insights into the impact of Thai culture on business communications and relationships, which may influence the utilisation of B2B technology.

2.6.6 Thai cultural values and implications for business communication

The influence of national culture on a cross-national buyer and seller interaction has received considerable attention in the international business literature (Freeman and Brown 2004). However, little research from this perspective has been done in the B2B technology adoption literature. Hewett et al. (2006) assert that national culture is an important factor in relationships that are forged and relied on to continue interorganisational relationships. Steenkamp (2001) strongly agrees that the failure to take cultural differences between countries into account has been the cause of many business failures. Barratt (2004) strongly agrees that cultural difference is one of the main challenges to connect all trading partners into the electronic supply chain. He suggests four cultural elements which are trust, mutuality, information exchange, and openness and communication to support collaboration among trading partners. However, his model has not yet been tested.

The literature review clearly suggests many sharp contrasts between Thai and western cultures (e.g. Komin 1991; Tetiwat and Huff 2003; Thanasankit 1999, 2002). B2B technology is developed to enhance business operations based on western business practises. Thus, it is not clear whether B2B technology is suitable for the way in which Thai businesses are operated. Drawing from the literature review on Thai cultural values and the characteristics of B2B technology, this research posits five Thai cultural values that may impact on the adoption of B2B technology: personal relationships, long-term relationships, interorganisational trust, ability to communicate in the English language, and materialism. These cultural values are selected based on the effect of Thai national culture on business communications and relationships. These cultural dimensions are present in the report of the pilot interviews with government officials and practitioners in Thailand, which will be further discussed in Chapter 3.

2.6.6.1   Personal relationships

As Komin (1991) states, Thailand is a society of relationship not a society of law. The literature review clearly suggests that the issues related to relationships in Thai society

seem to be very significant in the adoption of Internet and e-commerce (Larpsiri and Speece 2003; Rotchanakitumnaul and Speece 2003; Thongjeen and Speece 2002). This research posits the importance of personal relationships in Thai businesses in relation to B2B technology adoption.

Personal relationships or connections are very important in doing business in Thailand (Champathes Rodsutti and Makayathorn 2005; Niffenegger et al. 2006; Thongjeen and Speece 2002). It is similar to the concept of "Guanxi" in Chinese business. Guanxi represents the formal and informal relationships which are built and maintained for business connections in Asia, in particular in relation to Chinese business (Chen, Chen and Xin 2004). The concept depends on personal networks among individuals, not relationships among organisations. The exchanges which take place amongst members of the Guanxi network are not solely commercial, but also social, involving the exchange of favours (Davies, Leung, Luk and Wong 1995; Hammond and Glenn 2004; Vanhonacker 2004).

While many western researchers are excited about the complexity of the new concept of Social Network Theory (SNT) as an important aspect of strategic behaviour to explain relationships in a business network, the concept of Guanxi has long been understood by Eastern scholars (Davies et al. 1995; Hammond and Glenn 2004). The similarities and differences between the concept of networking in western businesses and Chinese businesses have been identified by some researchers. The western SNT and Eastern Guanxi concept share some commonality. Hammond and Glenn (2004) assert that both concepts describe the social system and the set of behaviours that regulate the flow of information and the concept of insider and outsider relationships. However, the Chinese Guanxi relates to personal, not corporate relationships. In western business networking, relationships grow out of deals, while in Chinese networking, deals grow out of relationships (Davies et al. 1995; Hammond and Glenn 2004; Vanhonacker 2004).

The explanation of relationships in the Thai business network can be supported by cultural theories. First and foremost, Thailand is a collectivist society (Hofstede 1991, 2001). In a collectivist society, members are concerned with group interest rather than individual interest. In addition, this has been confirmed by Komin (1991) who asserts

that the interdependency orientation of Thai society results in a strong distinction between in-group and out-group. Furthermore, the concept of *Bhunkhun* (indebted goodness) and the return of BhunKhun (*Saang BhunKhun*) constitute the root of meaningful relationships as well as the root of social connection in Thai culture, in which in-groups are successfully built and reinforced. Moreover, this relationship building in Thai society has been viewed as a patron-client relationship. A classic piece of research by Hanks (1966, p.198-199) on Thai culture explains the Thai social structure as follows:

> *"Each Thai regards every other person in the social order as higher or lower than himself...Based on the differences of in social standing, a hierarchy arises where each person pays deference to all who stand above and is deferred to by all below...In this society of unequals, Buddhist doctrine urges each person to do what he can for the benefit of those who stand below him in the hierarchy. By helping others a man gains a helper, increases his own merit, and raises his own standing in the hierarchy... This standard relationship of superior or inferior we have called patron client relationship...It rests on reciprocity and in practice this is the key to social intercourse... Every liaison between people in this society takes on some forms of this patron-client relationship"*

Although there is a belief that B2B technology will enhance the networking capabilities and exploitation of new business opportunities of companies, which then will lead to a better competitive position (Rao et al. 2003), Davies et al. (1995) argue that this may not always simulate trading opportunities. The network enhances competitive advantage by providing access to the resources of other network members. However, many Asian cultures emphasise the trust of insiders (e.g. personal relationships in Thailand or Guanxi in China), which conflicts with the western SNT suggesting that new information and opportunities from outsiders are also critical for business survival (Hammond and Glenn 2004). In addition, Hammond and Glenn (2004) comment that the Internet, which is characterized by sometimes random connections, may lead to unexpected opportunities for people in the marketplace. This can be seen in the concept of e-marketplace, which introduces a new way of finding new business opportunities, where suppliers and customers meet on the web. Thus, it hypothesises that the personal relationships of the Thai business network affect the perception of cultural fit and this may influence B2B technology adoption.

2.6.6.2   Long-term relationships

The connection between long-term relationships and B2B technology adoption has been under researched. Hofstede (1991) indicates that Thailand is a long-term orientation culture. Some researchers, for example Hofstede and Bond (1998) and Robertson (2000), believe that this cultural dimension seems to be significant in the Asian business context. Niffenegger et al. (2006) assert that Thai businesses rely more on a long-term orientation. In addition, trust in business relationships and social business networks are built over time. Only a few studies reported in the recent literature have attempted to provide empirical evidence explaining how long-term relationships influence B2B technology adoption (e.g. Grey, Olavson and Shi 2005; Pires and Aisbett 2003). Interestingly, Pires and Aisbett (2003) assert that the Internet may facilitate long-term relationships with intermediaries, through enabling shared databases and processes that contribute to closer customer relationships. However, it is not clear whether building and maintaining long-term relationships via the Internet in the western context are similar to the long-term relationships in Thai business culture. Thus, the further investigation on this issue is addressed by hypothesising that the long-term orientation of Thai culture affects perceived cultural fit and this may influence B2B technology adoption.

2.6.6.3   Interorganisational trust

The importance of B2B technology and global communication highlights a need to understand how interorganisational trust develops and the way national culture impacts on a trust building process (Doney, Cannon and Mullen 1998; Elahee, Kirby and Nasif 2002; Ratanasingam and Phan 2003; Salam, Lyer, Palvia and Singh 2005). Ratnasingam and Phan (2003, p.40) define interorganisational trust as "the confidence of an organisation in the reliability of other organisations, regarding a given set of outcomes or events". It can be argued that the issue of trust is not peculiar to the adoption of B2B technology in Asian society as it is also an important issue addressed in western countries. Nevertheless, it seems that one of the main difference in trust between the East and the West is the degree of uncertainty avoidance (Hofstede 2001).

The literature review reveals that the degree of uncertainty avoidance in IT adoption relates to face-to-face communication. Guo (2002) asserts that in some cultures, face-to-face communication is important when the communication task is interpersonally involving (e.g. conflict and negotiation). Individuals may prefer media with more social presence if there is a need for the uncertainty reduction. Uncertainty can lead to the reduction of confidence both in the reliability of web transactions and more importantly, in the trading parties themselves (Ratanasingam and Phan 2003). Pavlou (2002) points out that the characteristics of the web environment as opposed to face-to-face transactions may affect significant changes in the nature of the trust building process in buyers and suppliers. In addition, Ratanasingam and Phan (2003) also agree that in general most e-commerce transactions are conducted electronically using computer and communication networks with limited face-to-face interactions. This reduces social presence in the communication task.

According to Hofstede (1991), Thailand is a high uncertainty avoidance culture, in which members feel uncomfortable with uncertainty and ambiguity. Face-to-face communication is very important in trust building in Thailand (Rotchanakitumnaul and Speece 2003) as it helps in reducing the high uncertainty level. Niffenegger et al. (2006) assert that high uncertainty avoidance in Thai culture could affect technology acceptance in business environments because Thai businessmen prefer dealing face-to-face. Vatanasakdakul et al. (2004) agree that face-to-face meetings and business socialising are important in the trust building process in Thailand. Hence, the attributes of B2B technology, where face-to-face contact is minimised and businesses are encouraged to negotiate and communicate online, seem to conflict with the traditional way of interorganisational trust building in Thai culture. It is hypothesised that interorganisational trust building in the Thai business context, which relies heavily on face-to-face communication, affects the perception of cultural fit and this may influence B2B technology adoption.

2.6.6.4 Ability to communicate in the English language

The Internet and e-commerce accelerate the need for global communication and English is the predominant language for the development of IT and e-commerce (Chieochan et al. 2003; Crystal 1997; Perry and Schneider 2001). In 2001 the English language represented 50 percent of Internet users (228 million), and it was expected to grow to 270 million in 2003 (Chalakornkul, Udomwongyont, Somprakij and Kundita 2001). As discussed in section 2.6.1, Thai people lack the ability to communicate in the English language, and existing research, reported in section 2.6.5 (e.g. Gibson 1997; Hongladarom 1999; Tetiwat and Huff 2003), has revealed the implications of a lack of English language competence for IT adoption in Thailand. Hence, it is hypothesised that the lack of ability of Thai people to communicate in the English language affects the perception of cultural fit and this may influence B2B technology adoption.

2.6.6.5 Materialism

This issue deals with the degree of materialism and how much western cultural values are admired. The discussion in section 2.6.4 highlights the influence of materialism of western values on modern Thai society; however, such influence is contradictory to the traditional Thai Buddhist beliefs. Materialism defines success by the number and quality of possessions accumulated (Richins and Dawson 1992), while Buddhism emphasises the non-materialistic way of life. With the pressures from globalisation, Thai businesses may be under pressure to modernise themselves by adopting advanced technologies to survive in the digital economy. A desire by Thai businesses to possess western products as a symbol of success has increased (Niffenegger et al. 2006; Suparb 2002). It is tempting to conceptualise this high degree of modernisation in the Thai society as western-style materialism. Thus, it is hypothesised that materialism affects the perception of cultural fit and this may influence B2B technology adoption.

2.6.7 Summary of the literature on Thai culture

The discussion on Thai cultural values was conducted through the cultural frameworks of both Hofstede (1991, 2001) and Komin (1991) in order to gain both Thai and western researchers' perspectives. Thailand is the only country in South East Asia that has never been under western colonisation and preserves its own rich culture. The literature review on Thai culture clearly suggests the importance of Thai Buddhism and many sharp contrasts between the Thai and western cultural values (Hofstede 1991; Komin 1991; Niffenegger et al. 2006; Thanasakit 2002). Additionally, unavoidable western influence, such as materialism, in the twentieth century on modern Thai cultural values has also been discussed. Furthermore, the review of the existing literature on the Internet and e-commerce adoption in Thailand addresses some implications of the influence of Thai culture on technology adoption, and it also reveals the gap in the existing literature on the relationship between the Thai culture and B2B technology adoption. Drawing from literature on the Thai national culture and B2B technology characteristics, this research, therefore, aims to fill this gap by positing five Thai cultural values that may impact on B2B technology adoption: personal relationships, long-term relationships, interorganisational trust, ability to communicate in the English language and materialism. The importance of these cultural dimensions is also supported by the pilot interviews with government officials and practitioners in Thailand, which will be further discussed in Chapter 3.

2.7   The research model and research proposition

This section presents the detailed development of the conceptual model, the research model and the hypotheses. The constructs and the measurements including the control variables are discussed.

2.7.1 Toward the conceptual model

This research develops a conceptual model for investigating the appropriateness of B2B technology adoption in Thailand via a strategic fit lens as shown in Figure 3. The proposed conceptual framework uses the concepts and arguments drawn from the literature review on theories of fit, interorganisational theories, national cultural theories and Thai cultural values. The literature review outlines how firms in developing countries are struggling to adopt B2B technology and that they may not gain benefits from the technology. The researcher supports the argument that the inability to generate value from IT adoption is in part due to a lack of alignment between IT, and firms' internal and external business environment. The best way for firms to utilise and to gain maximum benefits from technology adoption is to find the right IT strategy that must fit well with their local environment (Bensaou and Venkatraman 1995; Henderson and Venkatraman 1999).
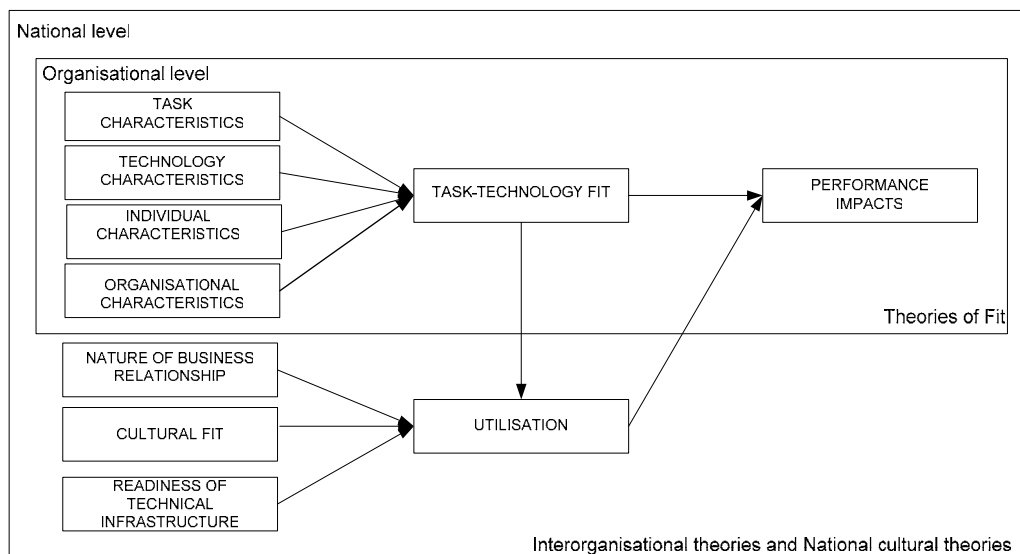
Figure 3 The proposed theoretical conceptual model of B2B technology adoption in Thailand

The proposed model extends the TTF model by integrating interorganisational theories and theories of national culture in the Thai cultural context to investigate the appropriateness of B2B technology adoption in Thailand. Combining these three theories, theories of fit, interorganisational theories and national cultural theories, this research expects to provide a richer understanding of the performance impact and utilisation of B2B technology transfer from western countries to the Thai business

context. The original TTF model by Goodhue and Thompson (1995) suggests that for IT to have a positive impact on individual performance, the technology must be utilised, and must be a good fit with the tasks it supports. This research argues that in an interorganisational context the fit of technologies to support tasks may not have a direct influence on an organisation's performance in developing countries. The precursors of utilisation may play a major role in influencing the organisation's performance.

Drawing from these theoretical foundations, the model proposes two layers of analysis. The first layer, the organisational layer, considers fit in terms of the characteristics of tasks, technology and organisational environment. In addition to the original TTF model, an organisational characteristic construct is introduced. This allows an analysis of technology fit to firms by considering elements of the organisation's environment as it analyses the task and technology fit by the characteristics of an organisation. The second layer, the national layer, applies interorganisational theories and theories of national culture to analyse the utilisation of technology. For the national layer, this research proposes three dimensions that may impact the utilisation of B2B in Thailand: nature of business relationships, cultural fit and readiness of technical infrastructure. This conceptual model could be useful for a better understanding of how firms in Thailand use B2B technology to enable online business processes.

Additionally, investigating both the utilisation and the performance impact of B2B technology enables the researcher to have a clearer understanding of the different issues of B2B technology adoption in Thailand. In particular, the utilisation construct is redefined to suit the investigation of B2B technology transfer in the Thai business context. While the performance impact focuses on the perceived benefits that businesses gained from the B2B technology, the utilisation focuses on investigating the issues that may hinder or motivate the maximisation of technology.

2.7.2 The research model

From the conceptual framework, the research model illustrated in Figure 4 is developed for validation purposes and the hypotheses presented are discussed. Overall, the model proposes that:

- For the appropriateness of B2B technology adoption which lies in interorganisational contexts, the fit of technology to support tasks may not have a strong influence on firms' perceived performance in Thailand. The precursors of utilisation, which are cultural fit, nature of business relationships, readiness of technical infrastructure and task-technology fit, may play a major role in influencing the firms' perceived performance.
- Cultural fit is a major influence on the appropriateness of B2B technology adoption in Thailand.
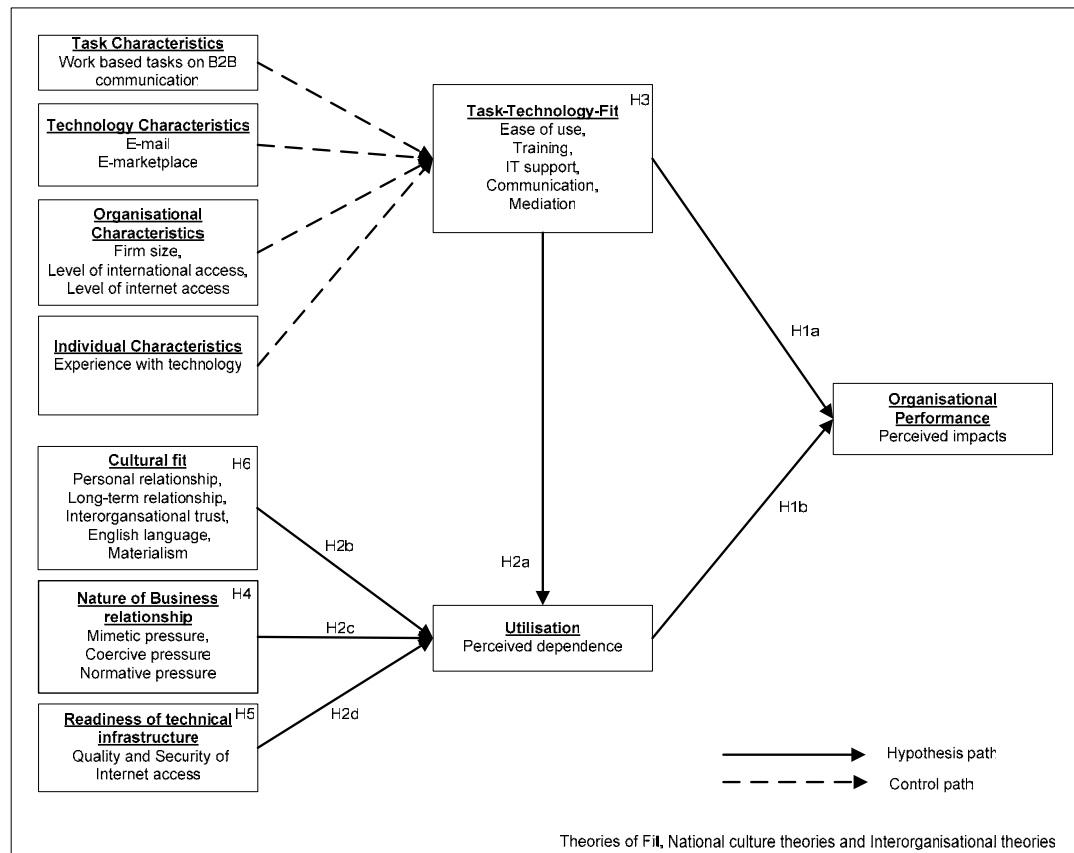
Figure 4 The research model

The model developed requires investigation in terms of its efficacy, particularly in regard to the national layer. First and foremost, to validate the research model, the measurements for each construct are proposed. Besides the literature review on Thai cultural values, in-depth interviews were employed to identify cultural fit issues in the context of Thailand business communication and relationships (see Chapter 3 for details). The indicators to measure the nature of business relationships and readiness of technical infrastructure were derived from the literature. The indicators to measure TTF were adapted from previous related TTF research to suit the characteristics of the web environment and inter-firm communication tasks. In addition, organisational variables including firm size, level of IT adoption, level of international access and individual variables including skill and experience with e-mail and e-marketplace are added to the model for a control purpose. Table 9 shows the summary of the constructs and the measures. The discussion on the constructs and their hypotheses are in the following sections.

Table 9 Constructs and measures

Constructs	Measures
Task-technology-fit	Ease of use, Training, IS support, Communication, Mediation
Cultural fit	Personal relationship, Long-term relationships, Interorganisational trust, Ability to communicate in the English language, Materialism.
Readiness of technical infrastructure	The perceived of quality and security of Internet access
Nature of the business relationship	Mimetic pressure, Coercive pressure, Normative pressure
Utilisation	Frequency of applications usage
Performance	Improve effectiveness, perceived importance, accomplish work quickly, create new business opportunities, reduce cost
Control variables	
Technology characteristics	E-marketplace and email
Task characteristics	work based information tasks on B2B communication
Organizational characteristics	Firm size, level of international access, level of Internet access
Individual characteristics	Experience with technology: e-mail and e-marketplace

2.7.3 Performance impact

A focus on performance impact allows the researcher to understand and determine the perceived benefits that Thai businesses gains from B2B technology adoption. According to O'Reilly and Finnegan (2005), a universally accepted definition of e-marketplace performance does not appear in the literature. To serve the purpose of this research, performance impact refers to the perceived accomplishment of a portfolio of tasks by an organisation. It includes higher performance to some mix of improved efficiency, improved effectiveness and/or higher quality from the technology adoption (Goodhue and Thomson 1995). In addition, the prime benefits promised by B2B technology adoption in developing countries, which are wider and cheaper access to new business opportunities globally and reduction in transaction costs, are also included for testing in the Thai context (Humphery 2002; Humphery et al. 2003; Kraemer et al. 2002; UNCTAD 2001, 2002a, 2002b, 2005).

According to the original TTF model by Goodhue and Thompson (1995), the performance impacts are determined by the degree to which an individual perceives a match of the technology with the requirement of that task. They propose that the better fit between task and technology leads to better perceived performance. However, this research argues that in the interorganisational context, the fit between task and technology may not have a major influence on organisational performance. As discussed in section 2.4 on the interorganisational theories, the concept of interdependency in the interorganisational network seems to play a significant role in influencing the performance as stated by Jonsson (1986, p.42) that the interdependency is known as the strategic interdependency, which is "the ability of each participating actor to gain his ends is dependent on the behaviour of other participating actors". Consequently, to investigate the influence of appropriateness of B2B technology on a firm's perceived performance, this research proposes that the perception of TTF alone may not be adequate as the utilisation of technology may also rely on the interdependency in the interorganisational network, which is defined in the national level of the conceptual model (section 2.7.1). This study, therefore, proposes the following:

Research question 1: Do the precursors of utilisation, which are the nature of business relationships, cultural fit, readiness of technology infrastructure, and task-technology fit have additional explanatory power in predicting perceived performance impacts beyond that from task-technology fit?

Hypothesis 1a: Organisation's performance will be influenced by TTF.
Hypothesis 1b: Organisation's performance will be influenced by utilisation.

2.7.4 Utilisation

In the original TTF model, the concept of utilisation is loosely defined by Goodhue and Thompson (1995). Utilisation refers to "the behaviour of employing the technology in completing tasks" (Goodhue and Thompson 1995, p.218); and it is measured by the frequency of usage. In addition, the precursor of utilisation is vaguely defined and not much research has been done to measure the precursors of utilisation. The key factor that contributes to utilisation is TTF. This research emphasises the importance of utilisation by redefining the precursors of utilisation to suit the context of study. In this study, the utilisation of B2B technology is voluntary. Besides the TTF, the new precursors of utilisation introduced by this research consist of the nature of business relationships, cultural fit and the readiness of technical infrastructure. Incorporating these factors enables researchers to understand the broader issues of the utilisation of B2B, which covers the culture, business and technical aspects of technology adoption in Thailand, in particular cultural fit which seems to be a key success factor of technology transfer from a western to non-western context (Demeester 1999; Martinsons and Westwood 1997; Scheraga et al. 2000; Seror 1996; Shoib and Nandhakumar 2003).

Drawing upon these three new precursors of utilisation, the degree to which an organisation's elements are aligned to support the use of B2B is important. This study does not only investigate the impact of TTF on utilisation, but more importantly, it

ensures that the other aspects of B2B technology adoption in Thailand are considered. This study, therefore, proposes the following:

> ***Research question 2:*** *Do task technology fit, cultural fit, nature of business relationships and readiness of technical infrastructure influence the utilisation of B2B technology?*

> ***Hypothesis 2a:*** *The perception of task technology fit will influence utilisation of B2B technology.*
> ***Hypothesis 2b:*** *The perception of cultural fit will influence utilisation of B2B technology.*
> ***Hypothesis 2c:*** *The perception of the nature of business relationships will influence utilisation of B2B technology.*
> ***Hypothesis 2d:*** *The perception of readiness of technical infrastructure will influence utilisation of B2B technology.*

2.7.5 Task-technology fit dimension

According to Goodhue and Thompson (1995, p.216), Task-technology fit is "the degree to which an organisation perceives a match of the technology with the requirements of the tasks". In this study, the task characteristic refers to the inter-firm communication tasks. In addition, five factors to measure fit between work based tasks on inter-firm communication and B2B technology are proposed. These include: *communication* which relates to the global access to suppliers and corporate customers by minimising the role of intermediary parties (D'Ambra and Wilson 2004) and *mediation* which relates to the use of Internet technology to replace face-to-face communication between suppliers and customers (D'Ambra and Wilson 2004). Other measures are adopted from Goodhue and Thompson (1995), which are ease of use, training and level of IS support. The hypotheses are formed to investigate if these measures can be applied to measure the TTF in this study and how this will impact on the utilisation and organisational performance.

Research question 3: What constitutes valid and reliable scales for measuring task-technology fit in B2B technology adoption?

Hypothesis 3: TTF is a multi-dimensional construct and it will be measured by the perceived ease of use, training, IS support, communication and mediation.

2.7.6 Nature of business relationships dimension

B2B technology highlights the importance of business relationships that may impact on the technology among firms. This research adapts three dimensions of business relationship proposed by Teo et al. (2003) to measure the nature of the business relationships construct (details in section 2.4). These are mimetic, coercive and normative pressures. The mimetic pressures allow researchers to investigate the influence from competitors, who adopt the B2B technology and are perceived favourably by their trading partners, while the coercive pressures investigate the influences from the demands of powerful trading partners requesting the firms to adopt the technology. The normative pressures investigate the degree of technology usage by the firm's trading partners. This study, therefore, proposes the following:

Research question 4: What constitutes valid and reliable scales for measuring the nature of business relationships in B2B technology adoption?

Hypothesis 4: Nature of business relationships is a multi-dimensional construct and it will be measured by the perceived mimetic pressure, coercive pressure and normative pressure.

2.7.7 Readiness of technical infrastructure dimension

The readiness of technical infrastructure seems to be one of the most fundamental issues in IT adoption and it has been recognized as a significant inhibitor of IT adoption in developing countries (APEC 2002; UNCTAD 1999, 2001, 2002a, 2002b, 2005). Technical infrastructure refers to existing Internet infrastructure that enables Internet-related businesses. Roberts and Hite (2000) assert that developing countries are poor because they lack access to technologies. These countries, which are lagging behind in the development of new technologies, have constraints to overcome so that they may survive in the digital economy. Salman (2004) agrees that most developing countries are intensively suffering from inadequate infrastructure to embark on e-commerce. Deficiencies in physical communication as well as a telecommunications network would prevent those countries from being digitally competitive in terms of efficient supply chain and bandwidth rich Internet access. Chan and Costa (2005) state that developing countries have less technological infrastructure compared to advanced nations. The United Nations (UNCTAD 2005) reports that in developed countries, a high proportion of companies are connected to the Internet, for example, 97 percent of the companies in European countries such as Denmark and Finland are connected to the Internet, while in Thailand only 9 percent are connected.

Drawing from the literature review on the technical barriers of Internet and e-commerce adoption, two main issues which have emerged are the quality of Internet access and the security issues (Gregorio et al. 2005; Oh and Kim 2003; Rokhman and Finley 2002). For instance, Lawson, Alcock, Cooper and Burgess (2003) assert that technical barriers to doing business online can be categorised into two broad issues: inadequacy of telecommunications infrastructure and inadequacy of security of transactions. The United Nations asserts that the national network infrastructures of many developing countries are often low speed (UNCTAD 2005). In addition, the United Nations notes that since developing and developed countries have different levels of technological development, developing countries may experience patterns of threats and vulnerabilities different from those experienced by developed countries. For example, in Thailand, a report on the Thailand ICT indicators in year 2005 by the Thai government (NECTEC 2005) indicates that viruses seem to be the main concern about the security

of transactions; the percentage of infected e-mails has been continuously increasing and the government has been urged to establish policies and measurements in regards to this issue.

Interestingly, Dr. Thaweesak Koannatakool, director of the national electronics and computer technology centre of Thailand, at the Joint UNCTAD-UNESCAP Asia-Pacific Regional conference on e-commerce strategies for development, points out that access to technologies including basic telecommunications, hardware and software is not a major problem in the adoption of the Internet in Thailand. More important is the challenge of how Thai companies can adapt knowledge and technologies to maximize the benefits for social and economic development (Koannatakool 2002, p.13).

It seems that the readiness of the technical infrastructure dimension is an important issue for developing countries and it should be included as a part of technology utilisation. The quality of Internet access refers to the perceived quality of Internet connections such as speed and stability. The security of Internet access refers to the perceived readiness in terms of technical security and adequacy of control measurements when communicating online. The issues in quality and security of Internet access are tested as follows:

> ***Research question 5:*** *What constitutes valid and reliable scales for measuring readiness of technical infrastructure in B2B technology adoption?*

> ***Hypothesis 5:*** *Readiness of technical infrastructure is a multi-dimensional construct and it will be measured by the perceived quality and security of Internet access.*

2.7.8 Cultural fit dimension

The cultural fit dimension represents a socio-cultural aspect of a local context influencing the adoption of B2B e-commerce. This dimension aims to investigate how well the technology that transfers from western countries suits a receiving country, which is, in this case, Thailand. It is defined as the degree to which an individual perceives a match of the use of technology in their culture. The cultural fit in this study focuses on the influence of Thai national culture on business to business communication and relationships in Thailand. As discussed in section 2.6.6, the summary of cultural fit dimensions is presented in Table 10 and the hypotheses are presented as follows.

Table 10 Cultural fit dimensions presented by this research.

Dimensions	Description
Personal relationships	It investigates personal relationship in the Thai business context.
Long-term relationships	It refers to the long term orientation of the Thai society.
Interorganisational trust	It refers to the face-to-face communication of the Thai trust building process.
Ability to communicate in the English language	It refers to the English language capability of the Thai people.
Materialism	It deals with the degree of materialism and the appreciation of western cultural values.

> **Research question 6:** *What constitutes valid and reliable scales for measuring cultural fit in B2B technology adoption?*

> **Hypothesis 6:** *Cultural fit is a multi-dimensional construct and it will be measured by perceived personal relationships, long-term relationships, interorganisational trust, ability to communicate in the English language, and materialism.*

The table below re-states the research hypotheses that will be tested.

Table 11 Summary of research questions and research hypotheses

Research question	Research Hypothesis
1. Do the precursors of utilisation, which are the nature of business relationships, cultural fit, readiness of technology infrastructure, and task-technology fit have additional explanatory power in predicting perceived performance impacts beyond that from task-technology fit?	**Hypothesis 1a:** Organisation's performance will be influenced by TTF.
	Hypothesis 1b: Organisation's performance will be influenced by utilisation.
2. Do task technology fit, cultural fit, nature of business relationships and readiness of technical infrastructure influence the utilisation of B2B technology?	**Hypothesis 2a:** The perception of task technology fit will influence utilisation of B2B technology.
	Hypothesis 2b: The perception of cultural fit will influence utilisation of B2B technology.
	Hypothesis 2c: The perception of the nature of business relationships will influence utilisation of B2B technology.
	Hypothesis 2d: The perception of readiness of technical infrastructure will influence utilisation of B2B technology.
3. What constitutes valid and reliable scales for measuring task-technology fit in B2B technology adoption?	**Hypothesis 3:** TTF is a multi-dimensional construct and it will be measured by the perceived ease of use, training, IS support, communication and mediation.
4. What constitutes valid and reliable scales for measuring nature of business relationships in B2B technology adoption?	**Hypothesis 4:** Nature of business relationships is a multi-dimensional construct and it will be measured by the perceived of the perceived mimetic pressure, coercive pressure and normative pressure.
5. What constitutes valid and reliable scales for measuring readiness of technical infrastructure in B2B technology adoption?	**Hypothesis 5:** Readiness of technical infrastructure is a multi-dimensional construct and it will be measured by the perceived quality and security of Internet access.
6. What constitutes valid and reliable for scales measuring cultural fit in B2B technology adoption?	**Hypothesis 6:** Cultural fit is a multi-dimensional construct and it will be measured by perceived personal relationships, long-term relationships, interorganisational trust, ability to communicate in the English language, and materialism.

2.7.9 Control variables

The review of the literature has demonstrated that some issues can be mediating factors in B2B technology adoption, for example firm size, level of international access, level of Internet access as well as employees' skill and knowledge of IT. The research model proposed in this study assumes that all organisations and their members participate within an acceptable norm of communication behaviour. According to D'Ambra (1995), this is necessary to a certain degree in order to present a parsimonious and effective model of organisational technology usage. This systematic approach to communication does not account for variation in communication behaviour related to traits of particular organisations and their employees. This research must control for several important organisational and individual level variables that influence B2B technology adoption. The four variables, as outlined in the model, which this research will control are discussed below.

2.7.9.1 Firm size

An ability to adopt technology may be influenced by firm size (Burke 2005; Levenburg, Magal and Kosalge 2006; Premkumar and Robert 1999). It is generally believed that larger firms are often found to have greater resources and are therefore more able to adopt new technology than small firms (Premkumar and Robert 1999; Palacios 2003). According to the report by the United Nations (UNCTAD 2005), it appears that in developing countries, access to the Internet is more prevalent among large firms. Kshetir and Dholakia (2002) observe that large multinationals are most likely to adopt B2B technology and transfer it to their foreign subsidiaries. SMEs in developing countries, which generally have weak bargaining powers, seem to be reluctant to adopt B2B technology. However, Goode and Stevens (2000) argue that while traditional technologies find a positive relationship between size and adoption, newer studies involving e-business technologies find a negative relationship. Differences in firm sizes then may lead to the utilisation of the technology and enhancement of firms' performance. The collection of data on the number of employees will allow control for this factor in the analysis.

2.7.9.2 Level of international access

The level of international access is selected as a control variable in this study. As discussed in section 2.2.1, the benefits gained from B2B technology adoption depend on the level of global access of the firms in developing countries (Gibbs et al. 2002). Firms with high global access seem to gain more benefit from e-commerce adoption in terms of better collaboration and productivity than firms with low global access (Kraemer et al. 2002). Consequently, this factor is considered to be controlled for in this research.

2.7.9.3 Level of Internet access

Regarding the modes of access to Internet in organisations, statistics produced by the United Nations reveal that many businesses in developing countries connect to the

Internet through dial-up, while businesses in developed countries have wide access to high speed Internet such as broadband (UNCTAD 2005). This research has argued that different types of Internet access, for example dial-up, which provides slower speed connections than broadband, may impact on the utilisation of B2B technology as well as the firms' performance (Oh and Kim 2003). Thus, the type of Internet access is controlled in this research.

2.7.9.4   Experience with technology

Experience with technology is an important factor in the adoption of new technology and it has been found to be positively related to adoption. Literature often indicates that firms that do not have staff with IT skills and experience are most likely to not adopt the new technology (Del Aguila-Obra and Padilla-Melendez 2006; Premkumar and Robert 1999). D'Ambra (1995) asserts that an individual's experience with computer based technology will influence his or her willingness or opportunities to adopt and use new technology. In more recent research, Burke (2005) also confirms that experience with information technology is crucial for successful Internet use in small businesses. Therefore, this control variable is considered in the subsequent analysis.

2.8   Conclusion

The aims of this chapter were to review theoretical and empirical literature pertaining to the current B2B technology adoption, particularly in developing countries. The adoption of B2B technology in developed economies has, overall, been successful. This success, however, has not been reflected in developing countries, indicating that models for IT adoption in developed economies may not be appropriate for use in developing countries. In response to this we develop a strategic fit perspective, particularly the cultural fit/appropriateness variable to investigate the issue of successful adoption of B2B technology in Thailand. This perspective is operationalised through the Task-Technology Fit (TTF) model by integrating interorganisational theories and theories of national culture. The model demonstrates that in an interorganisational context the fit of

technologies to support tasks may not have the desired impact on performance in developing economies without considering the precursors of utilisation, national culture, the nature of business relationships, and the readiness of the technological infrastructure in the implementation environment. Furthermore, the extensive literature review on Thai cultural values as well as Internet and e-commerce adoption in Thailand were discussed and cultural fit dimensions were identified. The model may be useful for better understanding how organisations in developing countries may adopt e-commerce technologies enabling online business processes in B2B settings. Finally, a set of hypotheses was developed. The following chapter discusses and elaborates on the research methodology applied.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Introduction

The preceding chapter has described the research strategy adopted in this research. This chapter includes the following: firstly, the overview of research design and timeline is discussed. Secondly, the discussion and justification of the selection of the case, which is the unit of analysis in this study, are presented. Thirdly, the development and refinement of the research strategy is discussed. In order to gain a grounded understanding of the phenomenon studied, the research design was characterised by extensive field work. Figure 5 illustrates the steps undertaken in this research. The sampling procedure of the research is discussed in three main phases. A detailed explanation of each phase is presented in the following section.
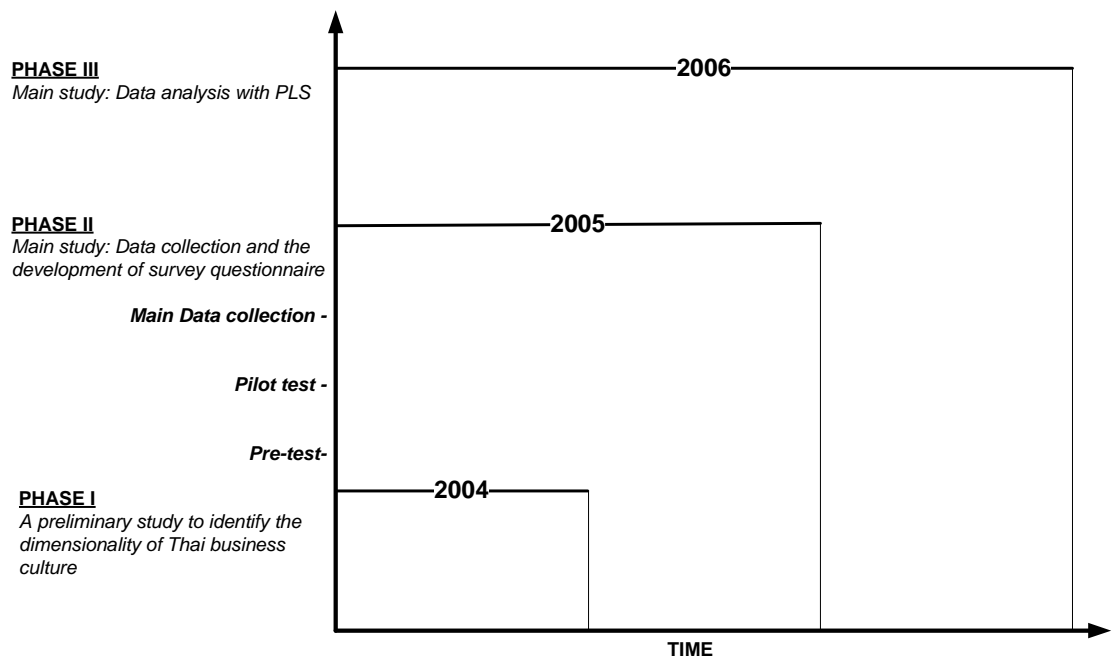
Figure 5 Development and refinement of research design

3.2 Overview of the three phases of the research

Referring to Figure 5, an overview of the research design is discussed in three main phases as follows:

Phase I: A preliminary study to identify the dimensionality of Thai business culture. This study began with a preliminary study by interviewing officials in the Thai government and companies in the tourism industry. The aims were, firstly, to explore and to identify the cultural dimensions that impact on the adoption of B2B technology in Thailand. The cultural dimensions identified were analysed and supported the analysis in the literature review in section 2.6.6. This contributes to the direction of this research in terms of identifying the cultural fit dimensions that will then be further discussed and tested in the Phase II. Secondly, this phase aims to present the preliminary study on B2B technology adoption in the Thai tourism industry. Due to the limitations of IT and e-commerce adoption in the Thai tourism industry, this phase enabled the researcher to gain an overall understanding of the current stages of Internet and e-commerce adoption and related issues. The results contributed to the direction of this research in Phase II.

Phase II: Main study: Data collection and the development of survey questionnaire. The aim of this phase was to develop the survey questionnaire for testing the research model and hypotheses. The pre-test was conducted to ensure the accuracy and reliability of the survey instrument in terms of translation from English to Thai. The pilot study followed and the pilot data were then analysed to ensure the reliability and validity the instrument. Then, the survey questionnaire was revised before conducting the main data collection exercise. Furthermore, the ethical considerations are discussed.

Phase III: Main study: Data Analysis with PLS. The methodology associated with structural equation modelling (SEM) with partial least squares (PLS) was used. The data were analysed including the operationalisation of the research model with the PLS

structure. The following sections present the discussion on the unit of analysis and the details of each stage of the research design.

3.3   Selection of the case: the Thai tourism industry

The context of the study is the Thai tourism industry. The motivations which prompted selection of this industry were as follows. Firstly, the tourism industry is one of the most important industries that contribute to the Thai economy (Sahadev and Islam 2005; TAT 2005; UNCTAD 2005). In 2003, tourism in Thailand represented 5.47 percent of GDP and 9.71 of the country's exports. According to the statistics provided by the Tourism Authority of Thailand (TAT) (TAT 2005), the tourism industry contributed 367,380.36 million Baht (12,246 million AUD) to national income in 2005. With beautiful natural resources and a rich culture, Thailand is well known as a market as a tourist destination. It has been ranked among the top three tourist destinations in Asia in terms of number of tourist arrivals (Sahadev and Islam 2005). Thailand received over 10 million international tourist arrivals in 2003 and expects to achieve the goal of 20 million tourist arrivals by 2008. Furthermore, as in other industries, the majority of firms in the Thai tourism industry are SMEs. These local SMEs play a major role in terms of economic contribution to Thai economic growth (Intrapairot and Srivihok 2003). In addition, there are some multinationals, which are typically foreign companies such as the Sheraton hotel chain and Gullivers, which is an international travel agency.

The influence of e-commerce has impacted on the national plans of the Thai tourism industry. The Thai government has established a strategic plan for integrating the use of Internet technology in four major industries, namely the tourism, automotive, food and textile industries. The goal is to develop e-supply chain management in these industries in order to gain competitive advantage in the world trade market (ECRC 2000). In addition, TAT has set e-tourism as one of the main priorities of the Thailand Tourism Promotion Policies for 2003-2006 (UNCTAD 2005).

In May 2003, the Thai government worked with Professor Michael Porter to enhance competitive advantage for the country's economic reform (Kaopatumtip 2003). Porter

identified five clusters for Thailand's competitiveness: the automotive cluster, fashion cluster, food cluster, tourism cluster and software cluster (Porter 2003). Among these clusters, the Thai government focused on the tourism and the automotive industries for economic development. However, of the five clusters, the tourism industry has the most e-commerce activities (ECRC 2000; NECTEC 2005; UNCTAD 2005).

Although the percentage of B2B technology usage in the Thai tourism industry is quite high compared to other industries, the use of B2B technology in this industry has not been maximized. According to the most recent national survey by the Electronic Commerce Resource Centre in the year 2000, evidence shows that 81 percent of existing tourist industry websites (494 out of 607) are static websites, which are used for information and promotional purposes. Only 19 percent of these websites (113) provide value added services such as online reservation systems (ECRC 2000).

Porter (2003) suggests that the Thai tourism industry should be promoted as an 'Asian tourism capital'. However, he also points out that the Thai tourism industry is competing on promoting natural tourist resources but is still lacking effective cooperation across the industry. This yields a problem in the information collaboration process across a broad range of tourism related activities. This research sees a high potential that Internet technology, which can be used for facilitating inter-firm communication and collaboration, may play a major role in the development of the Thai tourism industry. Thus, it is a vital area to be investigated.

Although the Thai government has a vision of supporting the development of e-commerce in the tourism industry, information about e-commerce adoption in the Thai Tourism industry is limited because it is still considered a new phenomenon in Thailand (Ngaorungsi 2004). Only one study has been published on the adoption of e-commerce among SMEs in the Thai tourism industry. Intrapairot and Srivihok (2003) conducted a study on the adoption of websites among SMEs. They found that most SMEs have information-based websites only. In addition, e-commerce was found to be a threat to Thai SMEs. Companies were afraid that suppliers would use e-commerce for direct sales to control the business processes by removing intermediaries and enabling direct sales to customers.

The second motivator in the choice of industry is a theoretical gap in the research where the key concepts of cultural issues, B2B technology adoption in developing countries and the tourism industry intersect. There is evidence suggesting that appropriate technology transfer to firms in developing countries is facilitated by social interaction and organisational actors (Bruun and Mefford 1996; Demeester, 1999; Martinsons and Westwood 1997; Scheraga et al., 2000; Seror, 1996; Shore and Venkatachalam 1996; Shoib and Nandhakumar 2003). There is previous research investigating the adoption of eTourism (e.g D'Ambra and Wilson 2004; Kim, Lee and Hiemstra 2004; Ma, Buhalis and Song 2003; Ng, Chan, Ng and Tang 1998; Ozturan and Roney, 2005; Tonn and Hemrick 2004; Wan 2002; Wang and Cheung 2004; Wyane, Berthon, Pitt, Ewing and Napoli 2001; Yuan et al., 2003). There is, however, minimal work investigating the adoption of technology from a socio-cultural perspective. It became apparent to the researcher that a systematic theoretical analysis of socio-cultural impacts on the adoption of Internet technology in B2B communication and relationships does not exist in the tourism industry. There has been very little attention paid to the investigation of how B2B technology should be implemented in this industry. Yuan et al. (2003) assert that numerous studies have examined IT implementation in the manufacturing industry but only a few have directly examined how and why IT is actually implemented and managed in the service industry, especially in tourism-related business (Yuan et al. 2003). Thus, this study extends this line of analysis by exploring the role of Thai business culture in B2B technology adoption in the Thai tourism industry.

3.4 Phase I: A preliminary study to identify the dimensionality of Thai business culture

The study began with an interest in the issue of B2B technology adoption in Thailand. To fill the initial gap in the current literature on Thai culture that may impact on the B2B communication and relationship setting, a preliminary study was conducted to identify the dimensionality of Thai business culture and to gain further understanding of B2B technology adoption in the tourism industry. The results of this study contributed to the direction of the main study. In addition, the results were used to form the measurements, in particular, the cultural fit construct in the survey questionnaire.

The underlying philosophy of the preliminary study is the qualitative interpretive field study. The seven principles of interpretative method enunciated by Klein and Myers (1999) were used for this study. They propose a set of principles for the evaluation of interpretive field research in information systems. Firstly, there is the fundamental *principle of the hermeneutic circle,* which encourages researchers to understand human behaviour by iteration between considering the interdependent meaning of parts and of the whole. This study has analysed human experience involved in using Internet technology used for business to business communication in a particular Thai cultural context. It iterates between examining the experience of adopters (organisations) as parts and determining the full meaning of the shared meanings of the adopters with reference to the Thai national cultural context to interpret the technology adoption behaviour as a whole.

Secondly, there is *the principle of contextualization*, which is needed to specify the social and historical background of the research setting. This study uses the Thai cultural context to explain some surprising aspects of the adoption of Internet technology for B2B communication in the Thai tourism industry.

Thirdly, *the principle of interaction* between the researchers and the subjects is considered. The data for this study were collected using in-depth interviews, and from internal documents and observations. Data were collected by a fieldwork study in Thailand over a two month period during June and July 2004 by the researcher. Each interview was about one hour in duration. Table 12 provides a list of interviewees. Fourteen interviews were conducted with government officials and practitioners in the Thai tourism industry as well as an interview with an Australian industry expert on Thai culture. This research commenced by conducting face to face interviews and collecting internal documents from Tourism Authority of Thailand (TAT) (Ngaorungsi 2004) and the President of the Association of Thai Travel agents (Soorangura 2004) on current e-commerce adoption in this industry. This was followed by interviews with 11 firms in the Thai tourism industry. These firms (travel agents and hotels & resorts) were selected because they have been identified as those with the most potential for the adoption of Internet technology. These two sectors comprise more than 80 percent of the total

tourism organisation population (Ngaorungsi 2004). In addition, an interview with a Thai-Australian culture expert was conducted to obtain a westerner's viewpoint on doing business in Thailand.

Table 12 Numbers of interviews

Types	Size	Number
Government Institution	-	1
Industry association	-	1
Travel agent	SME	6
Travel agent	Large	2
Hotel	SME	2
Hotel	Large	1
Thai-Australia Cultural expert	-	1
Total		**14**

The participants were asked to identify companies that they collaborated with, such as their suppliers, customers and competitors. Contact with some companies was made directly by the researcher, or the participants kindly initiated contact with other new companies and the researcher followed up to arrange interviews. In this way, the researcher was helped to better understand the linkages in the interorganisational network and collaboration in the Thai tourism supply chain.

The interviews formed the basis for an understanding of the way e-commerce technologies were being used in this industry. The interviewees were asked about the Internet and e-commerce applications that they are currently using for their business, and their future plans. Then, they were asked about their attitude towards the use of those applications, for example, the benefit and drawbacks of the applications, current business processes and to what extent those applications replace the traditional way of doing business. Then, the culture-related discussion was pursued based on the issues that the interviewees addressed. The following questions were asked during the interview:

- What are the current e-commerce technologies that you are using for business to business communication?
- Why and how do you use it?
- What are the factors that you consider when you adopt or reject B2B technology?

- How do you feel about the readiness of your organisation to adopt B2B technology?
- How do you feel about the readiness of the technical infrastructure in Thailand to adopt B2B technology?
- To what extend are you using B2B technology to collaborate with your business partners?
- How often do you use these technologies?
- What are the benefits gained from B2B technology?
- What are the problems that you encounter?
- How do you feel about the suitability of B2B technology in the Thai business context?
- Do you think B2B technology can replace traditional ways of business communication? How and why?
- Can you please give me some examples of cultural fit and cultural misfit when using B2B technology?

Fourthly, *the principle of abstraction and generalization* derived from Klein and Myers (1999) is considered. This principle requires idiographic details of data interpretation through a theoretical lens that describes the nature of human understanding and social action. In this study, analysis of socio-cultural issues of B2B technology adoption is supported and interpreted by national cultural theories and the Thai cultural values discussed in the section 2.5 and 2.6.

Fifthly, *the principle of dialogical reasoning* is considered. This principle requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings ("the story which the data tell") with subsequent cycles of revision (Klein and Myers 1999). This study also introduces culture-related issues found in the case which cannot be explained through current theories about national cultures, for example, the ability to communicate in the English language and materialism.

Sixthly, *the principle of multiple interpretations* is considered. This study presents multiple viewpoints from interviewees to form the analysis. More than one interview is

used to support the discussion of the key findings. Finally, *the principle of suspicion* is considered. This research is critical of the benefits of Internet technology adoption in Thailand. The findings present some interesting issues relating to technology adoption in the Thai context. This contrasts to general western beliefs about the use and benefits to be gained from Internet technology; and this leads to further research on cultural misfit and B2B technology adoption in Thailand.

The findings are presented into two main parts, which are 1) vision and currents issues from the Thai government perspective on plans, strategies and currents issues related to e-commerce adoption in this industry; 2) the cultural dimensions identified. The theoretical and conceptual basis for these interviews has been subsequently published at the *European Conference in Information System* (Vatanasakdakul and D'Ambra 2006), *Australasian Conference in Information System* (Vatanasakdakul 2006), *Academy of World Business, Marketing and Management Development* (Vatanasakdakul, D'Ambra and Ramburuth 2006) and *International Journal of Information Technology and Management* (Vatanasakdakul and D'Ambra, forthcoming). Appendix A provides a list of supporting publications relevant to this thesis.

3.4.1 The Thai government's vision and plans

The Thai government has emphasised the importance of e-commerce development in the tourism industry. The vision of TAT which underpins their ICT strategies has two thrusts: 1) to use ICT as a marketing tool to build competitive advantages in terms of increasing the nation's income and improving the quality of service for tourists; and 2) to use ICT to enhance work efficiency and effectiveness. Corresponding to this vision, the ICT strategies of TAT for the years 2004-2006 were established. The five main strategies are as follows;

- Build a centralized database system within the TAT organization, which can be networked to overseas offices;
- Develop an e-office (paperless system) within TAT;
- Develop a Digital Nervous System for enhancing data processing;

- Develop an e-Tourism system;

- Develop e-learning, e-library and e-publishing systems to increase the level of knowledge for all the parties in the industry through knowledge-based systems.

Based on its vision, TAT was a pioneer in setting up a B2B e-marketplace for the tourism industry in Thailand, called www.toursimemarketplace.com, for local companies and overseas companies. The authority hoped that access to this website would provide a new channel to enable local companies to meet new trading partners worldwide. It provided online services for the participants such as search functions to find potential trading partners, member profiles, a message centre, advertisements for package tours, a web board for online negotiation, e-mail and online bidding. However, it has not been a success due to very low activity in the e-marketplace (Soorangura 2004; Ngaorungsi 2004). In August 2004, the Tourism Authority of Thailand (TAT) redeveloped and launched a new e-marketplace. The new e-marketplace is a similar concept to the previous one, but the main difference is the name of the website. From the data gathered in the interviews, the reasons of the failure have not yet been well studied. However, TAT suspects that the failure of the previous e-marketplace was caused by the name of the marketplace, which did not represent Thailand. In addition, there was no division which was directly responsible for this area before. Therefore, TAT has decided to change the name of the e-marketplace to www.thaitravelmart.com and to establish a new division to be responsible for the e-marketplace project.

There were some other interesting points found during the interviews. It was found that traditionally, TAT has supported the offline marketplace, known as 'travel mart'. The concept is similar to the e-marketplace, but the main difference is that, using an offline method, suppliers and customers meet face to face at a marketplace. TAT acts as a middleman by setting up the travel mart and inviting local and overseas companies to meet in Thailand. The executive director of Information Technology of the Tourism Authority of Thailand said that *"This strategy works very well and we are still using it. However, when new information technologies came, we started to use e-commerce by setting up www.tourismthailand.org."* In addition, he added that *"we did not have a proper research or feasibility study for this new project. However, there was a small*

research that we hired someone to do on the adoption of e-commerce in SME, but it was not very detailed. I feel that culture may have major impact in the adoption of e-commerce in Thailand. But we haven't done any research about it yet" (Ngaorungsi 2004).

Furthermore, the overall usage of B2B technology in the Thai tourism industry is still very limited. The use of email seems to be significant for communicating with overseas firms but not for domestic firms. Most of the communication methods between firms seem to be traditional methods, such as phone, fax and face-to-face meetings. The next section presents further discussion on the dimensionality of Thai business cultures identified.

3.4.2 The dimensionality of Thai business culture

The dimensionality of Thai business culture was derived from analysis of the interview transcripts from the preliminary study as discussed in section 3.3. In addition, the results of the interviews were then analysed and confirmed with the analysis of the literature review of national cultural theories and Thai cultural values in Chapter 2. The elements in Thai business culture that may impact on the adoption of B2B technology include personal relationships, long-term relationships, interorganisational trust, an ability to communicate in the English language and materialism. These dimensions are the precursors of the cultural fit construct, which will be furthered tested by a quantitative approach in the main study. The detailed discussion of each dimensions are as follows:

- *Personal relationships*

Most of the interviewees do not believe that the e-marketplace has helped their businesses to search for new business partners and to gain more business opportunities. Most of the interviewees said that normally they use personal relationships, which is recommendations from previous customers to their friends and family to get new customers by word of mouth strategy. In addition, face to face communication is

important in building relationships. Suppliers often do 'sale calls', which means that they have to go to customers to present their products. For example, hotel representatives go to travel agents to present their products and services. The following examples demonstrate Thai attitudes towards using web channels to replace the traditional sales and marketing strategies.

> Interviewer: If some companies contact you via email or web channel such as e-marketplace seeking for new business opportunities, will you trust them?
>
> Interviewee: There are some enquiries from the online channel. However, we never end the agreements online. We still need to arrange a meeting and sign an agreement. In Thailand, we are not doing business in online collaboration. Maybe in Europe, US and Australia, they may do this. In Thailand, even though sometimes we see each other face to face, we still don't trust or believe them. If we do not see their face, how can we trust and do business with them.

Another example,

> Interviewer: How do you contact and select your overseas suppliers?
>
> Interviewee: We select new suppliers by talking to them. We would be able to make a better judgement about the capability of the suppliers by talking to them face to face than looking at a document. Sometimes, I would ask new suppliers to quote the price. Normally, maybe it is Thai culture, we must make sure that we know them from the top managers to small employees. In addition, we prefer to contact overseas suppliers that have offices in Thailand. We want to know exactly where the office is because if there is any problem, we will know how to find them.

A further interview with a Thai manager working for international travel agents in Thailand

> "Sales in Thailand emphasise the personal relationship rather than business talk like in the US.. You must know the technique."

- *Long-term relationships*

There is limited empirical evidence explaining how long-term orientation values influence Thai business culture. The interviews in the Thai tourism industry and the interview with an expert consultant on Thai-Australian business culture emphasised this issue as follow:

An interview with a local travel agent:

> *Interviewer: How do you find agents overseas?*
> *Interviewee: We have been doing businesses with these agents since before I was born, which is around 40-50 years ago. There are some new agents. However, we are one of the top ten travel agents in Thailand. Normally, the new travel agents will come to us to do sales calls.*

An interview with a Thai manager working for a foreign travel agent in Thailand:

> *Interviewer: Why do you think e-commerce cannot replace traditional Thai business?*
> *Interviewee: Personal contact, the relationship base and negotiation skills are important in Thai business. If I use too much of these dealing strategies with Western clients, they will be annoyed with me. But for Thai people, you need to know how to deal with them. Sometimes, if you say something too straight forward, they cannot take it. Building relationships in Thailand takes time.*

In an interview with the expert consultant on Thai-Australian business:

> *"...Thai society is definitely towards a long-term orientation society. They do not like to do business with people who they don't know. Normally, when they do business with someone, they prefer to know background information of that person such as family background and network background. And it takes time to get to know this information and be familiar with that person. It is not like Western society which focuses more on the short term orientation..."*

- ***Interorganisational trust***

The interviews reveal that face-to-face contact is very important in building trust among organisations. This is opposed to the characteristics of Internet technology where face-to-face communication is minimised. Some examples from the interviews which related to trust are illustrated below:

An interview with local hotel:

> *"It is taking too much risk if we do business with someone we have never seen or known. For example, if there are emails to book 20 rooms and what if they don't come. We may lose the opportunities to sell these rooms to other clients. Especially, if the bookings are from overseas, how and where can I look for them if there is any problem? We have never seen their faces before".*

Interviews with local travel agents:

> *Interviewer: How do you select these agents? What if they contact you via email? Would it be possible to negotiate via email or online channel?*
>
> *Interviewee: I do believe that human contact is more important when you deal with someone. Similarly, when we send the job application form, some people have good resume but we will feel more comfortable and confident if we talked to them. You have to separate IT and human. IT reduces the human contact.*

> *"Face-to-face and interpersonal contact is very important. For example, the rank of your hotel is only 3 stars. But if your sales representatives have good presentations and talk to us, the impression of your company on us may increase from 3 to 3.5 stars, something like that. However, if we do business online, we cannot trust the online pictures. We cannot tell from the pictures. Now, the technology has developed, all the pictures can be made to look nice. We do not trust what we see online. Interpersonal contact is still very important and what we see in real things is very important as well.*

> *"The sales strategy that we use is Arjan xzy who is the owner of the company. For example, in the booklet, we show his image. Arjan sells trust to customers. Customers have trust in him that is why they come to us. Because he is arjan, they feel that arjan will not abandon them while travelling overseas."*

To bring out the full meaning of this interview script, it is noted that the role of *Arjan* (means teachers, lecturers) is very significant in the Thai society. As discussed in Chapter 2, Thai society is characterised by significant power distance and this is reflected in the relationship between teachers and students. In addition, teachers are typically ranked high in Thai society and they are very well respected by students as well as other members in the society. Thai students celebrate *Wai-Kru*, which means teacher's day, annually. Students will sing songs and present special bouquets of flowers to their teachers to show their gratitude.

- ***Ability to communicate in the English language***

Almost all of the interviewees ranked language as the most serious barrier to B2B technology adoption in Thailand. Thai businesses have hoped to use this new channel to access a global market; consequently, an ability to communicate in an international language such as English is necessary. However, the problems caused by language barriers still exist when Thai businesses attempt to expand their operations into a global e-marketplace. Generally, Thai people lack the ability to communicate in languages other than Thai (Tetiwat and Huff 2003). The results of the interviews demonstrate that

many tour operators are unable to use email and update their information on the web effectively due to their inability to communicate in English. In addition, a lack of English language capability causes a slow uptake in the IT knowledge transfer process. Most of the interviewees have problems in understanding and utilising the new technology, which is generally written in the English language. Trying to understand is time consuming and there are problems with misinterpretation. Therefore, a relationship between the ability to communicate in English and adoption of e-commerce cannot be underestimated. Illustrations from the interviews addressing the importance of the ability to communicate in English in e-commerce adoption are given below:

An interview with a local hotel:

> *"Language is a major problem in e-commerce adoption in Thailand. Especially, in Thailand, if we want our e-commerce to be like Inter (which means International), we have problems in the expression in writing and reading contents from the webs. It is hard to understand and writing is not like talking."*

An Interview with a foreign manager in the hotel business in Thailand:

> *"Thai local people feel more convenience using telephone than typing emails. Local communication uses telephone and fax. Local people have problem in English language and spend so much time just to write an email. Because normally, email is in English."* He then added that *"the international and large organisations can use email document but they are not for small local companies.*

An interview with the Tourism Authority of Thailand:

> *Interviewer: What are the problems of e-commerce adoption in the Thai tourism industry at the moment?*
> *Interviewee: SMEs do not want to invest in having websites because 1) cost 2) maintenance and 3) language problems.*
> *Interviewer: Can you please explain more about language problems?*
> *Interviewee: They need skilled staff who are able to write program tours, correspond and negotiate with overseas trading partners. These activities require skill in the English language.*
> *Interviewer: Isn't English still required when communicating in the traditional way?*
> *Interviewee: Yes, it is. But by using the web, they will meet new trading partners, which may come from diverse backgrounds. But for now, they are using the existing overseas trading partners, who they meet in person. Talking is an easier way to communicate than writing. Retail travel agents get business contacts with wholesalers that they know. But using the e-marketplace, they will have to communicate with anybody around the world. For example, they may get 10-20 emails from overseas. They then need people who are able to communicate and write back."*

Interviews with local travel agents:

> *"Language is the main barrier. Sometimes customers from overseas do not use English such as Spanish and French. They send us emails. However, they also call us to confirm and explain what they want. Spanish people do not use English as the main language, which is the same as Thai people. Thus, we both have problems in English communication."*

> *"Language is not a problem for us because we hire foreign workers from overseas."*

- *Materialism*

Many interviewees addressed the association of Western influence in relation to technology adoption. Significantly, the interviewees addressed the importance of being modern and adopting Western technologies rather than realising any actual benefits from these technologies.

Interviews with local travel agents:

> *"Interviewer: Why do you adopt e-commerce?*
> *Interviewee: Bangkok is a social trend society. Globalisation is currently a new Western trend. We are afraid that we are not able to follow the market trend. We don't want to feel left out. Everyone believes that everything will convert to Internet so we have to follow."*

> *"Thai people adopt e-commerce because of the trend and fever (in Thai is called Sang Kom Ka-Seea). Thailand has a very short term craze about a thing then they will forget. I think e-commerce will only be a hot topic for another two years time. Then, people will forget about it."*

An interview with a Thai travel agent association:

> *"Thailand is a fever culture. New Western trends such as Y2K, globalisation and e-integration, we will all talk about it, but it will only last for the short period."*

In summary, the results from the preliminary study were used to form the survey questionnaire, in particular the cultural fit construct, and to set the direction of data collection in the main study. The interviews allowed the researcher to determine the extent to which the Thai tourism industry perceived culturally related issues in the adoption of B2B technology. The theoretical and conceptual basis for these interviews supported the analysis in the literature review on Thai cultural values that may impact the adoption of B2B technology. Furthermore, the open-ended questions ensured that

subsequent pilot questionnaire development could be fine-tuned to meet industry terminology. The next section discusses the development of the survey questionnaire and the data collection of the main study.

3.5 Phase II: Main study - Data collection and the development of the survey questionnaire

3.5.1 Target population for the main data collection

As mentioned in the discussion on B2B technology adoption in the Thai tourism industry in section 3.3.1, the target population for the main study consists of the companies that have adopted the B2B e-marketplace of the Tourism Authority of Thailand (TAT) (www.thaitravelmart.com), which is a government sponsored e-marketplace. These companies have been selected as they have had experience in using Internet technology for inter-firm communication including e-mails. These companies seem to have more experience in using Internet technologies than others in the industry. The information about these companies including the address and contact person of each company were kindly provided by the TAT. In addition, all the survey questionnaires included a formal letter of support for this research from the Thai government. According to the information provided by the TAT in March 2005, there were 331 Thai tourism companies registered on the B2B e-marketplace across the country. TAT classified these companies into nine categories. These are travel agents, hotels & resorts, restaurants, spas, golf courses, theme parks, diving, health care and rental transportation. All the companies were included for the data collection.

3.5.2 Ethical considerations

Prior to proceeding with the data collection process, an application for approval through the ethics assessment process had to be lodged with the Human Research Ethics Advisory Committee (HERA) at the University of New South Wales. The consent form with the approval number from HERA was attached to the questionnaire. A sample of

the participant consent form is presented in Appendix B. The participants were informed that all the data would be kept confidential and anonymous. In addition, the direct contact details of the Ethic Secretariat were given for any complaints that may be received.

3.5.3 Pre-test

Because little empirical literature was available to guide the measurement for the Thai business context, extensive tests were conducted prior the main data collection. Since the actual study was conducted in the Thai context, all the data collected were in the Thai language. Although the situation where the researcher is fluent in the language of communities that she/he is working with is rare (Temple and Young 2004), the researcher has this advantage of communicating with companies in Thailand because she is a Thai native speaker. This enabled the researcher to obtain more insightful information by using the native language in the data collection process. Once the first version of the survey questionnaire was developed in English, a pre-test was conducted to ensure the accuracy and reliability of the survey instrument. The pre-test was required to ensure that the translation of the survey questionnaire from the English to the Thai version was accurate and free from bias.

The questionnaire was originally created in the English language by the researcher. The English version was then translated in format and content into the Thai language by the researcher and three bilingual experts in Thailand. The bilingual experts include two practitioners in the tourism industry and the IT director of TAT. This also helped to obtain feedback in terms of the content and language used in the industry. E-mail and telephone were also used to clarify and further investigate conflicts of interpretation. The results from each expert were then compared by the researcher and the revised Thai version of the survey was produced. Subsequently, the revised Thai version was given to two bilingual experts, who were different from the first group, for the back translation process (Brislin 1970; Brislin, Lonner and Thorndike 1973). Afterwards, the results from the back translation, Thai to English, were then compared with the original

English version to validate the accuracy of the content. Copies of the survey questionnaires in both English and Thai are included in Appendix C and D respectively.

3.5.4 Pilot test

A pilot study is essential to fully test the measures. The survey questionnaire for the pilot study was administered in Thailand by the researcher during June and July 2005. The pilot surveys were sent to 60 organisations, which were selected from the stratified random samples of the target population in each tourism category as described in section 3.4.2. To increase the response rate, the researcher made telephone calls to all the contact persons in each company, the contact list was provided by the TAT. The number of responses totalled 21 companies, which was a response rate of 35 percent.

The survey questionnaire was designed to collect attitude data towards B2B technology adoption in the Thai tourism industry. The attitude scale used the Likert scale. The Likert scale is widely used in instruments measuring opinion, belief and attitudes (DeVellis 1991). It asks the respondents to express their degree of agreement/disagreement with issues (Tashakkori and Teddlie 1998). This research adopts a seven point scale (1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=neutral, 5=somewhat agree, 6=agree, 7=strongly agree). A score will be assigned to each response and all item scores added up to obtain an overall attitude score for the questionnaire.

The pilot data were then analysed for reliability and validity. Validity is concerned with "whether the variable is the underlying cause of item covariation", while the reliability is concerned with "how much a variable influences a set of items" (DeVellis 1991, p.43). SPSS version 13.0 was used as the statistical analysis tool. Factor analysis was employed to test the validity in the pilot study. Principal Component Analysis (PCA) was used to investigate the presence of components with eigenvalues exceeding 1. In addition, a screeplot was created to indicate the number of factors appearing to represent underlying conceptual constructs in the data. Furthermore, this study utilised PCA for factor extraction and rotation by using the Kaiser Varimax rotation method. The rotated

solution revealed the presence of a simple structure, with components showing a number of strong loadings and all variables loading substantially on only one component. In terms of the reliability, the internal consistency reliability, which refers to "the degree to which items in a test measure the attribute in a consistent manner" (Tashakkori and Teddlie 1998, p.85), were assessed using Cronbach's coefficient alphas based on Nunnally's Criteria with a cut off point of 0.7.

The implications from the pilot study were that the original 75 items of the main constructs: TTF, cultural fit, nature of business relationships, readiness of technical infrastructure and performance, could be reduced to 56 items. In addition, the results from the factor analysis revealed that there is no difference in the respondents' perception on the use of e-mail and e-marketplace for inter-firm communication and also the use of these technologies to communicate among suppliers and customers. Furthermore, based on the results from the pilot study, some questions in the survey questionnaire were re-worded for clarity. All the revised items in the survey were verified and back translated by the experts to ensure the accuracy before conducting the main data collection.

3.5.5 Main data collection

A second survey questionnaire was designed based on the feedback from the pilot study. It was distributed by mail from Australia. However, the return address of the survey was in Thailand. A Thai person was employed to collect the returned surveys from Thailand and then forward them to Australia for coding and analysis. Appendix E shows the list of data coding used in this research. Furthermore, the second study was a confirmatory to ensure the reliability and validity of the survey instrument by using the Structural Equation Modelling (SEM) with the Partial Least Square (PLS) technique. A comprehensive discussion of this second survey is provided in Chapter 4, where sample size and sample characteristics are covered in detail. Further, all data analysis and hypothesis tests reported in this dissertation are based on this second study. However, before describing the sample characteristics and methods of estimation, a detailed description of the methodology for data analysis is presented.

3.6 Phase III: Main study - Data Analysis with PLS

3.6.1 Introduction to structural equation modelling and PLS

The data collected for the main study were analysed and tested against the operational model and the hypotheses by using Structural Equation Modelling (SEM) with the Partial Least Square (PLS) technique. SEM can be traced back to the early 1970s (e.g. Joreskog 1973; Keesling 1972; Wiley 1973). SEM is a complex statistical approach for testing hypotheses about relations among observed and latent variables (Bagozzi 1981; Hoyle 1995). Yue (2004, p.95) asserts that "SEM is a suitable method for testing theories or models of causal-predictive relationships among concepts. SEM incorporates both factor analysis (which deals with concepts) and path analysis (which can specify the hypothesised causal relationships, but only deals with observed variables)"

According to Chin (1998, p.vii), "SEM has allowed social scientists to perform path analytic modeling with latent variables (LVs), which in turn has led some to describe this approach as an example of a second generation of multivariate analysis". He added that SEM has advantages over the first-generation techniques such as principal components analysis, factor analysis and multiple regression methods because it offers greater flexibility for researchers for interplay between theory and data. SEM involves the extension of this first generation in terms of "1) model relationships among multiple predictor and criteria variables, 2) construct unobservable LVs, 3) model errors in measurements for observed variables, and 4) statistically test a priori substantive/theoretical and measurement assumptions against empirical data (i.e. confirmatory analysis)" (Chin 1998, p.vii).

Hoyle (1995) states that SEM comprises two components: the measurement model and the structural model. An illustration of these concepts was developed for this dissertation, and is presented in Figure 6. "The *measurement model* is that component of the general model in which latent variables are prescribed" (Hoyle 1995, p.3). It consists of the relationship between the LVs and their respective indicators (Chin 1998). Latent variables (LVs) are described as unobserved variables implied by the covariance among two or more indicators, which are often referred to as factors. The LVs are measured by

the indicators or observed variables to address the reliability and validity of the observed variables in measuring the LVs or hypothetical constructs (Yue 2004). LVs are free of random error and uniqueness associated with their indicators. In this example, LVs are X, Y and Z and the relevant indicators are x1,x2,x3; y1,y2,y3 and z1,z2,z3 respectively. The *structural model* prescribes relations among LVs (Yue 2004). The arrows (h1,h2,h3) address the relationship among LVs; these relationships can be assessed by path coefficients analysis to test the research hypothesis. The details of the structural model using the variables used in this research will be discussed in section 3.6.4.
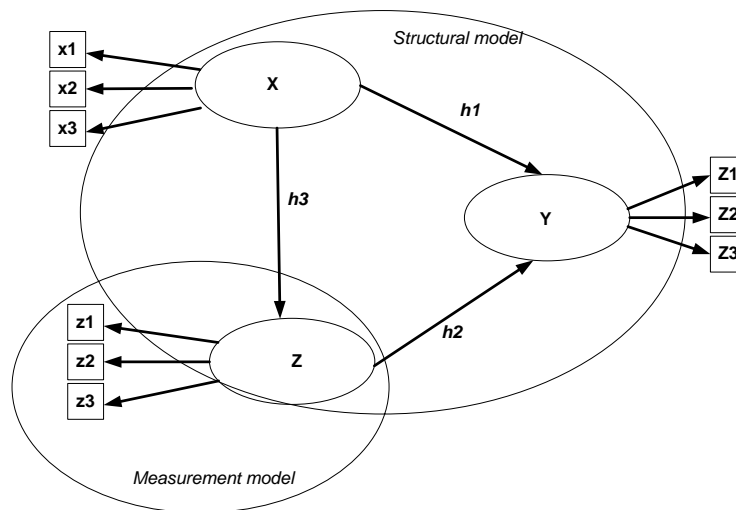
Figure 6 Structural model & Measurement model

SEM has been increasingly used in the last 20 years because of the availability of software packages such as LISREL, EQS, AMOS, SEPATH, and ROMANA (Chin 1998; Yue 2004). These software packages apply SEM techniques on the covariance-based method. The objective of the covariance-based method is to obtain goodness-of-fit, which uses a maximum likelihood (ML) function that attempts to minimize the differences between the sample covariance and those predicted by the theoretical model (Chin 1995; Yue 2004). This method maximizes and tests the degree of consistency between empirical data and the theoretical model. It has often been applied in confirmatory studies to determine the validity of the model (Yue 2004). Nevertheless, Yue (2004, p.98) strongly supports the argument that "the goodness-of-fit does not necessarily imply a good model; it only means that the implied correlation matches the observed". Chin (1995) asserts that the parameters that are estimated by this procedure

attempt to produce the covariance matrix of the observed measures; however, the method limits the underlying assumptions that the observed variables follow a specific multivariate distribution and that observations are independent of one another. Furthermore, the covariance-based method is more likely to have problems in obtaining a good-fit for complex models with more indicators (Yue 2004).

An alternative of the SEM-based analysis technique is known as Partial Least Squares (PLS). The origin of the PLS approach is traced back to 1966 when Herman Wold presented two iterative procedures using least squares (LS) estimation for single and multicomponent models and for canonical correlation (Chin 2005; Wold 1966). Chin (2005, p.43) asserts that "the goal of PLS path modeling is primarily to estimate the variance of endogenous constructs and in turn their respective manifest variables (if reflective)". PLS aims at minimising the variances of the dependent variables, observed variables and LVs (Chin and Newsted 1999).

Chin and Newsted (1999) summarise the differences between the covariance-based structural modelling techniques such as LISREL and the PLS technique in Table 13. Unlike the covariance-based method, PLS is used to maximize the prediction rather than to obtain the goodness-of-fit. It has been applied not only in the confirmatory analysis but also in exploratory study where the theoretical background might be weak and there is a need to develop and test propositions (Yue 2004). The PLS approach is particularly useful when analysis is required to predict a set of dependent variables from a large set of independent variables (Chin 1995; Wold 1980), while the covariance-based model can handle the small to moderate complexity of a model with fewer indicators.

Compared to the better known covariance approach, Chin (1998, 2006a, 2006b, 2006c) takes the view that the PLS approach provides superior estimation to the covariance-based method in terms of avoiding two serious problems: inadmissible solutions and factor indeterminacy. The algorithm of PLS analysis consists of a series of Ordinary Least Squares (OLS) regression. Thus, this technique is not a problem for a recursive models nor does it presume any distributional form for measured variables like the covariance-based method, which prefers the normal distribution (Chin 1998, Yue 2004). Wold (1982) states that the PLS approach is distribution-free.

Table 13 Comparison between PLS and Covariance-based approach

Criterion	PLS	Covariance-based approach
Objective	Prediction oriented	Parameter oriented
Required theory base	Applicable is scarcity of prior theory. Supports both exploratory and confirmatory research.	Requires sound theory base. Supports confirmatory research.
Approach	Variance based	Covariance based
Assumptions	Fewer Assumptions: predictor specification (nonparametric) distribution free	Stringent Assumption: normal distribution and independent observations (parametric)
Parameter estimates	Consistent as both indicators and sample size increase	Consistent in all conditions
Latent variable scores	Explicitly estimated	Indeterminate
Epistemic relationship between and LV and its indicators	Can be modelled in either formative or reflective mode	Can be modelled in reflective mode only
Observations on indicators	Nominal, ordinal and interval scaled	Ratio preferred
Implications	Optimal for prediction accuracy	Optimal for parameter accuracy
Model evaluation	High R^2, cross-validation test for predictive relevance, jack-knifing or bootstrapping for significance test	Goodness of fit (overall model fit, e.g. insignificant x^2)
Model complexity	Large complexity (e.g. 100 constructs and 1000 indicators)	Small to moderate complexity (e.g. fewer than 100 indicators)
Model identification	No identification problem	Potential identification problem
Sample size	10 times the largest number of predictors in the model	At least 150-200 cases

(Source: Chin and Newsted 1999)

The decision of whether to use PLS or the covariance-based approach can be made based on the objectives of the research project. In this research, the PLS approach is preferable because of the suitability of the technique to the nature of this study. PLS provides better prediction capability and it can be used for analysis of a high complexity model with small sample sizes compared to the large number of independent variables. In addition, it has no requirement of a normal distribution assumption which suits the nature of the data collected. The PLS software used in the research is PLS-Graph (Version 3.00) developed by Wynne Chin, which is widely used in IS research. The next section provides further discussion on the detailed characteristics of PLS.

3.6.2 Formative and reflective indicators

The latent variables (LVs) in PLS can be modelled as either reflective or formative indicators. Reflective indicators are commonly used to measure LVs in SEM analysis. For this research, all the first order indicators are modelled reflectively. Yue (2004) asserts that reflective indicators are similar to factor analysis to a certain degree. The reflective indicators affect the LV by the same underlying concept. Consequently, the

changes in a reflective indicator should operate in the same direction as the other indicators under the same LV; in other words, the changes should be correlated and covaried. The effectiveness of the reflective indicators to measure the LV can be assessed by loading scores. Generally, each loading score will determine the correlation level between indicator and the component score of the LV. Thus, the loading score can determine the contribution of each reflective indicator to the relevance of its LV. High loading scores for indicators demonstrate strong relationships in terms of shared variance with the LV.

According to Chin (1998), formative indicators were first introduced by Blalock in the year 1964 to measure the form, or cause the creation of, or change in an LV. In contrast to reflective indicators, formative indicators do not assume that each indicator under the relevant LV needs to have the same underlying concept. Chin (1998) gives examples of formative measures beer, wine, and hard liquor consumed as indicators of mental inebriation, while reflective indicators would be blood alcohol level, driving ability, MRI brain scan, and performance on mental calculations. Figure 7 illustrates the graphic form of the formative indicators in which the arrows point toward the LV. In addition, Figure 8 illustrates the graphic form of the reflective indicators in which the arrows point out from the LV. For the reflective indicators, the improvement of blood alcohol level measurement in an individual would also imply the improvement of the MRI brain scan. On the other hand, a change in formative indicator, for example, increase in beer consumption, does not imply an increase in wine consumption. Consequently, the formative indicators need not have the high internal consistency level such as Cornbach's alpha, but the weight score of each indicator would be more appropriate to measure its contribution to the development of the LV. In other words, the strong correlation between each formative construct would reflect the multicollinearity problem.
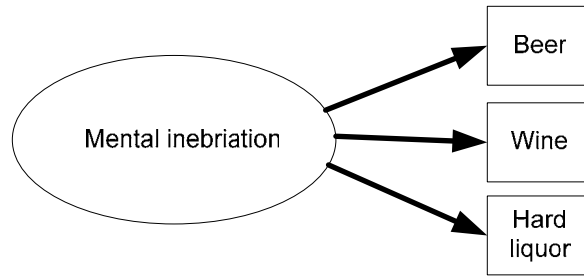
Figure 7 Reflective indicators

(Source: Figure based on data from Chin 1998)
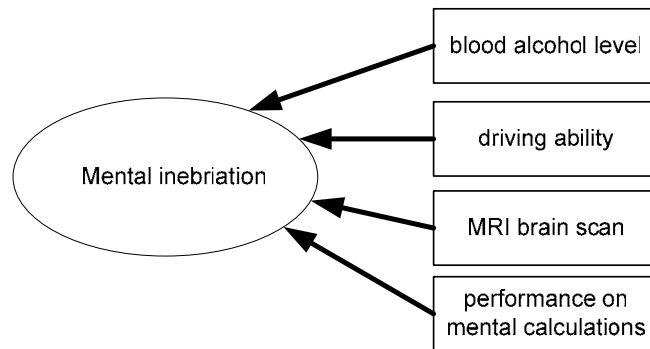
Figure 8 Formative indicators

(Source: Figure based on data from Chin 1998)

3.6.3 Second order factor models

Advanced structural modelling can be presented in second order factor models. Chin (1998) asserts that such models consist of high order LV that are modelled as causally impacting a number of first order factors. While the first order factors refer to the standard factors with measured indicators, the second order factors are not directly connected to any measured items. A second order factor model is suitable when conceptual models are at a higher level of abstraction and reflect the first order factors (Chin 1998; Rindskopf and Rose 1988). Chin and Gopal (1995, p.49) contend that the second order factor is used as a link to what they describe as "the first order level beliefs".

Modelling a second order factor can be done by using the molar or molecular approaches (Chin and Gopal 1995), which are illustrated in Figure 9 (Chin 2006d). These two approaches underline the assumption that the second order is directly measured by the observed variables for all the first order factors that are measured with reflective indicators. Chin and Gopal (1995) recommend that to choose the appropriate approach, one needs to consider whether the first order LVs are viewed as causes or as indicators of the second order LVs. Chin and Gopal (1995, p.58) assert that "if a change in one of the first order factors necessarily results in similar changes in the other factors, then a molecular model is appropriate". The molecular approach hypothesises "that an overall latent construct exists and is indicated by the first order beliefs" (Chin and Gopal 1995, p.49). In contrast, the molar approach suggests that the first order factors are not necessarily correlated. To recapitulate, for the molecular approach, the relationship between the first order constructs and the second order constructs is of a reflective nature, while the molar approach leans towards the formative nature.
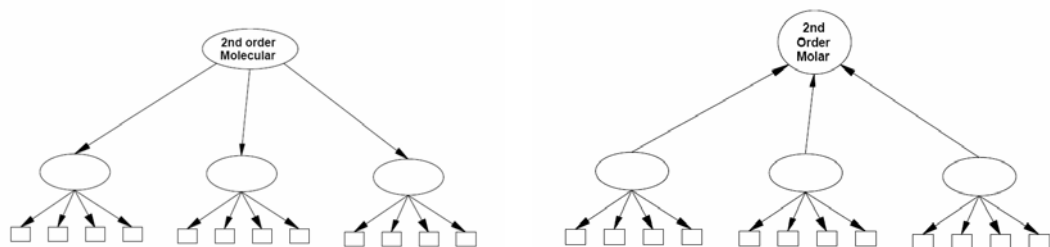
Figure 9 Second order Molecular and Molar approach
(Source: Chin and Gopal 1995)

Considering the proposed research model discussed in section 2.7.2, modelling the second order factor seems to be appropriate for SEM analysis. The second order factor mediates the relationship of the first order factors when applied in a theoretical model. In this case, for example, *cultural fit* is set as the second order factor and *personal relationships*, *long-term relationships*, *interorganisational trust*, *ability to communicate in the English language* and *materialism* are the first order factors. This applies to TTF, the readiness of technical infrastructure and the nature of business relationships as the second order factors. The relationship between the second order factors and the first order factors is designed in a formative nature. Thus, the molar approach is adopted. All

the first order factors in relation to the relevant second order factors were tested and no multicollinearity problem was found. The detailed analysis will be discussed in Chapter 4.

3.6.4 Operationalisation of the research model by PLS

From the above discussion on analysis with PLS, the operational model of B2B technology adoption in Thailand is presented. The operational model is derived from the proposed theoretical research model presented in Chapter 2. Figure 10 illustrates the operational model of this research. The operational model is formed to execute the SEM analysis in PLS. In addition, the second order factor model is introduced to better analyse the theoretical conceptual model.
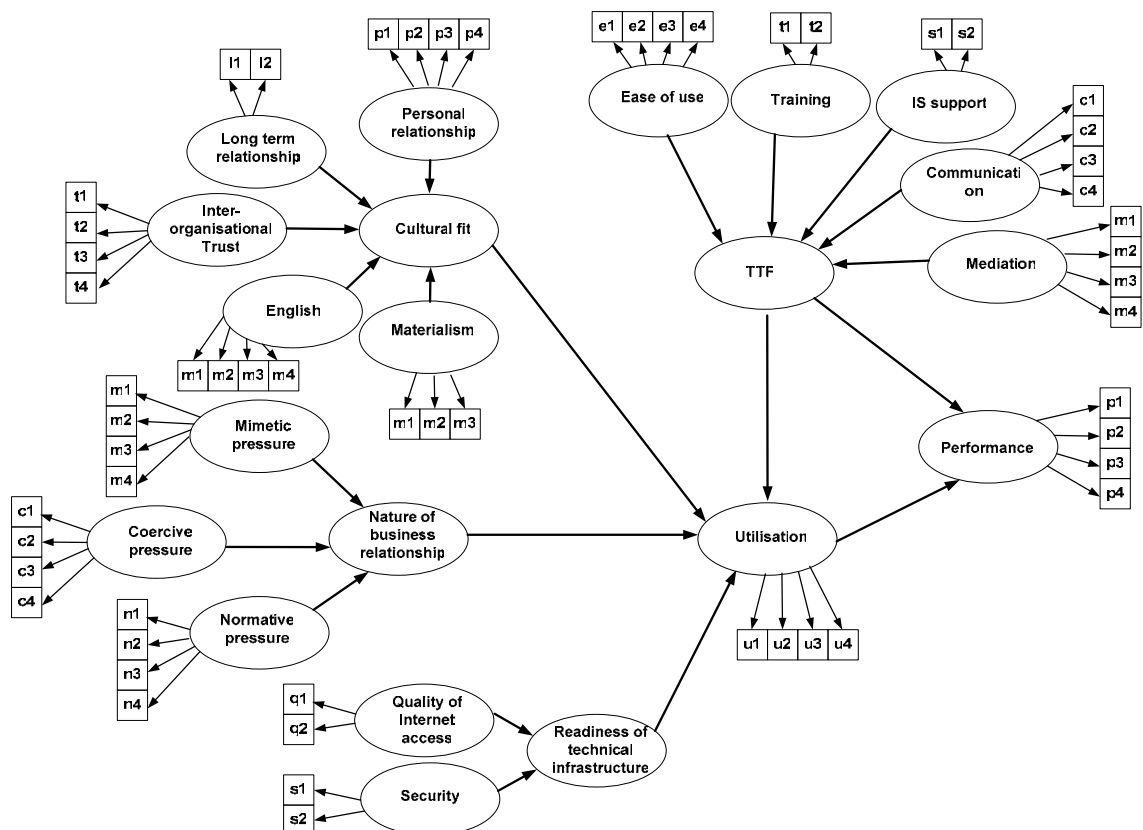
Figure 10 The operational research model in PLS

3.6.5 PLS model evaluation

This section provides discussion of the evaluation techniques of the PLS model adopted by this research. PLS makes no differentiation in distributional assumptions, other than predictor specification. Wold (1980, 1982) argued that use of the PLS approach should apply prediction-oriented measures that are also non-parametric. Several techniques are implemented to serve this purpose. The broad categories of the PLS model evaluation can be expressed as: assessing the structural model and the measurement model. For the structural model, techniques such as R-square, path coefficient, bootstrapping, direct and indirect effect, and moderating effect are discussed; while assessing the measurement model aims to ensure the validity and reliability of the model. The assessment techniques include loadings and weights, composite reliability, average variance extracted and cross loading.

3.6.5.1 R-square

In assessing PLS, we can start by looking at the R-square value for each dependent LV provided by PLS for the structural model (Chin 1998, 2006a, 2006b, 2006c). R-square is important to determine the predictive ability of the model. The interpretation of the R-square is equivalent to traditional regression. In addition, the change in R-square can also be further explored to investigate the impact of a particular independent LV on a dependent LV. This technique, known as *effect size* (f^2), can be calculated as:

$$f^2 = \frac{R^2_{included} - R^2_{excluded}}{1 - R^2_{included}}$$

As in Cohen (1988) and Cohen and Cohen (1983), the power of f^2 can be viewed as an indicator for whether a predictor LV has a small, medium or large effect at the structural model. f^2 is determined by the change of R^2. The difference in R^2 values allows us to determine the substantive impact of the construct. Where $R^2_{included}$ is the R^2 of the dependent construct when the particular independent construct is used in the model;

$R^2_{excluded}$ is calculated when the same independent construct is removed from the model.

3.6.5.2   Path coefficients

The corresponding standardized path estimates can be examined and interpreted in the same manner as the path coefficients in regression. The path estimate indicates the statistic strength between the LVs. All the path coefficients between the research constructs can be expressed in a standardised form to permit comparison of the relative strength (Yue 2004). The significance of the path coefficients will be checked by using bootstrapping, which is one of the resampling techniques.

3.6.5.3   Bootstrapping

A resampling procedure is used to examine the stability of estimates (Chin 1998, 2006a, 2006b, 2006c). The well known resampling techniques in PLS are bootstrapping and jackknife. This research adopts the bootstrapping technique because it is viewed as more efficient than the jackknife technique because it can be considered as an approximation to the bootstrap (Chin 1998). Bootstrapping is a non-parametric approach for estimating the precision of the PLS estimates (Chin 1998, 2005). Bootstrapping generates a certain number of subsamples by randomly choosing a case from the original data set (Yue 2004). Chin (1998, p.320) explains this technique as follows: "*N* samples sets are created in order to obtain *N* estimates for each parameter in the PLS model. Each sample is obtained by sampling with replacement from the original data set." The total number of subsamples needs to be defined by users in a PLS-Graph. This research chooses a set 500 as recommended by Wynne Chin to generate subsamples (Chin 2006e). Once the bootstrapping is generated, the standard errors can be obtained to indicate the significance level of the path coefficient. The standard T-statistic criteria (>1.65 significance level at 0.05; >2 significance level at 0.01) are applied to assess the significance level (Yue 2004).

3.6.5.4   Direct and indirect effect

The analysis of the relationship between LVs in the structural equation models can be investigated for both direct effect and indirect effect. The *direct effect*, which is the building block of structural equation models, is a directional relation between two variables. This type of relationship can be evaluated by typical ANOVA or multiple regressions. Within a structural model, each direct effect characterises the relation between an independent and a dependent variable, while the *indirect effect* is the effect of an independent variable on a dependent variable through one or more intervening or mediating variables (Hoyle 1995). The example of the simplest indirect effect involves two direct effects. For instance, if *x* has a direct effect on *y*, and *y* has a direct effect on *z*, then *x* is said to have an indirect effect on *z* through *y*. The sum of direct and indirect effects of an independent variable on a dependent variable is termed the *total effect* of the independent variable (Hoyle 1995).

In this research, the direct and indirect effects are investigated to further explore the relationship among LVs. Besides the direct effect, all the first order constructs will be calculated for the indirect effects. The effect of first order constructs on dependent variables, which are *utilisation* and *performance*, through mediating variables, which is the second order construct in this case, will be investigated.

3.6.5.5   Moderating effect

Although the moderating effect is not formally hypothesized, PLS allows the researcher to explore further patterns in the relationship among LVs. The objective of the moderating effect is to investigate the effect of the predictor variable on the dependent variable when moderated by the moderating variable. The theoretical model of moderating effect is illustrated in Figure 11. To create the moderating effect, the LVs are set to predictors, moderators and dependent variables.
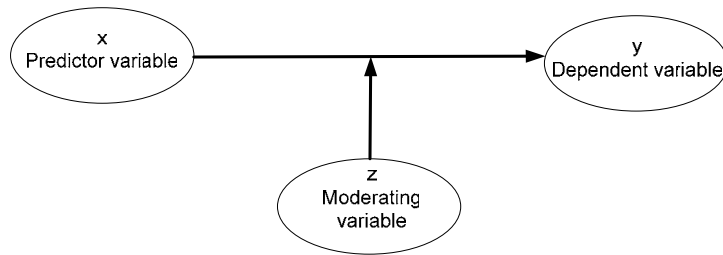
Figure 11 Conceptual interactive model

(Source: Adapted from Chin, Marcolin and Newsted 2003)

The moderating effect cannot be measured directly. In PLS, moderating effect is calculated by multiplying the latent score of the predictor variable and the moderating variable. The latent score can be obtained by the bootstrapping procedure (Chin et al. 2003). The implementation of the conceptual interactive model in PLS is graphically depicted in Figure 12. In this research, further exploration is made of the relationship of the second ordered constructs of cultural fit as predictor variables, utilisation as a dependent variable and TTF as a moderating variable, and this will be further discussed in Chapter 4.
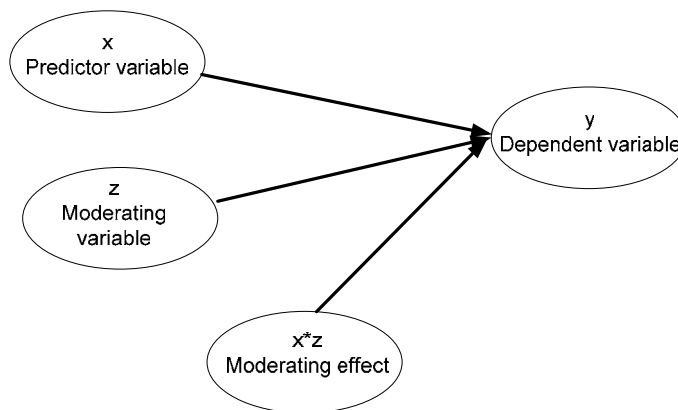
Figure 12 Interactive model by PLS

(Source: Adapted from Chin et al. 2003)

3.6.5.6   Loadings and weight

The importance of indicators to their relevant LV can be assessed by PLS loadings and weight score. Generally, the loading score is suitable for interpreting the effects of reflective indicators, while the weight is more suitable for formative indicators. The loading score indicates the proportion of the amount of variances in the indicators for which LVs are accountable. In other words, loadings can be used to measure how well reflective indicators reflect their LVs (Yue 2004). Similar to factor analysis, the loading is expected to be close to 1. Chin (1998) suggests the rule of thumb that standardised loadings should be more than 0.707, which indicates that the indicators overlap at least 50 percent with their LVs. Similarly, the extent to which each formative indicator contributes to the development of the relevant construct can be indicated by weight score. In addition, the significance of the loadings and the weight can be obtained from bootstrapping.

3.6.5.7   Composite reliability

The composite reliability is used to test the internal consistency for the reflective constructs. Composite reliability as calculated by PLS is similar to Cronbach's alpha, however, without the assumption that all indicators are equally weighted (Chin 1998; Yue 2004). Chin (1998) recommends that the composite reliability should be more than 0.7. The composite reliability score can be obtained from the output of the bootstrapping procedure.

3.6.5.8   Average variance extracted

Average Variance Extracted (AVE) is used to measure discriminant validity and reliability. Discriminant validity addresses the potential problem of having measures for one construct overlapping another. Fornell and Larcker (1981) suggested that this can be evaluated by comparing the AVEs of the latent variables and the correlations among the LVs. The AVEs of the latent variables should be greater than the square of the

correlations among the LVs; and this indicates that more variance is shared between the LV component and its block of indicators than with another component representing a different block of indicators. In other words, the square root of AVE should be greater than the correlations among the LVs. In addition, Fornell and Larcker (1981) also suggested that AVE can be used to indicate the reliability of the LV component score. It is recommended that AVEs should be greater than .50 which means that 50 percent or more variance of the indicators should be accounted for (Chin 1998).

3.6.5.9 Cross-loadings

Another test of discriminant validity can be obtained by cross-loadings. The cross-loadings procedure is not available in the PLS-Graph version 3.0. The calculation of cross-loadings can be obtained by manually calculating the correlations between LV component scores and other indicators besides their own respective LVs (Chin 1998, Yue 2004). In other words, one should expect each block of indicators to load higher for its respective LV than indicators for other LVs. Furthermore, the results of the cross-loadings, which were calculated manually by the researcher and were then compared to the results generated by the PLS-Graph (forthcoming version) given by Wynne Chin (Chin 2006e).

3.7 Conclusion

This chapter presented discussion on the unit of analysis, which is the Thai tourism industry, and the stages of research design which was divided into three main phases: 1) Phase I: A preliminary study to identify the dimensionality of Thai business culture 2) Phase II: Main study-Data collection and the development of the survey questionnaire and 3) Phase III: Main study-Data analysis with PLS. Detailed discussion of each phase was presented. The preliminary study on the Thai tourism industry to identify the dimensionality of Thai business culture was discussed. In addition, the contributions of the preliminary study to the direction of this research were clarified. Various techniques on the development of the survey questionnaire and data collection were discussed. The

methodology associated with Structural Equation Modeling (SEM) with Partial Least Squares (PLS) for data analysis was fully discussed. In addition, the operational research model in PLS, which was derived from the proposed research model in Chapter 2, was presented. In the next chapter, the results from SEM analysis are discussed.

CHAPTER 4 RESULTS

4.1 Introduction

This chapter presents the empirical results of the application of the operational model using techniques discussed in the previous methodology chapter. First, the analysis of the characteristics of the sample is presented. Then, the results of the preliminary analysis of data are introduced. This is followed by discussion of the evaluation of the measurement model. Finally, the assessment of the structural model is presented and the research hypotheses are analysed.

4.2 Analysis of survey responses

4.2.1 Response rate and geographical distribution of participating organisations

The survey was conducted between October 2005 and February 2006. A letter of support from the Tourism Authority of Thailand (TAT) accompanied the survey (see Appendix F). 993 postal survey questionnaires were sent to 331 companies across Thailand inviting them to participate in this study. The 331 companies represented the total population of the companies registered with the Thaitravelmart.com at the time of the study. Each company received three surveys to distribute to those employees who were responsible for using e-mail and e-marketplace to communicate with the company's trading partners. Over a five month period, 111 responses were received: three were invalid and two were duplicated and therefore excluded. An invalid response refers to a totally blank or empty questionnaire or mostly missing values. Overall, 107 valid and unique responses were collected, giving a response rate of 18.42 percent based on 61 out of the 331 companies and 10.76 percent based on the 993 questionnaires distributed.

Although e-mails and phone calls to companies were conducted to follow up and to increase the response rate, the response rate of the survey was quite low due to many reasons. One of the reasons for the low response rate was the impact of the tsunami in Thailand on 26 December 2004. The Thai tourism industry suffered a major setback, due to the panic created by this unpredictable disaster. In particular, the tsunami had a major impact on Southern Thailand, for example, on Phuket, which is one of the main tourist destinations, and a primary source for the empirical data collection. This problem persisted throughout 2005. Tourism companies in Thailand were still struggling to get on with business after the impact of the tsunami. Some of the companies closed down and the researcher received about seven returned surveys indicating invalid addresses. Furthermore, the difficulty in collecting the survey questionnaires may have been due to the laid-back and non-aggressive nature of Thai culture (Komin 1991). As observed by the researcher, Thai companies did not feel enthusiastic about responding promptly to the survey and this cultural tendency contributed to the slow and low response rate.

Figure 13 illustrates the distribution of responses by regions. The surveys were sent across all regions of Thailand. Thailand is divided into five regions: Central, Northern, North Eastern, Eastern and Southern. The majority of the respondents (44.3 percent) were from the Southern region, followed by Central (23.6 percent), Northern (17 percent) and North Eastern (14.2 percent).
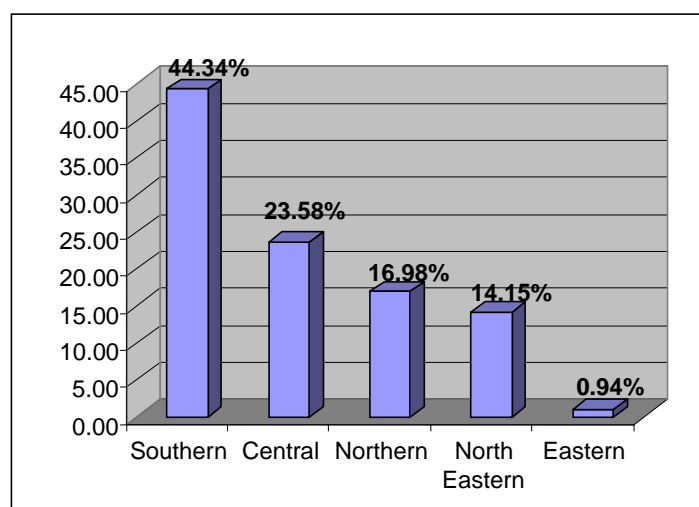
Figure 13 Distribution of responses by geographical regions

4.2.2 Descriptive statistics of participating organisations

Table 14 presents descriptive information about the respondent firms.

Table 14 Descriptive information about respondent firms

		n	Frequency (%)	Mean
Type of Organisation	Travel agents	28	26.2	
	Hotels and Resorts	60	56.1	
	Theme Parks	2	1.9	
	Restaurants	7	6.5	
	Spas	6	5.6	
	Rental Transportation	1	.9	
	Health Care	2	1.9	
	Golf courses	1	.9	
Size of companies	Small (1-50 employees)	55	51.4	
	Medium (51-200)	41	38.3	
	Large (>200)	11	10.3	
Mean Number of employees	Small			20
	Medium			127
	Large			459
Annual revenue (Baht)	Small			12,235,433
	Medium			59,300,024
	Large			34,949,210
	Total			**106,484,668**
Investment in IT (Baht)	Small			179,076
	Medium			666,492
	Large			862,629
	Total			**1,708,198**
Ownership of companies	Locally owned	98	91.6	
	Foreign owned	1	0.9	
	Joint venture	8	7.5	
Target Suppliers	Thailand	36	33.6	
	Overseas	47	43.9	
	Both	23	21.5	
	No response	1	0.9	
Target Customers	Thailand	71	66.4	
	Overseas	19	17.8	
	Both	12	11.2	
	No response	5	4.7	
Number of Computers	1-50 computers	104	97.2	
	More than 50 computers	3	2.8	
Number of Computer with Internet access	1-50 computers	106	99.1	
	More than 50 computers	1	0.9	
LAN connection	Companies with LAN	78	72.9	
	Companies without LAN	27	25.9	
	Missing	2	1.9	
EDI adoption	Companies with EDI	100	93.5	

		n	Frequency (%)	Mean
	Companies without EDI	6	5.6	
	Others	1	0.9	
Type of Internet access	Dialup	48	44.9	
	Broadband	53	49.5	
	Satellite	4	3.7	
	Others	2	1.9	
IT usage	Number of years of experience with e-marketplace			2.33 (years)
	Number of years of experience with e-mail			4.22 (years)
	Number of hours using e-marketplace			4.00 (hours/day)
	Number of hours using e-mail			4.60 (hours/day)
	Number of email sent in a day			15 (emails)
Website	Companies with website	13	12.1	
	Companies without website	93	86.9	
	No response	1	0.9	
How often is it updated?	Daily	2	3.4	
	Once a week	4	11.5	
	Once a month	53	37.9	
	Less than once a month	48	47.1	
How is the website being used?	Information only	44	41.1	
	Advanced eg. Online booking	48	44.9	
	No response	15	14.0	

(n=107)

TAT categorises the tourism companies into nine sectors: Travel agents, Hotels and Resorts, Theme Parks, Restaurants, Spas, Rental Transportation, Healthcare and Golf Courses. The respondents were from all the sectors. Over half of the respondents were from hotels and resorts (56.1 percent), followed by travel agents (26.2 percent). The majority of the respondents were from SMEs, 51.4 percent were small and 38.3 percent medium, while large organisations contributed 10.3 percent. In addition, the average number of employees in the small organisations was 20, in the medium organisations 127 and in the large organisations 459. In this research, the classification of SMEs complied with the definition of SMEs issued by the Ministry of Industry of Thailand on December 1987. Small-size companies have no more than 50 employees, while medium companies have more than 50 but no more than 200 employees. The findings confirmed the information provided by the IT Director of TAT, that SMEs are the major e-commerce adopters in the Thai tourism industry.

The average annual revenue and investment in IT were analysed by firm size. The average annual revenue in the small organisations was 12,235,433 Baht (407,847

AUD), in the medium organisations was 59,300,024 Baht (1,976,667 AUD) and in the large organisations was 34,949,210 Baht (1,164,973 AUD). In addition, the average IT investment in the small organisations was 179,076 Baht (5,969 AUD), in the medium organisations was 666,492 Baht (22,216 AUD) and in the large organisations was 862,629 Baht (28,754 AUD). It seemed clear that large organisations invested in IT more than SMEs.

Even though there was no restriction on the location of the companies for participation in the e-marketplace, only companies located in Thailand were selected for the survey. The majority (91.6 percent) of the respondent companies are Thai locally owned. The rest are joint ventures (7.5 percent) and foreign owned (0.9 percent). Interestingly, the results suggest that 66.4 percent of the respondents have their main customers in Thailand and 17.8 percent overseas. While 33.6 percent of the respondents indicate that their suppliers are in Thailand and 44.9 percent overseas.

The level of IT adoption of the companies was also investigated. The majority of the companies (97.2 percent) had between 1-50 computers. Only 2.8 percent of the companies had more than 50 computers. In addition, the results of cross tabulation analysis between firm size and number of computers indicated that only large size organisations had more than 50 computers. Furthermore, almost all the companies (99.1 percent) had Internet access. About half (49.5 percent) of the Internet access type was broadband and 44.9 percent was dialup. 74.3 percent of the companies had a LAN connection. Moreover, 93.5 percent of the companies indicated that they did not have Electronic Data Interchange (EDI). In addition, the full definition of EDI was addressed in the survey questionnaire (see Appendix C and D).

The average number of years of experience of using email was four years and experience in using e-marketplace was two years. In addition, 86.9 percent of the companies indicated that they have business websites. 41.1 percent of these websites provided information about companies and services only, while 44.9 percent provided advanced features such as online booking. Apparently, 47.1 percent of these websites were updated less than once a month, followed by 37.9 percent being updated once a month. Only 3.4 percent of the companies updated their websites on a daily basis.

4.2.3 Descriptive statistics of individual respondents

Table 15 presents the descriptive statistics of the individual respondents.

Table 15 Descriptive information about individual characteristics

| | | Frequency | | |
		n	(%)	Mean
Role	Sales and Marketing	41	38.8	
	Human resource	4	3.7	
	IT	4	3.7	
	Accounting	6	5.6	
	General manager/Owner	39	36.4	
	Others	13	12.1	
Gender	Males	47	43.9	
	Females	33	30.8	
	No response	27	25.3	
Level of education	High school	6	5.6	
	College	19	17.7	
	Undergraduate	66	61.7	
	Postgraduate	16	15	
Mean years of experience with companies				4.75 (years)
Mean IT usage	Number of hours using e-marketplace			2.90 (hours/day)
	Number of hours using e-mail			3.29 (hours/day)
Mean level of IT related skills and experiences	Number of years using PC			9.05 (years)
	Number of years using Internet			5.92 (years)
	Knowledge/skills with e-mail			3.34
	Knowledge/skills with e-marketplace			2.48

(n=107)

These respondents were responsible for using email and e-marketplace in their companies, to communicate with trading partners. The sample included 43.9 percent males (n=47) and 30.8 percent females (n=33), with 25.3 percent (n=27) missing values. The respondents were asked to indicate their positions and business titles. As expected, the majority of the respondents described themselves as sales/marketing executives and general managers/owners with 38 percent and 36 percent respectively. Only a few described themselves as accounting, computer and human resources staff. Average tenure was 4.75 years. The minimum was one year and the maximum was 20 years. Over 75 percent of the respondents had been working with the companies between one and five years.

In addition, respondents were asked to nominate their level of education. Figure 14 shows the level of education distribution of the respondents across size of organisations. More than half (61.7 percent) of the respondents had a bachelor degree qualification; 15 percent of the respondents had a postgraduate qualification; and 17.7 percent had a college degree (Vocational Education and Training). Very few respondents (5.6 percent) had only high school education. Cross tabulation analysis revealed that all respondents from large organisations had a minimum of college education.

	High School	College	Undergraduate	Postgraduate
■ Small	5.66%	16.98%	64.15%	13.21%
■ Medium	7.69%	17.95%	56.41%	17.95%
□ Large	0.00%	18.18%	63.64%	18.18%
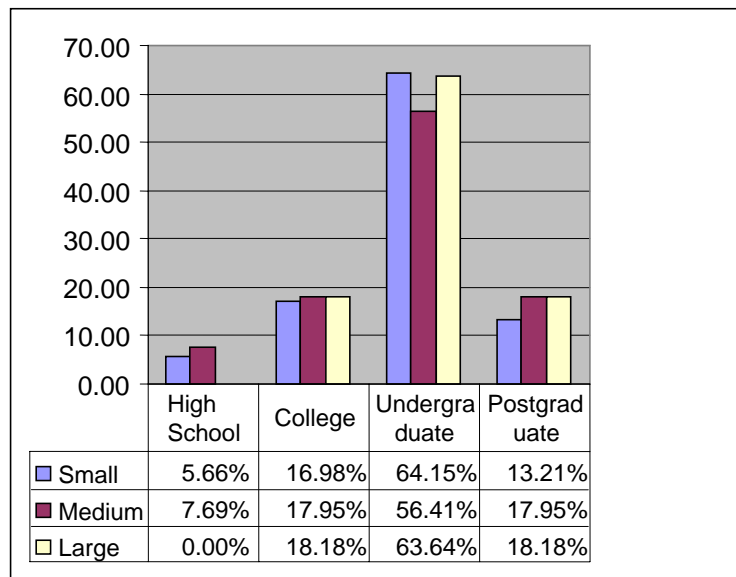
Figure 14 Distribution of educational level and organisation size

The level of IT related skills and experience of the respondents was also investigated in the survey. Respondents had a minimum of two years experience in using PCs and a maximum of 25 years. The mean years of experience in using PCs is nine years, while the mean in using Internet was about six years. In addition, respondents were asked to rank their knowledge/skills with e-mail and e-marketplace using a five-point Likert scale (1=none to 5=very familiar). Overall, the respondents perceived more knowledge and experience in using e-mail than the e-marketplace. They indicated that they felt somewhat familiar (3.34) with using email, while they related themselves as novices (2.48) in using e-marketplace. E-mail was introduced to Thailand prior to e-marketplace.

4.2.4 Qualitative comments from respondents

In the survey, respondents were encouraged to describe in two separate questions the ways in which their company commonly use e-mails and e-marketplace. The comments were analysed using content analysis and the types of use were categorised into seven categories as shown in Figure 15. These categories are: finding general information; inquiring & communicating with trading partners; negotiation and bargaining; reservations, purchasing and confirmations; ticket production; feedback and suggestions; marketing and promotion.
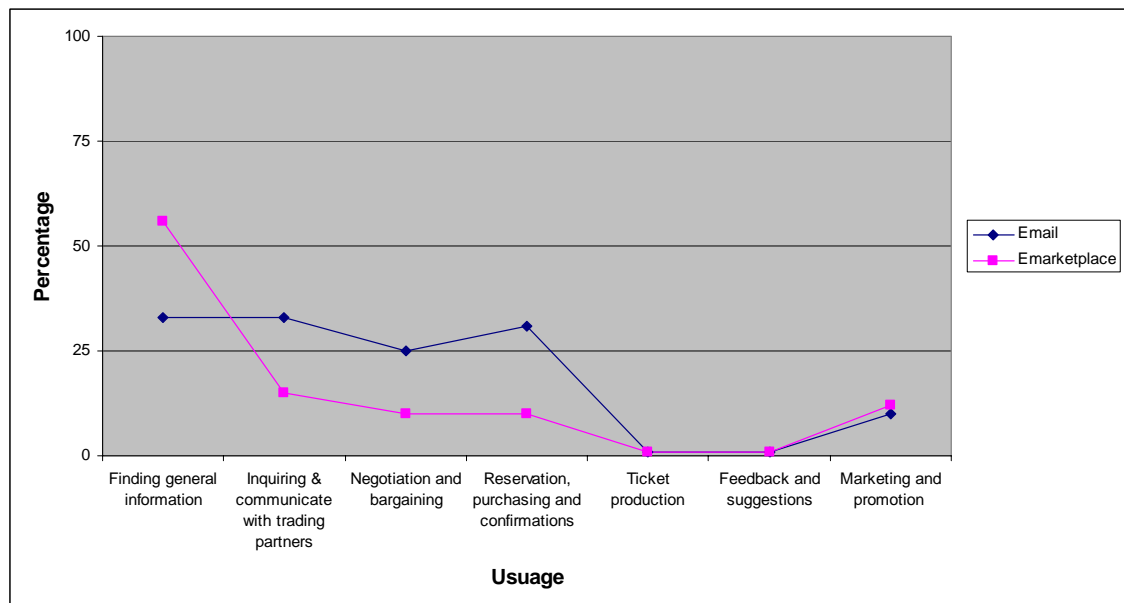
Figure 15 Levels of use of e-mail and e-marketplace

Comments from the respondents revealed that the patterns of usage of e-mail and e-marketplace were somewhat similar. Respondents described the use of e-mail and e-marketplace for inter-firm communication, for example, including finding information about trading partners and competitors, but not for transaction purposes. Thus, it can be suggested that the use of both applications in this research context is for B2B communication, not B2B transaction as discussed in Chapter 2.

4.3   Preliminary analysis

4.3.1 Missing value analysis

A preliminary analysis of missing data was carried out to produce clean data for the structural model analysis. The input data matrix for testing the operational model contains 107 cases and 83 indicators for each case, in total 8881 data points. Among these cases and indicators, approximately 2.0 percent had missing values. All the missing values appeared in quantitative (ratio) scales rather than in nominal scales. Most of the missing values are from the indicators for utilisation and IS support with a missing rate of 17 percent and 10 percent of the 107 cases respectively. According to the knowledge gained by the researcher during the preliminary interviews, the possible reasons for this could be that the respondents did not keep track of this information. Furthermore, no extreme case was found in these cases. The results revealed that missing values had occurred in a random manner.

The Expectation Maximization (EM) approach was selected for further missing values analysis (Pallant 2005). The EM approach uses the estimation of the means, the covariance matrix, and the correlation of quantitative variables with missing values, using an iterative process. According to Pallant (2005), this method is generally superior to listwise, pairwise, and mean substitution approaches. The missing values were replaced by the means calculated by the EM algorithm.

4.3.2 Descriptive analysis

The mean, standard deviation, variance, minimum value, and maximum value for each indicator in the input data were obtained through descriptive statistics in SPSS. Appendix G outlines the descriptive statistics by constructs showing sufficient range and variance. The frequency distribution for each indicator was also checked. Most of the indicators are not normally distributed, but skewed to the left. However, this has not created any problems for this study because PLS makes no distributional assumption (Chin 1998).

4.3.3 Multicollinearity analysis

The multicollinearity analysis was employed to test the collinearly of the relationship between the first order constructs and the second order constructs, which had a formative relationship. As discussed in Chapter 3, this research adopts the molar approach to create the secondary constructs, which are cultural fit, TTF, readiness of technical infrastructure and nature of business relationships. All the first order constructs were set as the latent variables, and tested for the potential multicollinearity problems. Multiple regressions in SPSS were used, where all the latent variables of the first order constructs were defined as independent variables. In regression results, Variance Inflation Factor (VIF) and a condition index were used as indicators of multicollinearity among these independent variables. Large VIF values (greater than 5) or a condition index greater than 15 indicates a possible problem with multicollinearity. If the VIF is greater than 10 and the condition index greater than 30, this indicates a serious problem (Pallant 2005). As shown in Appendix H, the VIF values of the latent variables in this study were less than 5 and their corresponding condition indices were all less than 10. From this test, it can be concluded that there was no multicollinearity problem among the first order constructs in this study. Thus, the subsequent results presented in the next section are reliable.

4.4 Evaluation of measurement model

To ensure the accuracy of the structural model analysis, the validity and reliability of the scale development needs to be tested (Churchill 1979). The validity test of the scale was conducted to evaluate the degree to which it measures what it is supposed to measure (Pallant 2005). Content validity and construct validity testings were conducted. Secondly, to establish the reliability of the measurement, internal consistency testing was performed (Cronbach 1971).

4.4.1 Content validity

Content validity refers to the extent to which a measure represents all facets of a given social concept. An instrument valid in content is one that has drawn representative questions from a universal pool (Pallant 2005). With representative content, the instrument will be more expressive of the true mean than one that has drawn idiosyncratic questions from the set of all possible items. Bias generated by an unrepresentative instrument will carry over into uncertainty of results. A content-valid instrument is difficult to create and perhaps even more difficult to verify because the universe of possible content is virtually infinite. Cronbach (1971) suggests a review process whereby experts in the field familiar with the content universes evaluate versions of the instrument again and again until a form of consensus is reached.

For this research, content validity was examined to ensure that the survey instrument was valid in content. First, the interviews were conducted with the government officials and tourism organisations to gain understanding of all the possible cultural issues that impact the adoption of B2B technology in Thailand. Second, the interviews were analysed to reach a consensus of the issues in the Thai tourism industry. Then, the cultural fit conceptual dimensions were developed and the survey was developed based on this foundation. Third, the experts in the fields, who were the government representatives, the Thai-Australian cultural expert and a representative from the industry, were asked to review and comment on the survey before the pilot test was conducted. Fourth, the instrument was translated into the Thai language and then a back translation technique was used to ensure the accurate meaning of the original content as recommended by Brislin (1970). The survey was created in the English language and translated into the Thai language. Then, it was translated from Thai into English again. These translation processes were done by five bi-lingual experts from academe and industry (as mentioned in Chapter 3) and compared by the researcher.

4.4.2 Construct validity

Construct validity is in essence an operational issue. Peter (1981, p.134) asserts that generally construct validity is referred to as "the vertical correspondence between a

construct which is at an unobservable, conceptual level and a purported measurer of it which is at an operational level". Straub (1989) adds that construct validity addresses the issue of whether the measures chosen are true constructs describing the event or merely artefacts of the methodology itself. The valid construct should contain relatively high correlations between measures of the same construct.

The issues in construct validity occur in two major ways: Convergent validity and Discriminant validity (Peter 1981). Bogazzi (1981, p.375) describes the notion of convergence in measurement that "measures of the same construct should be highly intercorrelated among themselves and uniform in the pattern of intercorrelation". According to Campbell and Fiske (1959), convergent validity represents the degree to which two or more indicators attempt to measure the same concept. In addition, Peter (1981) asserts that discriminant validity should be examined to ensure that a measure does not correlate very highly with another measure from which it should differ. In other words, in the presence of other scale items for other constructs, the scale items in constructs being compared do not move in the same direction (for reflective measures) and, thus, do not highly correlate (Bogazzi 1981; Campbell and Fiske 1959; Peter 1981). If the lack of correlation is as expected by the formulation of these constructs, then we can say that we have established discriminant validity.

It is noted that the discussion about the validity of the pilot study in Chapter 3 was based on the result of exploratory factor analysis performed by SPSS. To ensure the validity of the data collected in the main study, the following section presents the confirmatory factor analysis using PLS. As mentioned in Chapter 3, Chin (1998) discussed the PLS techniques to ensure the construct validity by examining 1) the loadings and weight, 2) cross-loadings, and 3) AVE.

4.4.2.1 Loadings and weight

All the first order constructs in this research are reflective indicators. The bootstrapping procedure was generated to obtain the PLS loading, weight and T-statistics. Chin (1988) suggests that the loading should be greater than 0.707. A loading of 0.5 or 0.6 may still

be acceptable in the early stage of scale development. T-statistics for their path coefficient should be more than 1.645 for significance level at 0.05 and more than 2 for significance level at 0.01. Although the first order constructs are reflective, the weight of each indicator is presented to support the analysis. The weight allows us to determine the extent to which the indicator contributed to the development of the construct (Sambamurthy and Chin 1994). The model loadings and the weights are shown in the Table 16 and 17 below. Table 16 shows loadings for the measurement model.

Table 16 Loadings for measurement model

Construct and Items	PLS loadings	T-statistics	Significance level
Performance			
PERF1	0.9280	47.4829	0.01
PERF2	0.9127	32.739	0.01
PERF3	0.9424	55.3615	0.01
PERF4	0.9078	34.2872	0.01
PERF5	0.8649	24.9582	0.01
Utilisation			
EmailHour1	0.6227	4.3195	0.01
EmarHour2	0.8765	12.3202	0.01
EmailHour1	0.8443	9.5512	0.01
EmarHour2	0.7210	7.0547	0.01
Personal relationships			
PER3	0.8446	23.3452	0.01
PER5	0.8812	30.1924	0.01
PER7	0.8617	23.9416	0.01
PER2	0.7347	11.3888	0.01
PER6	0.8575	21.606	0.01
Long-term relationships			
LONG2	0.9651	13.9624	0.01
LONG3	0.9566	14.1233	0.01
Trust			
TURST1	0.8144	19.05	0.01
TURST2	0.8933	35.5178	0.01
TRUST3	0.8795	26.1431	0.01
TRUST4	0.8523	13.8249	0.01
Ability to communicate in the English language			
ENG2	0.8891	35.4548	0.01
ENG3	0.8891	22.3601	0.01
ENG5	0.9459	2.6497	0.01
ENG6	0.9420	67.1989	0.01
Materialism			
WEST1	0.7161	8.3879	0.01
WEST2	0.8955	36.474	0.01
WEST4	0.9119	51.48	0.01
Mimetic pressure			
MIMECTIC1	0.9251	55.0028	0.01

Construct and Items	PLS loadings	T-statistics	Significance level
MIMECTIC2	0.9508	71.5769	0.01
MIMECTIC3	0.9436	56.4184	0.01
MIMECTIC4	0.9312	52.7839	0.01
Coercive pressure			
COERCIVE1	0.9023	31.4476	0.01
COERCIVE2	0.9279	46.8451	0.01
COERCIVE3	0.8739	10.2878	0.01
COERCIVE4	0.7700	5.2722	0.01
Normative pressure			
NORMATIVE1	0.8729	28.851	0.01
NORMATIVE2	0.8996	37.5842	0.01
NORMATIVE3	0.8335	11.2181	0.01
NORMATIVE4	0.8156	10.5693	0.01
Quality of Internet access			
TEL3	0.9009	27.7271	0.01
TEL4	0.9017	40.4565	0.01
Security			
TEL5	0.9238	40.6215	0.01
TEL6	0.9122	22.5231	0.01
Ease of use			
EASE1	0.8037	22.2155	0.01
EASE2	0.7980	15.5798	0.01
EASE3	0.7562	10.3208	0.01
EASE4	0.6961	7.7419	0.01
Training			
TRNG1	0.9134	32.8701	0.01
TRNG3	0.8585	11.2944	0.01
IS support			
IS1	-0.9196	29.6392	0.01
IS2	-0.9340	52.0362	0.01
Communication			
CURR2	0.7875	14.1226	0.01
CURR1	0.8412	25.5567	0.01
GLOBAL1	0.8427	25.48	0.01
GLOBAL2	0.8349	21.4482	0.01
GLOBAL3	0.7919	17.8678	0.01
Mediation			
MED1	0.8883	27.6872	0.01
MED2	0.8722	21.3612	0.01
MED3	0.8324	8.358	0.01
MED4	0.8296	7.9499	0.01

Table 17 below shows the model weights and T-statistics for the measurement model.

Table 17 Model weights and T-statistics

Construct and Items	PLS Weight	T-statistics	Significance level
Performance			
PERF1	0.2203	16.8499	0.01
PERF2	0.2178	18.1609	0.01
PERF3	0.2339	15.8244	0.01
PERF4	0.2076	16.5179	0.01
PERF5	0.2172	11.9324	0.01
Utilisation			
EmailHour1	0.1656	1.2215	Not significant
EmarHour2	0.4117	4.3459	0.01
EmailHour1	0.3762	5.6294	0.01
EmarHour2	0.3029	3.1708	0.01
Personal relationships			
PER3	0.2357	15.3056	0.01
PER5	0.2514	16.1288	0.01
PER7	0.2526	15.7142	0.01
PER2	0.2104	9.0132	0.01
PER6	0.2416	11.2312	0.01
Long-term relationships			
LONG2	0.5479	2.7636	0.01
LONG3	0.4926	2.626	0.01
Trust			
TURST1	0.2580	9.8935	0.01
TURST2	0.2975	13.3273	0.01
TRUST3	0.3194	12.6331	0.01
TRUST4	0.2853	9.8832	0.01
Ability to communicate in the English language			
ENG2	0.2719	16.2263	0.01
ENG3	0.2520	12.3395	0.01
ENG5	0.2829	22.3202	0.01
ENG6	0.283	20.8625	0.01
Materialism			
WEST1	0.3341	4.6581	0.01
WEST2	0.4027	9.3395	0.01
WEST4	0.4388	11.2457	0.01
Mimetic pressure			
MIMECTIC1	0.2625	37.3287	0.01
MIMECTIC2	0.2686	40.5358	0.01
MIMECTIC3	0.2678	30.256	0.01
MIMECTIC4	0.2675	32.5634	0.01
Coercive pressure			
COERCIVE1	0.3175	6.4928	0.01
COERCIVE2	0.3193	6.9558	0.01
COERCIVE3	0.2794	6.1326	0.01
COERCIVE4	0.2248	3.1958	0.01

Construct and Items	PLS Weight	T-statistics	Significance level
Normative pressure			
NORMATIVE1	0.3346	6.8573	0.01
NORMATIVE2	0.3184	8.4378	0.01
NORMATIVE3	0.2907	5.3884	0.01
NORMATIVE4	0.2196	4.0837	0.01
Quality of Internet access			
TEL3	0.5537	22.0104	0.01
TEL4	0.5558	15.0644	0.01
Security			
TEL5	0.5631	12.9895	0.01
TEL6	0.5260	18.2733	0.01
Ease of use			
EASE1	0.3944	6.2622	0.01
EASE2	0.3734	6.5159	0.01
EASE3	0.2326	3.8467	0.01
EASE4	0.3005	5.6229	0.01
Training			
TRNG1	0.6271	6.8107	0.01
TRNG3	0.4976	5.0229	0.01
IS support			
IS1	-0.5136	13.1003	0.01
IS2	-0.5650	12.4017	0.01
Communication			
CURR2	0.2355	11.9139	0.01
CURR1	0.2707	14.2496	0.01
GLOBAL1	0.2436	15.3775	0.01
GLOBAL2	0.2487	13.4656	0.01
GLOBAL3	0.2197	12.4758	0.01
Mediation			
MED1	0.4118	5.2667	0.01
MED2	0.3372	5.3693	0.01
MED3	0.2187	3.1998	0.01
MED4	0.1904	2.541	0.01

According to the statistical results in Table 16, overall the condition of the loading scores was met in this study. Most of the items loaded higher than 0.707 with 99 percent of significance level. Only two items, Emailhour1 and EASE4 loaded in 0.6 ranges, but this is still in an acceptable range. The weight shows that indicators are somewhat important in shaping their constructs with 99 percent of significance level, except Emailhour1 which had a low weight on the utilisation. The cross-loadings procedure was calculated to confirm whether the indicators were to be dropped or kept.

4.4.2.2　Cross-loadings

Cross-loadings analysis was discussed in Chapter 3 and Table 18 below shows the results from the cross-loadings procedure by PLS. The results show a good loading among the items in each construct. Each indicator loaded higher with its corresponding latent variable. In other words, it was found that the loading in each block was higher than any other block in both vertical and horizontal lines. This implied that the latent component scores indeed predict each indicator in its block better than indicators in other blocks (Chin 1988). The loading clearly separated each latent variable as theorized in the conceptual level. Thus, it is confirmed that the validity criteria in this research have been met.

Table 18 Output of cross-loadings

	Performar	Utilisation	Personal	Longterm	Trust	English	Materialist	Memitic	Coercive	Normative	Quality of	Security	Ease of Us	Training	IS Suppor	Communi	Mediation
PERF1	0.928	0.09	0.017	0.535	0.074	0.203	0.3	0.362	0.224	0.425	-0.131	-0.254	0.401	0.313	0.35	0.533	0.263
PERF2	0.913	0.211	0.003	0.559	0.021	0.175	0.32	0.398	0.159	0.544	-0.176	-0.254	0.393	0.176	0.276	0.541	0.241
PERF3	0.942	0.236	-0.068	0.573	0.037	0.102	0.239	0.351	0.132	0.475	-0.036	-0.192	0.429	0.25	0.307	0.527	0.316
PERF4	0.908	0.086	0.03	0.549	0.038	0.051	0.218	0.307	0.151	0.46	0.008	-0.194	0.497	0.252	0.361	0.431	0.269
PERF5	0.865	0.143	0.036	0.594	0.038	0.052	0.201	0.329	0.195	0.395	-0.092	-0.328	0.548	0.279	0.295	0.421	0.309
EmailHou	0.009	0.623	-0.081	-0.229	-0.095	-0.219	-0.181	-0.14	-0.232	0.017	0.066	0.148	0.055	-0.099	-0.12	-0.164	0.032
EmarHour	0.189	0.877	-0.216	0.156	-0.094	-0.265	-0.168	0.063	-0.023	0.13	0.153	-0.023	0.06	-0.096	-0.148	0.058	0.083
EmailHou	0.121	0.844	-0.221	-0.074	-0.192	-0.254	-0.141	-0.116	-0.185	0.128	0.111	0.136	0.043	0.004	-0.182	-0.009	0.112
EmarHour	0.147	0.721	-0.251	0.018	-0.001	-0.05	-0.213	0.056	-0.041	0.08	0.214	-0.071	0.02	0.089	0.046	0.041	-0.033
PER3	-0.116	-0.3	0.845	-0.112	0.417	0.196	0.213	0.214	0.023	-0.031	-0.071	-0.144	0.102	0.014	0.236	-0.049	0.043
PER5	0.112	-0.102	0.881	0.115	0.444	0.173	0.266	0.191	-0.115	0.12	-0.217	-0.183	0.125	0.059	0.203	0.213	0.137
PER7	0.006	-0.243	0.862	0.055	0.471	0.217	0.213	0.183	0.008	-0.015	-0.176	-0.238	0.094	0.056	0.145	0.077	0.074
PER2	-0.07	-0.221	0.735	-0.068	0.424	0.145	0.187	0.272	0.077	-0.047	-0.095	-0.144	0.013	0.09	0.258	0.018	-0.077
PER6	0.061	-0.237	0.857	0.132	0.332	0.236	0.249	0.14	-0.183	0.053	-0.175	-0.221	0.023	0.123	0.257	0.19	0.023
LONG2	0.603	-0.039	0.062	0.965	0.123	0.139	0.461	0.409	0.293	0.351	-0.245	-0.334	0.397	0.286	0.302	0.699	0.287
LONG3	0.582	0.051	0	0.957	0.155	0.123	0.437	0.355	0.221	0.39	-0.268	-0.32	0.382	0.184	0.299	0.644	0.181
TURST1	0.044	-0.176	0.372	0.06	0.814	0.253	0.035	0.214	0.135	0.026	-0.067	-0.246	0.214	0.115	0.241	-0.013	-0.044
TURST2	0.142	-0.126	0.425	0.175	0.893	0.216	0.233	0.253	0.166	0.046	-0.121	-0.212	0.192	0.065	0.22	0.07	0.028
TRUST3	-0.053	-0.203	0.491	0.106	0.88	0.275	0.26	0.241	0.138	0.092	-0.197	-0.177	0.081	0.108	0.204	0.106	0.083
TRUST4	0.031	0.072	0.418	0.15	0.852	0.153	0.324	0.24	0.059	0.107	-0.158	-0.065	0.07	0.146	0.186	0.251	0.049
ENG2	0.163	-0.294	0.228	0.19	0.188	0.889	0.339	0.431	0.003	0.223	-0.252	-0.241	-0.078	0.108	0.128	0.344	0.15
ENG3	0.081	-0.214	0.227	0.035	0.19	0.889	0.192	0.312	-0.019	0.168	-0.139	-0.214	-0.181	0.236	-0.069	0.172	0.015
ENG5	0.103	-0.219	0.197	0.164	0.282	0.946	0.278	0.447	0.18	0.193	-0.269	-0.291	-0.08	0.162	0.106	0.196	-0.057
ENG6	0.122	-0.213	0.203	0.104	0.291	0.942	0.281	0.448	0.226	0.207	-0.226	-0.233	-0.103	0.137	0.036	0.256	-0.017
WEST1	0.464	0.051	0.208	0.492	0.262	0.102	0.716	0.375	0.193	0.482	-0.299	-0.384	0.338	0.173	0.328	0.401	0.129
WEST2	0.127	-0.332	0.204	0.316	0.18	0.325	0.896	0.395	0.184	0.241	-0.295	-0.219	-0.01	0.067	0.124	0.439	0.092
WEST4	0.17	-0.229	0.271	0.401	0.213	0.305	0.912	0.483	0.142	0.322	-0.334	-0.204	0.049	0.128	0.137	0.538	0.204
MIMECTIC	0.368	-0.073	0.267	0.389	0.297	0.508	0.457	0.925	0.389	0.325	-0.309	-0.442	0.236	0.248	0.407	0.391	0.116
MIMECTIC	0.388	-0.017	0.253	0.428	0.258	0.405	0.516	0.951	0.404	0.318	-0.268	-0.323	0.233	0.24	0.422	0.451	0.206
MIMECTIC	0.32	-0.027	0.19	0.326	0.242	0.397	0.459	0.944	0.37	0.365	-0.24	-0.275	0.245	0.273	0.293	0.383	0.176
MIMECTIC	0.364	0.027	0.175	0.354	0.238	0.375	0.427	0.931	0.387	0.364	-0.19	-0.271	0.32	0.332	0.391	0.384	0.149
COERCIVI	0.198	-0.24	0.009	0.258	0.184	0.174	0.281	0.463	0.902	0.068	-0.069	-0.262	0.184	0.024	0.14	0.169	0.173
COERCIVI	0.203	-0.138	-0.081	0.257	0.09	0.124	0.188	0.43	0.928	0.109	-0.079	-0.156	0.213	0.047	0.096	0.185	0.034
COERCIVI	0.163	-0.089	-0.061	0.227	0.126	0.105	0.153	0.278	0.874	0.197	-0.102	-0.31	0.335	0.118	0.151	0.106	0.153
COERCIVI	0.07	0.068	-0.041	0.187	0.1	-0.058	0.041	0.227	0.77	0.072	-0.079	-0.213	0.312	0.055	0.181	0.01	0.092
NORMATI	0.514	0.048	0.03	0.463	0.081	0.261	0.431	0.435	0.079	0.873	-0.159	-0.288	0.221	0.124	0.243	0.524	0.17
NORMATI	0.508	0.154	-0.046	0.467	0.043	0.213	0.384	0.335	0.135	0.9	-0.189	-0.261	0.234	0.094	0.109	0.459	0.069
NORMATI	0.341	0.062	0.106	0.175	0.118	0.174	0.296	0.274	0.162	0.833	-0.14	-0.214	0.36	0.107	0.245	0.21	0.058
NORMATI	0.327	0.206	-0.02	0.136	0.024	0.046	0.212	0.154	0.048	0.816	-0.108	-0.112	0.281	0.068	0.08	0.197	-0.006

Table 18 Output of cross loadings *(Continue)*

	Performan	Utilisation	Personal	Longterm	Trust	English	Materialist	Memitic	Coercive	Normative	Quality of	Security	Ease of Us	Training	IS Support	Communic	Mediation
TEL3	-0.078	0.191	-0.195	-0.238	-0.197	-0.233	-0.27	-0.184	-0.103	-0.136	0.901	0.315	-0.255	-0.175	0.014	-0.23	-0.03
TEL4	-0.092	0.135	-0.126	-0.243	-0.094	-0.206	-0.388	-0.299	-0.066	-0.185	0.902	0.32	-0.131	-0.08	0.129	-0.362	0.009
TEL5	-0.035	0.033	-0.269	-0.379	-0.204	-0.276	-0.263	-0.326	-0.244	-0.309	0.359	0.924	-0.196	-0.114	-0.07	-0.197	-0.137
TEL6	-0.013	0.05	-0.138	-0.242	-0.165	-0.213	-0.301	-0.315	-0.247	-0.176	0.285	0.912	-0.034	-0.01	-0.015	-0.033	-0.124
EASE1	0.511	0.053	0.046	0.463	0.074	-0.023	0.211	0.214	0.294	0.367	-0.262	-0.174	0.804	0.182	0.235	0.359	0.179
EASE2	0.418	0.045	0.154	0.407	0.165	0.002	0.139	0.305	0.267	0.211	-0.25	-0.144	0.798	0.272	0.34	0.318	0.055
EASE3	0.211	0.109	-0.002	0.155	0.065	-0.195	-0.019	0.128	0.152	0.146	-0.095	-0.017	0.756	0.133	0.172	0.079	0.054
EASE4	0.297	-0.023	0.043	0.117	0.172	-0.218	0	0.159	0.131	0.19	0.015	-0.007	0.696	0.208	0.363	0.102	0.269
TRNG1	0.294	-0.051	0.017	0.304	0.068	0.214	0.159	0.266	0.065	0.119	-0.191	-0.126	0.229	0.913	0.244	0.41	0.029
TRNG3	0.189	0.009	0.141	0.114	0.166	0.079	0.082	0.251	0.055	0.086	-0.044	0.02	0.248	0.858	0.29	0.268	-0.054
IS1	0.3	-0.143	0.228	0.283	0.295	0.082	0.294	0.423	0.206	0.164	0.046	0.001	0.329	0.256	0.92	0.241	0.07
IS2	0.344	-0.109	0.253	0.297	0.167	0.027	0.121	0.329	0.092	0.214	0.098	-0.084	0.353	0.294	0.934	0.241	0.179
GLOBAL1	0.433	-0.046	0.149	0.578	0.091	0.285	0.425	0.411	0.051	0.346	-0.265	-0.117	0.247	0.297	0.224	0.843	0.229
CURR2	0.515	-0.011	0.03	0.709	0.122	0.156	0.407	0.309	0.137	0.249	-0.227	-0.161	0.375	0.432	0.221	0.841	0.289
CURR1	0.462	0.018	0.023	0.55	0.054	0.141	0.353	0.183	0.045	0.325	-0.19	-0.034	0.214	0.37	0.202	0.788	0.255
GLOBAL2	0.399	0.189	0.07	0.512	0.071	0.215	0.442	0.449	0.159	0.425	-0.294	-0.061	0.248	0.279	0.246	0.835	0.295
GLOBAL3	0.392	-0.144	0.199	0.505	0.169	0.304	0.639	0.412	0.204	0.418	-0.386	-0.148	0.162	0.202	0.169	0.792	0.261
MED1	0.354	-0.014	0.104	0.351	0.063	0.183	0.208	0.249	0.071	0.134	-0.099	-0.176	0.152	0.137	0.201	0.45	0.888
MED2	0.365	0.107	-0.013	0.323	0.045	0.01	0.226	0.209	0.232	0.094	-0.005	-0.154	0.143	-0.028	0.022	0.364	0.872
MED3	0.1	0.15	0.001	0.003	-0.008	-0.159	0.001	0.023	0.072	0.032	0.094	-0.027	0.204	-0.112	0.123	0.052	0.832
MED4	0.086	0.043	0.075	-0.04	-0.01	-0.107	0.038	-0.027	0.034	0.003	0.054	-0.064	0.152	-0.164	0.103	0.027	0.83

4.4.2.3   Average variance extracted

Fornell and Larcker (1981) suggested that the discriminant validity can be evaluated by comparing the AVEs of the latent variables and the correlations among the latent variables (LVs). They recommend that the AVE of the latent variables should be greater than the square of the correlations among the LVs. This indicated more variance was shared between the LV component and its block of indicators than with another component representing a different block of indicators. In other words, the square root of AVE should be greater than the correlations among the LVs. The correlation matrixes in Table 19 show that the square roots of AVE are greater than the corresponding off diagonal elements. This indicates that each measure was not tapping into different concepts. Thus, the discriminant validity is confirmed.

Table 19 Correlation of latent constructs

Measures	Performance	Utilisation	Personal	Long term	Trust	English	Materialism	Mimetic	Coercive	Normative	Quality of Internet access	security	Ease of use	Training	IS support	Communication	Mediation
Performance	0.912*																
Utilisation	0.17	0.773															
Personal	0.002	-0.261	0.838														
Long term	0.617	0.004	0.034	0.961													
Trust	0.046	-0.127	0.499	0.144	0.86												
English	0.128	-0.256	0.232	0.136	0.261	0.917											
Materialism	0.281	-0.217	0.27	0.468	0.254	0.299	0.846										
Mimetic	0.384	-0.024	0.236	0.399	0.276	0.449	0.496	0.938									
Coercive	0.189	-0.13	-0.049	0.269	0.145	0.111	0.201	0.413	0.871								
Normative	0.505	0.129	0.022	0.385	0.08	0.216	0.399	0.366	0.127	0.856							
Quality	-0.094	0.18	-0.178	-0.266	-0.161	-0.244	-0.365	-0.268	-0.093	-0.178	0.901						
Security	-0.268	0.045	-0.224	-0.341	-0.202	-0.267	-0.306	-0.349	-0.267	-0.266	0.352	0.918					
Ease of Use	0.496	0.056	0.088	0.406	0.158	-0.119	0.13	0.276	0.29	0.315	-0.214	-0.129	0.765				
Training	0.279	-0.027	0.081	0.247	0.125	0.173	0.141	0.292	0.068	0.118	-0.141	-0.069	0.267	0.886			
IS support	-0.348	0.135	-0.26	-0.313	-0.246	-0.057	-0.219	-0.403	-0.158	-0.205	-0.079	0.047	-0.369	-0.297	0.927		
Communication	0.539	0.006	0.111	0.701	0.123	0.265	0.547	0.429	0.144	0.426	-0.329	-0.128	0.309	0.39	-0.26	0.82	
Mediation	0.307	0.071	0.053	0.247	0.037	0.024	0.169	0.173	0.129	0.094	-0.012	-0.143	0.185	-0.009	-0.137	0.325	0.856

* Diagonal elements are square root of average variance extracted.

4.4.3 Reliability

Cronbach (1971) stated that to ensure the consistency of a set of measurements, reliability testing needed to be in place. One of the main concerns in reliability is internal consistency. The most commonly used indicator of internal consistency is Cronbach's alpha coefficient, which was obtained by SPSS. Cronbach (1971) recommended that Cronbach's alpha scale should be above 0.7 to indicate a sufficient result. Additionally, the reliability analysis by PLS was also considered by using the statistics obtained from the bootstrapping procedure. The assessment of reliability looks at: 1) PLS-loadings which can also be used to determine the reliability of each reflective indicator (Chin 1998, 2006e); 2) Composite reliability which was used to determine the reliability of each construct. Chin (1998) suggests that the composite reliability should be greater than 0.7.; and 3) AVE should be greater than 0.5 as recommended by Fornell and Larcker (1981). The results of the reliability of constructs and indicators are shown in Table 20.

Table 20 The reliability of constructs and indicators.

Construct and Items	PLS loadings	Composite Reliability	AVE	Cronbach Alpha
Performance		0.961	0.831	0.947
PERF1	0.9280			
PERF2	0.9127			
PERF3	0.9424			
PERF4	0.9078			
PERF5	0.8649			
Utilisation		0.854	0.597	0.781
EmailHour1	0.6227			
EmarHour2	0.8765			
EmailHour1	0.8443			
EmarHour2	0.721			
Personal relationships		0.921	0.701	0.893
PER3	0.8446			
PER5	0.8812			
PER7	0.8617			
PER2	0.7347			
PER6	0.8575			
Long-term relationships		0.960	0.923	0.916
LONG2	0.9651			
LONG3	0.9566			
Trust		0.919	0.740	0.883
TURST1	0.8144			
TURST2	0.8933			

Construct and Items	PLS loadings	Composite Reliability	AVE	Cronbach Alpha
TRUST3	0.8795			
TRUST4	0.8523			
Ability to communicate in the English language		0.955	0.841	0.937
ENG2	0.8891			
ENG3	0.8891			
ENG5	0.9459			
ENG6	0.942			
Materialistic		0.882	0.715	0.802
WEST1	0.7161			
WEST2	0.8955			
WEST4	0.9119			
Mimetic pressure		0.967	0.879	0.953
MIMECTIC1	0.9251			
MIMECTIC2	0.9508			
MIMECTIC3	0.9436			
MIMECTIC4	0.9312			
Coercive pressure		0.926	0.758	0.892
COERCIVE1	0.9023			
COERCIVE2	0.9279			
COERCIVE3	0.8739			
COERCIVE4	0.7700			
Normative pressure		0.916	0.733	0.879
NORMATIVE1	0.8729			
NORMATIVE2	0.8996			
NORMATIVE3	0.8335			
NORMATIVE4	0.8156			
Quality of Internet access		0.896	0.812	0.733
TEL3	0.9009			
TEL4	0.9017			
Security		0.915	0.843	0.831
TEL5	0.9238			
TEL6	0.9122			
Ease of use		0.849	0.585	0.760
EASE1	0.8037			
EASE2	0.7980			
EASE3	0.7562			
EASE4	0.6961			
Training		0.880	0.786	0.723
TRNG1	0.9134			
TRNG3	0.8585			
IS support		0.924	0.859	0.837
IS1	-0.9196			
IS2	-0.9340			
Communication		0.911	0.672	0.876
CURR2	0.7875			
CURR1	0.8412			
GLOBAL1	0.8427			
GLOBAL2	0.8349			
GLOBAL3	0.7919			

Construct and Items	PLS loadings	Composite Reliability	AVE	Cronbach Alpha
Mediation		0.916	0.733	0.886
MED1	0.8883			
MED2	0.8722			
MED3	0.8324			
MED4	0.8296			

According to the statistical results in Table 20, all the Cronbach's alpha scales were above the 0.7 acceptable threshold. The individual item reliability on the reflective measure by PLS is also determined by examining the loadings of each of the construct's indicators. For an item to be reliable a minimum loading of 0.7 is required and this indicates that more than 50 percent of the variance of the measurer is accounted for by the respective construct. As mentioned earlier, in the early stage of scale development, items with a loading of 0.5 to 0.6 may be accepted in the analysis (Chin 1998). All the items were above the requirement. In addition, according to Chin (1998), composite reliability calculated by PLS is suitable for assessing internal consistency. All the reflective scales demonstrated acceptable performance above the minimum value of composite reliability, which is greater than 0.7. The third standard for reliability is that the AVE scales should exceed 0.5, indicating that "50 percent or more variance of the indicators should be accounted for" (Chin 1998, p.321). It can be seen that all the scales performed acceptably on this standard. Thus, the reliability of all reflective constructs was verified and satisfied.

As the validity and reliability of the scale measurement were tested and the results demonstrated were satisfactory, the quality of the structural model presented in the next section is ensured. The next section includes a detailed discussion of the results of the structural model.

4.5 Results from operational models

This section presents the PLS estimates of the operational model. Based on the output of both the structural model and the measurement models, the overall model will be evaluated. Additionally, results of the significance test of these estimates are also summarised.

4.5.1 Structural model

An overview result of the structural model is presented in Figure 16, and the full Partial Least Square graphic output for this study is presented in Appendix I. The sections below present the interpretation of the model results.
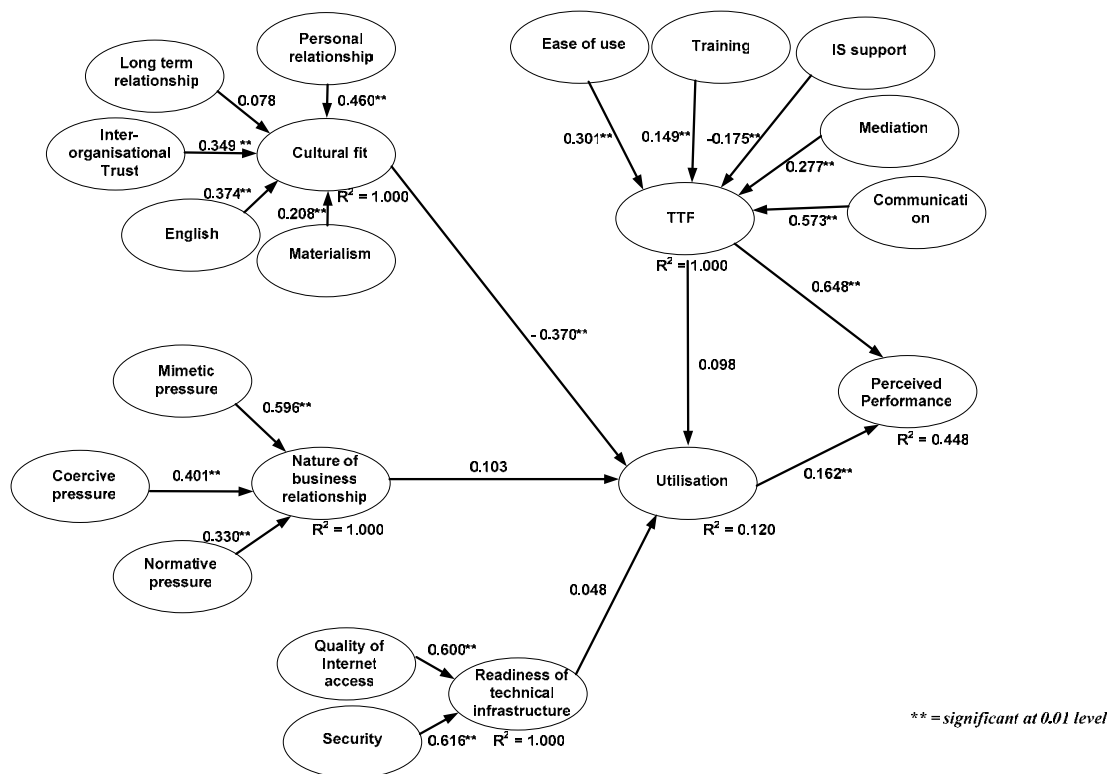
Figure 16 Structural model results

4.5.2 R-square

4.5.2.1 R^2 of perceived performance

The predictiveness of the model can be accessed by the R^2 for dependent constructs. It suggests to what extent the independent constructs help to predict or explain the dependent constructs. By subtracting the value of the R^2 from 1, the proportion of the total variation in the dependent construct unexplained by the independent constructs can be obtained. In case of a perfect prediction, the R^2 will be 1 and the proportion of the unexplained variation will be 0. Thus, the bigger R^2 is, the more predictive power the model implies. The R^2 of 0.448 of the perceived performance indicates that the TTF and utilisation accounted for 44.8 percent of the variance of the construct.

4.5.2.2 R^2 of utilisation

The R^2 of 0.120 for the utilisation indicates that the TTF, cultural fit, readiness of technical infrastructure, and business pressure accounted for 12 percent of the variance of the construct. The R^2 of the utilisation itself is not very high, however, on close examination, it is interesting to find that the only significant influence is from cultural fit and that it is negative.

The next section discusses the path coefficients to enhance the understanding of the relative strength of the effect of each independent construct on the dependent construct.

4.5.3 Effect size

The strength of the effect of a particular independent construct on the dependent construct in the model can be investigated by the effect size (f^2) (Chin 2006e; Yue 2004). This can be calculated as follows.

$$f^2 = \frac{R^2_{included} - R^2_{excluded}}{1 - R^2_{included}}$$

f^2 is determined by the change of R^2. The difference in R^2 values allows us to determine the substantive impact of the construct. Where $R^2_{included}$ is the R^2 of the dependent construct when the particular independent construct is used in the model; $R^2_{excluded}$ is calculated when the same independent construct is removed from the model. Thus, $R^2_{included}$, which is the dependent construct of the perceived performance, is always 0.448. $R^2_{excluded}$ was generated by creating two sub-models (Chin 2006e; Yue 2004). Each model was created by removing each path of the independent construct to the dependent construct one at a time. The graphic outputs of the PLS are shown in Appendix J. The effect size of each independent construct on the perceived performance is shown in Table 21. The $R^2_{excluded}$ and f^2 were calculated and the effect sizes were determined.

Table 21 Effect size in the performance

Construct	$R^2_{excluded}$	f^2	Degree of Effect
TTF	0.038	0.743	Large effect
Utilisation	0.422	0.047	Small effect

The results revealed that both the TTF and the utilisation constructs had effects on the perceived performance. Cohen and Cohen (1983) suggest the criteria for determining the degree of the effect size as $f^2 = 0.02$ Small effect; $f^2 = 0.15$ Medium effect, and $f^2 = 0.35$ Large effect. Thus, the TTF with an effect size of 0.743 had a substantial influence on the perceived performance. Likewise, omitting the utilisation construct from the model results in a small effect.

4.5.4 Significance test of Path Coefficients

In the structural model, path coefficients represent the predictive link among constructs. All the path coefficients between the research constructs are expressed in a standardised form to permit comparison of their relative strengths. As mentioned in Chapter 3, to access the statistical significance of the path coefficients, a bootstrapping analysis was performed in order to estimate the precision of the PLS estimates. Appendix K shows the '.lst' file generated by the PLS to investigate the path coefficient and Appendix L shows the output of the bootstrapping procedure to investigate the statistical significance. In all, 500 sub-samples were created for the bootstrapping procedure (Chin 2006e).

In addition to the statistics obtained from the bootstrapping procedure, a *power analysis* was conducted by using SPSS version 13 to ensure the confidence level of the rejection of the null hypothesis. The power values were obtained through Univariate analysis. Pallant (2005) suggests that if researchers obtain a non-significant result and are using a small sample size, these power values should be tested to avoid incorrect conclusions. There are two different errors that researchers can make. Type I error is the probability of rejecting a null hypothesis of no effect when it is, in fact, true. Type II error is the probability of failing to reject a null hypothesis when it is, in fact, false. Generally, it is recommended that when a sample size is large (e.g. 100 or more), the power is not an issue. When the sample size is small, the researcher should be aware of the possibility that a non-significant result may be due to insufficient power (Pallant 2005). Even though the sample size of this study was 107, to ensure the accuracy of the results, the power analysis was conducted. The cut off point of the power score is 0.80. If the power score is less than 0.80, researchers need to interpret the reason for a non-significant result carefully. In other words, the higher the power, the more confidence the researcher can have in the results when failing to reject the null hypothesis (Pallant 2005).

Table 22 presents the statistical outcome of examining the hypotheses in this study. The statistics obtained through the bootstrapping procedure (that is, the actual effect, path coefficient, observed T-statistics and significance level) were reported. In addition, the

power values obtained by SPSS were presented when the null hypothesis was rejected. The results of the power analysis indicated that all the power scores achieved the cut off point of 0.80 (Pallant 2005). Thus, the rejection of the null hypothesis was valid. Based on the statistical outcome from Table 22, the results of hypotheses testing in the structural model are summarised in Table 23.

Table 22 Summary of path coefficients test

	Actual Effect	Path Coefficient	Observed T-statistics	Significance level	Power[a]
Performance (R^2 = 0.448)					
TTF	+	0.648	10.891	0.01	
Utilisation	+	0.162	2.072	0.01	
Utilisation (R^2=0.120)					
TTF	+	0.098	0.418	Not significant	0.80
Cultural fit	-	0.370	3.161	0.01	
Technical infrastructure	+	0.048	0.855	Not significant	0.92
Business relationship	+	0.103	0.750	Not significant	0.91
TTF					
Ease of Use	+	0.301	5.716	0.01	
Training	+	0.149	4.251	0.01	
IS support	-	0.175	4.056	0.01	
Communication	+	0.573	9.836	0.01	
Mediation	+	0.277	4.253	0.01	
Cultural fit					
Personal relationships	+	0.460	8.379	0.01	
Long-term relationships	+	0.078	1.578	Not significant	0.97
Trust	+	0.349	7.165	0.01	
English language	+	0.374	6.782	0.01	
Materialism	+	0.208	4.905	0.01	
Readiness of technical infrastructure					
Quality of Internet access	+	0.600	10.231	0.01	
Security	+	0.616	10.911	0.01	
Business pressure					
Mimetic	+	0.596	11.558	0.01	
Coercive	+	0.401	5.101	0.01	
Normative	+	0.330	4.464	0.01	

a : computed using alpha =0.5 and reported only for tests which showed non-significance level

Table 23 Summary of results of hypothesis testing in the structural model

Research question	Research Hypothesis	Results
1. Do the precursors of utilisation, which are the nature of business relationships, cultural fit, readiness of technology infrastructure, and task-technology fit have additional explanatory power in predicting perceived performance impacts beyond that from task-technology fit?	**Hypothesis 1a:** Organisation's performance will be influenced by TTF.	Accept
	Hypothesis 1b: Organisation's performance will be influenced by utilisation.	Accept
2. Do task technology fit, cultural fit, nature of business relationships and readiness of technical infrastructure influence the utilisation of B2B technology?	**Hypothesis 2a:** The perception of task technology fit will influence utilisation of B2B technology.	Reject
	Hypothesis 2b: The perception of cultural fit will influence utilisation of B2B technology.	Accept
	Hypothesis 2c: The perception of the nature of business relationships will influence utilisation of B2B technology.	Reject
	Hypothesis 2d: The perception of readiness of technical infrastructure will influence utilisation of B2B technology.	Reject
3. What constitutes valid and reliable scales for measuring task-technology fit in B2B technology adoption?	**Hypothesis 3:** TTF is a multi-dimensional construct and it will be measured by the perceived ease of use, training, IS support, communication and mediation.	Accept
4. What constitutes valid and reliable scales for measuring nature of business relationships in B2B technology adoption?	**Hypothesis 4:** Nature of business relationships is a multi-dimensional construct and it will be measured by the perceived mimetic pressure, coercive pressure and normative pressure.	Accept
5. What constitutes valid and reliable scales for measuring readiness of technical infrastructure in B2B technology adoption?	**Hypothesis 5:** Readiness of technical infrastructure is a multi-dimensional construct and it will be measured by the perceived quality and security of Internet access.	Accept
6. What constitutes valid and reliable scales for measuring cultural fit in B2B technology adoption?	**Hypothesis 6:** Cultural fit is a multi-dimensional construct and it will be measured by perceived personal relationships, long-term relationships, interorganisational trust, ability to communicate in the English language, and materialism.	Partially accept Reject long-term relationship

The results of this study supported hypotheses 1a and 1b that the TTF and utilisation had influence on the perceived performance. TTF had a path coefficient of 0.648, which showed a significant influence on the perceived performance, while the utilisation had moderate influence with a path coefficient of 0.162. In addition, these two paths were significant at 0.01 level. Moreover, these two path coefficients had a positive relationship to the perceived performance; and this means that a higher TTF will lead to better organisation performance and the more utilisation will lead to better performance.

The path coefficient of TTF, cultural fit, readiness of technical infrastructure and nature of business relationships to utilisation were tested for hypothesis 2. Interestingly, the study showed that only cultural fit had a significant effect and had a negative relationship on the utilisation of technology. Thus, only hypothesis 2b was accepted

with a significance level of 0.01. This result revealed that a higher perception of cultural misfit will result in less use of the B2B technology. In addition, the path coefficient of the cultural fit construct (-0.370) showed that culture had three times stronger influence to utilisation than the task technology fit (0.098), the readiness of technical infrastructure (0.048), and the nature of the business relationship (0.103).

Hypothesis 3 was tested by examining the path coefficient of TTF dimensions to the second order factor of the TTF construct. The study showed that TTF was affected by ease of use, training, IS support, communication and mediation with a significance level of 0.01. As a result, hypothesis 3 was accepted. Among the first order constructs of TTF, the communication construct had the most impact on the TTF with a path coefficient of 0.573, followed by ease of use (path coefficient 0.301), mediation (path coefficient 0.277), IS support (path coefficient -0.175), and training (path coefficient 0.149). It is interesting to note in Table 22 that only IS support had a negative relationship with TTF, while all others showed a positive relationship. In addition, all these paths were significant at 0.01 level.

Furthermore, according to the statistical outcome in Table 22, hypothesis 4 was accepted and the results showed that both the quality of Internet access (path coefficient of 0.600) and the security (path coefficient of 0.616) had significant influence and a positive relationship to the readiness of technical infrastructure with approximately equal significant influence. Moreover, mimetic, coercive and normative pressures had strong and positive influence on the nature of business relationships with path coefficients of 0.596, 0.410, and 0.330 respectively. Overall, all path coefficients were found to have a significance level of 0.01. Hence, hypothesis 5 was accepted as well.

In terms of the cultural fit construct, hypothesis 6 was partially accepted. The result revealed that personal relationship, interorganisational trust, ability to communicate in the English language, and materialism constructs influenced cultural fit with a positive relationship. The only exception was long-term relationships. All the other paths were significant at 0.01 level. Interestingly, personal relationship demonstrated the strongest influence on cultural fit (path coefficient of 0.460), followed by ability to communicate in the English language (path coefficient of 0.374), interorganisational trust (path

coefficient of 0.349), and materialism (path coefficient of 0.208). Chapter 5 will fully discuss the implications of these results from the operational model, in particular the discussion of the research hypotheses.

4.5.5 Direct and indirect effect

The original structural model shows the effect of each dependent construct on the independent construct according to the conceptual theoretical model. Direct and indirect effect analysis was also employed for further investigation to find more meaningful results of relationships among the constructs in the structural model. Path coefficient analysis was used to calculate the indirect effects for each dependent construct (Chin 2006e). As discussed in Chapter 3, the indirect effects can be calculated by multiplying each path coefficient by the independent construct (Chin 2006e). Chin (2006e) suggests that only the significant path coefficients need to be tested. All the first and second order constructs were analysed to reveal the direct and indirect effect on the structural model.
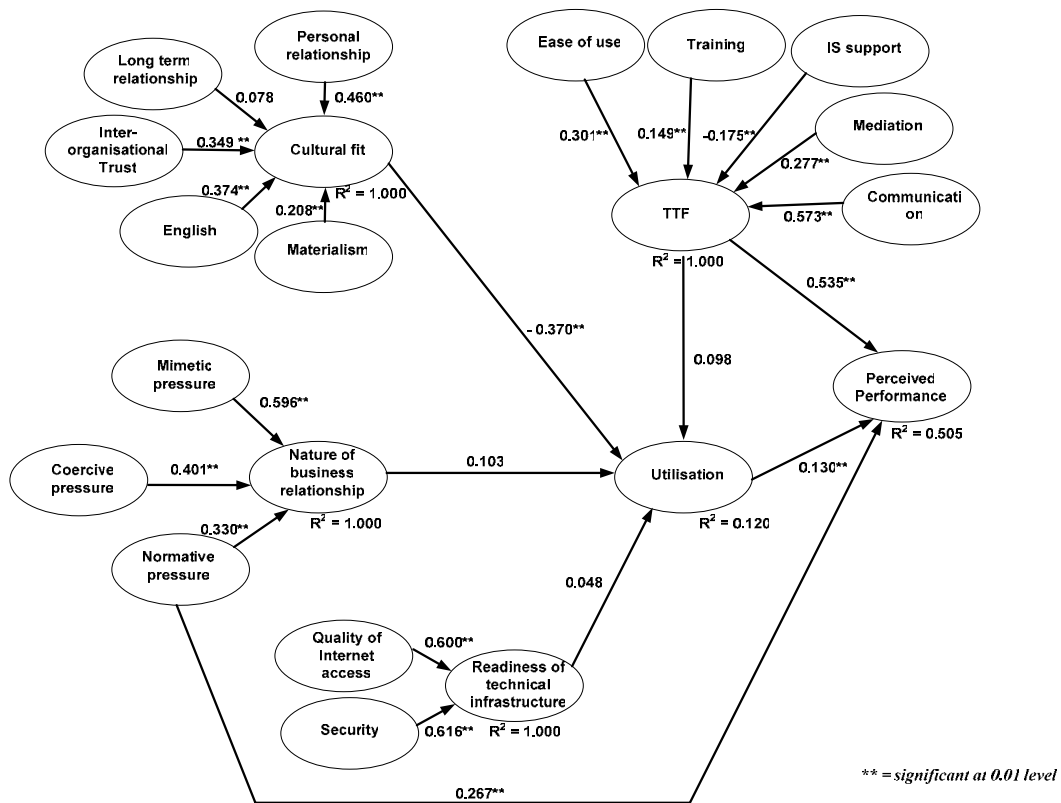
Figure 17 Direct effect model

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The direct effect analysis shown in Figure 17 revealed some interesting findings about the normative pressure construct. Normative pressure, which is the first order construct of the nature of business relationships, had a strong direct effect on the performance. The direct path coefficient between the normative pressure and the performance was 0.267 at the 99 percent significance level. In addition, the results demonstrated the increase of the predictive power for the model (R^2) to 0.505. Moreover, the positive nature of the direct relationship between the normative and performance construct implied that the more customers and suppliers adopt B2B technology; the more firms are likely to perceive a better performance. Although this is not formally hypothesised, the result supports the interdependency concept on the notion of B2B technology adoption as discussed in section 2.4 of Chapter 2 that "the ability of each participating actor to gain his ends is dependent on the behaviour of other participating actors" (Jonsson 1986, p.42).

Furthermore, the analysis of direct and indirect effect confirmed that the adoption of B2B technology in Thailand is not just about the technology as there was no significant impact of the quality of Internet access and security on the performance and the utilisation. The results lend more thought to the existing claims from Koannatakool (2002) and Gray and Sanzogni (2004) that access to the basic technical infrastructure is not a major concern for adoption of e-commerce in Thailand.

4.5.6 Moderating effect

The analysis of moderation in PLS helps researchers to understand the interactive effects in the structural model (Chin et al. 2003). According to the discussion in section 4.5.4, the results from the structural model revealed that TTF had no direct impact on utilisation while culture did. This research seeks to gain further understanding of the effect of interaction between cultural fit and TTF constructs on utilisation. The researcher seeks to understand how cultural fit moderates the relationship between TTF and utilisation.
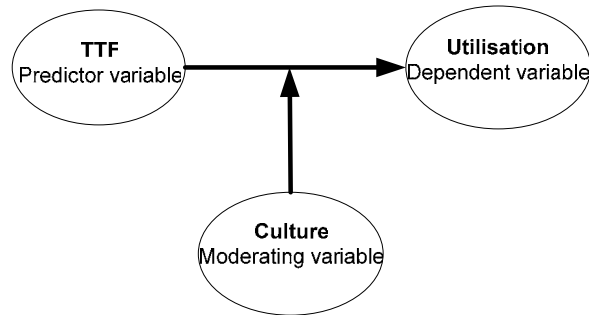
Figure 18 Theoretical model for moderating factor

For analysis of the moderating effect, the moderator, predictor and dependent constructs are viewed as latent variables. In this case, the cultural fit construct is the moderator variable, whereas the TTF is the predictor variable. The theoretical model for the moderating effect is shown in Figure 18, whereas Figure 19 shows the results of the analysis of the moderating effect by PLS (see Appendix M for the graphical output of PLS). The moderating effect can be calculated by multiplying the latent score of TTF and culture, which can be obtained by the bootstrapping procedure. The result of this multiplication is called the interaction cultural effect, which is used to determine the moderation effect of culture on the TTF.
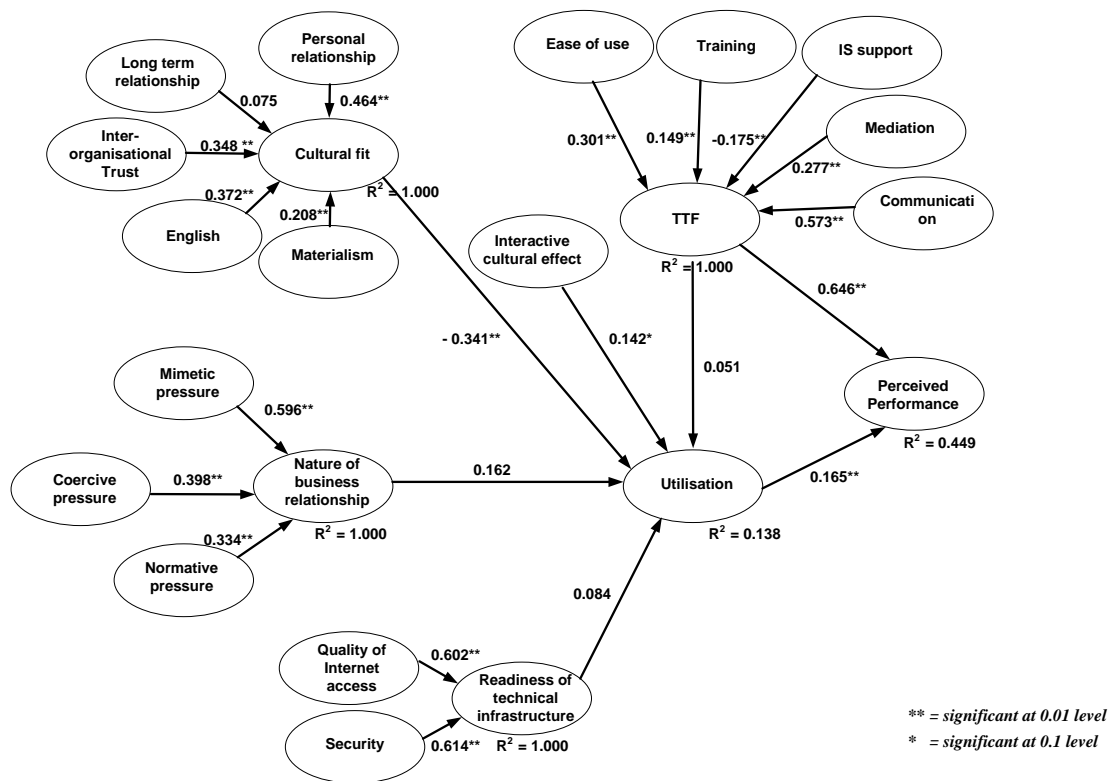
Figure 19 The interactive effect of TTF and culture on the utilisation

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The standardised path estimate for the interaction construct shows how a change in the level of culture will change the influence of TTF on the utilisation. The standardised path scores are -0.341 for culture, 0.051 for the predictive and the interactive effect is 0.142 with a total R^2 of 0.138. The interactive effect is significant at level 0.1, which represents a 90 percent confidence level.

The result reveals that although TTF has no direct impact on utilisation, it does impact utilisation by moderating the impact of culture. The results suggest that culture moderates the impact of TTF on utilisation. Although stronger culture leads to less utilisation, it also increases the impact of TTF on utilisation. In this case, it changes from a non-significant to significant impact. For instance, if there is a misfit between the Thai culture and B2B technology characteristics, then the influence of TTF will be much stronger in terms of utilising B2B technology. To illustrate this point, if two companies have the same level of TTF, for the firm with a stronger cultural misfit, the impact of TTF on utilisation is increased.

Equivalently, if TTF is much stronger, even without the direct effect it has an impact by lowering the impact of culture on utilisation. To illustrate this, if two companies have the same environment and the same level of cultural fit, the firm with a better task-technology fit will be less affected by culture. Thus, more TTF reduces the impact of culture on utilisation.

4.5.7 Control Measures

Control measures were used to detect further patterns in the data (see Appendix N for PLS graphic output of control measures). First, to control for the possibility of a size effect, organizational size was measured by the number of employees and classified into small, medium and large organizations. Second, the ownership of the companies, target customers and target suppliers were used to identify the firms' exposure to western contexts and international competitiveness. Third, literature on IT adoption often refers to the influence of different types of Internet access and the level of e-commerce

adoption. Thus, type of Internet access was used for control in this research. The fourth control variable was experience with technology, which was measured by the respondents' skills in IT. All these control variables have been tested by multicollinearity analysis with a positive result.

The structural model with control variables revealed that all the control variables had no effect on performance and utilisation, except that firm size had a significant impact on utilisation of B2B technology. However, the result of including the variables in the structural model did not alter any of the significance levels of the path coefficient in the structural model.

4.6 Conclusion

As a diagnostic tool, PLS is particularly relevant to this study because the constructs are multidimensional and the relationships among them are not well understood. In this chapter, PLS was used to identify the positive and highly significant impact of culture on the utilisation of the appropriateness of B2B technology adoption in the Thai tourism industry. In addition, both TTF and utilisation were proven to have a significant impact on the firm's performance. In particular, the impact of TTF was found to have higher impact on the firms' performance than utilisation. The variables that comprise the secondary constructs of culture, TTF, business pressure and readiness of technological infrastructure, were tested and verified. Importantly, the study recognised the moderating effect of cultural fit and TTF on the construct of utilisation. Although TTF has no direct impact on utilisation, it does impact utilisation by moderating the impact of culture. Furthermore, the direct effect of normative pressure on the performance has been identified.

In conclusion, until now relatively little work has been completed in this area. This chapter showed that culture had a negative impact on the appropriateness of B2B technology adoption in the Thai tourism industry. It was shown to be the only factor that has significant impact on the utilisation of technology. The next chapter focuses on a discussion of the implications of this research and its key contributions.

CHAPTER 5 DISCUSSION

5.1 Introduction

This chapter presents a detailed discussion of the data analysis. The issues arising from the initial results presented in Chapter 4 and the results of hypothesis testing are discussed. In addition, the perception of appropriateness of B2B technology adoption in Thailand including recommendations and strategies for success are discussed. Furthermore, the research implications for each research objective are summarised.

5.2 Discussion of structural model results

5.2.1 Factors contributing to organisation performance

> **Research question 1: Do the precursors of utilisation, which are the nature of business relationships, cultural fit, readiness of technology infrastructure, and task-technology fit, have additional explanatory power in predicting perceived performance impacts beyond that from task-technology fit?**
>
> **Hypothesis 1a: Organisation's performance will be influenced by TTF. (Accepted)**
> **Hypothesis 1b: Organisation's performance will be influenced by utilisation. (Accepted)**

This research developed and validated a model for investigating the appropriateness of B2B technology adoption in Thailand via a strategic fit lens. The proposed model extends the TTF model by integrating interorganisational theories and theories of national culture to investigate factors contributing to the success and the failure of B2B technology adopted by firms in the Thai cultural context. The original TTF model by Goodhue and Thompson (1995) suggests that for IT to have a positive impact on individual performance, the technology must be utilised, and must be a good fit with the tasks it supports. The researcher supports the argument put forward by Henderson and Venkatraman (1999) that the inability to generate value from IT adoption is in part, due

to a lack of alignment between IT and firms' internal and external business environments. Hence, this research takes the view that, to achieve a high utilisation of B2B technology adoption, firms in developing countries need to adopt effective IT strategies that align with their local environment. Based on the above assumption, this research argues that the fit of B2B technology to support business to business communication tasks may not have a direct influence on firms' perceived performance. The precursors of utilisation, which are cultural fit, nature of business relationships and readiness of technical infrastructure may play a major role in affecting the use of B2B technology and in turn firms' performance.

Results of the structural model presented in Chapter 4 supported both research hypotheses 1a and 1b. This implied that the firms' performance from adopting B2B technology may be affected by both TTF and utilisation. Considering the predictive power of the structural model, the R^2 of 0.448 of the perceived performance indicated that TTF and utilisation accounted for 44.8 percent of the variance of the construct. Furthermore, TTF had a positive influence on the perceived performance, which means that a better fit between task and technology results in a better perceived organisation performance. Similarly, more utilisation of B2B technology results in better perceived performance. Interestingly, the path coefficient of the TTF (0.648) was four times stronger than the path coefficient of utilisation (0.162). Both paths were found to be significant at 0.01 levels. This implied that the TTF still had a much stronger influence on perceived performance than utilisation in the adoption of B2B technology in the context of this study.

The results of this research indicated that in the interorganisational context of the appropriateness of B2B technology adoption, the role of TTF still had a greater impact on firms' perceived performance than utilisation. In addition, the results of the direct effect analysis of the structural model found non-significant impact between the second order factors, which were cultural fit, readiness of technical infrastructure and nature of business relationships, on perceived performance. Moreover, the analysis of direct effect between the first order constructs and perceived performance revealed an interesting point about the construct of normative pressure. Normative pressure appeared to have a significant direct impact on the perceived performance and it slightly

increased the predictive power of the structural model. Further discussion on normative pressure will be presented in section 5.2.4. It is interesting to note that the path coefficient between TTF to performance was still stronger than the path coefficient between normative pressures to perceived performance (0.267) at a 99 percent significance level. Hence, it can be concluded that TTF has the strongest impact on predicting the firms' perception of the performance of their adoption of B2B technology in Thailand. The previous assumption of this research model (as discussed in Chapter 2) that the precursors of utilisation, which are influenced by cultural fit, nature of business relationships and readiness of technical infrastructure, may play a major role in affecting the firms' perceived performance in the context of this study was not supported.

Furthermore, the results of this research revealed that utilisation did actually increase the explanatory power in predicting perceived performance in addition to that from TTF. This was confirmed by the results of the analysis of effect size (as discussed in Chapter 4), which showed that the omission of utilisation resulted in the decrease of the predictive power from 44.8 percent to 42.2 percent, which was considered a small effect, while the omission of TTF had a large effect in decreasing the predictive power to 3.8 percent. The findings of this study are consistent with the speculation in prior studies by Goodhue and Thompson (1995) and Staples and Seddon (2004) that the prediction of firms' perceived performance can be better explained by incorporating the impact of utilisation into the TTF model.

The aggregation of the performance scales give some indication of the perception of performance related to B2B adoption in Thailand. The respondents indicated that they only somewhat agreed that B2B technology was an important tool to help firms to increase the effectiveness and productivity in their job/business, create new business opportunities, reduce operational cost and accomplish work more quickly. The respondents were asked to rank their attitudes using a seven-point Likert scale (ranging from 1 strongly disagree to 7 strongly agree). The results showed a better positive attitude towards the use of B2B technology than the previous research, which was mostly conducted in the African region (Humphrey et al. 2003; Moodley 2002a, 2002b, 2003a, 2003b; Moodley and Morris 2004). Although the organisations in Thailand had

slightly better perceptions in terms of benefits derived from B2B technology, the results of this study are in line with the empirical evidence from previous studies relating to issues of utilisation of B2B technology. Likewise, the results from the preliminary interviews in this study found limited and slow uptake of B2B technology (Humphrey et al. 2003; Pare 2002, 2003). The next section will discuss issues related to the utilisation of B2B technology.

5.2.2 Factors contributing to utilisation

Research question 2. Do task technology fit, cultural fit, nature of business relationships and readiness of technical infrastructure influence the utilisation of B2B technology?

Hypothesis 2a: The perception of task technology fit will influence utilisation of B2B technology. (Rejected)

Hypothesis 2b: The perception of cultural fit will influence utilisation of B2B technology. (Accepted)

Hypothesis 2c: The perception of the nature of business relationships will influence utilisation of B2B technology. (Rejected)

Hypothesis 2d: The perception of readiness of technical infrastructure will influence utilisation of B2B technology. (Rejected)

As previously discussed in Chapter 2, adapting the original TTF model by Goodhue and Thompson (1995), the precursors of utilisation are cultural fit, nature of business relationships and readiness of technical infrastructure. Incorporation of these factors enables researchers to understand the broader issues relating to the utilisation of B2B technology, which covers the cultural, business and technical aspects of the appropriateness of adoption of B2B technology in Thailand. Cultural fit, especially, seems to be an important factor in technology transfer from western to non-western contexts (Demeester 1999; Scheraga et al. 2000; Seror 1996; Shoib and Nandhakumar 2003; Martinsons and Westwood 1997). This research proposes that cultural fit is a major influence on the perception of appropriateness of B2B technology adoption in Thailand.

The discussion in this section provides the results of the relationships among the construct of utilisation and the secondary order factors, namely TTF, cultural fit, readiness of technical infrastructure and nature of business relationships. Results of the application of the structural model in Chapter 4 supported research hypothesis 2b and rejected hypotheses 2a, 2c and 2d. This implied that only cultural fit had an impact on the utilisation of B2B technology at the 99 percent significance level. The R^2 of the utilisation was 0.120. Although the score was not very high, it is noted that cultural fit was the only significant factor contributing to the construct of utilisation. In addition, the low R^2 of utilisation can also be explained by mandatory and voluntary usage of B2B technology. Goodhue and Thompson (1995) assert that utilisation is extremely difficult to measure due to different requirements in the use of a system. For example, mandatory use in which employees have no choice but to use the computer systems provided by their firms, may show different results from the voluntary use of systems. Agarwal and Prasad (1997) assert that mandatory use of the system has association with the technology acceptance level. They explain that it can increase initial system utilisation. Additionally, Staples and Seddon (2004) identify the linkage between utilisation and voluntary use of the systems. Hence, it may be the case that the use of B2B technology is voluntary as in the context of this study. According to the knowledge of the researcher gained during the preliminary interviews, the use of these technologies was still voluntary as firms did not enforce the use of e-mail and e-marketplace as their strategic communication channels. They still heavily relied on the traditional communication methods such as phone and fax. One of the reasons for the firms to adopt the B2B e-marketplace was the fact that registration with the www.thaitravelmart.com was free of charge. In addition, more than half of the interviewees still used free e-mail services such as Hotmail and Yahoo. Consequently, the voluntary use of the systems in the context of this study may have resulted in a weak predictive ability of the utilisation in structural model.

The rejection of hypothesis 2a has changed the traditional perspective on the construct of TTF. Theoretically, an analysis of the original TTF model by Goodhue and Thompson (1995) indicates the significant impact of TTF on utilisation. Researchers who believe in the importance of TTF to utilisation may find it surprising that it is not the case in this study. The analysis of this study shows that TTF was not significant in

utilisation of B2B technology in the Thai context. It appeared that in the context of the Thai business culture, cultural fit influenced the utilisation of B2B technology more than TTF.

Moreover, testing for moderating effect was performed to understand further the implications of TTF on utilisation through the moderating effect of culture. Without a consideration of the cultural fit factor, much of the previous research found a strong relationship between TTF and utilisation (e.g. Agarwal and Prasad 1997; D'Ambra and Rice 2001; Goodhue and Thompson 1995; Staples and Seddon 2004). The results of moderating effect analysis found that although TTF had no direct impact on utilisation, TTF did have an indirect impact on utilisation by moderating the impact of culture. In this case, TTF changed from non-significant to significant. As mentioned in Chapter 4, the interactive effect was significant at level 0.1, which presents the 90 percent confidence level. The results imply that if there is a big gap between Thai culture and the use of B2B technology, the role of TTF became more important to encourage firms to utilise the technology. The results of this research add to the understanding of the impact of culture on TTF. To the knowledge of the researcher, only one piece of research exists with comparable findings. Massey et al. (2001) found that national culture moderated the perceptions of fit between communication tasks and technology in a global virtual team environment. However, they did not use the TTF model in their research. Hence, this research, to my knowledge, is the first to further investigate the moderating effect of cultural fit and TTF on the construct of utilisation. Detailed discussion on each of the cultural fit dimensions will be presented in section 5.2.3.

Furthermore, the acceptance of hypothesis 2b suggests that cultural fit was an important factor in the appropriateness of B2B technology adoption in Thailand. The path coefficient of the cultural fit construct revealed very interesting findings. The path coefficient score was -0.370, which showed a negative relationship. The results suggest that the greater of cultural misfit, the less use of B2B technology will be made by firms. This confirms the underlying assumption which is proposed by this research on the role of the impact of Thai business culture on the appropriateness of B2B technology transfer. In other words, if there is a poor fit between a local culture and the nature of the B2B technology, it is less likely that B2B technology will be utilised. This also

affirms a previous study by Hemple and Kwong (2001) on B2B e-marketplace adoption in China. They believe that e-marketplaces create new services that do not exist in the traditional markets; and this may not necessarily comply with current business practices.

Additionally, as mentioned earlier, the results of this study revealed that TTF still had a major impact on firms' perceived performance, while the appropriateness of Thai culture had a strong impact on utilisation. The results of this research are somewhat at odds with Jaruwachirathanakul and Fink's study (2005) on the adoption of e-banking in Thailand. They assert that features of the website and perceived usefulness are regarded as the most significant factors in encouragement of Internet banking adoption in Thailand, while cultural factors were not so important.

Moreover, the rejection of hypothesis 2c suggested that the nature of business relationship was not significant to the construct of utilisation. However, the analysis of direct and indirect effect on the first order constructs of the nature of business relationship, namely mimetic pressure, coercive pressure and normative pressure, revealed some interesting results. Detailed discussion will be presented in section 5.2.4.

There is another point that needs to be stressed in the analysis of appropriateness of B2B technology adoption in Thailand. The rejection of hypothesis 2d suggested that the perception of readiness of technical infrastructure was not a major concern in the utilisation of B2B technology in the context of this study. The results of this study are in line with Rotchanakitumnaul and Speece's study (2003). To investigate barriers to Internet banking adoption, they conducted a qualitative research project by interviewing two set of corporate customers; the first set included seven corporate customers who had adopted Internet banking while the second set included eight non-adopters. They found that the adopters did not use Internet banking extensively, even though they had the technological capability. The next section provides a detailed analysis on the TTF dimension.

5.2.3 Factors contributing to TTF

Research question 3: What constitutes valid and reliable scales for measuring task-technology fit in B2B technology adoption?

Hypothesis 3: TTF is a multi-dimensional construct and it will be measured by the perceived ease of use, training, IS support, communication and mediation. (Accepted)

In this study, TTF is a multidimensional construct and consists of ease of use, training, IS support, communication and mediation. The research hypotheses were formed to investigate whether these TTF measures can be applied in inter-firm communication tasks in the web environment. Ease of use, training and IS support were adapted from Goodhue and Thompson (1995), while communication and mediation were adapted from D'Ambra and Wilson (2004).

The results of this research found that all of the first order factors had significant effect on TTF at the 99 percent significance level. This implied that these factors can be used to measure the perception of TTF in the appropriateness of B2B technology adoption in Thailand. Communication (0.573 path coefficient) had the highest significant effect on TTF, followed by ease of use (0.301), mediation (0.277), IS support (-0.175) and training (0.149). This implied that the respondents perceived communication as an important factor in identifying the fit between inter-firm communication tasks and B2B technology. In addition, the easy-to-use web applications were also crucial to increased perception of fit between tasks and B2B technology. In terms of communication, a good fit between tasks and technology was perceived if firms had a good attitude towards the B2B technology, in particular the e-marketplace as a means to gain better and wider access to current information globally. Furthermore, a need for training on how to use the e-marketplace and e-mail was statistically significant for a perception of good fit.

Interestingly, only perceived IS support had a negative relationship to TTF, while the above mentioned factors had positive effects. The result suggests, that if firms need a high level of IS support in order to use the B2B technology, it is most likely that firms

are assuming that there is less fit between tasks and technology. Conversely, Goodhue and Thompson (1995) indicate that IS support seems to show a positive relationship to performance, which implies that better IS support results in a better perceived performance by firms. A possible explanation could be that Goodhue and Thompson (1995) investigated TTF in a non-web based environment and in the context of large organisations, while most of the firms in the context of this study are SMEs in a web based environment. This study suggests that SMEs may have fewer IS staff and lower levels of IT support as compared to large organisations. In addition, firms may not have much control in acquiring IT assistance from the e-marketplace if problems arise. Thus, the perception of a poor fit will increase when IS support is needed.

Furthermore, as mentioned earlier, TTF does not have a significant effect on utilisation, while cultural fit does. The analysis of first order factors of TTF confirmed that TTF was non-significant in relation to perceived performance and utilisation in both direct and indirect effect analysis.

5.2.4 Factors contributing to nature of business relationships

Research question 4. What constitutes valid and reliable scales for measuring nature of business relationships in B2B technology adoption?

Hypothesis 4: Nature of business relationships is a multi-dimensional construct and it will be measured by the perceived mimetic pressure, coercive pressure and normative pressure. (Accepted)

The concept of fit in the interorganisational context and its relation to the appropriateness of B2B technology adoption was implemented and tested through the nature of the business relationships construct. The nature of business relationships construct is a multidimensional factor. Mimetic pressure, coercive pressure and normative pressure (Teo et al. 2003) were found to be statistically significant to measure the nature of business relationships in the appropriateness of B2B technology adoption at the 99 percent significance level. Among these three pressures, mimetic pressure has

the most significant impact on the nature of business relationships construct, followed by coercive pressure and normative pressure.

The perception of the nature of business relationships was found not to be a significant influence on performance and utilisation. This result is interesting because of the outcome of direct and indirect effects on the structural model, which indicated that the normative pressure had a strong direct effect on the perception of performance at the 99 percent significance level and it increased the predictive power of the model from 44.8 percent to 50.5 percent. This implied that the more a firm's suppliers and customers adopt B2B technology, the better the perceived performance. The results of this study support the importance of the interdependency concept in a social network on B2B technology adoption, which was discussed in section 2.4 of Chapter 2. O'Rielly and Finnegan (2005) assert that the complexity of interorganisational networks in the B2B e-marketplace has drawn more attention to the interdependency among firms than the traditional IOS technology such as EDI. The findings of this research also affirm the strategic interdependency concept of game theory addressed by Jonsson (1986). The results imply that the ability of firms to gain from the benefits of B2B technology adoption depends on the behaviour of other participating firms in a social network.

Moreover, the analysis of direct and indirect effect also revealed that the perception of mimetic pressures and coercive pressures did not have significant effect on utilisation and performance. This implied, to some extent, that the perception of pressure from competitors, namely mimetic pressures, was not a major influence on a firm's decision as to whether to utilise B2B technology. Furthermore, the pressure from trading partners, known as coercive pressure, did not have a statistically significant effect on utilisation. This suggested that the perception of demand from their businesses partners, who had a strong influence on their businesses, to adopt B2B technology for business communication, was not viewed as an important factor in firms' decisions to utilise B2B technology. One possible assumption that could explain this non-significant relationship of mimetic and coercive pressures is the fact that the e-marketplace, in the context of this study, is a government sponsored e-marketplace. Thus, the strong pressure to adopt the technology may be from the government rather than those from

their competitors and trading partners. A further study needs to be undertaken to address this issue fully.

5.2.5 Factors contributing to readiness of technical infrastructure

Research question 5. What constitutes valid and reliable scales for measuring readiness of technical infrastructure in B2B technology adoption?

Hypothesis 5: Readiness of technical infrastructure is a multi-dimensional construct and it will be measured by the perceived quality and security of Internet access (Accepted).

Readiness of technical infrastructure is a two dimensional construct, which consists of quality of Internet access and security. Results of this study found that both factors were statistically significant in relation to the readiness of technical infrastructure construct. The results showed that these two factors contributed almost equal weight to the readiness of technical infrastructure with slightly higher scores from security. The path coefficient of the quality of Internet access was 0.600, while the path coefficient of security was 0.616. Both path coefficients are at the 99 percent level of significance. The results suggested that these two factors may be used to measure the perception of readiness of technical infrastructure in the appropriateness of B2B technology adoption in Thailand.

Furthermore, the results from the structural model and the analysis of direct and indirect effects confirmed that there was no statistically significant relationship of quality of Internet access and security constructs in relation to utilisation. In addition, both factors did not have any statistical significance on perceived performance. This implied, to some extent, that these issues were no longer a major concern in Thai firms' perception of their expectation of utilisation and perceived performance. The results are consistent with the speculation in prior studies by Gray and Sanzogni (2004) and Koannatakool (2002). Koannatakool (2002) believes that the basic technical infrastructures, such as telecommunication, hardware and software are no longer a major problem in the

adoption of the Internet in Thailand. He questions how Thais can adapt knowledge and technologies from the western world to maximise the benefits in their social and economic development. In addition, research by Gray and Sanzogni (2004) agree that culture impact seems to be an important issue in e-commerce development in Thailand. However, it is also noted that, in the context of this study, participating firms already have access to Internet technology. Consequently, future research can be conducted to compare the perception of appropriateness of B2B technology adoption between adopters and non-adopters.

5.2.6 Factors contributing to cultural fit

Research question 6. What constitutes valid and reliable scales for measuring cultural fit in B2B technology adoption?

Hypothesis 6: Cultural fit is a multi-dimensional construct and it will be measured by perceived personal relationships, long-term relationships, interorganisational trust, ability to communicate in the English language, and materialism. (Partially accepted - rejected long-term relationships)

To gain a better understanding of the implications of Thai cultural values for the appropriateness of adoption of B2B technology, five cultural factors were identified and validated to measure the cultural fit construct. These were: personal relationships, long-term relationships, interorganisational trust, the ability to communicate in the English language and materialism. The results indicated that personal relationships, trust, ability to communicate in the English language and materialism had influenced cultural fit at the 99 percent of confidence level, while the construct of long-term relationships was not found to be significant. This implies that all of these first order constructs, with the exception of long-term relationships, can be used to measure the perception of cultural fit in the appropriateness of B2B technology adoption in Thailand. Among these factors, personal relationships contributed most to the cultural fit construct (0.460 of path coefficient), followed by ability to communicate in the English language (0.374), trust (0.349) and materialism (0.208). Furthermore, the direct and indirect effect analysis was

conducted to examine the relationships of the first order factors of cultural fit and utilisation. The following presents a detailed discussion about each cultural dimension and its implications for the appropriateness of B2B technology adoption in Thailand.

5.2.6.1 Personal relationships

Personal relationships were found to be the most influential factor in measuring the cultural fit construct. This implied that personal relationships were a strong negative factor on the perception of appropriateness of B2B technology adoption in Thailand. The results from direct and indirect effect analysis suggested that the effect of personal relationships resulted in less adoption of B2B technology by firms in the Thai tourism industry. The respondents indicated that their business opportunities were mostly gained from personal relationships such as friends and family rather than using e-marketplace and e-mail. As discussed in Chapter 3, the preliminary interviews with Thai firms in the tourism industry found that conducting 'sale-call' activities, which referred to sending the sale representatives to promote products and services at the customers companies' location, were a more important way to gain new business opportunities than the promoting of their business online. Similar to previous research (Niffenegger et al. 2006; Thongjeen and Speece 2002), personal relationships are found to be a very significant factor in doing business in Thailand. For example, Thongjeen and Speece (2002) indicate that it is common for Thai SMEs to rely on personal relationships in gaining new business opportunities. Additionally, Larpsiri and Speece (2003) also support the proposition that developing good personal relationships between sales representatives and customers is crucial to success in Thai business rather than using the online medium.

By demonstrating cultural misfit in the use of B2B technology in Thailand, the researcher strongly believes that for developing countries, it may be too optimistic to assume the benefits of B2B technology claimed by western countries. Furthermore, by relating the importance of personal relationships to the perception of appropriateness of B2B technology, this research may extend the knowledge from previous findings,

particularly, the prohibiting factors of B2B e-marketplaces adoption among firms in developing countries (e.g. Humphrey et al. 2003; Moodley and Morris 2004).

5.2.6.2   Long-term relationships

The results of this study did not find statistical significance on the effect of the long-term relationships in relation to the perception of appropriateness of B2B technology adoption. However, this finding could contribute to the existing knowledge of B2B technology adoption research. To best of the researcher's knowledge, there is no empirical study addressing the relationship between long-term relationships and its implications on the adoption of B2B technology in Thailand. There were only a few studies speculating on such a relationship, however, these studies were conducted mainly in western contexts (e.g. Grey et al. 2005; Pires and Aisbett 2003). For instance, Pires and Aisbett (2003) indicate that Internet facilitates development of long-term relationships between suppliers and customers. The results of this study make the speculation more likely not to be the case in the Thai business context. Interestingly, the results of this research may explain the findings by Kaefer and Bendoly (2004). Unlike Pires and Asibett (2003)'s findings, Kaefer and Bendoly (2004) indicate that non-EDI e-commerce technologies, including e-marketplaces, are often associated with a community of potential short-term partnerships. This may indicate a misfit of Thai long-term relationships and the nature of short term partnerships required in the B2B e-marketplace. In the researcher's opinion, further research should be conducted to explore this issue.

5.2.6.3   Interorganisational trust

An analysis of the structural model shows that trust is an important factor contributing to the perception of appropriateness of B2B technology adoption. As mentioned in Chapter 2, face-to-face communication is critical in the trust-building process in Thai business community. The essential nature of face-to-face communication in a trust building process of the Thai business culture seems not to fit with the Web environment, which encourages non face-to-face communication. Thai businesses feel

more confidence and trust when they have face-to-face communication with their trading partners than when they are using online methods such as e-marketplace and e-mail. The importance of face-to-face communication can be explained by the high level of uncertainty avoidance in Thai culture, although this research recognises that the issue of trust is not peculiar to Thai culture, but also exists in western culture. However, it argues that in some cultures, members of a society may prefer communication media that enable social presence more than others (Guo 2002). Ratnasingam and Phan (2003) assert that a high degree of social presence can reduce levels of uncertainty, which can then lead to an increase in trust.

The results of the analysis of direct and indirect effect in the structural model showed that the reduction of trust results in less use of B2B technology. The findings of this study confirm with the study from Rotchanakitumnaul and Speece (2003) on e-banking adoption in Thailand. They assert that corporate customers still prefer face-to-face contact with bank personnel and prefer to do business with banks that have many physical branches. On the other hand, the results of this study do not agree with Jirachiefpattana's study (1997). Jirachiefpattana takes the view that due to high uncertainty avoidance level, Thai managers tend to become early technology adopters in order to secure their company's status. Moreover, a study conducted by Pavlou (2002) asserts that to succeed in online businesses, companies will have to adjust and change their mindsets to a new way of building trust online. However, in this case, findings from the preliminary interviews revealed that Thai firms did not seem to easily accept this change.

5.2.6.4   Ability to communicate in the English language

Results of this study found that the ability to communicate in the English language has a significant effect on the perception of appropriateness of B2B technology adoption. The analysis of direct and indirect effect indicated that Thai people have difficulty in communication in the e-marketplace and e-mail effectively using the English language. Thus, this results in less use of B2B technology. In addition, the respondents felt that it was difficult to explain detailed information when communicating online with their

trading partners using the English language. Furthermore, the preliminary interviews of this study clearly suggested that the Thai's weakness in the ability to communicate in the English language makes it more difficult for Thai companies to understand and utilise e-marketplace and e-mail technologies.

The Thai people's relative lack of ability to communicate in the English language has been documented by other researchers in the field. For instance, Gibson (1997) asserts that Thai people only communicate in their own language, which is the Thai language, and do not have sufficient skills to communicate in other languages. He points out that this has significant impact on the development of IT in Thailand. In addition, Tetiwat and Huff (2003) also find that the lack of English language capability has tremendously affected the adoption of e-learning in Thailand and slowed it down. Thai students and educators complain that it is a time consuming and a difficult process to express their ideas in the English language on the Web.

5.2.6.5   Materialism

This study, to the researcher's knowledge, is the first to address the importance of materialism in relation to the perception of appropriateness of B2B technology adoption. This study highlights the influence of western values of materialism on modern Thai society and its implications for the appropriateness of B2B technology adoption in Thailand. The results of this study indicate that materialism is of statistical significance in the appropriateness of B2B technology adoption. The respondents indicated that they admired western countries that they adopted Internet technology for their businesses. In addition, it was important to follow this western practice by adopting e-marketplace and e-mail in order to be seen as modernised.

Furthermore, as discussed in Chapter 2, regarding Richins and Dawson's (1992) theories of materialism, the possession-defined success, which implies one's success can be measured by the number and quality of possessions accumulated, seems to apply well to explain the appropriateness of B2B technology adoption in Thailand. Although much previous cultural research has emphasised the importance of the non-materialistic

Buddhist influence on Thai society and Thai economic development (Embree 1950), the findings of this research support the arguments made by Komin (1991) in relation to changes in Thai society in the 21st century. She takes the view that western influence on Thai culture has increased the emphasis on material values as a symbol of success. The results of this research support the argument put forwarded by Komin (1991) that Thai culture is characterised as an ego-oriented society, which emphasises the importance of face-saving as a value. This value has accelerated the degree of material acquisition. In addition, Komin (1991) asserts that the flexibility and adjustment orientation value of Thai culture makes the influence of western culture easier to be picked up and transferred in Thailand.

The results from the direct and indirect effect analysis indicated that materialism results in less utilisation of B2B technology. In the researcher's opinion, even though the influence of western values seems to facilitate the adoption of western technology (e.g. the Internet); however, in fact, western materialism contributes to the cultural misfit in the B2B technology adoption in Thailand. This may be because the western values associated with B2B technology are not appropriate for implementation in the Thai business context. In addition, referring to the discussion on the findings of the preliminary interviews in Chapter 3, most of the interviewees addressed the importance of how to follow western trends by adopting western technologies; however, they were not realizing the benefits from the technology adoption in bottom-line terms. One possible explanation could be that, in the Thai firms' points of view, acquiring western technologies seems to imply success and maintains face-saving values in social status, or what Richins and Dawson (1992) refer to as the possession-defined success. However, this only demonstrates the superficial level of the adoption. The researcher observed during the preliminary interviews that most of the interviewees emphasised having B2B technology, but were not utilising the technology. Thus, the results of the structural model confirm the findings from the preliminary interviews as discussed in Chapter 3.

5.3 Discussion of B2B technology adoption in Thailand

An examination of the conditions facilitating B2B technology in the Thai tourism industry reveals some interesting points on the role of local culture affecting the success of B2B technology transfer to Thailand. This research found evidence to suggest that Thai culture does shape the appropriateness of B2B technology adoption in the Thai tourism industry. The findings highlight some contradictory aspects of the benefits of B2B technology claimed in western countries and the practicality of its adoption in Thailand. This leads to a critique on the expected benefits from B2B technology in developing countries, especially in Asian countries, where there is a significant cultural difference from western culture. For instance, westerners believe that the Internet will enhance the networking capabilities of companies which will lead to a better competitive position and also bridge the gap between business people of different nations and cultures. However, it is argued that this may not simulate trading opportunities in an Asian context. For example, personal relationships in the Thai context emphasise the role of trust among insiders (Hammond and Glenn 2004).

Therefore, developing countries such as Thailand should consider cultural aspects when adopting B2B technology. Although Thailand has the economic pressure to adopt these technologies as part of globalisation process to survive on an international scale, it can be seen that the adoption of B2B technology does not always create the same benefits for local Thai firms as it does for western firms (e.g. Humphrey et al. 2003; Moodley 2002a, 2002b; Moodley and Morris 2004). Wong and Ahuvia (1998) point out that, even though Asian society consumes the same products as western societies, this does not mean that they are consumed for the same reasons. Material items can be easily moved or copied, but their meaning is difficult to transfer across cultures (Wong and Ahuvia 1998). Thus, the Thai government and practitioners cannot assume that mimicking western IT products and services will be successful in the Thai context.

This study provides empirical evidence with respect to the importance of adopting appropriate B2B technology in Thailand. The results of this study conclude that cultural

fit is a crucial factor in determining the success or failure of B2B technology transfer in the globalisation process. Firms in developing countries, particularly Thailand, that choose technology inappropriate to their needs, are most likely heading to the failure of technology adoption. Hence, to maximize the benefits of the B2B e-commerce adoption, firms in Thailand should adopt technology that is appropriate to their local needs. It is suggested that the Thai government and practitioners should design e-strategies by considering the four cultural fit factors, which were identified by this study. These are personal relationships, trust, an ability to communicate in the English language and materialism.

5.4 Summary of research implications

This research has yielded some interesting findings with respect to the effect of factors influencing the appropriateness of B2B technology adoption in Thailand. Responding to the research questions and objectives, a critical discussion was presented of what and how, and the extent to which factors influence the appropriateness of B2B technology adoption in Thailand. The main research question *"Does cultural fit/appropriateness influence the adoption of B2B technology in Thailand? If so, how?"* was answered and discussed. In brief, this study found that cultural fit does indeed influence the appropriateness of B2B technology adoption in Thailand. A better perceived fit between Thai culture and B2B technology results in better technology utilisation. Summaries of the research implications responding to each research objective, as discussed in Chapter 1, are presented as follows.

Responding to the first research objective*,* the proposed model to investigate the appropriateness of B2B technology adoption in Thailand was tested and validated. Combining both qualitative and quantitative data collection and analysis, the outcomes of the research model were sufficient and valid to predict B2B technology adoption in Thailand from the strategic fit perspective. The validity and reliability of the structural model and the survey instrument were tested. In addition, as discussed in section 2.7.2 of Chapter 2, the extended version of the TTF model to be used in the interorganisational context of B2B technology adoption and the incorporation of the

cultural fit factor were fully discussed. Furthermore, the significant and non-significant effects of each factor were fully discussed in section 5.2 of this chapter. Overall, the predictive power of this model of the firms' perceived performance of B2B technology adoption was 44.8 percent, which accounted for the variance in TTF and utilisation. In addition, the predictive power of utilisation was 12 percent, however, this only accounted for in the variance of cultural fit. As discussed previously, the weak predictive power of utilisation may also be explained by the voluntary use of the system. Moreover, the moderating effect of the culture on TTF was tested.

The second objective was to investigate the impact of Thai business culture on the appropriateness of B2B technology adoption in the Thai tourism industry. Preliminary interviews with government officials and practitioners in the Thai tourism industry were conducted and five cultural fit factors were identified. These are personal relationships, long-term relationships, trust, ability to communicate in the English language and materialism. Nevertheless, according to the results from the structural model analysis using PLS, the long-term relationships factor was dropped because it was not found to be of statistical significance. Furthermore, as discussed in section 5.2.3 with regard to the findings of the structural model analysis, the higher the perception of cultural misfit, the less is the utilisation of B2B technology by firms. Among all these factors, personal relationships seems to be the strongest factor hindering the appropriateness of B2B technology adoption, followed by ability to communicate in the English language, trust and materialism. Moreover, the practical implications of Thai culture on the appropriateness of B2B technology adoption in Thailand were discussed in section 5.3. It seemed that maximizing the use of B2B technology and encouraging online transactions and activities, were the main problems of B2B technology adoption in Thailand.

To serve the third research objective, the precursors of utilisation were redefined and tested to suit the investigation of B2B technology transfer in the Thai business context, in particular the cultural fit factor. The literature review revealed that the precursors of utilisation were under researched and mainly tested in an individual level of intra-organisational context of IT adoption. The study redefined the precursors of utilisation in order to apply the TTF model in the inter-organisational context of the

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appropriateness of B2B technology adoption in developing countries, namely Thailand. Three main factors in utilisation are cultural fit, nature of business relationships and readiness of technical infrastructure. All three main factors, which were set as second order factors, were then measured by a group of first order factors that related to each second order factor. Overall, as predicted, the results of this research indicated that cultural fit was the only statistically significant influence on the utilisation of B2B technology. The perception of readiness of technical infrastructure was found not to be of significance. Furthermore, this research found that normative pressure, which was the first order factor of the nature of relationships, had a direct influence on the firms' perceived performance.

The last research objective was to better understand the implications of perceived fit on the utilisation and performance of B2B technology adoption. The results of the study indicated that TTF had the strongest influence on the firms' performance. However, the findings revealed that TTF did not have a direct impact on utilisation, while culture moderated and increased the significant level of TTF on utilisation. Furthermore, this study found that a level of interdependency among firms in a social network was an important factor to indicate the perception of benefits from adopting B2B technology. In other words, the more firms' suppliers and customers adopt B2B technology, the more benefits will be perceived.

5.5 Conclusion

This chapter provided some explanation the of structural model analysis. The discussions of the structural model in this chapter attempt to provide further understanding of the appropriateness of B2B technology transfer to Thailand. In addition, the researcher's viewpoints about the influence of cultural fit on the appropriateness of B2B technology adoption based on the findings were discussed and some strategies for Thailand to succeed in the B2B technology adoption were suggested. In brief, appropriateness of B2B technology transfer was crucial and cultural fit was identified as a critical factor in technology adoption. The next chapter discusses the contributions of this research, limitations and directions of future research.

CHAPTER 6 CONCLUSION

6.1 Introduction

This chapter assesses potential contributions of the research to understanding of the appropriateness of B2B technology transfer to developing countries, particularly Thailand. First, it highlights how the findings may contribute to existing knowledge in terms of theoretical and practical contributions. Second, the limitations of the research are indicated. Lastly, the directions for future research are outlined.

6.2 Contribution of the research

This thesis represents perhaps the most expansive empirical investigation of appropriateness of B2B technology adoption in developing countries, particularly Thailand. It seeks to show how culture affects the way Thai businesses adopt B2B technology. While the analyses detailed in the preceding chapters have contributed towards answering the research questions and hypotheses, and contributed to gaps in the literature, this section summarizes some of the major contributions and their implications for practice.

6.2.1 Theoretical contribution

This research sets out to contribute to the literature on IT adoption theories in many ways. The review of literature indicates that there has been very limited study of international technology transfer of B2B technology (Kshetri and Dholakia 2002). Much of the previous research has attempted to investigate the adoption of B2B technology through various theoretical lenses (e.g. Kaefer and Bendoly 2004; Rao et al. 2003; Subramani 2004; Vickery et al. 2004). These studies in the B2B technology literature tend to be drawn from the experience in developed countries, and existing

theories are also implicitly grounded in this context. Unfortunately, the appropriateness of IT transfer to developing countries, to the knowledge of the researcher, has not been considered. This study highlights the issues on the appropriateness of B2B technology transfer to Thailand. It is one of the first studies that considers the implications of national culture in the adoption of B2B technology, particularly in the Thai business context. This research was motivated by the gap between the theoretical claims for B2B technology in western countries and the practicality of its adoption in developing countries. Despite the tremendous benefits offered by B2B technology to developing countries, the success of the technology is still in doubt and the failure of B2B technology adoption was addressed by previous studies. This study has demonstrated empirically that culture does impact the success of B2B adoption in the Thailand, thus filling some of the knowledge gap in explaining why Thailand is lagging in adoption of B2B technology from the cultural fit perspective.

Additionally, the thesis makes a contribution to the IT adoption literature in extending the task-technology fit model to investigate B2B technology adoption (Goodhue 1995; 1998; Goodhue and Thompson 1995). In addition, it is the first time that the TTF model has been applied in Thailand. This research incorporates the cultural fit concept into the task-technology fit model and extends the models to be used in the interorganisational context. This represents a step forward in the IT adoption literature because it is one of the first studies that combines theories of fit, theories of culture and interorganisational theories to investigate the success of B2B technology adoption. Derived from the strategic fit perspective, this study argues that the degree to which a firm's elements are aligned to support the use of B2B is important. The failure of B2B technology adoption is, in part, due to the lack of alignment between the technology and the firms' Internet and external business environments. Consequently, in addition to the task-technology fit factor, three contingency variables, cultural fit, nature of business relationships and readiness of technical infrastructure, were posited to be associated with utilisation of B2B technology.

Importantly, this thesis contributes to filling the knowledge gap by developing scales for testing the research model, in particular by measuring the cultural fit factor. As mentioned earlier, cultural fit is a relative new concept in the B2B technology adoption

area. Thus, responding to the issues of the appropriateness of B2B technology transfer to developing countries, this study has sought to understand culture-related issues that may impact inter-firm communication when adopting B2B technology. In addition, because little empirical literature was available to guide the measurement of Thai cultural values in relation to B2B adoption, the cultural fit factors were derived from the Thai cultural context and validated. First, a qualitative study was conducted to explore cultural issues, which then emerged from the study. Then, the research model and cultural fit factors were validated using a statistical tool, namely structural equation model with partial least squares (PLS).

Moreover, this thesis contributes by adding more rigorous understanding to IT adoption in Thailand, particularly within the cultural domain. This thesis also contributes by providing empirical evidence of western influence on e-commerce adoption in Thailand. Although western influence, such as the influence of globalisation, has long been addressed in the IT adoption literature, this is the first study to measure the degree of western influence on the adoption of B2B technology by adapting theories of materialism by Richins and Dawson (1992).

6.2.2 Practical contribution

The results of this study contribute to the realisation of the importance of appropriateness in the success of B2B technology adoption in Thailand. It provides more understanding of the complex relationships between Thai cultural factors and the effectiveness of B2B technology usage. The findings of this research provide practical benefits not only for the Thai government and practitioners, but also for western multinationals who wish to expand their IT products and services in Asian countries, particularly Thailand.

For practical contributions to Thailand, this study has shown that the adoption of B2B technology in Thailand is not simply a process of mimicking technology based on the western model. Rather, local cultural aspects shape adoption of the technology. This research suggests that to achieve high utilisation of B2B technology, it is important for

the Thai government and firms to adopt effective e-strategies that align with the local environment as discussed in section 5.3 of Chapter 5.

Furthermore, the findings of this study could also benefit western countries. The results could assist western multinationals to understand the behaviour of Thai people in their use of B2B technology. Williamson (2005) asserts that western multinationals operating in Asia need to rethink their strategies because Asia's competitive environment is undergoing a sea change. He comments that Asian consumers' demand for western technological products has shifted from the 'me-too' strategies to a higher demand for product quality. There has been delay in acceptance of mass production and standardised goods from western countries among Asian consumers. Instead, there is a growth demand for higher product quality, variety and customisation to the local consumers' needs. Thus, the researcher hopes that the findings of this thesis will contribute in helping western multinationals to succeed in expanding their marketing of B2B related services and products in Thailand.

6.3   Limitations of the study

One of the limitations of this study is the scope of the unit of analysis. This study is limited by concentrating only on the adoption of B2B technology in the tourism industry. In doing so, this study may restrict its findings to an industry context. Even though the findings of this thesis are quite in line with previous studies (e.g. Hongladarom 1999; Larpsiri and Speece 2003; Rotchanakitumnaul and Speece 2003; Tetiwat and Huff 2003; Thannasakit 1999; Thongjeen and Speece 2002), they are able to provide more in-depth understanding of why the uptake of e-commerce in Thailand has been slow. Caution should, however, be taken when generalising the conclusions.

Another limitation that needs to be addressed is the response rate. As mentioned in the discussion in Chapter 4, difficulties were encountered in the data collection for the main study, with the low response rate being largely due to the tsunami's impact in Southern Thailand. The small sample size provides less statistical power. Chin (2006e) asserts that this can cause the low predictive power (R-square) of the structural model of this

study. Thus, one fruitful direction for future research would be to replicate this study with another larger sample.

Furthermore, due to the low response rate in relation to the high number of constructs, this study has a limitation in measuring the secondary construct. Chin (2006e) recommended that one way to create measurement of the second order factor is by averaging the scores of the entire relevant first order constructs. However, although this method was adopted in this thesis, Chin (2006e) also suggests an alternative way to measure the secondary order construct. He asserts that the researcher can create questions to measure an overall attitude of the secondary order factor in the survey questionnaire. This may be worthwhile for future research.

Another limitation is that subjects of this study were representatives of the sub-population of firms that already had experience in adopting e-mail and e-marketplace. These firms tend to have higher technological readiness than non-adopters. However, it can be argued that the researcher may have difficulty in obtaining useful information from the non-adopters as they have no experience in using the B2B technology.

Finally, this research has been limited to the Thai cultural context. Thus, the explanation of the results may not be assumed to apply to other developing countries. Even though there are similarities in some cultural values of the Thai culture and other Asian countries, (for example, the concept of Guanxi in Chinese business and the concept of personal relationships in Thai business context), one cannot confidently assume that the results will be applicable to all developing countries.

6.4 Directions for future research

While the theoretical and empirical analyses of this thesis provide insights into the role of Thai culture in B2B technology adoption in Thailand, external replication of this study is essential for generalisation of the findings in this thesis. Future research can be extended in a number of ways. Firstly, according to the limitations discussed in section 6.3, duplication of this study can be done using a larger sample size, a variety of

industrial contexts and a variety of Asian countries. This will help to strengthen the validity of this research.

Secondly, the extension of this research can be done by modifying the research model. The results of this study showed that only cultural fit affected utilisation of the technology. This may also cause the low R-square score of the utilisation construct. Hence, the precursors of utilisation can be redefined and other factors relevant to B2B technology adoption in developing countries can be introduced. A factor that may be worthwhile to include in a future study is the influence from government on the adoption of B2B technology.

Finally, although this study has detected possible interaction between firm size and the utilisation of B2B technology, the focus of this thesis is not on a comparative analysis among firm sizes. In this study, the majority of the respondents (90 percent) are SMEs. Firm size was measured by the number of employees and set as a control variable. However, according to the results of analysis of control variables, which was discussed in section 4.5.7 of Chapter 4, it seemed that firm size had a significant impact on utilisation. Although the result of applying the control variables in the structural model did not change any of the significance levels of the path coefficient in the structural model, a larger scale of analysis could be done by collecting the data from firms of different sizes.

6.5 Concluding remarks

In summary, this study serves as a preliminary step toward the investigation of the role of cultural appropriateness in B2B technology adoption in developing countries, specifically Thailand. By successfully exploring the implications of Thai business culture on the behaviour of firms adopting B2B technology, the study has made significant theoretical and practical contributions. Even though globalisation seems to be pushing towards homogeneity and leading firms in developing countries to adopt B2B technology as in western countries, the results of this study indicate that national culture plays a significant role in shaping the adoption of B2B technology in Thailand.

In fact, it is crucial for Thai firms to adopt the appropriate B2B technology to gain maximum benefits. Nevertheless, there are some limitations related to the unit of analysis, response rate and the measuring of secondary order factors. Hence, this thesis suggests that future research can be conducted by replicating this study in other contexts, modifying the current model and extending the analysis by comparing different firm sizes.

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APPENDICIES

Appendix A : Published Supporting Papers

1) Vatanasakdakul. S. & D'Ambra, J. (2007). A conceptual model for e-commerce adoption in developing countries: a task-technology fit perspective, 'International Journal of Information Technology and Management, Special Issue on making sense of the 'e'phenomenon: The Essence of E-Commerce, E-Business, E-Government and E-Learning, vol.6, no.2-4

2) Vatanasakdakul. S. (2006). Reshaping e-commerce in Thailand: An exploratory study of e-commerce adoption for business to business communication in the Thai tourism industry from a cultural fit perspective, 17th Australasian Conference on Information Systems (ACIS), Adelaide, Australia.

3) Vatanasakdakul. S. & D'Ambra, John. (2006), An Exploratory study of the socio-cultural impact on the adoption of e-commerce for firms in the tourism industry of Thailand, 14th European Conference on Information Systems (ECIS), Goteborg, Sweden.

4) Vatanasakdakul. S. & D'Ambra, J. & Ramburuth, P. (2006), Is B2B e-commerce technology appropriate for developing countries?: A proposed conceptual model to investigate B2B e-commerce adoption in developing countries from a strategic fit perspective, Academy of World Business, Marketing & Management Development Conference, Paris, France.

Appendix B : Participant Consent Form

Approval No. 036143

PARTICIPANT INFORMATION STATEMENT (SURVEY)

Investigating the adoption of Internet technology for inter-firm communication in the Thai tourism industry

You are invited to participate in a study of the appropriateness of B2B e-commerce transfer to Thailand. I hope to learn more about the use of B2B e-marketplace (www.thaitravelmart.com) and e-mail in communicating between suppliers and corporate customers in the Thai tourism industry. This study will investigate how Thai socio-cultural factors influence the adoption of these technologies, and how they provide benefit to the Thai tourism industry. You have been selected as a possible participant in this study because your organization plays an important role in the adoption of www.thaitravelmart.com supported by Tourism Authority of Thailand.

We would be most grateful if you would participate in this study by filling in the survey questionnaire. We assure you that all information will be kept confidential. Any information that is obtained in connection with this study will be disclosed only with your permission, except as required by law. In any publication, information will be provided in such a way that you cannot be identified. In addition, if there is any further enquiry required, I may arrange for a follow-up interview at a time convenient for you. If you wish to obtain the final results of this study, please tick the appropriate box.

I wish to receive a copy of the results of this study.
☐ Yes. (Please provide your e-mail address and/or attached your name card)_____ ☐ No

In order to ensure that the results of the study are accurate as possible, I would most grateful if you could answer all the questions fully. I would appreciate it if you could complete and return the survey to the address below by **31st October 2005.**

Miss Savanid Vatanasakdakul
c/o Mrs. Yupa Vatanasakdakul
S.N. Development Co Ltd
195 Soi Charansanitwongse 66/1
Bangplad, Bangkok 10700
Thailand

If you have any questions, please feel free to ask me or Mrs. Yupa Vatanasakdakul. I can be contacted on 661-8195586 (Thailand) or 614-12785094 (Australia) or via email at savanid@student.unsw.edu.au.

Complaints may be directed to the Ethics Secretariat, The University of New South Wales, SYDNEY 2052 AUSTRALIA (phone 9385 4234, fax 9385 6648, email ethics.sec@unsw.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome. Your decision whether or not to participate will not prejudice your future relations with The University of New South Wales.

Thank you very much for your valuable time and contribution.

Yours sincerely,

Savanid Vatanasakdakul
PhD Candidate,
School of Information System,
University of New South Wales,
Australia

SYDNEY   2052   AUSTRALIA

Appendix C: Survey Questionnaire in the English language

SURVEY QUESTIONNAIRE

Investigating the adoption of Internet technology for inter-firm communication

in the Thai tourism industry

_____

This study is a part of my PhD thesis. I would be very grateful if you would kindly complete this survey. The purpose of the survey is to measure attitudes towards the use of e-marketplace (www.thaitravelmart.com) and the use of e-mail for business communication between suppliers and corporate customers in the tourism industry in Thailand. Below are some definitions for clarifying the terms used in this survey.

Customers = This study refers to **corporate customers** only.

E-marketplace = The term 'e-marketplace' refers to **www.thaitravelmart.com** of Tourism Authority of Thailand.

E-mail = E-mail is a short form of 'electronic mail'.

Electronic Data Interchange (EDI) = EDI is the computer-to-computer exchange of structured information, by agreed message standards, from one computer application to another by electronic means and with a minimum of human intervention. In common usage, EDI is understood to mean specific interchange methods agreed upon by national or international standards bodies for the transfer of business transaction data, with one typical application being the automated purchase of goods and services. There are three major sets of EDI standards. UN/EDIFACT, ANSI ASC X12 (X12) and the Uniform Communication Standard (UCS).

IT = IT is a short form of 'Information Technology'.

Local Area Network (LAN) = A small computer network at one office or physical location.

_____

Section 1: General information about your organisation and yourself

These questions relate most closely to your organisation and yourself. Please tick or write your responses that most **accurately describe your organisation and yourself**.

1. Name of organisation [Optional]_____
2. Please indicate the province that your company is located_____
3. Type of organisation [Please tick one box only]

☐ Travel Agent	☐ Hotel & Resort	☐ Theme Park
☐ Restaurant	☐ Spa	☐ Rental Transportation
☐ Diving	☐ Health Care	☐ Golf

225

4. What is the yearly revenue of the company? _____ Baht
5. How much is the yearly investment on IT?_____ Baht
6. Are you a Thai or Foreign company?
     ☐ Locally owned   ☐ Foreign owned   ☐ Joint Venture
7. Where is your target customers located?   ☐ Thailand   ☐ Overseas
8. Where is your target suppliers located?   ☐ Thailand   ☐ Overseas
9. How many employees are there in your company? _____persons
10. How many computers does your company have?_____ computers
11. How many computers have Internet access? _____ computers
12. Are the computers linked to a Local Area Network (LAN)?   ☐ Yes   ☐ No
13. How does your company access the Internet?
     ☐ Dialup   ☐ Broadband   ☐ Satellite   ☐ Other_____
14. Have you implemented Electronic Data Interchange (EDI)?   ☐ Yes   ☐ No
15. Does your computer system link to your suppliers or customers? Please give a short description of the use of this technology?

_____

_____

_____

16. How long has your company used e-marketplace? _____ years
17. How many hours a day do you use e-marketplace? _____hours
18. How many hours a day does your company use e-marketplace? _____hours
19. For what does your company commonly use e-marketplace (e.g. finding information, negotiation and ordering)?

_____

_____

_____

20. How long has your company used e-mail? _____ years
21. How many hours a day do you use e-mail? _____hours
22. How many hours a day does your company use e-mail? _____hours
23. How many e-mails do you or your company send in a day? _____ e-mails
24. For what does your company commonly use e-mail (e.g. finding information, negotiation and ordering)?

_____

_____

_____

25. Does your company have a website?   ☐ Yes   ☐ No (Go to question 28)
26. How often is it updated? ☐ Daily   ☐ Once a week   ☐ Once a month ☐ Less than once a month
27. How is the website being used? [You can tick more than one box]
     ☐   For providing information about the company, products and services
     ☐   For providing advanced functions such as online booking and online payment systems
28. How long have you been working for this company? _____years
29. What is your job title? _____
30. What is your level of education?
     ☐ Completed high school   ☐ College certificate
     ☐ Undergraduate degree   ☐ Postgraduate degree

31. How many years have you been using a PC?_____years
32. How many years have you been using the Internet?_____years
33. How would you rate your knowledge/skills with e-mail?
     1 = none   2 = novice   3 = somewhat familiar   4 = familiar   5 = very familiar
34. How would you rate your personal knowledge/skills with e-marketplace?
     1 = none   2 = novice   3 = somewhat familiar   4 = familiar   5 = very familiar

Section 2: Attitude towards Task-Technology-Fit

On a scale of 1 -7 (1= strongly disagree to 7=strongly agree), please rate your attitude towards the suitability and readiness of your organisation on the adoption of e-marketplace and e-mail from the questions below.

Ease of use	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
35. E-marketplace is convenient and easy to use.	1	2	3	4	5	6	7
36. It is easy for me to learn how to use e-marketplace.	1	2	3	4	5	6	7
37. E-mail is convenient and easy to use.	1	2	3	4	5	6	7
38. It is easy for me to learn how to use e-mail.	1	2	3	4	5	6	7

Training	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
39. My staff and I are getting the training that we need to be able to use e-marketplace effectively.	1	2	3	4	5	6	7
40. My staff and I are getting the training that we need to be able to use e-mail effectively.	1	2	3	4	5	6	7

IT support *(This includes support from technical IT staff or non-technical experts or external consultants.)*	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Not Applicable
41. IT staff are efficient and timely in providing assistance.	1	2	3	4	5	6	7	9
42. IT staff have the necessary technical expertise to support the organisation IT problems.	1	2	3	4	5	6	7	9

Communication	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
43. Information on the e-marketplace is always current and up-to-date.	1	2	3	4	5	6	7
44. I get access to current business opportunities using e-marketplace.	1	2	3	4	5	6	7
45. E-marketplace allows me to get access on international events better than attending travel marts.	1	2	3	4	5	6	7
46. I use e-marketplace to source for overseas customers.	1	2	3	4	5	6	7

47. I use <u>e-marketplace</u> to source for overseas suppliers.	1	2	3	4	5	6	7

Mediation	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
48. By using <u>e-marketplace</u>, I can avoid meeting face-to-face with my suppliers.	1	2	3	4	5	6	7
49. By using <u>e-marketplace</u>, I can avoid meeting face-to-face with my customers.	1	2	3	4	5	6	7
50. By using <u>e-mail</u>, I can avoid meeting face-to-face with my suppliers.	1	2	3	4	5	6	7
51. By using <u>e-mail</u>, I can avoid meeting face-to-face with my customers.	1	2	3	4	5	6	7

Section 3: Attitude towards national culture

These questions ask about your attitude towards the suitability of Thai business culture for the adoption of e-marketplace and e-mail.

Personal relationships	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
52. My business opportunities are from my personal relationships such as friends, people whom I know, family rather than using <u>e-marketplace.</u>	1	2	3	4	5	6	7
53. My business opportunities are based on recommendations from friends and customers rather than using <u>e-marketplace</u>.	1	2	3	4	5	6	7
54. My business opportunities are from my personal relationship such as friends, family rather than using <u>e-mail</u>.	1	2	3	4	5	6	7
55. My business opportunities are based on my business network rather than marketing using <u>e-mail</u>.	1	2	3	4	5	6	7
56. My business opportunities are based on recommendations from friends and customers rather than marketing using <u>e-mail</u>.	1	2	3	4	5	6	7

Long-term relationships	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
57. <u>E-marketplace</u> helps me to facilitate a long-term relationship with my suppliers.	1	2	3	4	5	6	7
58. <u>E-marketplace</u> helps me to facilitate a long-term relationship with my customers.	1	2	3	4	5	6	7

Trust	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
59. I would trust information from speaking face-to-face with suppliers rather than from the e-marketplace.	1	2	3	4	5	6	7
60. I would trust information from speaking face-to-face with customers rather than from the e-marketplace.	1	2	3	4	5	6	7
61. I would trust information from speaking face-to-face with suppliers rather than from e-mail.	1	2	3	4	5	6	7
62. I would trust information from speaking face-to-face with customers rather than from e-mail.	1	2	3	4	5	6	7

Ability to communicate in the English Language	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
63. It is difficult for me to communicate in the e-marketplace effectively using English language.	1	2	3	4	5	6	7
64. It is difficult for me to explain detailed information to my trading partners in the e-marketplace using English language.	1	2	3	4	5	6	7
65. It is difficult for me to communicate by e-mail effectively in the English language.	1	2	3	4	5	6	7
66. It is difficult for me to explain detailed information to my trading partners by e-mail in the English language.	1	2	3	4	5	6	7

Materialism	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
67. I admire Western countries that use Internet technology for their businesses.	1	2	3	4	5	6	7
68. Adopting e-marketplace is important because it is necessary to follow the Western practice.	1	2	3	4	5	6	7
69. Adopting e-mail is important because it is necessary to follow the Western practice.	1	2	3	4	5	6	7

Section 4: Readiness of technological infrastructure

These questions ask about your attitude towards the quality and security of Internet access in Thailand on the adoption of e-marketplace and e-mail.

How do you rate the availability and quality of infrastructure for Internet access in Thailand?	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
70. I often face telecommunication problems such as slow performance.	1	2	3	4	5	6	7
71. I often face telecommunication problems such as unreliable connection.	1	2	3	4	5	6	7

72. Our company has security concerns with communicating via e-marketplace.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
73. Our company has security concerns with communicating via <u>e-mail</u>.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

Section 5: Nature of business relationships

These questions ask about your attitude towards the nature of business relationships between your organisation and trading partners and competitors that may influence the adoption of e-marketplace and e-mail.

Pressures from competitors	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
74. My main competitors who adopt <u>e-marketplace</u> are perceived favourably by suppliers.	1	2	3	4	5	6	7
75. My main competitors who adopt <u>e-marketplace</u> are perceived favourably by customers.	1	2	3	4	5	6	7
76. My main competitors who adopt <u>e-mail</u> are perceived favourably by suppliers.	1	2	3	4	5	6	7
77. My main competitors who adopt <u>e-mail</u> are perceived favourably by customers.	1	2	3	4	5	6	7

Pressures from trading partners	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
78. My main suppliers have a strong influence on my business. If there is a demand from them to use <u>e-marketplace</u> for business communication, I will most likely adopt it.	1	2	3	4	5	6	7
79. My main customers have a strong influence on my business. If there is a demand from them to use <u>e-marketplace</u> for business communication, I will most likely adopt it.	1	2	3	4	5	6	7
80. My main suppliers have a strong influence on my business. If there is a demand from them to use <u>e-mail</u> for business communication, I will most likely adopt it.	1	2	3	4	5	6	7
81. My main customers have a strong influence on my business. If there is a demand from them to use <u>e-mail</u> for business communication, I will most likely adopt it.	1	2	3	4	5	6	7

Normative pressures	None	Much less than half	Little less than half	Half	Little more than half	Much more than	All have adopted
82. What is the extent of <u>e-marketplace</u> adoption by your firm's suppliers currently?	1	2	3	4	5	6	7

83. What is the extent of <u>e-marketplace</u> adoption by your firm's customers currently?	1	2	3	4	5	6	7
84. What is the extent of <u>e-mail</u> adoption by your firm's suppliers currently?	1	2	3	4	5	6	7
85. What is the extent of <u>e-mail</u> adoption by your firm's customers currently?	1	2	3	4	5	6	7

Section 6: Performance

These questions ask your attitude towards the impact of e-marketplace and e-mail adoption on your organisational performance.

Using <u>e-marketplace and e-mail</u>,	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
86. …increases the effectiveness and productivity in my job/business.	1	2	3	4	5	6	7
87. …is an important tool in the performance of my job/business.	1	2	3	4	5	6	7
88. …helps to accomplish my work more quickly.	1	2	3	4	5	6	7
89. …helps create new business opportunities.	1	2	3	4	5	6	7
90. …helps to reduce operational cost.	1	2	3	4	5	6	7

Section 7: Respondent information

Your name:_____

Contact number: _____

E-mail address: _____

*****Thank you very much for your time and for completing this survey. ******

Appendix D: Survey Questionnaire in the Thai language

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แบบสอบถามเพื่อการวิจัย

เรื่อง

การสำรวจการใช้อินเทอร์เน็ตสำหรับการสื่อสารระหว่างบริษัท/องค์กรต่างๆ ในอุตสาหกรรมการท่องเที่ยวของประเทศไทย

</div>

การเก็บรวบรวมข้อมูลในครั้งนี้เป็นส่วนหนึ่งของการเรียนดุษฎีนิพนธ์ (ปริญญาเอก) ของดิฉันโดยมีวัตถุประสงค์เพื่อศึกษาวิจัยทัศนคติของบริษัทในกลุ่มอุตสาหกรรมการท่องเที่ยวของประเทศไทยต่อการใช้ตลาดกลางอิเล็กทรอนิกส์ซึ่งในที่นี้คือ (www.thaitravelmart.com) และการใช้อีเมล์ในการติดต่อสื่อสารทางธุรกิจระหว่างซัพพลายเออร์และลูกค้านิติบุคคล ดิฉันได้ให้คำจำกัดความสำหรับศัพท์เฉพาะที่ใช้การศึกษาวิจัยดังต่อไปนี้

ลูกค้า = หมายถึง <u>ลูกค้าที่เป็นนิติบุคคล</u>

ตลาดกลางอิเล็กทรอนิกส์ = หมายถึง <u>**www.thaitravelmart.com**</u> ของการท่องเที่ยวแห่งประเทศไทย

อีเมล์ = หมายถึง จดหมายอิเล็กทรอนิกส์

Electronic Data Interchange (EDI) = หมายถึง ระบบการรับส่งข้อมูลอิเล็กทรอนิคโดยใช้มาตราฐานสากลผ่านทางคอมพิวเตอร์ถึงคอมพิวเตอร์ โดยทั่วไปแล้วระบบมาตราฐานของ EDI ที่ใช้กันคือ UN/EDIFACT, ANSI ASC X12 (X12) และ the Uniform Communication Standard (UCS).

LAN = ย่อมาจาก Local Area Network หมายถึง การเชื่อมต่อระบบเครือข่ายคอมพิวเตอร์ภายในบริษัท

> **ส่วนที่ 1:** ข้อมูลทั่วไปเกี่ยวกับองค์กรของท่านและตัวท่านเอง

1. ชื่อบริษัท/องค์กร (จะตอบหรือไม่ก็ได้) _____
2. บริษัท/องค์กรตั้งอยู่ที่จังหวัดใด_____
3. ธุรกิจของบริษัท/องค์กร [โปรดเลือกเพียง 1 ข้อ]

   ☐ ตัวแทนท่องเที่ยว ☐ โรงแรม/รีสอร์ท ☐ สวนสนุก (Theme Park)

   ☐ ภัตตาคาร/ร้านอาหาร ☐ สปา (Spa) ☐ บริษัทให้เช่ายานพาหนะ

   ☐ ดำน้ำ (Diving) ☐ ศูนย์สุขภาพ (Health Care) ☐ สนามกอล์ฟ
4. รายได้ของบริษัทต่อปี_____ บาท
5. งบประมาณลงทุนทางเทคโนโลยีสารสนเทศของบริษัทต่อปี_____ บาท
6. บริษัทเป็นของคนไทยหรือต่างชาติหรือร่วมลงทุน ☐ ไทย ☐ ต่างชาติ ☐ ร่วมลงทุน
7. ลูกค้ากลุ่มเป้าหมายของท่านอยู่ที่ ☐ ประเทศไทย ☐ ต่างประเทศ
8. ซัพพลายเออร์กลุ่มเป้าหมายของท่านอยู่ที่ ☐ ประเทศไทย ☐ ต่างประเทศ

9. จำนวนพนักงานของบริษัท _____คน

10. บริษัทของท่านมีคอมพิวเตอร์จำนวน _____ เครื่อง

11. คอมพิวเตอร์ที่สามารถใช้อินเตอร์เน็ตได้จำนวน _____ เครื่อง

12. บริษัทของท่านมีการใช้ระบบ LAN ในการติดต่อกันภายในหรือไม่?　　□ มี　　　□ ไม่มี

13. บริษัทของท่านเชื่อมต่อกับอินเตอร์เน็ตอย่างไร

　　　　□ ต่อเข้ากับสายโทรศัพท์ (Dialup)　　　□ อินเตอร์เน็ตความเร็วสูง (Broadband)

　　　　□　ดาวเทียม (Satellite)　　　　　□ อื่นๆ_____

14. บริษัทของท่านมีการใช้ระบบ Electronic Data Interchange (EDI) หรือไม่?　□ มี　　　□ ไม่มี

15. ปัจจุบันท่านมีการใช้ระบบคอมพิวเตอร์เชื่อมโยงกับซัพพลายเออร์หรือลูกค้าของท่านหรือไม่ กรุณาอธิบายแบบย่อๆ

_____

_____

_____

16. บริษัทของท่านได้ใช้ ตลาดกลางอิเล็กทรอนิกส์มาเป็นระยะเวลา _____ ปี

17. ตัวท่านใช้บริการตลาดกลางอิเล็กทรอนิกส์ เป็นระยะเวลากี่ชั่วโมงต่อหนึ่งวัน (โดยเฉลี่ย)_____ชั่วโมง

18. บริษัทของท่านใช้บริการตลาดกลางอิเล็กทรอนิกส์ เป็นระยะเวลากี่ชั่วโมงต่อหนึ่งวัน (โดยเฉลี่ย)_____ชั่วโมง

19. โดยทั่วไปแล้วบริษัทของท่านใช้บริการตลาดกลางอิเล็กทรอนิกส์เพื่อวัตถุประสงค์ใด เช่น การค้นหาข้อมูลทั่วไป, การเจรจาต่อรองทางธุรกิจ, การสั่งจอง/ซื้อ เป็นต้น

_____

_____

_____

20. บริษัทของท่านได้ใช้อีเมล์มาเป็นระยะเวลา _____ปี

21. ตัวท่านใช้อีเมล์เป็นระยะเวลากี่ชั่วโมงต่อหนึ่งวัน (โดยเฉลี่ย) _____ชั่วโมง

22. บริษัทของท่านใช้อีเมล์เป็นระยะเวลากี่ชั่วโมงต่อหนึ่งวัน (โดยเฉลี่ย) _____ชั่วโมง

23. จำนวนอีเมล์ที่บริษัทของท่านหรือตัวท่านส่งต่อวันประมาณ _____ฉบับ

24. โดยทั่วไปแล้วบริษัทของท่านใช้อีเมล์เพื่อวัตถุประสงค์ใด เช่น การค้นหาข้อมูลทั่วไป, การเจรจาต่อรองทางธุรกิจ, การสั่งจอง/ซื้อ เป็นต้น

_____

_____

_____

25. บริษัทของท่านมีเว็บไซต์ (Website) หรือไม่　　□ มี　　　□ ไม่มี (ข้ามไปที่ข้อ 28)

26. เว็บไซต์มีการปรับปรุงบ่อยแค่ไหน　□ ทุกวัน　□ ทุกสัปดาห์　□ ทุกเดือน□ น้อยกว่าหนึ่งครั้งต่อเดือน

27. บริษัทของท่านใช้เว็บไซต์เพื่อวัตถุประสงค์อะไร? [สามารถตอบได้มากกว่าหนึ่งคำตอบ]

　　　　□ เพื่อเป็นการให้ข้อมูลเกี่ยวกับ บริษัท สินค้าและบริการ

　　　　□ เพื่อให้บริการขั้นก้าวหน้า เช่น การสั่งจองสินค้าและการชำระเงินผ่านออนไลน์ เป็นต้น

28. ระยะเวลาที่ท่านทำงานกับบริษัทนี้ _____ ปี

29. ตำแหน่งงานของท่าน_____

30. วุฒิการศึกษาขั้นสูงสุดของท่านคือ

☐ จบชั้นมัธยมปลาย ☐ อนุปริญญา ☐ ปริญญาตรี ☐ ปริญญาโท หรือ สูงกว่า

31. ท่านใช้คอมพิวเตอร์มาเป็นระยะเวลา _____ ปี

32. ท่านใช้อินเตอร์เน็ตมาเป็นระยะเวลา _____ ปี

33. โปรดประเมินความรู้ความสามารถในการใช้อีเมล์ของท่าน

    1 = ไม่มีเลย   2 = พอรู้บ้าง   3 = ค่อนข้างดี   4 = ดี   5 = ดีมาก

34. โปรดประเมินความรู้ความสามารถในการใช้ตลาดกลางอิเล็กทรอนิกส์ของท่าน

    1 = ไม่มีเลย   2 = พอรู้บ้าง   3 = ค่อนข้างดี   4 = ดี   5 = ดีมาก

ส่วนที่ 2: **การวัดทัศนคติของท่านที่มีต่อความเหมาะสมและความพร้อมของบริษัทของท่านต่อการใช้ตลาดกลางอิเล็กทรอนิกส์และอีเมล์**

ความง่ายต่อการใช้ (Ease of use)	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉย ๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก
35. <u>ตลาดกลางอิเล็กทรอนิกส์</u>อำนวยความสะดวกและง่ายต่อการใช้	1	2	3	4	5	6	7
36. การเรียนรู้การใช้<u>ตลาดกลางอิเล็กทรอนิกส์</u>สำหรับท่านเป็นสิ่งที่ง่าย	1	2	3	4	5	6	7
37. <u>อีเมล์</u>อำนวยความสะดวกและง่ายต่อการใช้	1	2	3	4	5	6	7
38. การเรียนรู้การใช้<u>อีเมล์</u>สำหรับท่านเป็นสิ่งที่ง่าย	1	2	3	4	5	6	7

การฝึกอบรม (Training)	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉย ๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก
39. พนักงานที่เกี่ยวข้องได้รับการฝึกอบรมอย่างเพียงพอในการใช้<u>ตลาดกลางอิเล็กทรอนิกส์</u>อย่างมีประสิทธิภาพ	1	2	3	4	5	6	7
40. พนักงานที่เกี่ยวข้องได้รับการฝึกอบรมอย่างเพียงพอในการใช้<u>อีเมล์</u>อย่างมีประสิทธิภาพ	1	2	3	4	5	6	7

เจ้าหน้าที่ระบบสารสนเทศ (IT support) *(รวมถึงเจ้าหน้าที่ระบบสารสนเทศของบริษัท, ที่ปรึกษาภายนอก และผู้เชี่ยวชาญส่วนอื่นๆ ที่มีความสามารถและรับผิดชอบทางด้านเทคโนโลยีสารสนเทศ)*	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉย ๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก	ไม่ทราบ
41. เจ้าหน้าที่ระบบสารสนเทศทำงานได้อย่างมีประสิทธิภาพและให้ความช่วยเหลือได้อย่างรวดเร็ว	1	2	3	4	5	6	7	9
42. เจ้าหน้าที่ระบบสารสนเทศมีความเชี่ยวชาญทางด้านเทคนิคอย่างเพียงพอที่จะแก้ปัญหาทางคอมพิวเตอร์ของบริษัท	1	2	3	4	5	6	7	9

การสื่อสาร (Communication)	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉยๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก
43. ข้อมูลจากทางตลาดกลางอิเล็กทรอนิกส์เป็นข้อมูลที่ทันสมัยอยู่เสมอ	1	2	3	4	5	6	7
44. ท่านสามารถเข้าถึงข้อมูลที่ทันต่อโอกาสทางธุรกิจได้จากการใช้ตลาดกลางอิเล็กทรอนิกส์	1	2	3	4	5	6	7
45. ตลาดกลางอิเล็กทรอนิกส์ช่วยให้ท่านได้รับข่าวสารในต่างประเทศต่างๆ ได้ดีกว่าการเข้าร่วมนิทรรศการแสดงการท่องเที่ยว (travel marts)	1	2	3	4	5	6	7
46. ท่านใช้ตลาดกลางอิเล็กทรอนิกส์เพื่อการค้นหาลูกค้าในต่างประเทศ	1	2	3	4	5	6	7
47. ท่านใช้ตลาดกลางอิเล็กทรอนิกส์เพื่อการค้นหาซัพพลายเออร์ในต่างประเทศ	1	2	3	4	5	6	7

สื่อกลาง (Mediation)	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉยๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก
48. ท่านสามารถหลีกเลี่ยงการติดต่อแบบพูดคุยพบหน้าโดยตรงกับซัพพลายเออร์ด้วยการใช้ตลาดกลางอิเล็กทรอนิกส์	1	2	3	4	5	6	7
49. ท่านสามารถหลีกเลี่ยงการติดต่อแบบพูดคุยพบหน้าโดยตรงกับลูกค้าด้วยการใช้ตลาดกลางอิเล็กทรอนิกส์	1	2	3	4	5	6	7
50. ท่านสามารถหลีกเลี่ยงการติดต่อแบบพูดคุยพบหน้าโดยตรงกับลูกค้าด้วยการใช้อีเมล์	1	2	3	4	5	6	7
51. ท่านสามารถหลีกเลี่ยงการติดต่อแบบพูดคุยพบหน้าโดยตรงกับซัพพลายเออร์ด้วยการใช้อีเมล์	1	2	3	4	5	6	7

ส่วนที่ 3: การวัดทัศนคติของท่านที่มีต่อความเหมาะสมเกี่ยวกับการใช้ตลาดกลางอิเล็กทรอนิกส์และอีเมล์ในวัฒนธรรมของธุรกิจไทย

ความสัมพันธ์ส่วนตัว (Personal relationships)	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉยๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก
52. โอกาสทางธุรกิจของท่านขึ้นอยู่กับการสร้างเครือข่ายทางธุรกิจโดยใช้ความสัมพันธ์ส่วนตัว เช่น จากเพื่อนฝูง, คนรู้จัก, ครอบครัว มากกว่าการใช้ตลาดกลางอิเล็กทรอนิกส์	1	2	3	4	5	6	7

	1	2	3	4	5	6	7
53. โอกาสทางธุรกิจของท่านขึ้นอยู่กับการแนะนำจากเพื่อนๆและลูกค้ามากกว่าการใช้<u>ตลาดกลางอิเล็กทรอนิกส์</u>	1	2	3	4	5	6	7
54. โอกาสทางธุรกิจของท่านขึ้นอยู่กับการสร้างเครือข่ายทางธุรกิจโดยใช้ความสัมพันธ์ส่วนตัว เช่น จากเพื่อนฝูง, คนรู้จัก, ครอบครัว มากกว่าการใช้<u>อีเมล์</u>	1	2	3	4	5	6	7
55. โอกาสทางธุรกิจของท่านขึ้นอยู่กับเครือข่ายทางธุรกิจมากกว่าการทำตลาดด้วยการใช้<u>อีเมล์</u>	1	2	3	4	5	6	7
56. โอกาสทางธุรกิจของท่านขึ้นอยู่กับการแนะนำจากเพื่อนๆและลูกค้ามากกว่าการใช้<u>อีเมล์</u>	1	2	3	4	5	6	7

การรักษาความสัมพันธ์ระยะยาว (Long-term relationships)	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉย ๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก
57. <u>ตลาดกลางอิเล็กทรอนิกส์</u>มีส่วนช่วยในการรักษาความสัมพันธ์ระยะยาวกับซัพพลายเออร์ของท่าน	1	2	3	4	5	6	7
58. <u>ตลาดกลางอิเล็กทรอนิกส์</u>มีส่วนช่วยในการรักษาความสัมพันธ์ระยะยาวกับลูกค้าของท่าน	1	2	3	4	5	6	7

ความน่าเชื่อถือ (Trust)	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉย ๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก
59. ท่านเชื่อข้อมูลที่ได้จากการติดต่อแบบพูดคุยพบหน้าโดยตรงกับซัพพลายเออร์มากกว่าข้อมูลที่ได้จาก<u>ตลาดกลางอิเล็กทรอนิกส์</u>	1	2	3	4	5	6	7
60. ท่านเชื่อข้อมูลที่ได้จากการติดต่อแบบพูดคุยพบหน้าโดยตรงกับลูกค้ามากกว่าข้อมูลที่ได้จาก<u>ตลาดกลางอิเล็กทรอนิกส์</u>	1	2	3	4	5	6	7
61. ท่านเชื่อข้อมูลที่ได้จากการติดต่อแบบพูดคุยพบหน้าโดยตรงกับซัพพลายเออร์มากกว่าข้อมูลที่ได้จาก<u>อีเมล์</u>	1	2	3	4	5	6	7
62. ท่านเชื่อข้อมูลที่ได้จากการติดต่อแบบพูดคุยพบหน้าโดยตรงกับลูกค้ามากกว่าข้อมูลที่ได้จาก<u>อีเมล์</u>	1	2	3	4	5	6	7

ความสามารถในการสื่อสารภาษาอังกฤษ (Ability to communicate in the English Language)	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉย ๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก
63. การติดต่อสื่อสารโดยใช้ภาษาอังกฤษผ่าน<u>ตลาดกลางอิเล็กทรอนิกส์</u>อย่างมีประสิทธิภาพสำหรับท่านเป็นสิ่งที่ยาก	1	2	3	4	5	6	7

64. การอธิบายข้อมูลอย่างละเอียดให้กับคู่ค้าโดยใช้ภาษาอังกฤษผ่าน<u>ตลาดกลาง อิเล็กทรอนิกส์</u>อย่างมีประสิทธิภาพสำหรับท่านเป็นสิ่งที่ยาก	1	2	3	4	5	6	7
65. การติดต่อสื่อสารโดยใช้ภาษาอังกฤษทาง<u>อีเมล์</u>อย่างมีประสิทธิภาพสำหรับท่าน เป็นสิ่งที่ยาก	1	2	3	4	5	6	7
66. การอธิบายข้อมูลอย่างละเอียดให้กับคู่ค้าโดยใช้ภาษาอังกฤษทาง<u>อีเมล์</u>อย่างมี ประสิทธิภาพสำหรับท่านเป็นสิ่งที่ยาก	1	2	3	4	5	6	7

อิทธิพลจากทางตะวันตก (Materialism)	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉยๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก
67. ท่านชื่นชมประเทศทางตะวันตกที่ใช้อินเตอร์เน็ตเทคโนโลยีในการทำธุรกิจ	1	2	3	4	5	6	7
68. การเลือกใช้<u>ตลาดกลางอิเล็กทรอนิกส์</u>เป็นสิ่งสำคัญเพราะเป็นสิ่งจำเป็นที่ต้อง ทำตามแบบอย่างตะวันตก	1	2	3	4	5	6	7
69. การเลือกใช้<u>อีเมล์</u>เป็นสิ่งสำคัญเพราะเป็นสิ่งจำเป็นที่ต้องทำตามแบบอย่าง ตะวันตก	1	2	3	4	5	6	7

ส่วนที่ 4 : การวัดทัศนคติของท่านที่มีต่อความพร้อมของโครงสร้างพื้นฐานของระบบโทรคมนาคมของไทยใน การเข้าถึงอินเตอร์เน็ต

คุณภาพของโครงสร้างพื้นฐานของระบบโทรคมนาคมของไทยในการเข้าถึง อินเตอร์เน็ต	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉยๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก
70. ท่านมักจะพบปัญหาในการใช้สื่อสาร เช่น ความช้าของระบบอินเทอร์เน็ต เป็น ต้น	1	2	3	4	5	6	7
71. ท่านมักจะพบปัญหาในการสื่อสาร เช่น สายหลุด หรือ การล่มของการเชื่อมต่อ ทางอินเทอร์เน็ต เป็นต้น	1	2	3	4	5	6	7
72. บริษัทของท่านมีความเป็นห่วงเรื่องความปลอดภัยของข้อมูลในการใช้<u>ตลาด กลางอิเล็กทรอนิกส์</u>	1	2	3	4	5	6	7
73. บริษัทของท่านมีความเป็นห่วงเรื่องความปลอดภัยของข้อมูลในการใช้<u>อีเมล์</u>	1	2	3	4	5	6	7

ส่วนที่ 5: การวัดทัศนคติของท่านที่มีต่อความความกดดันทางธุรกิจต่อการใช้ตลาดกลางอิเล็กทรอนิกส์และอีเมล์

แรงกดดันจากคู่แข่ง	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉย ๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างยิ่ง
74. คู่แข่งสำคัญของบริษัทซึ่งใช้ตลาดกลางอิเล็กทรอนิกส์ทำให้เขาได้รับความนิยมจากซัพพลายเออร์	1	2	3	4	5	6	7
75. คู่แข่งสำคัญของบริษัทซึ่งใช้ตลาดกลางอิเล็กทรอนิกส์ทำให้เขาได้รับความนิยมจากลูกค้า	1	2	3	4	5	6	7
76. คู่แข่งสำคัญของบริษัทซึ่งใช้อีเมล์ทำให้เขาได้รับความนิยมจากซัพพลายเออร์	1	2	3	4	5	6	7
77. คู่แข่งสำคัญของบริษัทซึ่งใช้อีเมล์ทำให้เขาได้รับความนิยมจากลูกค้า	1	2	3	4	5	6	7

แรงกดดันจากคู่ค้า	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉย ๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างยิ่ง
78. หากซัพพลายเออร์รายสำคัญที่มีอิทธิพลอย่างมากต่อธุรกิจของท่าน เสนอขอให้ท่านใช้ตลาดกลางอิเล็กทรอนิกส์เพื่อการติดต่อธุรกิจต่อกัน ท่านยินดีที่จะเปลี่ยนตาม	1	2	3	4	5	6	7
79. หากลูกค้ารายสำคัญที่มีอิทธิพลอย่างมากต่อธุรกิจของท่าน เสนอขอให้ท่านใช้ตลาดกลางอิเล็กทรอนิกส์เพื่อการติดต่อธุรกิจต่อกัน ท่านยินดีที่จะเปลี่ยนตาม	1	2	3	4	5	6	7
80. หากซัพพลายเออร์รายสำคัญที่มีอิทธิพลอย่างมากต่อธุรกิจของท่าน เสนอขอให้ท่านใช้อีเมล์เพื่อการติดต่อธุรกิจต่อกัน ท่านยินดีที่จะเปลี่ยนตาม	1	2	3	4	5	6	7
81. หากลูกค้ารายสำคัญที่มีอิทธิพลอย่างมากต่อธุรกิจของท่าน เสนอขอให้ท่านใช้อีเมล์เพื่อการติดต่อธุรกิจต่อกัน ท่านยินดีที่จะเปลี่ยนตาม	1	2	3	4	5	6	7

แรงกดดันต่อสภาพธุรกิจที่เปลี่ยนไป	ไม่มีเลย	มากกว่าที่ใช้อยู่เล็กน้อย	เดือนครั้งหนึ่ง	ครั้งหนึ่ง	มากกว่าครึ่งเล็กน้อย	เกือบทุกบริษัท	ใช้ทุกบริษัท
82. ปัจจุบันการใช้ตลาดกลางอิเล็กทรอนิกส์โดยซัพพลายเออร์ของท่านมีมากน้อยเพียงใด	1	2	3	4	5	6	7
83. ปัจจุบันการใช้ตลาดกลางอิเล็กทรอนิกส์โดยลูกค้าของท่านมีมากน้อยเพียงใด	1	2	3	4	5	6	7
84. ปัจจุบันการใช้อีเมล์โดยซัพพลายเออร์ของท่านมีมากน้อยเพียงใด	1	2	3	4	5	6	7
85. ปัจจุบันการใช้อีเมล์โดยลูกค้าของท่านมีมากน้อยเพียงใด	1	2	3	4	5	6	7

ผลดีที่ <u>ตลาดกลางอิเล็กทรอนิกส์และอีเมล์</u> มีต่อบริษัทของท่าน	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่เห็นด้วยเล็กน้อย	เฉย ๆ	เห็นด้วยเล็กน้อย	เห็นด้วย	เห็นด้วยอย่างมาก
86. ช่วยเสริมสร้างการทำงานอย่างมีประสิทธิภาพและประสิทธิผล	1	2	3	4	5	6	7
87. เป็นเครื่องมือที่มีความสำคัญต่อผลประกอบการของธุรกิจ	1	2	3	4	5	6	7
88. ช่วยให้ท่านสามารถทำงานสำเร็จลุล่วงได้รวดเร็วขึ้น	1	2	3	4	5	6	7
89. ช่วยสร้างโอกาสทางธุรกิจใหม่ๆ	1	2	3	4	5	6	7
90. ช่วยลดค่าใช้จ่ายในการดำเนินงาน	1	2	3	4	5	6	7

ส่วนที่ 7: ข้อมูลของผู้ตอบแบบสอบถาม

ชื่อ/นามสกุล_____

หมายเลขโทรศัพท์เพื่อการติดต่อ_____

อีเมล์_____

*****ผู้วิจัยขอกราบขอบพระคุณเป็นอย่างสูงที่ท่านได้กรุณาสละเวลาตอบแบบสอบถามอย่างครบถ้วนสมบูรณ์*****

Appendix E : Data coding

	Section 1: General information about your organisation and yourself/Utilisation	
No.	Description	Coding
1.	Name of organisation	OrgName
2.	Province	Province
3.	Type of organisation	OrgType [1 = Travel Agent, 2 = Hotel and Resort, 3= Theme Park 4 = Restaurant, 5= Spa, 6= Rental Transportation , 7= Diving ,8=Health care, 9= Golf]
4.	Revenue	Revenue
5.	Investment in IT	ITinvest
6.	Ownership	Ownership [1 = Locally owned, 2= Foreign owned, 3=Joint Venture]
7.	Target Customers	TargetCust [1= Thailand, 2=Overseas]
8.	Target Suppliers	TargetSup [1= Thailand, 2=Overseas]
9.	Number of Employees	NoEmployee
10.	No. of Computer	NoComp
11.	No. of Internet access	NoInternet
12.	LAN connection	Lan [1= yes, 0=No]
13.	Type of Internet	TypeInternet [1= Dialup, 2= Broadband, 3=Satellite, 4= Other]
14.	EDI	EDI [1= yes, 0=No]
15.	Other Systems	OtherSys
16.	How long has your company used e-marketplace?	EmarYear
17.	How many hours a day do you use e-marketplace?	EmarHour1
18.	How many hours a day does your company use e-marketplace?	EmarHour2
19.	For what does your company commonly use e-marketplace (e.g. finding information, negotiation and ordering)?	EmarUse
20.	How long has your company used e-mail?	EmailYear
21.	How many hours a day do you use e-mail?	EmailHour1
22.	How many hours a day does your company use e-mail?	EmailHour2
23.	How many e-mails do you or your company send in a day?	EmailDay
24.	For what does your company commonly use e-mail (e.g. finding information, negotiation and ordering)?	EmailUse
25.	Does your company have a website?	Web [1=Yes, 0=No]

26.	How often is it updated?	WebMaintain [1=Daily, 2=Once a week, 3=Once a month, 4= Less than once a month]
27.	How is the website being used?	WebLevel [1=info only, 2= advance]
28.	How long have you been working for this company?	INDYear
29.	Job Title	INDJob
30.	Level of education	INDEdu [1= high school, 2=college certificate, 3=undergraduate , 4 = postgraduate]
31.	Years of using PC	INDPC
32.	Years of using Internet	INDInternet
33.	Skill with Email	INDskillEmail [1= none, 2=novice, 3=somewhat familiar, 4=familiar, 5=very familiar]
34.	Skill with E-marketplace	INDskillEmar [1= none, 2=novice, 3=somewhat familiar, 4=familiar, 5=very familiar]

Section 2: Attitude towards Task-Technology-Fit		
No.	Description	Coding
35.	E-marketplace is convenient and easy to use.	EASE1
36.	It is easy for me to learn how to use e-marketplace.	EASE2
37.	E-mail is convenient and easy to use.	EASE3
38.	It is easy for me to learn how to use e-mail.	EASE4
39.	My staff and I are getting the training that we need to be able to use e-marketplace effectively.	TRNG1
40.	My staff and I are getting the training that we need to be able to use e-mail effectively.	TRNG3
41.	IT staff are efficient and timely in providing assistance.	IS1
42.	IT staff have the necessary technical expertise to support the organisation IT problems.	IS2
43.	Information on the e-marketplace is always current and up-to-date.	CURR1
44.	I get access to current business opportunities using e-marketplace.	CURR2
45.	E-marketplace allows me to get access on international events better than attending travel marts.	GLOBAL1
46.	I use e-marketplace to source for overseas customers.	GLOBAL2
47.	I use e-marketplace to source for overseas suppliers.	GLOBAL3
48.	By using e-marketplace, I can avoid meeting face-to-face with my suppliers.	MED1
49.	By using e-marketplace, I can avoid meeting face-to-face with my customers.	MED2
50.	By using e-mail, I can avoid meeting face-to-face with my suppliers.	MED3
51.	By using e-mail, I can avoid meeting face-to-face with my customers.	MED4

Section 3: Attitude towards cultural fit		
No.	Description	Coding
52.	My business opportunities are from my personal relationships such as friends, people whom I know, family rather than using e-marketplace.	PER2
53.	My business opportunities are based on recommendations from friends and customers rather than using e-marketplace.	PER3
54.	My business opportunities are from my personal relationship such as friends, family rather than using e-mail.	PER5
55.	My business opportunities are based on my business network rather than marketing using e-mail.	PER6
56.	My business opportunities are based on recommendations from friends and customers rather than marketing using e-mail.	PER7
57.	E-marketplace helps me to facilitate a long-term relationship with my suppliers.	LONG2
58.	E-marketplace helps me to facilitate a long-term relationship with my customers.	LONG3
59.	I would trust information from speaking face-to-face with suppliers rather than from the e-marketplace.	TRUST1
60.	I would trust information from speaking face-to-face with customers rather than from the e-marketplace.	TRUST2
61.	I would trust information from speaking face-to-face with suppliers rather than from e-mail.	TRUST3
62.	I would trust information from speaking face-to-face with customers rather than from e-mail.	TRUST4
63.	It is difficult for me to communicate in the e-marketplace effectively using English language.	ENG2
64.	It is difficult for me to explain detailed information to my trading partners in the e-marketplace using English language.	ENG3
65.	It is difficult for me to communicate by e-mail effectively in the English language.	ENG5
66.	It is difficult for me to explain detailed information to my trading partners by e-mail in the English language.	ENG6
67.	I admire Western countries that use Internet technology for their businesses.	WEST1
68.	Adopting e-marketplace is important because it is necessary to follow the Western practice.	WEST2
69.	Adopting e-mail is important because it is necessary to follow the Western practice.	WEST4

Section 4: Readiness of technical infrastructure		
No.	Description	Coding
70.	I often face telecommunication problems such as slow performance.	TEL3
71.	I often face telecommunication problems such as unreliable connection.	TEL4
72.	Our company has security concerns with communicating via e-marketplace.	TEL5
73.	Our company has security concerns with communicating via e-mail.	TEL6

Section 5: Nature of business relationships		
No.	Description	Coding
74.	My main competitors who adopt e-marketplace are perceived favourably by suppliers.	MIMECTIC1
75.	My main competitors who adopt e-marketplace are perceived favourably by customers.	MIMECTIC2
76.	My main competitors who adopt e-mail are perceived favourably by suppliers.	MIMECTIC3
77.	My main competitors who adopt e-mail are perceived favourably by customers.	MIMECTIC4
78.	My main suppliers have a strong influence on my business. If there is a demand from them to use e-marketplace for business communication, I will most likely adopt it.	COERCIVE1
79.	My main suppliers have a strong influence on my business. If there is a demand from them to use e-marketplace for business communication, I will most likely adopt it.	COERCIVE2
80.	My main suppliers have a strong influence on my business. If there is a demand from them to use e-mail for business communication, I will most likely adopt it.	COERCIVE3
81.	My main customers have a strong influence on my business. If there is a demand from them to use e-mail for business communication, I will most likely adopt it.	COERCIVE4
82.	What is the extent of e-marketplace adoption by your firm's suppliers currently?	NORMATIVE1
83.	What is the extent of e-marketplace adoption by your firm's customers currently?	NORMATIVE2
84.	What is the extent of e-mail adoption by your firm's suppliers currently?	NORMATIVE3
85.	What is the extent of e-mail adoption by your firm's customers currently?	NORMATIVE4

Section 6: Performance		
No.	Description	Coding
86.	…increases the effectiveness and productivity in my job/business.	PERF1
87.	…is an important tool in the performance of my job/business.	PERF2
88.	…helps to accomplish my work more quickly.	PERF3
89.	…helps create new business opportunities.	PERF4
90.	…helps to reduce operational cost.	PERF5

Section 7: Respondent		
91.	Name	Name
92.	Phone number	Contact1
93.	Email	Contact2
	Organisational ID	ID
	Organisational set number (OrganisationalID_Setnumber)	ID_SET

Appendix F : Letter of support from the Tourism Authority of Thailand

การท่องเที่ยวแห่งประเทศไทย

ที่ กก 5201/ **1030**

9 มีนาคม 2548

เรื่อง ขอความร่วมมือสนับสนุนการให้ข้อมูลแบบสอบถาม
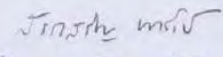
เรียน ผู้ประกอบการในอุตสาหกรรมท่องเที่ยว

ด้วย นางสาวสุนิต วัฒนศักดากุล ซึ่งเป็นนักศึกษาปริญญาเอก จาก The University of New South Wales ประเทศออสเตรเลีย กำลังทำโครงการวิจัยในหัวข้อ " The adoption of Internet technology for inter-firm communication in Thai tourism industry " ในส่วนของเว็บไซต์ www.thaitravelmart.com ได้ขอความร่วมมือการท่องเที่ยวแห่งประเทศไทย (ททท.) สนับสนุนการให้ข้อมูลแบบสอบถาม และขออนุญาต ใช้ข้อมูลจากเว็บไซต์ www.thaitravelmart.com สำหรับจัดทำโครงการวิจัยดังกล่าวข้างต้น ผู้วิจัยจะส่งแบบ สำรวจเพื่อเก็บข้อมูลการใช้เว็บไซต์ของผู้ประกอบการในอุตสาหกรรมท่องเที่ยวไทย ไปยังผู้ประกอบการที่เป็น สมาชิกเว็บไซต์ นั้น

ททท. จึงขอความร่วมมือท่านในการสนับสนุนให้ข้อมูลแบบสอบถาม สำหรับโครงการวิจัย ดังกล่าวตามที่เห็นสมควร ทั้งนี้ข้อมูลที่ได้จากการวิจัยในครั้งนี้ ผู้วิจัยจะนำเสนอต่อ ททท. เพื่อใช้ประโยชน์ใน การพัฒนาอุตสาหกรรมท่องเที่ยวของไทยต่อไป

จึงเรียนมาเพื่อกรุณาพิจารณา และขอขอบคุณในความร่วมมือมา ณ โอกาสนี้

ขอแสดงความนับถือ

(นายสรรเสริญ เงารังษี)
ผู้อำนวยการฝ่ายสารสนเทศ
ทำการแทน ผู้ว่าการการท่องเที่ยวแห่งประเทศไทย

ฝ่ายสารสนเทศ
โทรศัพท์ 0 2250 5500 ต่อ 2835 – 2838
โทรสาร 0 2253 7400
E-mail: mitdiv@tat.or.th

amazing THAILAND

1600 ถนนเพชรบุรีตัดใหม่ แขวงมักกะสัน เขตราชเทวี กรุงเทพฯ 10400 โทร. 0-2250-5500 โทรสาร 0-2250-5511 Email : center@tat.or.th

Appendix G : Descriptive statistics

This table outlines the descriptive statistics by each constructs showing sufficient range and variance. The column labelled "Measures" includes the construct in bold and the questionnaire items that relate to each construct. Frequency statistics for measure revealed scores that span across the entire seven-point Likert scales.

Descriptive Statistics

Measures	N	Min	Max	Mean	Std. Deviation
Ease of Use					
E-marketplace is convenient and easy to use.	107	2	7	5.34	1.04
It is easy for me to learn how to use e-marketplace.	107	2	7	5.42	1.04
E-mail is convenient and easy to use.	107	4	7	6.32	0.80
It is easy for me to learn how to use e-mail.	107	3	7	6.06	0.88
Training					
My staff and I are getting the training that we need to be able to use e-marketplace effectively.	107	1	7	4.51	1.69
My staff and I are getting the training that we need to be able to use e-mail effectively.	107	1	7	5.13	1.44
IS support					
IT staff are efficient and timely in providing assistance.	107	1	7	5.17	1.55
IT staff have the necessary technical expertise to support the organisation IT problems.	107	1	7	5.28	1.45
Communication					
Information on the e-marketplace is always current and up-to-date.	107	1	7	5.18	1.14
I get access to current business opportunities using e-marketplace.	107	1	7	5.27	1.16
E-marketplace allows me to get access on international events rather than attending travel marts.	107	1	7	5.08	1.42
I use e-marketplace to source for overseas customers.	107	1	7	4.67	1.61
I use e-marketplace to source for overseas suppliers.	107	1	7	4.68	1.49
Mediation					
By using e-marketplace, I can avoid meeting face-to-face with my suppliers.	107	1	7	4.75	1.51
By using e-marketplace, I can avoid meeting face-to-face with my customers.	107	1	7	4.80	1.55
By using e-mail, I can avoid meeting face-to-face with my suppliers.	107	1	7	5.27	1.43
By using e-mail, I can avoid meeting face-to-face with my suppliers.	107	1	7	5.18	1.36
Personal Relationships					
My business opportunities are from my personal relationships such as friends, people whom I know, family rather than using e-marketplace.	107	2	7	5.30	1.23
My business opportunities are based on recommendations from friends and customers rather than using e-marketplace.	107	2	7	5.05	1.27
My business opportunities are from my personal relationship such as friends, family than using e-mail.	107	2	7	4.93	1.39
My business opportunities are based on my business network rather than marketing using e-mail.	107	2	7	5.28	1.24
My business opportunities are based on recommendations from friends and customers rather than marketing using e-mail.	107	2	7	4.97	1.45

Long-term relationships					
E-marketplace helps me to facilitate a long-term relationship with my suppliers.	107	1	7	5.32	1.16
E-marketplace helps me to facilitate a long-term relationship with my customers.	107	1	7	5.26	1.17
Trust					
I would trust information from speaking face-to-face with suppliers rather than from the e-marketplace.	107	2	7	5.14	1.07
I would trust information from speaking face-to-face with customers rather than from the e-marketplace.	107	2	7	5.13	1.10
I would trust information from speaking face-to-face with suppliers rather than from e-mail.	107	2	7	5.04	1.16
I would trust information from speaking face-to-face with customers rather than from e-mail.	107	2	7	5.09	1.15
An ability to communicate in the English language					
It is difficult for me to communicate in the e-marketplace effectively using English language.	107	2	7	4.74	1.58
It is difficult for me to explain detailed information to my trading partners in the e-marketplace using English language.	107	1	7	4.55	1.58
It is difficult for me to communicate by e-mail in the English language.	107	1	7	4.59	1.71
It is difficult for me to explain detailed information to my trading partners in the e-marketplace using English language.	107	1	7	4.63	1.58
Materialism					
I admire Western countries that use Internet technology for their businesses.	107	1	7	5.38	1.30
Adopting e-marketplace is important because it is necessary to follow the Western practice.	107	1	7	4.42	1.69
Adopting e-mail is important because it is necessary to follow the Western practice.	107	1	7	4.42	1.66
Readiness of technical infrastructure					
I often face telecommunication problems such as slow performance.	107	1	6	2.49	1.18
I often face telecommunication problems such as unreliable connection.	107	1	6	2.47	1.21
Our company has security concern with communicating via e-marketplace.	107	1	6	2.60	1.33
Our company has security concern with communicating via e-mail.	107	1	7	2.58	1.44
Mimetic pressure					
My main competitors who adopt e-marketplace are perceived favourably by suppliers.	107	1	7	4.69	1.23
My main competitors who adopt e-marketplace are perceived favourably by customers.	107	2	7	4.87	1.10
My main competitors who adopt e-mail are perceived favourably by suppliers.	107	2	7	4.93	1.17
My main competitors who adopt e-mail are perceived favourably by customers.	107	1	7	5.04	1.21
Coercive pressure					
My main suppliers have a strong influence on my business. If there is a demand from them to use e-marketplace for business communication, I will most likely adopt it.	107	1	7	5.44	1.24
My main customers have a strong influence on my business. If there is a demand from them to use e-marketplace for business communication, I will most likely adopt it.	107	1	7	5.60	1.14
My main suppliers have a strong influence on my business. If there is a demand from them to use e-mail for business communication, I will most likely	107	1	7	5.86	1.07

adopt it.

My main customers have a strong influence on my business. If there is a demand from them to use e-mail for business communication, I will most likely adopt it.	107	1	7	5.93	1.03
Normative pressure					
What is the extent of e-marketplace adoption by your firm's suppliers currently?	107	1	7	3.42	1.87
What is the extent of e-marketplace adoption by your firm's customers currently?	107	1	7	3.60	1.95
What is the extent of e-mail adoption by your firm's suppliers currently?	107	1	7	4.37	1.76
What is the extent of e-mail adoption by your firm's customers currently?	107	1	7	4.61	1.69
Performance					
It increases the effectiveness and productivity in my job/business.	107	1	7	5.45	1.15
It is an important tool in the performance of my job/business.	107	1	7	5.49	1.22
It helps me to accomplish my work more quickly.	107	1	7	5.61	1.18
It helps create new business opportunities.	107	2	7	5.78	0.97
It helps me to reduce operational cost.	107	1	7	5.84	1.23
Utilisation					
How many hours a day do you use e-marketplace?	107	1	13	2.92	2.94
How many hours a day does your company use e-marketplace?	107	1	15	4.00	3.76
How many hours a day do you use e-mail?	107	1	10	3.29	2.70
How many hours a day does your company use e-mail?	107	1	12	4.60	3.59

Appendix H : Examining multicollinearity of formative indicators in SPSS

a) Cultural fit

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	6.0E-005	.078		.001	.999		
	Personal	-.001	.093	-.001	-.012	.991	.710	1.408
	Longterm	.624	.089	.624	6.999	.000	.766	1.306
	Trust	-.056	.092	-.056	-.608	.544	.715	1.398
	English	.063	.084	.063	.751	.454	.868	1.152
	Material	-.015	.094	-.015	-.162	.872	.681	1.469

a. Dependent Variable: Performa

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	Personal	Longterm	Trust	English	Material
1	1	2.060	1.000	.00	.07	.05	.08	.07	.08
	2	1.158	1.334	.00	.15	.29	.10	.00	.09
	3	1.000	1.435	1.00	.00	.00	.00	.00	.00
	4	.799	1.606	.00	.06	.06	.06	.86	.00
	5	.552	1.932	.00	.25	.18	.48	.02	.36
	6	.431	2.186	.00	.47	.42	.28	.04	.46

a. Dependent Variable: Performa

b) TTF

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	4.2E-005	.075		.001	1.000		
	Easeof	.314	.084	.314	3.748	.000	.798	1.253
	Training	.018	.085	.018	.210	.834	.771	1.297
	ISSuppo	-.116	.083	-.116	-1.390	.168	.810	1.234
	Communic	.368	.089	.368	4.153	.000	.713	1.402
	Mediatio	.114	.081	.114	1.414	.161	.857	1.167

a. Dependent Variable: Performa

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	(Constant)	Easeof	Training	ISSuppo	Communic	Mediatio
				Variance Proportions					
1	1	2.048	1.000	.00	.09	.07	.08	.09	.04
	2	1.029	1.411	.00	.00	.18	.04	.02	.57
	3	1.000	1.431	1.00	.00	.00	.00	.00	.00
	4	.813	1.587	.00	.22	.22	.29	.22	.00
	5	.628	1.805	.00	.68	.00	.56	.00	.04
	6	.483	2.059	.00	.00	.52	.04	.66	.36

a. Dependent Variable: Performa

c) Nature of business relationships

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-4E-005	.082		.000	1.000		
	Memitic	.210	.096	.210	2.177	.032	.730	1.370
	Cocerciv	.048	.090	.048	.535	.594	.829	1.207
	Normativ	.422	.088	.422	4.768	.000	.866	1.155

a. Dependent Variable: Performa

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	(Constant)	Memitic	Cocerciv	Normativ
				Variance Proportions			
1	1	1.619	1.000	.00	.20	.15	.14
	2	1.000	1.272	1.00	.00	.00	.00
	3	.874	1.361	.00	.00	.41	.56
	4	.508	1.785	.00	.80	.44	.30

a. Dependent Variable: Performa

d) Readiness of technical infrastructure

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-3E-005	.094		.000	1.000		
	Quality	5.2E-005	.101	.000	.001	1.000	.876	1.141
	security	-.268	.101	-.268	-2.652	.009	.876	1.141

a. Dependent Variable: Performa

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	(Constant)	Quality	security
				Variance Proportions		
1	1	1.352	1.000	.00	.32	.32
	2	1.000	1.163	1.00	.00	.00
	3	.648	1.444	.00	.68	.68

a. Dependent Variable: Performa

Appendix I : PLS Graphic output of PLS
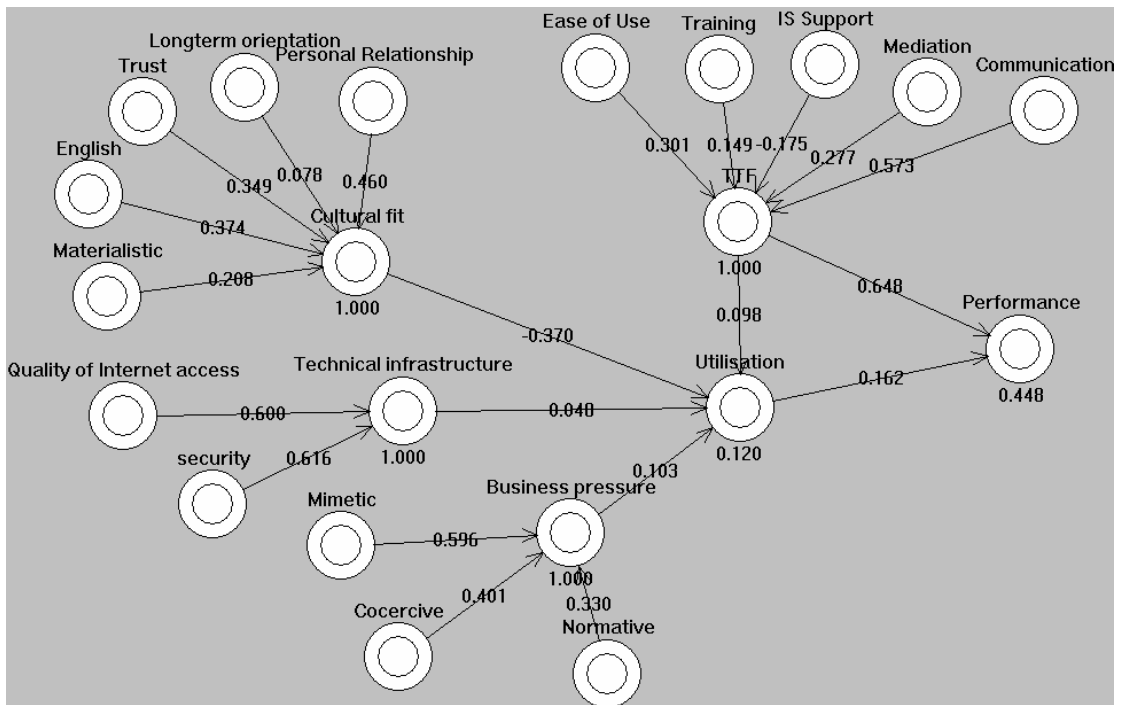
Appendix J : PLS Output for investigating effect size

a) The path from the utilisation to performance was removed from the model. $R^2_{excluded}$ = 0.422
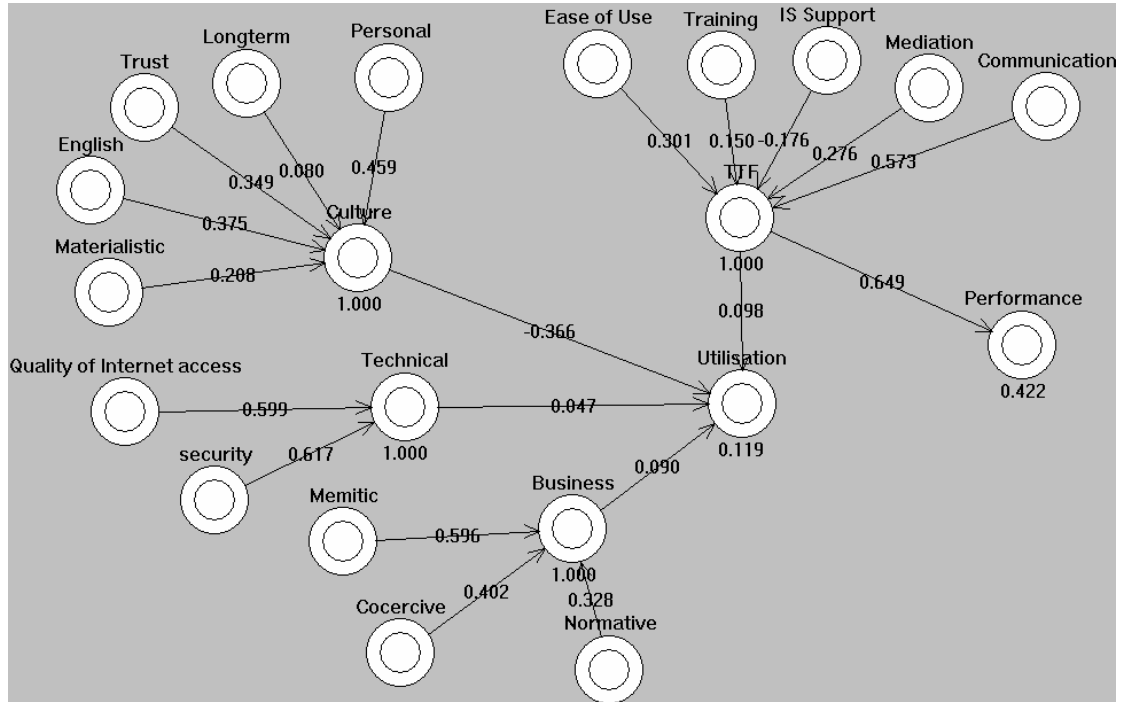
b) The path from the TTF to performance was removed from the model. $R^2_{excluded}$ = 0.038
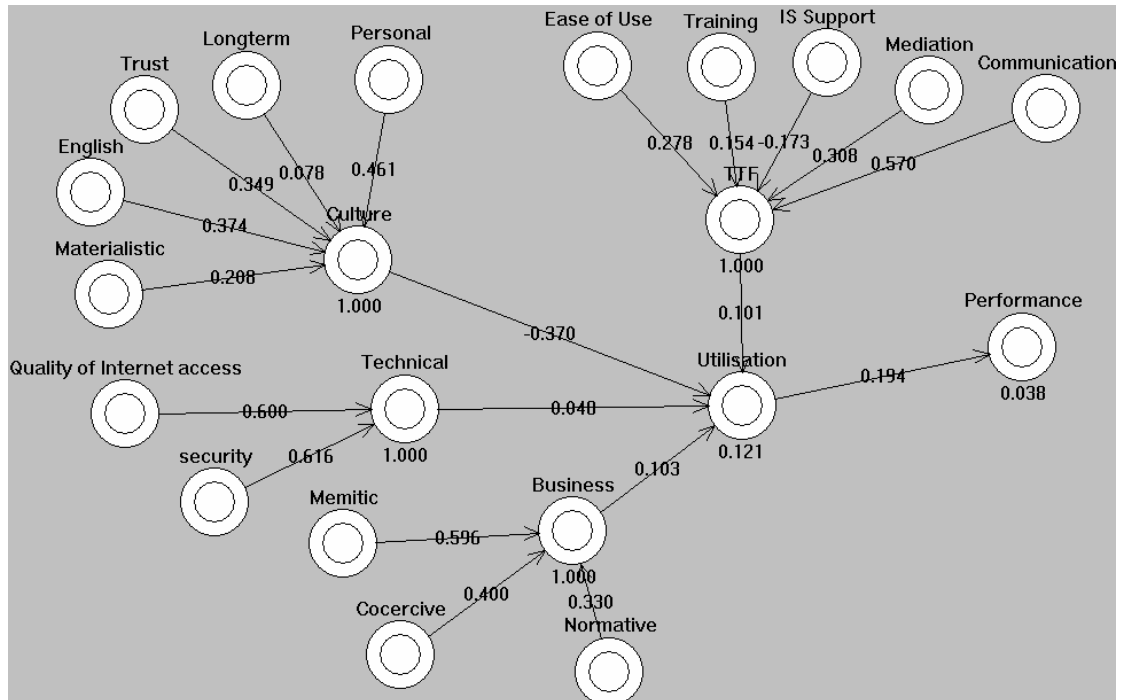
Appendix K : PLS .lst file

```
        P   L   S   G R A P H
                for
        Partial Least Squares Analysis
              (2001 Jan 27)

     YEAR-MONTH-DAY: 2006-12-17
      HOUR:MIN:SECS: 18:32:01.

   (HOWDY PARDNER!!  HOW Y'ALL  DOING, EH?)
O     600000 = Available Field Length.
      600000 = Requested Field Length.

OCPU-Time =    0 min  0.00 sec
 Total =       0 min  0.00 sec

O      Comments..
 COMM
 PLS Deck generated for Professor John G. D'Ambra
OJBL                                 1.8
 =====================================
O--     P   L   S   X            --
O-- LATENT VARIABLES PATH ANALYSIS --
 - PARTIAL LEAST-SQUARES ESTIMATION -
O


O=====================================
ONumber of Blocks       NBLOCS =    21
 Number of Cases        NCASES =   108
 Number of Dimensions     NDIM =     1
OOutput Quantity          OUT = 2255
 Inner Weighting Scheme  IWGHT =     1
 Number of Iterations    NITER =   100
 Estimation Accuracy       EPS =     5
 Analysed Data Metric   METRIC =     1
O=====================================
 Block   N-MV Deflate LV-Mode   Model
 ------------------------------------
 Performa   5   yes   outward Endogen
 Utilisat   4   yes   outward Endogen
 Personal   5   yes   outward  Exogen
 Longterm   2   yes   outward  Exogen
 Trust      4   yes   outward  Exogen
 English    4   yes   outward  Exogen
 Material   3   yes   outward  Exogen
 Culture   18   yes   outward Endogen
 Business  12   yes   outward Endogen
 Memitic    4   yes   outward  Exogen
 Cocerciv   4   yes   outward  Exogen
 Normativ   4   yes   outward  Exogen
 Quality    2   yes   outward  Exogen
 security   2   yes   outward  Exogen
 Technica   4   yes   outward Endogen
 TTF       17   yes   outward Endogen
 Ease of    4   yes   outward  Exogen
 Training   2   yes   outward  Exogen
 IS Suppo   2   yes   outward  Exogen
 Communic   5   yes   outward  Exogen
 Mediatio   4   yes   outward  Exogen
 ------------------------------------
          111              .
 =====================================

OReal words needed   27165 from 600000
OChar words needed     481 from  40000
1
ODimension No.  1
OPartial Least-Squares Parameter Estimation
OChange of Stop Criteria during Iteration
OCycle No.    CR1        CR2           CR3          CR4          CR5

    1  0.1538E+01  0.1874E+00   0.3307E+00   0.2778E+00   0.3020E+00
    2  0.3468E+00  0.2937E-01  -0.2595E-02  -0.4110E-02  -0.9778E-03
    3  0.4005E-01  0.8252E-04   0.1203E-02   0.8236E-03   0.2035E-03
    4  0.2299E-01  0.4303E-03  -0.3994E-03  -0.5619E-03   0.2696E-03
    5  0.9502E-02  0.4992E-05   0.4161E-03   0.3682E-03   0.9066E-04
    6  0.5228E-02  0.1195E-03  -0.1007E-03  -0.1234E-03   0.7854E-04
    7  0.3506E-02  0.3519E-05   0.1536E-03   0.1421E-03   0.1226E-04
    8  0.1468E-02  0.4021E-04  -0.1887E-04  -0.2847E-04   0.2310E-04
    9  0.1271E-02  0.3060E-05   0.5748E-04   0.5297E-04   0.1359E-05
   10  0.5081E-03  0.1504E-04  -0.6407E-05  -0.5083E-05   0.8305E-05
   11  0.4591E-03  0.2135E-05   0.2161E-04   0.1965E-04   0.1924E-06
   12  0.2027E-03  0.5851E-05   0.2139E-05  -0.2750E-07   0.3439E-05
   13  0.1663E-03  0.1303E-05   0.8229E-05   0.7324E-05   0.1111E-06
   14  0.9040E-04  0.2321E-05   0.1773E-05   0.6916E-06   0.1541E-05
   15  0.6043E-04  0.7390E-06   0.3201E-05   0.2768E-05   0.9440E-07
   16  0.4416E-04  0.9388E-06   0.1092E-05   0.5476E-06   0.7213E-06
   17  0.2204E-04  0.4016E-06   0.1281E-05   0.1068E-05   0.6934E-07
   18  0.2191E-04  0.3889E-06   0.6083E-06   0.3326E-06   0.3463E-06
   19  0.8058E-05  0.2127E-06   0.5308E-06   0.4239E-06   0.4554E-07
```

0Convergence at Iteration Cycle No. 19

0B .. Path coefficients
```
============================================================================
          Performa  Utilisat  Personal  Longterm  Trust    English  Material
----------------------------------------------------------------------------
Performa  0.000     0.162     0.000     0.000     0.000    0.000    0.000
Utilisat  0.000     0.000     0.000     0.000     0.000    0.000    0.000
Personal  0.000     0.000     0.000     0.000     0.000    0.000    0.000
Longterm  0.000     0.000     0.000     0.000     0.000    0.000    0.000
Trust     0.000     0.000     0.000     0.000     0.000    0.000    0.000
English   0.000     0.000     0.000     0.000     0.000    0.000    0.000
Material  0.000     0.000     0.000     0.000     0.000    0.000    0.000
Culture   0.000     0.000     0.460     0.078     0.349    0.374    0.208
Business  0.000     0.000     0.000     0.000     0.000    0.000    0.000
Memitic   0.000     0.000     0.000     0.000     0.000    0.000    0.000
Cocerciv  0.000     0.000     0.000     0.000     0.000    0.000    0.000
Normativ  0.000     0.000     0.000     0.000     0.000    0.000    0.000
Quality   0.000     0.000     0.000     0.000     0.000    0.000    0.000
security  0.000     0.000     0.000     0.000     0.000    0.000    0.000
Technica  0.000     0.000     0.000     0.000     0.000    0.000    0.000
TTF       0.000     0.000     0.000     0.000     0.000    0.000    0.000
Ease of   0.000     0.000     0.000     0.000     0.000    0.000    0.000
Training  0.000     0.000     0.000     0.000     0.000    0.000    0.000
IS Suppo  0.000     0.000     0.000     0.000     0.000    0.000    0.000
Communic  0.000     0.000     0.000     0.000     0.000    0.000    0.000
Mediatio  0.000     0.000     0.000     0.000     0.000    0.000    0.000
============================================================================
```

0B .. Path coefficients
```
============================================================================
          Culture   Business  Memitic   Cocerciv  Normativ  Quality  security
----------------------------------------------------------------------------
Performa   0.000    0.000     0.000     0.000     0.000     0.000    0.000
Utilisat  -0.370    0.103     0.000     0.000     0.000     0.000    0.000
Personal   0.000    0.000     0.000     0.000     0.000     0.000    0.000
Longterm   0.000    0.000     0.000     0.000     0.000     0.000    0.000
Trust      0.000    0.000     0.000     0.000     0.000     0.000    0.000
English    0.000    0.000     0.000     0.000     0.000     0.000    0.000
Material   0.000    0.000     0.000     0.000     0.000     0.000    0.000
Culture    0.000    0.000     0.000     0.000     0.000     0.000    0.000
Business   0.000    0.000     0.596     0.401     0.330     0.000    0.000
Memitic    0.000    0.000     0.000     0.000     0.000     0.000    0.000
Cocerciv   0.000    0.000     0.000     0.000     0.000     0.000    0.000
Normativ   0.000    0.000     0.000     0.000     0.000     0.000    0.000
Quality    0.000    0.000     0.000     0.000     0.000     0.000    0.000
security   0.000    0.000     0.000     0.000     0.000     0.000    0.000
Technica   0.000    0.000     0.000     0.000     0.000     0.600    0.616
TTF        0.000    0.000     0.000     0.000     0.000     0.000    0.000
Ease of    0.000    0.000     0.000     0.000     0.000     0.000    0.000
Training   0.000    0.000     0.000     0.000     0.000     0.000    0.000
IS Suppo   0.000    0.000     0.000     0.000     0.000     0.000    0.000
Communic   0.000    0.000     0.000     0.000     0.000     0.000    0.000
Mediatio   0.000    0.000     0.000     0.000     0.000     0.000    0.000
============================================================================
```

0B .. Path coefficients
```
============================================================================
          Technica  TTF      Ease of   Training  IS Suppo  Communic  Mediatio
----------------------------------------------------------------------------
Performa  0.000     0.648    0.000     0.000     0.000     0.000     0.000
Utilisat  0.048     0.098    0.000     0.000     0.000     0.000     0.000
Personal  0.000     0.000    0.000     0.000     0.000     0.000     0.000
Longterm  0.000     0.000    0.000     0.000     0.000     0.000     0.000
Trust     0.000     0.000    0.000     0.000     0.000     0.000     0.000
English   0.000     0.000    0.000     0.000     0.000     0.000     0.000
Material  0.000     0.000    0.000     0.000     0.000     0.000     0.000
Culture   0.000     0.000    0.000     0.000     0.000     0.000     0.000
Business  0.000     0.000    0.000     0.000     0.000     0.000     0.000
Memitic   0.000     0.000    0.000     0.000     0.000     0.000     0.000
Cocerciv  0.000     0.000    0.000     0.000     0.000     0.000     0.000
Normativ  0.000     0.000    0.000     0.000     0.000     0.000     0.000
Quality   0.000     0.000    0.000     0.000     0.000     0.000     0.000
security  0.000     0.000    0.000     0.000     0.000     0.000     0.000
Technica  0.000     0.000    0.000     0.000     0.000     0.000     0.000
TTF       0.000     0.000    0.301     0.149    -0.175     0.573     0.277
Ease of   0.000     0.000    0.000     0.000     0.000     0.000     0.000
Training  0.000     0.000    0.000     0.000     0.000     0.000     0.000
IS Suppo  0.000     0.000    0.000     0.000     0.000     0.000     0.000
Communic  0.000     0.000    0.000     0.000     0.000     0.000     0.000
Mediatio  0.000     0.000    0.000     0.000     0.000     0.000     0.000
============================================================================
```

0R .. Correlations of latent variables
```
============================================================================
```

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```
           Performa  Utilisat  Personal  Longterm  Trust    English  Materia
-------------------------------------------------------------------------------
Performa    1.000
Utilisat    0.170     1.000
Personal    0.002    -0.261     1.000
Longterm    0.617     0.004     0.034     1.000
Trust       0.046    -0.127     0.499     0.144    1.000
English     0.128    -0.256     0.232     0.136    0.261    1.000
Material    0.281    -0.217     0.270     0.468    0.254    0.299    1.00
Culture     0.169    -0.311     0.780     0.292    0.740    0.645    0.56
Business    0.471    -0.024     0.128     0.473    0.249    0.384    0.50
Memitic     0.384    -0.024     0.236     0.399    0.276    0.449    0.49
Cocerciv    0.189    -0.130    -0.049     0.269    0.145    0.111    0.20
Normativ    0.505     0.129     0.022     0.385    0.080    0.216    0.39
Quality    -0.094     0.180    -0.178    -0.266   -0.161   -0.244   -0.36
security   -0.268     0.045    -0.224    -0.341   -0.202   -0.267   -0.30
Technica   -0.221     0.136    -0.245    -0.370   -0.221   -0.311   -0.40
TTF         0.649     0.011     0.162     0.687    0.190    0.160    0.46
Ease of     0.496     0.056     0.088     0.406    0.158   -0.119    0.13
Training    0.279    -0.027     0.081     0.247    0.125    0.173    0.14
IS Suppo   -0.348     0.135    -0.260    -0.313   -0.246   -0.057   -0.21
Communic    0.539     0.006     0.111     0.701    0.123    0.265    0.54
Mediatio    0.307     0.071     0.053     0.247    0.037    0.024    0.16
===============================================================================
```

)R .. Correlations of latent variables

```
           Culture   Business  Memitic   Cocerciv  Normativ  Quality   securit
-------------------------------------------------------------------------------
Culture     1.000
Business    0.432     1.000
Memitic     0.507     0.882     1.000
Cocerciv    0.134     0.689     0.413     1.000
Normativ    0.229     0.599     0.366     0.127    1.000
Quality    -0.325    -0.256    -0.268    -0.093   -0.178    1.000
security   -0.364    -0.403    -0.349    -0.267   -0.266    0.352    1.00
Technica   -0.419    -0.402    -0.376    -0.221   -0.271    0.817    0.82
TTF         0.349     0.529     0.491     0.246    0.418   -0.263   -0.17
Ease of     0.109     0.384     0.276     0.290    0.315   -0.214   -0.12
Training    0.194     0.240     0.292     0.068    0.118   -0.141   -0.06
IS Suppo   -0.297    -0.371    -0.403    -0.158   -0.205   -0.079    0.04
Communic    0.360     0.454     0.429     0.144    0.426   -0.329   -0.12
Mediatio    0.101     0.186     0.173     0.129    0.094   -0.012   -0.14
===============================================================================
```

)R .. Correlations of latent variables

```
           Technica  TTF       Ease of   Training  IS Suppo  Communic  Mediati
-------------------------------------------------------------------------------
Technica    1.000
TTF        -0.264     1.000
Ease of    -0.208     0.634     1.000
Training   -0.128     0.503     0.267     1.000
IS Suppo   -0.018    -0.518    -0.369    -0.297    1.000
Communic   -0.276     0.860     0.309     0.390   -0.260    1.000
Mediatio   -0.095     0.541     0.185    -0.009   -0.137    0.325    1.00
===============================================================================
```

)Inner Model

```
Block        Mean    Location  Mult.RSq  AvResVar  AvCommun  AvRedund
-----------------------------------------------------------------------
Performa    0.0000    0.0000    0.4480    0.1691    0.8309    0.3723
Utilisat    0.0000    0.0000    0.1201    0.4028    0.5972    0.0717
Personal    0.0000    0.0000    0.0000    0.2985    0.7015    0.0000
Longterm    0.0000    0.0000    0.0000    0.0768    0.9232    0.0000
Trust       0.0000    0.0000    0.0000    0.2597    0.7403    0.0000
English     0.0000    0.0000    0.0000    0.1593    0.8407    0.0000
Material    0.0000    0.0000    0.0000    0.2845    0.7155    0.0000
Culture     0.0000    0.0000    0.9999    0.6666    0.3334    0.3334
Business    0.0000    0.0000    1.0000    0.5659    0.4341    0.4341
Memitic     0.0000    0.0000    0.0000    0.1207    0.8793    0.0000
Cocerciv    0.0000    0.0000    0.0000    0.2421    0.7579    0.0000
Normativ    0.0000    0.0000    0.0000    0.2672    0.7328    0.0000
Quality     0.0000    0.0000    0.0000    0.1877    0.8123    0.0000
security    0.0000    0.0000    0.0000    0.1572    0.8428    0.0000
Technica    0.0000    0.0000    1.0000    0.4407    0.5593    0.5593
TTF         0.0000    0.0000    0.9999    0.7030    0.2970    0.2970
Ease of     0.0000    0.0000    0.0000    0.4153    0.5847    0.0000
Training    0.0000    0.0000    0.0000    0.2143    0.7857    0.0000
IS Suppo    0.0000    0.0000    0.0000    0.1410    0.8590    0.0000
Communic    0.0000    0.0000    0.0000    0.3276    0.6724    0.0000
Mediatio    0.0000    0.0000    0.0000    0.2673    0.7327    0.0000
-----------------------------------------------------------------------
Average                         0.2175    0.4272    0.5728    0.1860
=======================================================================
```

```
0Outer Model
=================================================================
Variable       Weight   Loading  Location  ResidVar  Communal  Redundan
-----------------------------------------------------------------
   Performa    outward
PERF1          0.2203   0.9280   0.0000    0.1388    0.8612    0.3859
PERF2          0.2178   0.9127   0.0000    0.1669    0.8331    0.3733
PERF3          0.2339   0.9424   0.0000    0.1120    0.8880    0.3979
PERF4          0.2076   0.9078   0.0000    0.1758    0.8242    0.3693
PERF5          0.2172   0.8649   0.0000    0.2520    0.7480    0.3351
-----------------------------------------------------------------
   Utilisat    outward
EmailHou       0.1656   0.6227   0.0000    0.6122    0.3878    0.0466
EmarHour       0.4117   0.8765   0.0000    0.2317    0.7683    0.0923
EmailHou       0.3762   0.8443   0.0000    0.2872    0.7128    0.0856
EmarHour       0.3029   0.7210   0.0000    0.4801    0.5199    0.0625
-----------------------------------------------------------------
   Personal    outward
PER3           0.2357   0.8446   0.0000    0.2867    0.7133    0.0000
PER5           0.2514   0.8812   0.0000    0.2235    0.7765    0.0000
PER7           0.2526   0.8617   0.0000    0.2574    0.7426    0.0000
PER2           0.2104   0.7347   0.0000    0.4603    0.5397    0.0000
PER6           0.2416   0.8575   0.0000    0.2648    0.7352    0.0000
-----------------------------------------------------------------
   Longterm    outward
LONG2          0.5479   0.9651   0.0000    0.0687    0.9313    0.0000
LONG3          0.4926   0.9566   0.0000    0.0849    0.9151    0.0000
-----------------------------------------------------------------
   Trust       outward
TURST1         0.2580   0.8144   0.0000    0.3367    0.6633    0.0000
TURST2         0.2975   0.8933   0.0000    0.2020    0.7980    0.0000
TRUST3         0.3194   0.8795   0.0000    0.2264    0.7736    0.0000
TRUST4         0.2853   0.8523   0.0000    0.2736    0.7264    0.0000
-----------------------------------------------------------------
   English     outward
ENG2           0.2719   0.8891   0.0000    0.2095    0.7905    0.0000
ENG3           0.2520   0.8891   0.0000    0.2096    0.7904    0.0000
ENG5           0.2829   0.9459   0.0000    0.1052    0.8948    0.0000
ENG6           0.2830   0.9420   0.0000    0.1127    0.8873    0.0000
-----------------------------------------------------------------
   Material    outward
WEST1          0.3341   0.7161   0.0000    0.4871    0.5129    0.0000
WEST2          0.4027   0.8955   0.0000    0.1980    0.8020    0.0000
WEST4          0.4388   0.9119   0.0000    0.1684    0.8316    0.0000
-----------------------------------------------------------------
   Culture     outward
PER3           0.1123   0.6447   0.0000    0.5843    0.4157    0.4156
PER5           0.1099   0.6876   0.0000    0.5272    0.4728    0.4727
PER6           0.1119   0.6609   0.0000    0.5632    0.4368    0.4368
PER7           0.1167   0.6910   0.0000    0.5225    0.4775    0.4775
LONG2          0.0467   0.2945   0.0000    0.9133    0.0867    0.0867
LONG3          0.0380   0.2648   0.0000    0.9299    0.0701    0.0701
TURST1         0.0940   0.5640   0.0000    0.6819    0.3181    0.3181
TURST2         0.1051   0.6504   0.0000    0.5770    0.4230    0.4230
TRUST3         0.1159   0.6984   0.0000    0.5123    0.4877    0.4876
TRUST4         0.0919   0.6238   0.0000    0.6109    0.3891    0.3891
ENG2           0.1036   0.5893   0.0000    0.6527    0.3473    0.3473
ENG3           0.0934   0.5463   0.0000    0.7016    0.2984    0.2984
ENG5           0.1038   0.6133   0.0000    0.6239    0.3761    0.3761
ENG6           0.1036   0.6134   0.0000    0.6237    0.3763    0.3762
WEST1          0.0604   0.4078   0.0000    0.8337    0.1663    0.1663
WEST2          0.0902   0.4915   0.0000    0.7584    0.2416    0.2416
WEST4          0.0922   0.5355   0.0000    0.7132    0.2868    0.2868
PER2           0.0980   0.5756   0.0000    0.6687    0.3313    0.3313
-----------------------------------------------------------------
   Business    outward
MIMECTIC       0.1566   0.8146   0.0000    0.3364    0.6636    0.6636
MIMECTIC       0.1600   0.8337   0.0000    0.3050    0.6950    0.6950
MIMECTIC       0.1596   0.8311   0.0000    0.3092    0.6908    0.6908
MIMECTIC       0.1592   0.8301   0.0000    0.3109    0.6891    0.6891
COERCIVE       0.1277   0.6601   0.0000    0.5642    0.4358    0.4358
COERCIVE       0.1280   0.6639   0.0000    0.5592    0.4408    0.4408
COERCIVE       0.1119   0.5809   0.0000    0.6626    0.3374    0.3374
COERCIVE       0.0894   0.4674   0.0000    0.7816    0.2184    0.2184
NORMATIV       0.1109   0.5795   0.0000    0.6642    0.3358    0.3358
NORMATIV       0.1051   0.5513   0.0000    0.6960    0.3040    0.3040
NORMATIV       0.0963   0.5034   0.0000    0.7465    0.2535    0.2535
NORMATIV       0.0720   0.3802   0.0000    0.8554    0.1446    0.1446
-----------------------------------------------------------------
   Memitic     outward
MIMECTIC       0.2625   0.9251   0.0000    0.1442    0.8558    0.0000
MIMECTIC       0.2686   0.9508   0.0000    0.0959    0.9041    0.0000
MIMECTIC       0.2678   0.9436   0.0000    0.1097    0.8903    0.0000
MIMECTIC       0.2675   0.9312   0.0000    0.1329    0.8671    0.0000
-----------------------------------------------------------------
   Cocerciv    outward
COERCIVE       0.3175   0.9023   0.0000    0.1858    0.8142    0.0000
```

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```
COERCIVE      0.3193    0.9279    0.0000    0.1391    0.8609    0.0000
COERCIVE      0.2794    0.8739    0.0000    0.2362    0.7638    0.0000
COERCIVE      0.2248    0.7700    0.0000    0.4071    0.5929    0.0000
-------------------------------------------------------------------------
  Normativ  outward
NORMATIV      0.3346    0.8729    0.0000    0.2380    0.7620    0.0000
NORMATIV      0.3184    0.8996    0.0000    0.1906    0.8094    0.0000
NORMATIV      0.2907    0.8335    0.0000    0.3053    0.6947    0.0000
NORMATIV      0.2196    0.8156    0.0000    0.3349    0.6651    0.0000
-------------------------------------------------------------------------
  Quality   outward
TEL3          0.5537    0.9009    0.0000    0.1884    0.8116    0.0000
TEL4          0.5558    0.9017    0.0000    0.1870    0.8130    0.0000
-------------------------------------------------------------------------
  security  outward
TEL5          0.5631    0.9238    0.0000    0.1465    0.8535    0.0000
TEL6          0.5260    0.9122    0.0000    0.1679    0.8321    0.0000
-------------------------------------------------------------------------
  Technica  outward
TEL3          0.3337    0.7349    0.0000    0.4599    0.5401    0.5401
TEL4          0.3320    0.7376    0.0000    0.4560    0.5440    0.5440
TEL5          0.3464    0.7847    0.0000    0.3843    0.6157    0.6157
TEL6          0.3247    0.7330    0.0000    0.4627    0.5373    0.5373
-------------------------------------------------------------------------
  TTF       outward
EASE1         0.1255    0.5692    0.0000    0.6760    0.3240    0.3240
EASE2         0.1132    0.5390    0.0000    0.7095    0.2905    0.2905
EASE3         0.0665    0.3356    0.0000    0.8874    0.1126    0.1126
EASE4         0.0879    0.4337    0.0000    0.8119    0.1881    0.1881
CURR1         0.1365    0.6795    0.0000    0.5382    0.4618    0.4617
CURR2         0.1554    0.7809    0.0000    0.3901    0.6099    0.6098
GLOBAL1       0.1375    0.7029    0.0000    0.5059    0.4941    0.4940
MED1          0.1166    0.6063    0.0000    0.6324    0.3676    0.3676
MED2          0.1021    0.4964    0.0000    0.7536    0.2464    0.2464
MED3          0.0549    0.3220    0.0000    0.8963    0.1037    0.1037
MED4          0.0476    0.2804    0.0000    0.9214    0.0786    0.0786
TRNG1         0.0952    0.4925    0.0000    0.7575    0.2425    0.2425
TRNG3         0.0720    0.3908    0.0000    0.8473    0.1527    0.1527
IS1           0.0906    0.4562    0.0000    0.7919    0.2081    0.2081
IS2           0.1011    0.5018    0.0000    0.7481    0.2519    0.2518
GLOBAL2       0.1370    0.7174    0.0000    0.4853    0.5147    0.5146
GLOBAL3       0.1240    0.6338    0.0000    0.5983    0.4017    0.4016
-------------------------------------------------------------------------
  Ease of   outward
EASE1         0.3944    0.8037    0.0000    0.3541    0.6459    0.0000
EASE2         0.3734    0.7980    0.0000    0.3632    0.6368    0.0000
EASE3         0.2326    0.7562    0.0000    0.4282    0.5718    0.0000
EASE4         0.3005    0.6961    0.0000    0.5155    0.4845    0.0000
-------------------------------------------------------------------------
  Training  outward
TRNG1         0.6271    0.9134    0.0000    0.1656    0.8344    0.0000
TRNG3         0.4976    0.8585    0.0000    0.2630    0.7370    0.0000
-------------------------------------------------------------------------
  IS Suppo  outward
IS1          -0.5136   -0.9196    0.0000    0.1544    0.8456    0.0000
IS2          -0.5650   -0.9340    0.0000    0.1276    0.8724    0.0000
-------------------------------------------------------------------------
  Communic  outward
GLOBAL1       0.2436    0.8427    0.0000    0.2899    0.7101    0.0000
CURR2         0.2707    0.8412    0.0000    0.2924    0.7076    0.0000
CURR1         0.2355    0.7875    0.0000    0.3798    0.6202    0.0000
GLOBAL2       0.2487    0.8349    0.0000    0.3030    0.6970    0.0000
GLOBAL3       0.2197    0.7919    0.0000    0.3729    0.6271    0.0000
-------------------------------------------------------------------------
  Mediatio  outward
MED1          0.4118    0.8883    0.0000    0.2110    0.7890    0.0000
MED2          0.3372    0.8722    0.0000    0.2392    0.7608    0.0000
MED3          0.2187    0.8324    0.0000    0.3071    0.6929    0.0000
MED4          0.1904    0.8296    0.0000    0.3118    0.6882    0.0000
=========================================================================
```

)Theta .. Outer residual covariance

```
===========================================================================================
          PERF1     PERF2     PERF3     PERF4     PERF5     EmailHou  EmarHour
-------------------------------------------------------------------------------------------
PERF1      0.139
PERF2      0.015     0.167
PERF3     -0.006    -0.008     0.112
PERF4     -0.084    -0.056    -0.038     0.176
PERF5     -0.069    -0.121    -0.070     0.015     0.252
EmailHou   0.055    -0.003     0.018     0.003    -0.075     0.612
EmarHour  -0.033     0.017     0.003    -0.021     0.033    -0.217     0.232
EmailHou   0.016     0.014    -0.011    -0.002    -0.017     0.099    -0.114
EmarHour  -0.006    -0.039     0.000     0.029     0.018    -0.162    -0.054
PER3      -0.015     0.006    -0.014     0.045    -0.019     0.081    -0.027
PER5       0.001     0.032     0.020    -0.033    -0.023     0.014     0.018
PER7       0.001    -0.014    -0.007    -0.007     0.027     0.028     0.006
PER2      -0.001    -0.009    -0.009     0.029    -0.007    -0.016    -0.024
```

PER6	0.013	-0.017	0.007	-0.027	0.021	-0.109	0.022
LONG2	0.003	-0.023	0.010	-0.007	0.015	-0.004	0.004
LONG3	-0.004	0.025	-0.011	0.007	-0.017	0.005	-0.005
TURST1	-0.042	-0.026	-0.015	0.057	0.029	0.006	-0.005
TURST2	-0.014	0.009	0.043	-0.019	-0.023	0.018	0.058
TRUST3	0.036	-0.021	-0.031	0.000	0.017	0.033	-0.018
TRUST4	0.011	0.037	0.003	-0.031	-0.022	-0.062	-0.037
ENG2	-0.007	-0.007	-0.010	-0.006	0.030	-0.032	0.008
ENG3	-0.008	-0.007	0.032	0.011	-0.030	0.062	-0.046
ENG5	-0.010	0.006	-0.020	0.014	0.011	-0.021	0.014
ENG6	0.023	0.007	0.000	-0.018	-0.013	-0.004	0.020
WEST1	-0.005	0.018	-0.006	-0.051	0.042	-0.090	0.085
WEST2	0.035	-0.011	-0.006	0.014	-0.032	0.080	-0.064
WEST4	-0.029	-0.004	0.010	0.025	-0.003	-0.005	-0.006
PER3	-0.037	-0.011	-0.042	0.081	0.016	0.160	-0.024
PER5	-0.024	0.014	-0.008	0.005	0.014	0.097	0.021
PER6	-0.010	-0.033	-0.021	0.010	0.057	-0.028	0.025
PER7	-0.024	-0.032	-0.034	0.031	0.063	0.109	0.009
LONG2	-0.048	-0.034	0.016	-0.011	0.077	-0.223	0.148
LONG3	-0.054	0.015	-0.007	0.003	0.044	-0.213	0.138
TURST1	-0.046	-0.057	0.007	0.065	0.035	0.003	0.002
TURST2	-0.021	-0.026	0.068	-0.009	-0.017	0.015	0.065
TRUST3	0.026	-0.057	-0.003	0.010	0.024	0.031	-0.011
TRUST4	0.005	0.003	0.028	-0.022	-0.016	-0.065	-0.030
ENG2	0.036	0.029	0.001	-0.052	-0.016	-0.075	-0.036
ENG3	0.037	0.030	0.041	-0.037	-0.077	0.018	-0.089
ENG5	0.036	0.044	-0.009	-0.036	-0.038	-0.067	-0.033
ENG6	0.069	0.045	0.012	-0.068	-0.062	-0.050	-0.026
WEST1	0.002	0.052	-0.005	-0.069	0.017	-0.116	0.096
WEST2	0.044	0.033	-0.005	-0.009	-0.064	0.047	-0.051
WEST4	-0.021	0.040	0.013	0.003	-0.035	-0.038	0.007
PER2	-0.022	-0.024	-0.033	0.061	0.024	0.054	-0.022
MIMECTIC	0.025	0.009	0.003	-0.022	-0.016	0.021	0.020
MIMECTIC	0.000	-0.010	0.026	-0.022	0.003	-0.028	0.016
MIMECTIC	-0.017	0.018	0.022	-0.004	-0.021	0.066	0.003
MIMECTIC	-0.015	-0.005	-0.009	-0.001	0.031	-0.012	-0.028
COERCIVE	0.072	-0.046	-0.007	-0.007	-0.013	-0.007	0.046
COERCIVE	0.060	-0.028	0.010	-0.032	-0.012	-0.021	0.037
COERCIVE	0.023	-0.047	-0.049	0.020	0.057	0.008	0.010
COERCIVE	-0.025	-0.051	-0.071	0.038	0.116	-0.164	-0.008
NORMATIV	-0.049	0.052	0.023	0.001	-0.028	-0.083	-0.015
NORMATIV	-0.048	0.058	0.045	-0.003	-0.056	-0.029	0.028
NORMATIV	-0.025	0.020	-0.034	0.041	0.002	0.110	-0.085
NORMATIV	-0.044	0.052	0.010	0.044	-0.060	0.161	-0.081
MIMECTIC	0.027	0.006	-0.007	-0.010	-0.015	0.010	0.017
MIMECTIC	0.002	-0.013	0.015	-0.009	0.004	-0.039	0.013
MIMECTIC	-0.015	0.015	0.011	0.009	-0.020	0.055	0.000
MIMECTIC	-0.013	-0.008	-0.019	0.010	0.032	-0.025	-0.030
COERCIVE	0.033	0.000	0.018	-0.010	-0.044	0.026	0.025
COERCIVE	0.020	0.018	0.036	-0.034	-0.044	0.016	0.014
COERCIVE	-0.014	-0.006	-0.023	0.019	0.027	0.049	-0.015
COERCIVE	-0.058	-0.017	-0.047	0.038	0.090	-0.121	-0.035
NORMATIV	-0.006	0.009	0.009	-0.019	0.007	-0.118	0.024
NORMATIV	-0.004	0.011	0.032	-0.022	-0.020	-0.058	0.064
NORMATIV	0.015	-0.024	-0.046	0.024	0.035	0.084	-0.052
NORMATIV	-0.005	0.003	0.001	0.030	-0.027	0.153	-0.060
TEL3	-0.015	0.053	0.029	-0.033	-0.038	0.012	0.013
TEL4	0.015	-0.052	-0.029	0.032	0.038	-0.012	-0.013
TEL5	0.007	0.020	-0.009	-0.013	-0.005	-0.003	0.008
TEL6	-0.007	-0.021	0.010	0.013	0.006	0.003	-0.009
TEL3	-0.032	0.015	0.026	-0.012	0.001	-0.064	0.039
TEL4	-0.003	-0.090	-0.033	0.053	0.077	-0.087	0.013
TEL5	0.025	0.058	-0.007	-0.035	-0.043	0.072	-0.017
TEL6	0.010	0.014	0.015	-0.005	-0.034	0.078	-0.035
EASE1	-0.040	0.002	-0.032	0.016	0.058	0.059	0.001
EASE2	-0.039	-0.049	-0.033	0.069	0.058	0.116	0.029
EASE3	-0.060	-0.038	-0.017	0.013	0.105	0.085	-0.033
EASE4	-0.065	-0.071	-0.034	0.068	0.109	0.017	-0.027
CURR1	0.040	0.056	0.008	-0.035	-0.072	-0.062	0.030
CURR2	0.013	0.016	0.026	-0.044	-0.016	-0.069	0.011
GLOBAL1	-0.005	0.025	0.025	-0.037	-0.012	-0.125	0.095
MED1	-0.027	-0.031	0.000	0.000	0.058	-0.039	-0.021
MED2	-0.006	0.005	0.050	-0.042	-0.012	-0.013	0.071
MED3	-0.039	-0.037	0.035	0.032	0.009	0.172	-0.002
MED4	-0.026	-0.046	0.009	0.027	0.036	0.167	-0.041
TRNG1	0.009	-0.061	-0.019	0.012	0.061	-0.076	-0.069
TRNG3	0.090	-0.061	-0.002	-0.001	-0.027	0.046	-0.081
IS1	0.037	-0.020	-0.039	0.044	-0.018	0.054	-0.046
IS2	0.008	-0.038	-0.002	0.053	-0.018	-0.007	-0.033
GLOBAL2	0.006	0.095	0.011	-0.027	-0.088	-0.041	0.001
GLOBAL3	0.056	0.085	0.001	-0.044	-0.101	0.019	-0.007
EASE1	0.012	0.039	-0.001	-0.030	-0.022	-0.021	0.006
EASE2	0.012	-0.012	-0.002	0.025	-0.022	0.039	0.034
EASE3	-0.012	0.001	0.012	-0.027	0.024	0.032	-0.033
EASE4	-0.021	-0.038	-0.006	0.029	0.038	-0.046	-0.024
TRNG1	-0.037	0.001	-0.007	0.005	0.039	-0.057	0.008
TRNG3	0.046	-0.001	0.009	-0.006	-0.050	0.072	-0.010
IS1	0.015	0.010	-0.019	-0.004	-0.001	0.034	-0.007
IS2	-0.014	-0.009	0.018	0.004	0.001	-0.031	0.007

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GLOBAL1   -0.027   -0.030    0.010    0.001    0.045   -0.064    0.068
CURR2     -0.008   -0.041    0.011   -0.006    0.043   -0.017   -0.014
CURR1      0.020    0.004   -0.006    0.001   -0.018   -0.007    0.005
GLOBAL2   -0.015    0.040   -0.004    0.011   -0.031    0.018   -0.026
GLOBAL3    0.036    0.033   -0.013   -0.007   -0.049    0.080   -0.034
MED1      -0.002   -0.008   -0.023    0.000    0.036   -0.097   -0.024
MED2       0.017    0.029    0.027   -0.041   -0.036   -0.059    0.065
MED3      -0.018   -0.011    0.013    0.035   -0.018    0.146   -0.011
MED4      -0.005   -0.019   -0.013    0.032    0.008    0.146   -0.051
Performa   0.000    0.000    0.000    0.000    0.000   -0.096    0.040
Utilisat  -0.068    0.056    0.076   -0.068   -0.004    0.000    0.000
Personal   0.014    0.001   -0.070    0.028    0.034    0.082    0.013
Longterm  -0.037   -0.004   -0.009   -0.011    0.061   -0.232    0.152
Trust      0.031   -0.020   -0.006   -0.004   -0.001   -0.015    0.017
English    0.083    0.058   -0.019   -0.066   -0.059   -0.059   -0.041
Material   0.040    0.063   -0.025   -0.037   -0.042   -0.046    0.022
Culture    0.054    0.026   -0.048   -0.020   -0.011   -0.016    0.013
Business   0.009    0.051   -0.025   -0.032   -0.003   -0.156    0.092
Memitic    0.005    0.048   -0.011   -0.041   -0.003   -0.125    0.084
Cocerciv   0.049   -0.013   -0.046   -0.020    0.032   -0.151    0.091
Normativ  -0.043    0.084    0.000    0.002   -0.042   -0.063    0.017
Quality   -0.044   -0.090    0.052    0.093   -0.010   -0.046   -0.005
security  -0.005   -0.010    0.060    0.049   -0.097    0.120   -0.062
Technica  -0.030   -0.060    0.069    0.086   -0.066    0.046   -0.041
TTF        0.007   -0.020    0.000   -0.015    0.026   -0.114    0.024
Ease of   -0.059   -0.060   -0.039    0.046    0.119    0.020    0.011
Training   0.054   -0.079   -0.013    0.000    0.038   -0.082   -0.072
IS Suppo  -0.028    0.042    0.021   -0.045    0.006    0.036    0.029
Communic   0.032    0.049    0.018   -0.058   -0.046   -0.168    0.053
Mediatio  -0.022   -0.039    0.027   -0.010    0.043   -0.013    0.020
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OTheta   .. Outer residual covariance

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=================================================================================
          EmailHou  EmarHour  PER3     PER5     PER7     PER2     PER6
---------------------------------------------------------------------------------
EmailHou    0.287
EmarHour   -0.256    0.480
PER3        0.040   -0.057    0.287
PER5        0.020   -0.057   -0.060    0.224
PER7       -0.025    0.007   -0.054   -0.061    0.257
PER2       -0.019    0.065   -0.047   -0.108   -0.131    0.460
PER6       -0.018    0.052   -0.120   -0.016   -0.038   -0.105    0.265
LONG2      -0.007    0.005   -0.011    0.001    0.013   -0.005    0.001
LONG3       0.008   -0.006    0.012   -0.001   -0.014    0.006   -0.002
TURST1     -0.031    0.041    0.007   -0.037    0.017    0.061   -0.038
TURST2     -0.035   -0.045    0.016   -0.005    0.013   -0.017   -0.010
TRUST3      0.019   -0.018    0.009   -0.003    0.014   -0.042    0.016
TRUST4      0.043    0.030   -0.033    0.042   -0.044    0.009    0.027
ENG2        0.055   -0.062   -0.042    0.032   -0.030   -0.051    0.083
ENG3        0.030   -0.009    0.042    0.014   -0.056   -0.007    0.009
ENG5       -0.036    0.037   -0.006   -0.029    0.023    0.046   -0.029
ENG6       -0.045    0.030    0.009   -0.016    0.055    0.010   -0.059
WEST1      -0.038   -0.020   -0.005    0.039    0.015   -0.058   -0.001
WEST2       0.011    0.030    0.011   -0.034   -0.023    0.045    0.010
WEST4       0.019   -0.013   -0.006    0.001    0.009    0.003   -0.008
PER3        0.067   -0.137    0.296   -0.060   -0.067   -0.048   -0.115
PER5        0.048   -0.142   -0.050    0.223   -0.074   -0.110   -0.010
PER6        0.009   -0.030   -0.110   -0.016   -0.050   -0.107    0.270
PER7        0.004   -0.076   -0.045   -0.061    0.244   -0.133   -0.032
LONG2      -0.069    0.007   -0.142    0.083    0.032   -0.096    0.103
LONG3      -0.055   -0.003   -0.118    0.080    0.005   -0.084    0.099
TURST1     -0.077    0.091    0.012   -0.033    0.040    0.106   -0.111
TURST2     -0.084    0.008    0.022    0.000    0.038    0.033   -0.090
TRUST3     -0.027    0.032    0.016    0.001    0.037    0.008   -0.062
TRUST4     -0.004    0.081   -0.027    0.046   -0.021    0.057   -0.049
ENG2        0.046    0.033   -0.033    0.005   -0.026   -0.075    0.120
ENG3        0.019    0.088    0.050   -0.013   -0.052   -0.031    0.046
ENG5       -0.046    0.138    0.003   -0.058    0.027    0.021    0.011
ENG6       -0.055    0.131    0.018   -0.045    0.059   -0.015   -0.020
WEST1       0.009   -0.078   -0.011    0.059   -0.006   -0.067    0.014
WEST2       0.069   -0.041    0.004   -0.009   -0.050    0.033    0.029
WEST4       0.079   -0.087   -0.012    0.026   -0.019   -0.008    0.012
PER2        0.005   -0.005   -0.039   -0.109   -0.142    0.459   -0.100
MIMECTIC   -0.063    0.040   -0.016   -0.019   -0.001    0.001    0.036
MIMECTIC   -0.061    0.069   -0.030    0.008   -0.023   -0.002    0.046
MIMECTIC    0.001   -0.040    0.016    0.002   -0.028    0.054   -0.036
MIMECTIC    0.031    0.007    0.025   -0.037   -0.014    0.041   -0.007
COERCIVE   -0.044   -0.003    0.068   -0.048    0.048    0.005   -0.071
COERCIVE   -0.016   -0.019    0.030   -0.053    0.037    0.041   -0.049
COERCIVE   -0.019    0.005    0.039   -0.056    0.064    0.057   -0.096
COERCIVE    0.023    0.072    0.043   -0.089    0.036    0.113   -0.086
NORMATIV    0.014    0.048   -0.107    0.085   -0.058   -0.093    0.157
NORMATIV   -0.012   -0.008   -0.092    0.120   -0.049   -0.107    0.108
NORMATIV    0.127   -0.102    0.015    0.053    0.010   -0.098    0.005
NORMATIV    0.137   -0.148    0.001    0.100   -0.001   -0.091   -0.024
MIMECTIC   -0.040    0.021   -0.015   -0.008    0.015   -0.022    0.027
MIMECTIC   -0.037    0.050   -0.029    0.020   -0.006   -0.026    0.037
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MIMECTIC      0.024    -0.059     0.018     0.014    -0.012     0.030    -0.046
MIMECTIC      0.053    -0.011     0.026    -0.026     0.003     0.018    -0.018
COERCIVE     -0.030    -0.011     0.022     0.013     0.000    -0.042     0.002
COERCIVE      0.000    -0.027    -0.017     0.010    -0.012    -0.009     0.027
COERCIVE     -0.001    -0.005    -0.007     0.003     0.018     0.006    -0.020
COERCIVE      0.043     0.060     0.002    -0.036    -0.005     0.064    -0.016
NORMATIV     -0.050     0.094    -0.053    -0.007    -0.030     0.011     0.080
NORMATIV     -0.074     0.036    -0.037     0.026    -0.020    -0.003     0.032
NORMATIV      0.070    -0.061     0.065    -0.033     0.037    -0.003    -0.064
NORMATIV      0.090    -0.115     0.048     0.016     0.025    -0.008    -0.083
TEL3         -0.007    -0.016     0.028     0.033    -0.019    -0.029    -0.016
TEL4          0.007     0.016    -0.028    -0.033     0.019     0.029     0.016
TEL5          0.010    -0.023     0.030    -0.019    -0.021     0.015    -0.001
TEL6         -0.011     0.024    -0.032     0.020     0.023    -0.016     0.001
TEL3         -0.071     0.070     0.044    -0.001    -0.009    -0.022    -0.013
TEL4         -0.057     0.101    -0.012    -0.067     0.029     0.037     0.019
TEL5          0.073    -0.108     0.012     0.016    -0.030     0.007    -0.003
TEL6          0.053    -0.060    -0.046     0.053     0.012    -0.022    -0.003
EASE1         0.016    -0.054     0.109     0.009    -0.007    -0.049    -0.064
EASE2        -0.049    -0.043     0.011     0.003     0.073     0.008    -0.097
EASE3         0.020    -0.027     0.078    -0.013    -0.027     0.004    -0.038
EASE4         0.016     0.007     0.045    -0.056     0.028     0.025    -0.038
CURR1         0.007    -0.016    -0.093     0.014    -0.008    -0.044     0.123
CURR2         0.007     0.014    -0.105    -0.006     0.033     0.000     0.074
GLOBAL1      -0.072     0.029    -0.098     0.043     0.009    -0.005     0.046
MED1          0.028     0.014    -0.018     0.032    -0.003    -0.014     0.001
MED2          0.032    -0.128     0.018     0.061     0.082    -0.132    -0.051
MED3          0.066    -0.173     0.105     0.014     0.030    -0.078    -0.080
MED4          0.085    -0.141     0.106     0.001     0.013    -0.057    -0.068
TRNG1         0.041     0.084    -0.039    -0.054     0.009     0.060     0.032
TRNG3         0.006     0.078     0.020    -0.057    -0.026     0.055     0.019
IS1          -0.063     0.111     0.064    -0.041    -0.071     0.107    -0.038
IS2          -0.060     0.124     0.045    -0.099    -0.063     0.084     0.052
GLOBAL2      -0.002     0.024    -0.008     0.042    -0.031     0.024    -0.024
GLOBAL3       0.017    -0.022     0.009     0.033    -0.045     0.004     0.000
EASE1         0.018    -0.019     0.041     0.027    -0.029    -0.047     0.004
EASE2        -0.047    -0.009    -0.055     0.018     0.052     0.012    -0.030
EASE3         0.022     0.000     0.030    -0.016    -0.045     0.020     0.017
EASE4         0.018     0.036    -0.009    -0.046     0.009     0.032     0.019
TRNG1         0.015     0.002    -0.028     0.006     0.015    -0.002     0.007
TRNG3        -0.019    -0.002     0.036    -0.008    -0.019     0.002    -0.009
IS1          -0.002    -0.007     0.012     0.028    -0.005     0.014    -0.048
IS2           0.002     0.006    -0.011    -0.025     0.004    -0.013     0.044
GLOBAL1      -0.063     0.021    -0.034     0.016     0.016     0.001    -0.001
CURR2         0.016     0.009    -0.047    -0.025     0.039     0.000     0.031
CURR1         0.015    -0.022    -0.035    -0.009    -0.001    -0.040     0.080
GLOBAL2       0.007     0.017     0.054     0.017    -0.024     0.027    -0.069
GLOBAL3       0.026    -0.030     0.072     0.005    -0.038     0.011    -0.045
MED1         -0.019     0.109    -0.065     0.012    -0.036     0.047     0.049
MED2         -0.014    -0.038    -0.021     0.031     0.051    -0.065    -0.009
MED3          0.022    -0.092     0.081    -0.030     0.002    -0.004    -0.046
MED4          0.042    -0.062     0.085    -0.046    -0.014     0.019    -0.037
Performa     -0.022     0.025    -0.118     0.110     0.004    -0.072     0.059
Utilisat      0.000     0.000    -0.079     0.129    -0.018    -0.029    -0.013
Personal      0.000    -0.063     0.000     0.000     0.000     0.000     0.000
Longterm     -0.077     0.015    -0.140     0.085     0.026    -0.093     0.103
Trust        -0.085     0.090    -0.004     0.005     0.041     0.058    -0.095
English      -0.038     0.135     0.000    -0.031     0.017    -0.025     0.037
Material      0.042    -0.057    -0.015     0.027    -0.020    -0.011     0.017
Culture      -0.041     0.042    -0.014     0.000     0.019     0.002    -0.008
Business     -0.081     0.061     0.018    -0.005    -0.003     0.084    -0.082
Memitic      -0.096     0.074     0.015    -0.017    -0.020     0.099    -0.062
Cocerciv     -0.075     0.052     0.065    -0.071     0.051     0.114    -0.141
Normativ      0.019    -0.012    -0.049     0.101    -0.034    -0.063     0.034
Quality      -0.042     0.084     0.079    -0.060    -0.023     0.036    -0.023
security      0.098    -0.103     0.045     0.014    -0.045     0.020    -0.029
Technica      0.035    -0.013     0.075    -0.027    -0.041     0.034    -0.032
TTF          -0.003     0.033    -0.080     0.100    -0.013    -0.068     0.047
Ease of      -0.004    -0.020     0.028     0.048     0.019    -0.051    -0.052
Training      0.027     0.109    -0.054    -0.012    -0.014     0.031     0.053
IS Suppo      0.068    -0.144    -0.017     0.026     0.079    -0.067    -0.034
Communic     -0.014     0.037    -0.143     0.115    -0.019    -0.063     0.094
Mediatio      0.051    -0.084    -0.002     0.091     0.028    -0.115    -0.022
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ꞈTheta   .. Outer residual covariance

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========================================================================
             LONG2     LONG3    TURST1    TURST2    TRUST3    TRUST4     ENG2
------------------------------------------------------------------------
LONG2         0.069
LONG3        -0.076     0.085
TURST1        0.025    -0.027     0.337
TURST2       -0.002     0.002     0.030     0.202
TRUST3       -0.026     0.029    -0.145    -0.115     0.226
TRUST4        0.009    -0.010    -0.173    -0.109    -0.003     0.274
ENG2          0.003    -0.004    -0.013    -0.030     0.036     0.003     0.210
ENG3          0.010    -0.011     0.023     0.009    -0.028     0.001    -0.054
ENG5         -0.014     0.015     0.010    -0.001     0.003    -0.011    -0.060
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ENG6	0.002	-0.002	-0.018	0.022	-0.013	0.007	-0.094
WEST1	-0.029	0.032	-0.001	0.082	-0.022	-0.060	-0.016
WEST2	-0.010	0.011	-0.025	-0.035	0.027	0.029	0.001
WEST4	0.032	-0.035	0.024	-0.031	-0.008	0.020	0.012
PER3	0.005	-0.006	0.003	0.006	0.023	-0.034	-0.034
PER5	0.018	-0.020	-0.040	-0.015	0.011	0.040	0.040
PER6	0.018	-0.020	-0.042	-0.020	0.030	0.025	0.090
PER7	0.029	-0.032	0.014	0.003	0.026	-0.045	-0.022
LONG2	0.065	-0.072	-0.019	0.046	-0.061	0.038	0.065
LONG3	-0.080	0.089	-0.072	0.049	-0.004	0.018	0.058
TURST1	0.004	-0.005	0.359	0.036	-0.172	-0.169	-0.058
TURST2	-0.024	0.027	0.055	0.209	-0.146	-0.105	-0.080
TRUST3	-0.049	0.055	-0.118	-0.107	0.193	0.002	-0.013
TRUST4	-0.013	0.014	-0.149	-0.102	-0.033	0.278	-0.044
ENG2	0.002	-0.002	0.046	-0.039	0.048	-0.055	0.200
ENG3	0.009	-0.010	0.081	0.000	-0.014	-0.057	-0.062
ENG5	-0.015	0.017	0.072	-0.011	0.017	-0.073	-0.070
ENG6	0.000	-0.001	0.044	0.013	0.000	-0.054	-0.103
WEST1	-0.027	0.031	-0.108	0.091	-0.015	0.020	0.030
WEST2	-0.008	0.009	-0.160	-0.023	0.036	0.128	0.059
WEST4	0.033	-0.037	-0.112	-0.019	0.000	0.121	0.070
PER2	0.009	-0.009	0.058	-0.025	-0.030	0.008	-0.045
MIMECTIC	-0.016	0.017	0.034	0.019	-0.004	-0.046	0.033
MIMECTIC	0.002	-0.002	-0.048	0.010	-0.002	0.036	0.042
MIMECTIC	0.022	-0.024	0.016	-0.012	-0.023	0.024	0.027
MIMECTIC	0.012	-0.014	0.000	-0.027	-0.010	0.039	0.047
COERCIVE	0.026	-0.029	0.030	0.042	-0.009	-0.061	-0.085
COERCIVE	0.015	-0.017	0.002	0.043	-0.011	-0.035	-0.099
COERCIVE	0.035	-0.039	0.068	0.024	0.031	-0.122	-0.071
COERCIVE	-0.018	0.020	-0.015	-0.019	0.005	0.028	-0.048
NORMATIV	-0.038	0.042	-0.055	-0.036	0.007	0.080	0.082
NORMATIV	-0.026	0.029	-0.037	0.037	-0.037	0.036	-0.015
NORMATIV	-0.021	0.024	0.022	-0.082	0.060	-0.001	0.034
NORMATIV	-0.025	0.027	-0.036	-0.033	0.031	0.032	0.018
MIMECTIC	-0.021	0.023	0.034	0.022	0.005	-0.060	-0.004
MIMECTIC	-0.004	0.004	-0.049	0.012	0.008	0.022	0.004
MIMECTIC	0.017	-0.018	0.016	-0.009	-0.013	0.011	-0.010
MIMECTIC	0.007	-0.008	0.000	-0.024	0.000	0.025	0.010
COERCIVE	0.010	-0.011	0.006	0.015	-0.012	-0.009	-0.005
COERCIVE	-0.001	0.002	-0.022	0.016	-0.014	0.018	-0.016
COERCIVE	0.018	-0.020	0.045	-0.002	0.028	-0.071	0.007
COERCIVE	-0.034	0.038	-0.034	-0.042	0.001	0.074	0.021
NORMATIV	-0.008	0.009	-0.028	-0.008	-0.005	0.040	0.050
NORMATIV	0.003	-0.004	-0.009	0.066	-0.050	-0.005	-0.048
NORMATIV	0.006	-0.007	0.048	-0.056	0.048	-0.039	0.003
NORMATIV	0.000	0.000	-0.008	-0.008	0.018	-0.004	-0.010
TEL3	-0.005	0.005	-0.034	0.025	-0.026	0.034	0.005
TEL4	0.005	-0.005	0.034	-0.025	0.026	-0.034	-0.005
TEL5	-0.002	0.002	-0.009	0.009	-0.007	0.007	0.020
TEL6	0.002	-0.002	0.010	-0.009	0.007	-0.007	-0.021
TEL3	0.003	-0.003	0.033	0.050	-0.052	-0.024	-0.010
TEL4	0.012	-0.014	0.100	0.000	0.001	-0.092	-0.020
TEL5	-0.010	0.011	-0.075	-0.016	0.019	0.064	0.035
TEL6	-0.005	0.006	-0.056	-0.034	0.032	0.051	-0.007
EASE1	-0.022	0.024	0.053	0.069	-0.062	-0.050	-0.049
EASE2	-0.005	0.005	0.131	0.064	-0.046	-0.134	-0.063
EASE3	-0.020	0.023	0.010	0.027	0.003	-0.040	-0.049
EASE4	-0.008	0.009	0.149	0.009	-0.040	-0.100	0.035
CURR1	-0.009	0.010	-0.008	0.054	-0.068	0.028	0.001
CURR2	0.013	-0.014	-0.030	0.037	-0.059	0.055	0.012
GLOBAL1	-0.016	0.017	-0.070	-0.041	0.073	0.024	0.027
MED1	0.040	-0.044	-0.016	-0.033	0.031	0.014	0.090
MED2	0.029	-0.032	-0.074	0.048	0.016	0.000	0.002
MED3	0.005	-0.006	-0.039	0.007	0.083	-0.065	0.058
MED4	0.015	-0.017	-0.040	-0.009	0.097	-0.064	0.094
TRNG1	0.025	-0.027	0.038	-0.050	0.017	-0.001	-0.075
TRNG3	0.027	-0.030	0.030	-0.017	-0.017	0.009	-0.112
IS1	-0.010	0.011	0.030	-0.003	0.009	-0.033	0.003
IS2	-0.023	0.026	0.091	0.017	-0.021	-0.076	0.031
GLOBAL2	-0.028	0.031	-0.077	-0.098	0.021	0.149	-0.007
GLOBAL3	0.008	-0.009	-0.108	-0.071	0.066	0.097	0.016
EASE1	-0.006	0.006	-0.044	0.020	-0.020	0.042	-0.007
EASE2	0.010	-0.012	0.036	0.016	-0.004	-0.044	-0.025
EASE3	-0.012	0.014	-0.071	-0.017	0.045	0.032	-0.033
EASE4	0.004	-0.004	0.068	-0.033	-0.003	-0.024	0.065
TRNG1	-0.001	0.001	0.001	-0.014	0.014	-0.003	0.023
TRNG3	0.001	-0.001	-0.001	0.017	-0.018	0.003	-0.029
IS1	0.006	-0.007	-0.031	-0.010	0.016	0.020	-0.017
IS2	-0.006	0.006	0.028	0.009	-0.014	-0.019	0.015
GLOBAL1	-0.010	0.011	-0.010	-0.018	0.069	-0.050	0.015
CURR2	0.022	-0.024	0.026	0.059	-0.064	-0.013	0.008
CURR1	-0.003	0.003	0.047	0.075	-0.073	-0.039	-0.008
GLOBAL2	-0.022	0.024	-0.018	-0.075	0.016	0.077	-0.017
GLOBAL3	0.012	-0.013	-0.050	-0.049	0.062	0.026	0.001
MED1	0.017	-0.019	0.020	-0.037	-0.019	0.042	0.043
MED2	0.003	-0.004	-0.034	0.045	-0.032	0.019	-0.055
MED3	-0.024	0.027	0.008	0.007	0.039	-0.057	-0.013
MED4	-0.016	0.018	0.008	-0.008	0.053	-0.059	0.019
Performa	0.007	-0.008	0.007	0.101	-0.093	-0.008	0.048

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Utilisat   -0.043    0.048   -0.072   -0.013   -0.091    0.180   -0.066
Personal    0.029   -0.032   -0.034   -0.020    0.052   -0.007    0.021
Longterm    0.000    0.000   -0.057    0.046   -0.021    0.028    0.068
Trust      -0.016    0.018    0.000    0.000    0.000    0.000   -0.044
English     0.007   -0.008    0.041   -0.017    0.045   -0.070    0.000
Material    0.010   -0.011   -0.172    0.007    0.036    0.108    0.074
Culture     0.013   -0.014   -0.039   -0.011    0.047   -0.007    0.016
Business    0.021   -0.023   -0.012    0.010    0.010   -0.010   -0.009
Memitic     0.024   -0.027   -0.011    0.006   -0.002    0.005    0.032
Cocerciv    0.033   -0.037    0.017    0.037    0.010   -0.065   -0.096
Normativ   -0.020    0.022   -0.039   -0.025    0.021    0.039    0.031
Quality     0.012   -0.013    0.064    0.023   -0.055   -0.020   -0.035
security   -0.005    0.006   -0.082   -0.032    0.000    0.107   -0.003
Technica    0.004   -0.004   -0.012   -0.006   -0.033    0.054   -0.023
TTF         0.036   -0.040   -0.050   -0.014   -0.009    0.070    0.112
Ease of     0.005   -0.006    0.085    0.051   -0.058   -0.065    0.027
Training    0.047   -0.052    0.014   -0.047   -0.002    0.039   -0.046
IS Suppo    0.000    0.000   -0.040    0.000    0.012    0.024   -0.077
Communic    0.023   -0.026   -0.113   -0.040   -0.002    0.146    0.109
Mediatio    0.050   -0.055   -0.075   -0.005    0.050    0.017    0.129
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)Theta .. Outer residual covariance

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               ENG3      ENG5      ENG6      WEST1     WEST2     WEST4     PER3
            ------------------------------------------------------------------
ENG3          0.210
ENG5         -0.081     0.105
ENG6         -0.054     0.025     0.113
WEST1        -0.018     0.021     0.011     0.487
WEST2         0.014    -0.007    -0.007    -0.201     0.198
WEST4         0.000    -0.010    -0.002    -0.187    -0.029     0.168
PER3          0.077    -0.028    -0.008     0.007    -0.010     0.004     0.584
PER5          0.052    -0.051    -0.034     0.052    -0.055     0.011     0.241
PER6          0.045    -0.050    -0.077     0.011    -0.011     0.002     0.178
PER7         -0.019     0.001     0.037     0.028    -0.043     0.019     0.228
LONG2        -0.065     0.019    -0.023     0.123    -0.104     0.002    -0.284
LONG3        -0.086     0.048    -0.026     0.182    -0.082    -0.064    -0.293
TURST1        0.004     0.036     0.015     0.064    -0.053     0.000    -0.046
TURST2       -0.011     0.028     0.059     0.154    -0.065    -0.058    -0.047
TRUST3       -0.046     0.032     0.022     0.049    -0.002    -0.035    -0.030
TRUST4       -0.018     0.017     0.042     0.008     0.000    -0.006    -0.085
ENG2         -0.038    -0.062    -0.097    -0.116     0.062     0.031    -0.229
ENG3          0.224    -0.083    -0.057    -0.118     0.075     0.021    -0.118
ENG5         -0.065     0.103     0.022    -0.085     0.058     0.011    -0.235
ENG6         -0.037     0.023     0.109    -0.095     0.058     0.019    -0.215
WEST1        -0.059     0.016     0.008     0.487    -0.194    -0.193    -0.103
WEST2        -0.038    -0.013    -0.010    -0.201     0.207    -0.037    -0.147
WEST4        -0.052    -0.016    -0.005    -0.187    -0.019     0.160    -0.137
PER2          0.024     0.027    -0.005    -0.047     0.027     0.011     0.203
MIMECTIC     -0.003     0.001    -0.029    -0.027     0.032    -0.009    -0.002
MIMECTIC     -0.010    -0.007    -0.024    -0.043    -0.003     0.036     0.004
MIMECTIC      0.026    -0.021    -0.029    -0.112     0.024     0.063     0.033
MIMECTIC      0.015    -0.021    -0.037    -0.060    -0.019     0.063     0.043
COERCIVE     -0.017     0.014     0.082    -0.084     0.076    -0.005     0.050
COERCIVE     -0.038     0.028     0.101    -0.065     0.066    -0.011     0.010
COERCIVE     -0.035     0.056     0.042     0.055     0.016    -0.057     0.018
COERCIVE     -0.074     0.083     0.030     0.066     0.001    -0.052     0.077
NORMATIV      0.008    -0.049    -0.038     0.086    -0.027    -0.041    -0.153
NORMATIV      0.045    -0.031     0.006     0.147    -0.099    -0.022    -0.157
NORMATIV      0.021    -0.002    -0.049     0.121    -0.066    -0.031     0.043
NORMATIV      0.077    -0.037    -0.050     0.124    -0.079    -0.022     0.005
MIMECTIC     -0.010     0.013     0.000     0.032     0.024    -0.047    -0.021
MIMECTIC     -0.017     0.005     0.006     0.018    -0.011    -0.003    -0.015
MIMECTIC      0.019    -0.009     0.001    -0.051     0.016     0.025     0.014
MIMECTIC      0.007    -0.009    -0.007     0.002    -0.028     0.024     0.022
COERCIVE      0.019    -0.027     0.015    -0.065     0.028     0.024     0.007
COERCIVE      0.000    -0.015     0.031    -0.047     0.018     0.019    -0.032
COERCIVE      0.006     0.014    -0.026     0.068    -0.026    -0.028    -0.015
COERCIVE     -0.034     0.043    -0.033     0.074    -0.033    -0.026     0.055
NORMATIV     -0.033    -0.016    -0.003    -0.029     0.036    -0.012    -0.085
NORMATIV      0.008     0.001     0.039     0.024    -0.030     0.009    -0.080
NORMATIV     -0.013     0.027    -0.019     0.006    -0.002    -0.002     0.115
NORMATIV      0.057    -0.013    -0.028     0.001    -0.009     0.007     0.093
TEL3         -0.002    -0.019     0.017    -0.007    -0.001     0.006     0.016
TEL4          0.002     0.019    -0.016     0.006     0.001    -0.006    -0.016
TEL5         -0.009    -0.004    -0.007    -0.019     0.027    -0.011     0.007
TEL6          0.010     0.005     0.007     0.020    -0.029     0.012    -0.008
TEL3          0.022    -0.020     0.010     0.051    -0.011    -0.029     0.039
TEL4          0.027     0.018    -0.023     0.064    -0.009    -0.040     0.006
TEL5         -0.035    -0.002     0.000    -0.074     0.036     0.023    -0.018
TEL6         -0.013     0.004     0.014    -0.040    -0.018     0.047    -0.027
EASE1        -0.016     0.033     0.028     0.172    -0.040    -0.094     0.122
EASE2        -0.059     0.082     0.031     0.127    -0.049    -0.052     0.066
EASE3        -0.023     0.052     0.016     0.080    -0.036    -0.027     0.134
EASE4         0.008    -0.005    -0.035     0.107    -0.057    -0.030     0.115
CURR1         0.040    -0.023    -0.014    -0.014     0.006     0.005    -0.141
CURR2         0.033    -0.035    -0.006    -0.027     0.025    -0.002    -0.175
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GLOBAL1   -0.052   -0.004    0.023   -0.092    0.032    0.040   -0.129
MED1       0.036   -0.058   -0.060   -0.084    0.028    0.038   -0.012
MED2       0.028   -0.065    0.039   -0.009   -0.040    0.044   -0.005
MED3       0.031   -0.038   -0.046   -0.042   -0.005    0.037    0.173
MED4       0.003   -0.032   -0.062   -0.069    0.005    0.048    0.196
TRNG1      0.072    0.033   -0.025    0.013    0.006   -0.016   -0.089
TRNG3      0.144   -0.011   -0.009    0.002   -0.019    0.016    0.059
IS1       -0.141    0.107    0.016    0.059    0.004   -0.049    0.089
IS2       -0.021    0.025   -0.036    0.135   -0.036   -0.070    0.153
GLOBAL2   -0.029   -0.005    0.038   -0.107    0.005    0.077   -0.058
GLOBAL3   -0.009   -0.034    0.027   -0.172    0.106    0.034   -0.048
EASE1      0.005   -0.013    0.015    0.046    0.002   -0.036    0.001
EASE2     -0.036    0.038    0.018   -0.001   -0.005    0.005   -0.050
EASE3      0.011    0.016    0.005   -0.064    0.024    0.027    0.053
EASE4      0.030   -0.043   -0.046   -0.009   -0.014    0.020    0.020
TRNG1     -0.037    0.018   -0.007    0.009    0.008   -0.014   -0.071
TRNG3      0.047   -0.022    0.008   -0.011   -0.010    0.017    0.089
IS1       -0.062    0.044    0.027   -0.042    0.023    0.010   -0.029
IS2        0.056   -0.040   -0.025    0.038   -0.021   -0.010    0.026
GLOBAL1   -0.047    0.018    0.010   -0.012    0.000    0.009   -0.010
CURR2      0.032   -0.017   -0.020    0.062   -0.015   -0.033   -0.069
CURR1      0.043   -0.003   -0.027    0.063   -0.026   -0.024   -0.034
GLOBAL2   -0.027    0.015    0.024   -0.026   -0.028    0.046    0.056
GLOBAL3   -0.003   -0.013    0.015   -0.101    0.079    0.005    0.068
MED1      -0.001   -0.009   -0.032   -0.015    0.017   -0.004   -0.094
MED2      -0.001   -0.014    0.068    0.046   -0.041    0.002   -0.069
MED3       0.014    0.017   -0.016   -0.008    0.010   -0.003    0.138
MED4      -0.011    0.024   -0.032   -0.040    0.024    0.008    0.167
Performa  -0.033   -0.018    0.001    0.263   -0.125   -0.086   -0.225
Utilisat   0.014    0.023    0.028    0.207   -0.138   -0.031   -0.100
Personal   0.021   -0.023   -0.016    0.015   -0.038    0.024    0.342
Longterm  -0.086    0.035   -0.024    0.157   -0.103   -0.025   -0.300
Trust     -0.042    0.035    0.045    0.080   -0.047   -0.018   -0.060
English    0.000    0.000    0.000   -0.112    0.057    0.033   -0.219
Material  -0.073   -0.005    0.000    0.000    0.000    0.000   -0.154
Culture   -0.027    0.003    0.006    0.000   -0.018    0.017    0.000
Business  -0.107    0.040    0.065    0.096   -0.066   -0.012   -0.152
Memitic   -0.087    0.022    0.025    0.020   -0.050    0.030   -0.113
Cocerciv  -0.118    0.075    0.122    0.049    0.004   -0.041   -0.063
Normativ  -0.025   -0.011    0.003    0.196   -0.117   -0.042   -0.179
Quality    0.078   -0.039    0.004   -0.038    0.032   -0.001    0.139
security   0.024   -0.038    0.019   -0.165    0.055    0.076    0.090
Technica   0.062   -0.047    0.014   -0.124    0.053    0.046    0.139
TTF       -0.069   -0.035   -0.011    0.124   -0.106    0.002   -0.168
Ease of   -0.075    0.032    0.009    0.245   -0.127   -0.070    0.032
Training   0.082   -0.002   -0.026    0.072   -0.059   -0.001   -0.111
IS Suppo   0.120   -0.051    0.018   -0.171    0.073    0.063   -0.045
Communic  -0.063   -0.054    0.006    0.010   -0.051    0.039   -0.282
Mediatio  -0.006   -0.079   -0.040    0.007   -0.060    0.049   -0.022
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)Theta   .. Outer residual covariance

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==============================================================================
           PER5     PER6     PER7    LONG2    LONG3   TURST1   TURST2
------------------------------------------------------------------------------
PER5      0.527
PER6      0.285    0.563
PER7      0.223    0.244    0.522
LONG2    -0.065   -0.041   -0.113    0.913
LONG3    -0.102   -0.079   -0.173    0.769    0.930
TURST1   -0.093   -0.170   -0.019   -0.097   -0.105    0.682
TURST2   -0.073   -0.160   -0.033   -0.039    0.013    0.390    0.577
TRUST3   -0.046   -0.108   -0.010   -0.144   -0.039    0.177    0.217
TRUST4   -0.015   -0.108   -0.080   -0.043   -0.016    0.169    0.246
ENG2     -0.200   -0.079   -0.226    0.019    0.015   -0.156   -0.261
ENG3     -0.189   -0.124   -0.223   -0.111   -0.129   -0.094   -0.191
ENG5     -0.307   -0.231   -0.215   -0.030    0.002   -0.068   -0.164
ENG6     -0.288   -0.256   -0.178   -0.071   -0.072   -0.089   -0.133
WEST1    -0.038   -0.080   -0.101    0.332    0.387   -0.141    0.056
WEST2    -0.167   -0.125   -0.205    0.158    0.174   -0.309   -0.187
WEST4    -0.104   -0.114   -0.146    0.270    0.197   -0.261   -0.182
PER2      0.143    0.144    0.104   -0.219   -0.235    0.056   -0.027
MIMECTIC -0.007    0.049    0.007   -0.068   -0.030    0.003   -0.020
MIMECTIC  0.042    0.080    0.007   -0.007   -0.006   -0.085   -0.035
MIMECTIC  0.019   -0.019   -0.014   -0.067   -0.110   -0.003   -0.035
MIMECTIC -0.019    0.011    0.003   -0.044   -0.067   -0.009   -0.039
COERCIVE -0.065   -0.088    0.032   -0.006   -0.062    0.086    0.105
COERCIVE -0.072   -0.069    0.022    0.015   -0.022    0.046    0.097
COERCIVE -0.076   -0.116    0.047    0.032   -0.046    0.135    0.102
COERCIVE -0.051   -0.051    0.076    0.003    0.037    0.075    0.086
NORMATIV  0.036    0.111   -0.105    0.141    0.219   -0.114   -0.102
NORMATIV  0.053    0.042   -0.114    0.188    0.240   -0.085   -0.013
NORMATIV  0.082    0.034    0.038   -0.085   -0.040    0.009   -0.096
NORMATIV  0.106   -0.020    0.006   -0.038    0.011   -0.040   -0.034
MIMECTIC -0.015    0.020    0.007   -0.023    0.023    0.027    0.012
MIMECTIC  0.034    0.051    0.007    0.038    0.046   -0.061   -0.002
MIMECTIC  0.010   -0.049   -0.014   -0.021   -0.057    0.021   -0.002
MIMECTIC -0.029   -0.021    0.000    0.005   -0.012    0.014   -0.007
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COERCIVE   -0.004   -0.013   -0.018   -0.004   -0.022   -0.003    0.002
COERCIVE   -0.006    0.012   -0.027    0.012    0.015   -0.045   -0.008
COERCIVE   -0.005   -0.029    0.010    0.014   -0.025    0.051    0.005
COERCIVE    0.020    0.038    0.051   -0.029    0.041    0.004    0.003
NORMATIV   -0.041    0.047   -0.064    0.096    0.114   -0.055   -0.040
NORMATIV   -0.018   -0.011   -0.063    0.126    0.117   -0.021    0.052
NORMATIV    0.018   -0.014    0.087   -0.146   -0.156    0.068   -0.035
NORMATIV    0.064   -0.037    0.074   -0.137   -0.138    0.024    0.032
TEL3        0.021   -0.028   -0.030    0.005    0.015   -0.060   -0.003
TEL4       -0.021    0.028    0.030   -0.005   -0.015    0.060    0.003
TEL5       -0.042   -0.023   -0.043   -0.051   -0.047    0.002    0.022
TEL6        0.044    0.025    0.046    0.054    0.051   -0.002   -0.024
TEL3       -0.006   -0.018   -0.014    0.039    0.033    0.012    0.027
TEL4       -0.049    0.037    0.046    0.029    0.004    0.132    0.033
TEL5       -0.015   -0.034   -0.060   -0.080   -0.060   -0.070   -0.009
TEL6        0.072    0.016    0.031    0.016    0.027   -0.072   -0.053
EASE1       0.024   -0.050    0.009    0.071    0.114    0.071    0.092
EASE2       0.060   -0.040    0.130    0.030    0.040    0.181    0.120
EASE3       0.048    0.020    0.036   -0.046   -0.007    0.101    0.132
EASE4       0.019    0.034    0.104   -0.140   -0.127    0.303    0.182
CURR1      -0.036    0.075   -0.056    0.083    0.100   -0.047    0.013
CURR2      -0.078    0.004   -0.037    0.185    0.155   -0.041    0.025
GLOBAL1     0.009    0.014   -0.025    0.048    0.083   -0.158   -0.141
MED1        0.039    0.007    0.003   -0.023   -0.106   -0.057   -0.078
MED2        0.039   -0.073    0.063    0.037   -0.026   -0.064    0.062
MED3        0.087   -0.010    0.105   -0.154   -0.169    0.002    0.057
MED4        0.097    0.024    0.108   -0.180   -0.213   -0.035    0.000
TRNG1      -0.106   -0.018   -0.042   -0.007   -0.059    0.020   -0.070
TRNG3      -0.017    0.058    0.013   -0.135   -0.189    0.081    0.038
IS1        -0.018   -0.014   -0.051   -0.088   -0.062    0.107    0.077
IS2         0.012    0.161    0.046   -0.087   -0.035    0.116    0.043
GLOBAL2    -0.011   -0.075   -0.083   -0.015    0.045   -0.140   -0.168
GLOBAL3    -0.030   -0.060   -0.111    0.011    0.001   -0.190   -0.168
EASE1      -0.015   -0.037   -0.071    0.118    0.129   -0.103   -0.046
EASE2       0.021   -0.026    0.053    0.060    0.041    0.010   -0.016
EASE3       0.010    0.042   -0.017   -0.122   -0.098   -0.045    0.017
EASE4      -0.015    0.048    0.041   -0.136   -0.145    0.157    0.067
TRNG1      -0.037   -0.036   -0.027    0.078    0.078   -0.031   -0.049
TRNG3       0.047    0.045    0.035   -0.098   -0.098    0.040    0.062
IS1        -0.016   -0.090   -0.048   -0.013   -0.025   -0.002    0.020
IS2         0.014    0.082    0.044    0.012    0.023    0.002   -0.018
GLOBAL1     0.040    0.023    0.040   -0.032   -0.010   -0.040   -0.052
CURR2      -0.047    0.010    0.019    0.152    0.104    0.069    0.108
CURR1      -0.007    0.082    0.003    0.021    0.024    0.061    0.094
GLOBAL2     0.020   -0.066   -0.021   -0.082   -0.036   -0.025   -0.081
GLOBAL3    -0.001   -0.050   -0.047   -0.080   -0.101   -0.077   -0.083
MED1       -0.020    0.019   -0.070    0.110    0.075   -0.023   -0.088
MED2       -0.019   -0.057    0.002    0.109    0.101   -0.022    0.059
MED3        0.032    0.012    0.065   -0.177   -0.128    0.057    0.066
MED4        0.041    0.047    0.073   -0.226   -0.193    0.023    0.011
Performa   -0.004   -0.050   -0.111    0.553    0.537   -0.051    0.032
Utilisat    0.112   -0.031   -0.028    0.053    0.134    0.000    0.076
Personal    0.345    0.342    0.323   -0.168   -0.207   -0.068   -0.082
Longterm   -0.086   -0.061   -0.147    0.879    0.879   -0.105   -0.015
Trust      -0.065   -0.157   -0.040   -0.095   -0.040    0.397    0.412
English    -0.270   -0.191   -0.229   -0.051   -0.048   -0.111   -0.203
Material   -0.126   -0.127   -0.180    0.293    0.286   -0.286   -0.137
Culture     0.000    0.000    0.000    0.000    0.000    0.000    0.000
Business   -0.189   -0.258   -0.191    0.350    0.315   -0.053   -0.048
Memitic    -0.158   -0.196   -0.168    0.260    0.221   -0.072   -0.077
Cocerciv   -0.207   -0.272   -0.084    0.254    0.186    0.060    0.079
Normativ   -0.037   -0.099   -0.173    0.284    0.329   -0.103   -0.103
Quality     0.006    0.040    0.049   -0.150   -0.182    0.116    0.090
security    0.067    0.019    0.014   -0.227   -0.224   -0.041    0.025
Technica    0.045    0.035    0.038   -0.229   -0.247    0.044    0.069
TTF         0.002   -0.045   -0.114    0.596    0.525   -0.092   -0.072
Ease of     0.050   -0.049    0.019    0.365    0.353    0.152    0.121
Training   -0.074   -0.005   -0.078    0.229    0.133    0.006   -0.061
IS Suppo    0.001   -0.061    0.060   -0.215   -0.220   -0.073   -0.027
Communic   -0.035   -0.049   -0.173    0.593    0.549   -0.217   -0.165
Mediatio    0.068   -0.044    0.004    0.258    0.154   -0.101   -0.038
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)Theta .. Outer residual covariance
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=========================================================================
           TRUST3   TRUST4    ENG2     ENG3     ENG5     ENG6    WEST1
-------------------------------------------------------------------------
TRUST3      0.512
TRUST4      0.311    0.611
ENG2       -0.170   -0.266    0.653
ENG3       -0.203   -0.240    0.415    0.702
ENG5       -0.134   -0.219    0.419    0.424    0.624
ENG6       -0.143   -0.193    0.382    0.449    0.540    0.624
WEST1      -0.050   -0.014   -0.114   -0.203   -0.136   -0.144    0.834
WEST2      -0.126   -0.028    0.066   -0.031   -0.006   -0.003    0.240
WEST4      -0.161   -0.035    0.035   -0.088   -0.054   -0.043    0.248
PER2       -0.032    0.007   -0.246   -0.177   -0.186   -0.218   -0.148
MIMECTIC   -0.055   -0.085    0.094    0.066    0.069    0.038   -0.074
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MIMECTIC	-0.054	-0.007	0.036	-0.010	-0.011	-0.029	-0.034
MIMECTIC	-0.051	0.002	0.048	0.050	0.002	-0.006	-0.120
MIMECTIC	-0.026	0.027	0.061	0.031	-0.006	-0.022	-0.081
COERCIVE	0.057	0.000	-0.114	-0.048	-0.017	0.051	-0.094
COERCIVE	0.053	0.017	-0.106	-0.053	0.018	0.091	-0.096
COERCIVE	0.116	-0.047	-0.091	-0.061	0.033	0.020	0.012
COERCIVE	0.119	0.129	-0.150	-0.184	-0.029	-0.080	0.001
NORMATIV	-0.058	0.018	0.110	0.035	-0.020	-0.009	0.179
NORMATIV	-0.083	-0.012	0.016	0.074	0.002	0.039	0.243
NORMATIV	0.046	-0.015	0.010	-0.002	-0.027	-0.073	0.145
NORMATIV	0.035	0.031	-0.014	0.041	-0.073	-0.085	0.176
MIMECTIC	-0.009	-0.070	0.035	0.033	0.056	0.042	0.002
MIMECTIC	-0.007	0.009	-0.025	-0.045	-0.026	-0.024	0.043
MIMECTIC	-0.004	0.018	-0.012	0.016	-0.011	-0.001	-0.043
MIMECTIC	0.019	0.042	0.002	-0.003	-0.018	-0.016	-0.002
COERCIVE	-0.031	-0.022	0.005	0.033	-0.015	0.028	-0.032
COERCIVE	-0.036	-0.005	0.016	0.031	0.019	0.065	-0.036
COERCIVE	0.035	-0.064	0.021	0.019	0.028	-0.012	0.056
COERCIVE	0.051	0.117	-0.056	-0.114	-0.040	-0.116	0.027
NORMATIV	-0.040	0.010	0.077	-0.003	0.014	0.027	0.005
NORMATIV	-0.062	-0.017	-0.020	0.035	0.030	0.068	0.050
NORMATIV	0.066	-0.019	-0.024	-0.039	-0.001	-0.047	-0.035
NORMATIV	0.064	0.034	-0.056	0.006	-0.063	-0.077	-0.032
TEL3	-0.053	0.007	0.009	0.000	-0.016	0.020	0.047
TEL4	0.052	-0.007	-0.008	0.000	0.015	-0.020	-0.047
TEL5	0.010	0.020	0.022	-0.009	-0.003	-0.005	0.015
TEL6	-0.010	-0.022	-0.023	0.010	0.003	0.006	-0.016
TEL3	-0.073	-0.046	-0.007	0.025	-0.017	0.013	0.077
TEL4	0.032	-0.060	-0.024	0.025	0.014	-0.027	-0.016
TEL5	0.029	0.070	0.038	-0.034	0.000	0.002	-0.011
TEL6	0.012	0.033	-0.009	-0.014	0.003	0.013	-0.051
EASE1	-0.035	-0.028	-0.101	-0.072	-0.024	-0.029	0.168
EASE2	0.009	-0.081	-0.139	-0.135	0.002	-0.049	0.049
EASE3	0.117	0.061	-0.176	-0.156	-0.084	-0.120	0.021
EASE4	0.139	0.066	-0.136	-0.170	-0.189	-0.218	0.023
CURR1	-0.106	-0.011	0.053	0.091	0.033	0.041	0.032
CURR2	-0.069	0.043	0.051	0.071	0.006	0.035	0.015
GLOBAL1	-0.030	-0.072	0.125	0.050	0.101	0.128	-0.057
MED1	-0.014	-0.029	0.168	0.114	0.025	0.023	-0.134
MED2	0.034	0.013	-0.007	0.014	-0.077	0.028	0.025
MED3	0.143	-0.017	-0.027	-0.062	-0.131	-0.138	-0.076
MED4	0.112	-0.055	0.018	-0.077	-0.114	-0.143	-0.093
TRNG1	-0.003	-0.020	0.048	0.194	0.163	0.105	-0.033
TRNG3	0.035	0.062	-0.122	0.136	-0.020	-0.019	-0.085
IS1	0.079	0.043	-0.085	-0.221	0.016	-0.075	0.053
IS2	0.001	-0.051	-0.050	-0.100	-0.060	-0.122	0.033
GLOBAL2	-0.048	0.083	0.072	0.050	0.079	0.121	-0.034
GLOBAL3	-0.042	0.004	0.069	0.053	0.025	0.086	-0.012
EASE1	-0.087	-0.022	0.041	0.054	0.038	0.066	0.110
EASE2	-0.041	-0.075	0.001	-0.006	0.067	0.047	-0.018
EASE3	0.085	0.064	-0.051	-0.013	-0.006	-0.016	-0.097
EASE4	0.099	0.071	-0.015	-0.053	-0.129	-0.132	-0.047
TRNG1	-0.020	-0.036	0.077	0.017	0.076	0.051	0.035
TRNG3	0.025	0.046	-0.098	-0.022	-0.095	-0.064	-0.043
IS1	0.043	0.049	-0.020	-0.062	0.042	0.025	0.005
IS2	-0.039	-0.044	0.018	0.057	-0.038	-0.023	-0.004
GLOBAL1	0.033	-0.083	0.048	-0.012	0.054	0.046	-0.053
CURR2	-0.013	0.033	-0.022	0.000	-0.050	-0.053	0.044
CURR1	-0.050	-0.022	-0.017	0.030	-0.014	-0.038	0.043
GLOBAL2	0.012	0.072	-0.003	-0.014	0.030	0.039	-0.023
GLOBAL3	0.020	-0.007	-0.005	-0.003	-0.017	0.011	-0.016
MED1	-0.076	-0.008	0.117	0.078	0.071	0.048	-0.023
MED2	-0.019	0.032	-0.062	-0.009	-0.022	0.060	0.104
MED3	0.105	-0.001	-0.087	-0.066	-0.064	-0.096	-0.049
MED4	0.077	-0.040	-0.043	-0.077	-0.043	-0.098	-0.078
Performa	-0.170	-0.074	0.063	-0.011	0.000	0.018	0.395
Utilisat	0.014	0.266	-0.110	-0.044	-0.028	-0.022	0.178
Personal	-0.054	-0.069	-0.232	-0.199	-0.282	-0.276	-0.110
Longterm	-0.098	-0.032	0.018	-0.124	-0.015	-0.075	0.373
Trust	0.363	0.391	-0.248	-0.214	-0.172	-0.163	-0.040
English	-0.176	-0.250	0.509	0.537	0.550	0.546	-0.161
Material	-0.138	-0.031	0.004	-0.119	-0.072	-0.068	0.484
Culture	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Business	-0.073	-0.067	0.078	-0.002	0.138	0.162	0.284
Memitic	-0.114	-0.076	0.132	0.035	0.136	0.137	0.168
Cocerciv	0.044	-0.025	-0.076	-0.092	0.098	0.144	0.139
Normativ	-0.068	-0.036	0.088	0.043	0.053	0.066	0.388
Quality	0.030	0.045	-0.060	0.039	-0.070	-0.026	-0.166
security	0.076	0.162	-0.027	-0.015	-0.068	-0.010	-0.236
Technica	0.065	0.127	-0.053	0.014	-0.084	-0.022	-0.245
TTF	-0.085	0.015	0.049	-0.118	-0.098	-0.075	0.311
Ease of	0.004	0.002	-0.143	-0.241	-0.147	-0.170	0.294
Training	-0.027	0.025	-0.006	0.130	0.043	0.019	0.094
IS Suppo	0.003	-0.001	0.047	0.231	0.076	0.146	-0.207
Communic	-0.146	0.026	0.132	-0.024	-0.025	0.035	0.254
Mediatio	0.012	-0.014	0.091	-0.040	-0.119	-0.079	0.088

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OTheta   .. Outer residual covariance
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	WEST2	WEST4	PER2	MIMECTIC	MIMECTIC	MIMECTIC	MIMECTIC
WEST2	0.758						
WEST4	0.525	0.713					
PER2	-0.099	-0.116	0.669				
MIMECTIC	-0.023	-0.071	0.011	0.336			
MIMECTIC	0.011	0.046	0.026	0.193	0.305		
MIMECTIC	0.016	0.052	0.068	0.143	0.157	0.309	
MIMECTIC	-0.045	0.034	0.056	0.104	0.151	0.178	0.311
COERCIVE	0.062	-0.017	-0.009	-0.088	-0.093	-0.113	-0.153
COERCIVE	0.023	-0.048	0.026	-0.142	-0.120	-0.156	-0.167
COERCIVE	-0.040	-0.109	0.041	-0.188	-0.239	-0.235	-0.218
COERCIVE	-0.084	-0.132	0.145	-0.208	-0.159	-0.229	-0.100
NORMATIV	0.089	0.077	-0.133	-0.063	-0.076	-0.078	-0.070
NORMATIV	0.020	0.101	-0.163	-0.132	-0.137	-0.140	-0.158
NORMATIV	-0.036	0.000	-0.074	-0.171	-0.218	-0.122	-0.129
NORMATIV	-0.015	0.046	-0.087	-0.229	-0.226	-0.124	-0.102
MIMECTIC	-0.013	-0.087	-0.029	0.146	-0.006	-0.051	-0.080
MIMECTIC	0.021	0.029	-0.015	-0.003	0.100	-0.043	-0.037
MIMECTIC	0.026	0.036	0.028	-0.051	-0.046	0.111	-0.010
MIMECTIC	-0.034	0.020	0.015	-0.088	-0.049	-0.018	0.126
COERCIVE	0.072	0.065	-0.056	0.067	0.061	0.069	0.014
COERCIVE	0.030	0.032	-0.021	0.018	0.038	0.032	0.005
COERCIVE	-0.041	-0.043	-0.001	-0.037	-0.090	-0.058	-0.056
COERCIVE	-0.093	-0.084	0.111	-0.075	-0.028	-0.072	0.043
NORMATIV	0.079	0.030	-0.017	0.079	0.083	0.039	0.047
NORMATIV	0.002	0.043	-0.040	0.015	0.027	-0.020	-0.038
NORMATIV	-0.054	-0.056	0.040	-0.035	-0.066	-0.011	-0.017
NORMATIV	-0.052	-0.033	0.033	-0.096	-0.077	-0.016	0.007
TEL3	0.065	0.074	-0.039	-0.009	0.025	0.052	0.030
TEL4	-0.065	-0.074	0.039	0.009	-0.025	-0.052	-0.030
TEL5	0.068	0.032	-0.004	0.025	-0.011	0.024	0.020
TEL6	-0.073	-0.034	0.004	-0.027	0.012	-0.026	-0.022
TEL3	0.021	0.005	-0.026	-0.003	-0.006	0.013	0.012
TEL4	-0.109	-0.143	0.052	0.014	-0.056	-0.092	-0.048
TEL5	0.114	0.103	-0.019	0.023	0.020	0.063	0.037
TEL6	-0.032	0.032	-0.006	-0.035	0.042	0.013	-0.003
EASE1	-0.045	-0.097	-0.037	-0.157	-0.157	-0.090	-0.058
EASE2	-0.147	-0.152	0.056	0.043	-0.034	-0.058	-0.042
EASE3	-0.113	-0.100	0.055	-0.101	-0.059	-0.019	0.015
EASE4	-0.165	-0.135	0.088	-0.037	-0.114	-0.032	0.045
CURR1	0.062	0.064	-0.085	-0.001	-0.011	-0.048	-0.089
CURR2	0.077	0.051	-0.060	0.029	0.029	-0.006	-0.027
GLOBAL1	0.077	0.082	-0.033	0.031	0.083	0.060	0.045
MED1	-0.034	-0.024	-0.009	0.021	0.077	0.050	0.000
MED2	0.001	0.089	-0.150	-0.055	0.024	-0.008	-0.045
MED3	-0.052	-0.005	-0.017	-0.071	-0.049	0.014	-0.012
MED4	-0.027	0.019	0.023	-0.068	-0.042	0.022	-0.036
TRNG1	-0.052	-0.075	0.016	0.054	0.003	0.069	0.086
TRNG3	-0.126	-0.095	0.088	0.033	0.022	0.068	0.121
IS1	0.000	-0.059	0.126	0.083	0.115	-0.008	0.069
IS2	-0.163	-0.201	0.177	0.106	0.044	-0.015	0.051
GLOBAL2	0.097	0.170	-0.020	-0.009	0.003	0.007	0.057
GLOBAL3	0.311	0.235	-0.049	0.015	-0.007	0.034	-0.095
EASE1	0.082	0.045	-0.082	-0.092	-0.055	-0.033	-0.039
EASE2	-0.024	-0.018	0.014	0.108	0.065	-0.001	-0.023
EASE3	-0.020	-0.014	0.042	-0.041	0.026	0.035	0.026
EASE4	-0.063	-0.026	0.058	0.019	-0.029	0.018	0.060
TRNG1	0.039	0.019	-0.038	0.008	-0.007	-0.002	-0.017
TRNG3	-0.050	-0.024	0.048	-0.010	0.009	0.002	0.021
IS1	0.082	0.069	-0.022	-0.011	0.037	0.003	0.009
IS2	-0.074	-0.062	0.020	0.010	-0.033	-0.003	-0.008
GLOBAL1	-0.050	-0.043	0.021	0.017	0.061	0.051	0.064
CURR2	-0.039	-0.055	-0.018	0.016	0.011	-0.015	-0.005
CURR1	-0.053	-0.048	-0.038	-0.014	-0.030	-0.057	-0.070
GLOBAL2	-0.025	0.051	0.030	-0.023	-0.018	-0.002	0.077
GLOBAL3	0.188	0.111	0.006	0.002	-0.029	0.025	-0.077
MED1	0.010	-0.015	0.020	0.056	0.065	0.027	0.026
MED2	0.031	0.075	-0.107	-0.022	0.007	-0.030	-0.023
MED3	-0.044	-0.054	0.047	-0.040	-0.074	-0.006	0.004
MED4	-0.025	-0.039	0.092	-0.037	-0.068	0.002	-0.021
Performa	0.044	0.080	-0.167	-0.016	-0.005	-0.072	-0.027
Utilisat	-0.179	-0.062	-0.042	-0.054	0.003	-0.007	0.047
Personal	-0.180	-0.147	0.286	0.163	0.146	0.083	0.069
Longterm	0.172	0.245	-0.236	0.004	0.033	-0.067	-0.039
Trust	-0.183	-0.183	-0.002	0.094	0.051	0.035	0.031
English	0.008	-0.040	-0.226	0.196	0.085	0.078	0.057
Material	0.616	0.607	-0.140	0.043	0.092	0.037	0.005
Culture	0.000	0.000	0.000	0.191	0.139	0.083	0.062
Business	0.177	0.220	-0.071	0.000	0.000	0.000	0.000
Memitic	0.145	0.211	-0.020	0.206	0.215	0.210	0.199
Cocerciv	0.119	0.071	0.001	-0.173	-0.170	-0.203	-0.185
Normativ	0.128	0.200	-0.179	-0.163	-0.182	-0.133	-0.133
Quality	-0.135	-0.159	0.092	-0.100	-0.054	-0.027	0.023
security	-0.041	-0.009	0.065	-0.113	0.013	0.060	0.063
Technica	-0.106	-0.101	0.095	-0.130	-0.024	0.021	0.053
TTF	0.134	0.235	-0.150	0.005	0.055	-0.006	0.036

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Ease of	-0.064	-0.010	-0.050	-0.077	-0.088	-0.075	0.001
Training	-0.028	0.024	-0.021	0.053	0.040	0.074	0.133
IS Suppo	0.022	0.022	-0.087	-0.105	-0.112	0.015	-0.083
Communic	0.262	0.345	-0.189	0.020	0.072	0.006	0.007
Mediatio	0.043	0.150	-0.135	-0.036	0.051	0.022	-0.005

)Theta .. Outer residual covariance

	COERCIVE	COERCIVE	COERCIVE	COERCIVE	NORMATIV	NORMATIV	NORMATIV
COERCIVE	0.564						
COERCIVE	0.463	0.559					
COERCIVE	0.282	0.303	0.663				
COERCIVE	0.186	0.269	0.456	0.782			
NORMATIV	-0.301	-0.268	-0.284	-0.264	0.664		
NORMATIV	-0.272	-0.198	-0.173	-0.208	0.544	0.696	
NORMATIV	-0.266	-0.270	0.024	-0.090	0.253	0.274	0.747
NORMATIV	-0.289	-0.264	-0.035	-0.125	0.258	0.391	0.650
MIMECTIC	0.022	0.002	0.029	-0.036	0.008	0.008	-0.013
MIMECTIC	0.021	0.028	-0.016	0.017	-0.004	0.007	-0.056
MIMECTIC	-0.001	-0.008	-0.014	-0.054	-0.005	0.002	0.039
MIMECTIC	-0.042	-0.022	0.001	0.072	0.002	-0.017	0.030
COERCIVE	0.160	0.038	-0.145	-0.218	-0.012	-0.051	-0.100
COERCIVE	0.048	0.123	-0.137	-0.147	0.029	0.029	-0.099
COERCIVE	-0.109	-0.109	0.249	0.064	-0.004	0.041	0.185
COERCIVE	-0.159	-0.093	0.091	0.437	-0.018	-0.019	0.052
NORMATIV	-0.015	-0.015	-0.152	-0.082	0.205	0.047	-0.211
NORMATIV	0.023	0.062	-0.037	-0.020	0.071	0.184	-0.204
NORMATIV	0.007	-0.029	0.149	0.083	-0.185	-0.200	0.303
NORMATIV	-0.022	-0.029	0.088	0.045	-0.171	-0.073	0.216
TEL3	0.002	0.023	-0.105	-0.093	0.051	0.032	-0.062
TEL4	-0.002	-0.023	0.105	0.093	-0.051	-0.032	0.061
TEL5	0.013	0.013	0.017	0.020	-0.025	-0.058	-0.042
TEL6	-0.014	-0.014	-0.018	-0.022	0.026	0.062	0.045
TEL3	0.046	0.014	-0.049	-0.063	0.071	0.027	-0.062
TEL4	0.042	-0.032	0.161	0.123	-0.031	-0.036	0.061
TEL5	-0.031	0.020	-0.039	-0.009	-0.044	-0.052	-0.042
TEL6	-0.056	-0.002	-0.073	-0.051	0.006	0.065	0.045
EASE1	0.056	0.090	0.097	0.160	-0.028	0.071	0.124
EASE2	-0.020	0.056	0.150	0.139	-0.175	-0.058	0.045
EASE3	-0.016	0.021	0.094	0.161	-0.097	-0.059	0.116
EASE4	-0.016	-0.036	0.109	0.106	-0.034	-0.106	0.173
CURR1	-0.033	0.021	-0.067	-0.058	0.171	0.232	-0.046
CURR2	-0.013	0.073	-0.019	-0.022	0.053	0.090	-0.165
GLOBAL1	-0.074	-0.040	-0.148	-0.219	0.103	0.061	-0.028
MED1	0.040	-0.073	0.012	-0.012	0.045	-0.072	-0.076
MED2	0.193	0.117	0.049	0.032	-0.038	-0.013	-0.181
MED3	0.074	-0.043	0.135	0.117	-0.096	-0.118	0.075
MED4	0.088	-0.058	0.138	0.093	-0.076	-0.137	0.113
TRNG1	-0.076	-0.021	0.017	-0.021	-0.050	-0.068	-0.059
TRNG3	-0.053	-0.053	-0.004	-0.006	-0.139	-0.088	0.011
IS1	-0.022	-0.026	-0.017	0.056	-0.078	-0.148	-0.043
IS2	-0.057	-0.110	-0.046	0.036	-0.034	-0.122	0.109
GLOBAL2	-0.069	-0.044	-0.128	-0.041	0.078	0.077	0.004
GLOBAL3	0.081	0.021	-0.084	-0.224	0.075	0.060	0.058
EASE1	0.044	0.041	-0.026	0.007	0.070	0.108	0.010
EASE2	-0.029	0.011	0.029	-0.011	-0.082	-0.023	-0.069
EASE3	-0.003	0.004	-0.010	0.034	-0.039	-0.043	0.001
EASE4	-0.019	-0.070	0.006	-0.022	0.041	-0.080	0.072
TRNG1	-0.012	0.011	0.007	-0.009	0.047	0.014	-0.029
TRNG3	0.016	-0.013	-0.009	0.011	-0.060	-0.018	0.036
IS1	0.021	0.046	0.016	0.013	-0.027	-0.017	-0.080
IS2	-0.019	-0.042	-0.014	-0.012	0.025	0.015	0.073
GLOBAL1	-0.047	-0.044	-0.056	-0.105	0.002	-0.047	0.012
CURR2	0.004	0.058	0.068	0.085	-0.035	-0.010	-0.122
CURR1	-0.011	0.014	0.017	0.046	0.080	0.133	-0.008
GLOBAL2	-0.045	-0.051	-0.038	0.070	-0.019	-0.029	0.044
GLOBAL3	0.109	0.021	0.004	-0.115	-0.025	-0.045	0.095
MED1	-0.076	-0.081	-0.064	-0.066	0.093	0.016	-0.023
MED2	0.090	0.123	-0.020	-0.013	-0.008	0.064	-0.132
MED3	-0.007	-0.015	0.078	0.086	-0.093	-0.059	0.115
MED4	0.013	-0.025	0.084	0.066	-0.080	-0.082	0.152
Performa	-0.113	-0.110	-0.111	-0.151	0.241	0.248	0.104
Utilisat	-0.224	-0.122	-0.075	0.080	0.062	0.167	0.075
Personal	-0.075	-0.166	-0.135	-0.101	-0.044	-0.117	0.042
Longterm	-0.055	-0.057	-0.047	-0.034	0.189	0.206	-0.063
Trust	0.019	-0.075	-0.018	-0.017	-0.064	-0.094	-0.007
English	-0.079	-0.131	-0.118	-0.237	0.039	0.001	-0.019
Material	-0.054	-0.150	-0.142	-0.196	0.137	0.104	0.040
Culture	-0.071	-0.186	-0.145	-0.184	0.013	-0.052	0.011
Business	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Memitic	-0.119	-0.156	-0.235	-0.185	-0.077	-0.151	-0.170
Cocerciv	0.448	0.471	0.474	0.448	-0.320	-0.244	-0.184
Normativ	-0.328	-0.289	-0.151	-0.208	0.526	0.569	0.532
Quality	0.100	0.091	0.047	0.041	-0.011	-0.048	-0.011
security	0.005	0.112	-0.076	-0.024	-0.055	-0.039	-0.011
Technica	0.063	0.123	-0.019	0.009	-0.040	-0.052	-0.014

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TTF         -0.119    -0.145    -0.059    -0.081     0.169     0.096     0.035
Ease of     -0.069    -0.042     0.112     0.133    -0.002     0.022     0.167
Training    -0.134    -0.112    -0.021    -0.057    -0.015    -0.038    -0.014
IS Suppo     0.105     0.151     0.065    -0.007    -0.028     0.096    -0.058
Communic    -0.131    -0.117    -0.158    -0.203     0.261     0.209    -0.019
Mediatio     0.050    -0.090     0.045     0.005     0.062    -0.034    -0.035
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OTheta .. Outer residual covariance

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============================================================================
            NORMATIV  MIMECTIC  MIMECTIC  MIMECTIC  MIMECTIC  COERCIVE  COERCIVE
----------------------------------------------------------------------------
NORMATIV     0.855
MIMECTIC    -0.061     0.144
MIMECTIC    -0.053    -0.007     0.096
MIMECTIC     0.047    -0.053    -0.047     0.110
MIMECTIC     0.067    -0.082    -0.042    -0.011     0.133
COERCIVE    -0.096     0.015     0.007     0.016    -0.038     0.186
COERCIVE    -0.066    -0.005     0.014     0.009    -0.018     0.064     0.139
COERCIVE     0.152     0.023    -0.029     0.003     0.004    -0.123    -0.123
COERCIVE     0.040    -0.042     0.006    -0.039     0.075    -0.200    -0.135
NORMATIV    -0.255     0.018     0.020    -0.023    -0.014     0.051     0.052
NORMATIV    -0.137     0.019     0.031    -0.016    -0.034     0.013     0.051
NORMATIV     0.160    -0.003    -0.033     0.022     0.015    -0.041    -0.079
NORMATIV     0.376    -0.051    -0.031     0.030     0.051    -0.043    -0.049
TEL3        -0.027    -0.033     0.000     0.027     0.005     0.041     0.063
TEL4         0.027     0.033     0.000    -0.027    -0.005    -0.041    -0.063
TEL5        -0.049     0.011    -0.026     0.010     0.006    -0.003    -0.004
TEL6         0.052    -0.012     0.028    -0.010    -0.006     0.004     0.004
TEL3        -0.051    -0.007    -0.010     0.009     0.009     0.057     0.025
TEL4         0.003     0.059    -0.010    -0.046    -0.002    -0.025    -0.102
TEL5        -0.026    -0.013    -0.016     0.027     0.001    -0.019     0.033
TEL6         0.076    -0.040     0.038     0.009    -0.008    -0.013     0.043
EASE1        0.185    -0.043    -0.040     0.026     0.057    -0.041    -0.010
EASE2        0.027     0.066    -0.011    -0.035    -0.019    -0.093    -0.021
EASE3        0.085    -0.060    -0.017     0.021     0.055    -0.074    -0.038
EASE4        0.072    -0.003    -0.078     0.003     0.079    -0.051    -0.072
CURR1       -0.010     0.036     0.028    -0.010    -0.053    -0.005     0.051
CURR2       -0.095     0.023     0.023    -0.012    -0.034    -0.024     0.062
GLOBAL1      0.008    -0.023     0.028     0.004    -0.009     0.041     0.078
MED1        -0.137    -0.015     0.040     0.013    -0.038     0.045    -0.066
MED2        -0.164    -0.035     0.046     0.013    -0.025     0.085     0.006
MED3         0.073    -0.042    -0.019     0.044     0.016     0.003    -0.114
MED4         0.055    -0.038    -0.010     0.053    -0.007     0.020    -0.126
TRNG1       -0.042     0.002    -0.051     0.015     0.034    -0.050     0.007
TRNG3       -0.010    -0.027    -0.040     0.006     0.060    -0.021    -0.020
IS1         -0.133     0.019     0.049    -0.073     0.006    -0.010    -0.016
IS2         -0.002     0.060    -0.003    -0.061     0.005    -0.004    -0.055
GLOBAL2      0.085    -0.024    -0.012    -0.008     0.043     0.008     0.033
GLOBAL3      0.066     0.028     0.006     0.047    -0.080     0.124     0.062
EASE1        0.086    -0.038     0.000     0.022     0.016     0.027     0.022
EASE2       -0.072     0.071     0.028    -0.038    -0.059    -0.027     0.012
EASE3       -0.012    -0.052     0.015     0.023     0.013    -0.012    -0.003
EASE4       -0.015     0.002    -0.045     0.001     0.043     0.007    -0.042
TRNG1       -0.013     0.012    -0.002     0.003    -0.013    -0.012     0.011
TRNG3        0.016    -0.016     0.003    -0.003     0.016     0.015    -0.014
IS1         -0.069    -0.021     0.027    -0.006     0.000    -0.003     0.021
IS2          0.063     0.019    -0.024     0.006     0.000     0.003    -0.019
GLOBAL1     -0.001    -0.031     0.012     0.002     0.016     0.014     0.020
CURR2       -0.102     0.014     0.010    -0.017    -0.007    -0.050     0.003
CURR1       -0.017     0.028     0.014    -0.013    -0.028    -0.030    -0.004
GLOBAL2      0.077    -0.031    -0.027    -0.011     0.069    -0.018    -0.025
GLOBAL3      0.058     0.022    -0.010     0.045    -0.057     0.099     0.008
MED1        -0.059     0.013     0.020    -0.017    -0.016     0.000    -0.003
MED2        -0.089    -0.005     0.024    -0.013    -0.005     0.040     0.070
MED3         0.142    -0.011    -0.044     0.023     0.032    -0.041    -0.050
MED4         0.123    -0.006    -0.036     0.034     0.008    -0.024    -0.061
Performa     0.148     0.013     0.023    -0.042     0.007     0.027     0.028
Utilisat     0.215    -0.051     0.005    -0.004     0.049    -0.123    -0.018
Personal    -0.069     0.049     0.029    -0.032    -0.044     0.054    -0.036
Longterm    -0.043     0.020     0.048    -0.050    -0.018     0.014     0.007
Trust       -0.071     0.042    -0.004    -0.019    -0.019     0.053    -0.044
English     -0.100     0.093    -0.022    -0.027    -0.043     0.074     0.021
Material     0.019    -0.001     0.045    -0.009    -0.035     0.100     0.001
Culture     -0.096     0.073     0.016    -0.037    -0.052     0.094    -0.023
Business     0.000    -0.002    -0.005    -0.001     0.008     0.039     0.025
Memitic     -0.181     0.000     0.000     0.000     0.000     0.090     0.047
Cocerciv    -0.214     0.007     0.011    -0.020     0.002     0.000     0.000
Normativ     0.588    -0.013    -0.030     0.020     0.024    -0.047    -0.010
Quality     -0.011    -0.061    -0.013     0.013     0.060     0.015     0.007
security     0.041    -0.119     0.009     0.054     0.054    -0.020     0.092
Technica     0.019    -0.110    -0.002     0.041     0.069    -0.003     0.062
TTF          0.017    -0.018     0.029    -0.029     0.018     0.009    -0.022
Ease of      0.135    -0.019    -0.029    -0.015     0.063    -0.078    -0.056
Training    -0.023    -0.021    -0.037    -0.002     0.060    -0.037    -0.016
IS Suppo     0.061    -0.034    -0.039     0.087    -0.015     0.002     0.051
Communic     0.024    -0.006     0.043    -0.022    -0.015     0.038     0.051
Mediatio    -0.076    -0.044     0.042     0.013    -0.012     0.056    -0.086
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OTheta  .. Outer residual covariance
================================================================================
           COERCIVE  COERCIVE  NORMATIV  NORMATIV  NORMATIV  NORMATIV   TEL3
--------------------------------------------------------------------------------
COERCIVE      0.236
COERCIVE      0.055     0.407
NORMATIV     -0.092    -0.032     0.238
NORMATIV     -0.048    -0.031     0.078     0.191
NORMATIV      0.103     0.042    -0.183    -0.198     0.305
NORMATIV      0.074     0.037    -0.234    -0.133     0.161     0.335
TEL3         -0.069    -0.063     0.050     0.029    -0.064    -0.034     0.188
TEL4          0.069     0.063    -0.050    -0.029     0.064     0.034    -0.188
TEL5          0.002     0.008     0.018    -0.013    -0.001    -0.006     0.025
TEL6         -0.002    -0.009    -0.019     0.014     0.001     0.007    -0.027
TEL3         -0.043    -0.063     0.074     0.026    -0.064    -0.064     0.189
TEL4          0.094     0.063    -0.027    -0.033     0.064     0.003    -0.187
TEL5         -0.022     0.009    -0.005    -0.009    -0.001     0.023     0.023
TEL6         -0.028    -0.009    -0.043     0.017     0.001     0.039    -0.028
EASE1         0.000     0.072    -0.103    -0.009     0.049     0.105    -0.008
EASE2         0.074     0.069    -0.120    -0.005     0.094     0.066    -0.084
EASE3         0.038     0.112    -0.098    -0.059     0.115     0.083    -0.038
EASE4         0.076     0.078    -0.053    -0.125     0.156     0.057    -0.057
CURR1        -0.033    -0.023     0.063     0.127    -0.143    -0.090     0.050
CURR2        -0.025    -0.023     0.067     0.109    -0.147    -0.067     0.069
GLOBAL1      -0.037    -0.122     0.062     0.018    -0.068    -0.032     0.051
MED1          0.023     0.002     0.092    -0.019    -0.026    -0.077    -0.003
MED2         -0.056    -0.059     0.053     0.082    -0.093    -0.077     0.013
MED3          0.073     0.068    -0.075    -0.090     0.101     0.112    -0.057
MED4          0.081     0.050    -0.063    -0.117     0.132     0.091    -0.043
TRNG1         0.044     0.005     0.004    -0.010    -0.005     0.015    -0.043
TRNG3         0.028     0.023    -0.075    -0.022     0.072     0.051    -0.038
IS1          -0.014     0.053     0.030    -0.043     0.054    -0.055    -0.055
IS2           0.004     0.078    -0.015    -0.105     0.125     0.009    -0.049
GLOBAL2      -0.059     0.016     0.022     0.015    -0.055     0.018     0.053
GLOBAL3      -0.050    -0.200     0.016    -0.006    -0.005    -0.009     0.059
EASE1        -0.046    -0.013     0.004     0.037    -0.057     0.015     0.040
EASE2         0.028    -0.014    -0.017     0.041    -0.010    -0.020    -0.036
EASE3        -0.012     0.037    -0.020    -0.018     0.025     0.023     0.008
EASE4         0.035     0.006     0.032    -0.086     0.067    -0.014    -0.015
TRNG1         0.008    -0.009     0.040     0.006    -0.036    -0.021    -0.001
TRNG3        -0.010     0.011    -0.050    -0.007     0.046     0.026     0.002
IS1          -0.010    -0.012     0.022     0.032    -0.036    -0.031    -0.003
IS2           0.009     0.011    -0.020    -0.029     0.032     0.029     0.003
GLOBAL1       0.004    -0.053     0.012    -0.038     0.021     0.008    -0.007
CURR2         0.018     0.044     0.025     0.054    -0.061    -0.036     0.011
CURR1         0.006     0.041     0.018     0.075    -0.061    -0.055    -0.005
GLOBAL2      -0.018     0.084    -0.026    -0.041     0.033     0.055    -0.004
GLOBAL3      -0.013    -0.135    -0.034    -0.059     0.080     0.032     0.005
MED1          0.008    -0.006     0.081     0.002    -0.037    -0.078     0.012
MED2         -0.074    -0.064     0.032     0.102    -0.099    -0.066     0.028
MED3          0.051     0.066    -0.112    -0.073     0.103     0.141    -0.042
MED4          0.057     0.050    -0.105    -0.100     0.136     0.125    -0.028
Performa     -0.002    -0.076     0.073     0.054    -0.079    -0.085     0.007
Utilisat      0.025     0.168    -0.064     0.038    -0.045     0.101     0.028
Personal     -0.018    -0.003     0.011    -0.066     0.088    -0.038    -0.035
Longterm     -0.008    -0.021     0.127     0.121    -0.146    -0.177     0.002
Trust         0.000    -0.012     0.011    -0.029     0.051    -0.042    -0.051
English       0.008    -0.143     0.073     0.019    -0.006    -0.130    -0.014
Material     -0.023    -0.114     0.083     0.025    -0.036    -0.114     0.059
Culture      -0.011    -0.086     0.063    -0.020     0.038    -0.118    -0.027
Business     -0.021    -0.063     0.056     0.012     0.004    -0.109     0.035
Memitic      -0.083    -0.091     0.116     0.006    -0.031    -0.144     0.057
Cocerciv      0.000     0.000    -0.032     0.021     0.056    -0.056    -0.018
Normativ      0.086    -0.026     0.000     0.000     0.000     0.000     0.024
Quality      -0.020    -0.007    -0.004    -0.029     0.008     0.037     0.000
security     -0.077    -0.007    -0.056    -0.021     0.008     0.105    -0.003
Technica     -0.060    -0.009    -0.037    -0.030     0.010     0.087    -0.001
TTF           0.034    -0.023     0.111     0.011    -0.047    -0.123    -0.003
Ease of       0.081     0.089    -0.054    -0.049     0.098     0.024    -0.062
Training      0.059     0.003     0.021    -0.011     0.009    -0.028    -0.048
IS Suppo     -0.013    -0.059    -0.064     0.075    -0.074     0.087     0.057
Communic     -0.020    -0.101     0.152     0.076    -0.145    -0.150     0.066
Mediatio      0.040    -0.007     0.087    -0.016    -0.020    -0.082    -0.019
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OTheta  .. Outer residual covariance
================================================================================
            TEL4      TEL5      TEL6      TEL3      TEL4      TEL5      TEL6
--------------------------------------------------------------------------------
TEL4          0.187
TEL5         -0.025     0.147
TEL6          0.027    -0.157     0.168
TEL3         -0.188     0.041    -0.044     0.460
TEL4          0.186    -0.009     0.010     0.083     0.456
TEL5         -0.023     0.131    -0.140    -0.231    -0.278     0.384
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TEL6        0.028   -0.172    0.184   -0.311   -0.255    0.111    0.463
EASE1       0.008   -0.018    0.020   -0.025   -0.008    0.001    0.034
EASE2       0.083   -0.061    0.065   -0.110    0.057   -0.032    0.089
EASE3       0.038    0.011   -0.012   -0.059    0.016    0.032    0.010
EASE4       0.056    0.005   -0.005   -0.028    0.085   -0.026   -0.031
CURR1      -0.049    0.024   -0.026    0.007   -0.092    0.066    0.017
CURR2      -0.068    0.020   -0.021    0.071   -0.066    0.018   -0.024
GLOBAL1    -0.050   -0.053    0.056    0.012   -0.089   -0.013    0.093
MED1        0.003    0.050   -0.054    0.057    0.064   -0.010   -0.113
MED2       -0.013    0.022   -0.024    0.101    0.076   -0.067   -0.111
MED3        0.056    0.028   -0.030    0.013    0.126   -0.043   -0.096
MED4        0.043    0.022   -0.024    0.023    0.109   -0.045   -0.087
TRNG1       0.043   -0.017    0.018   -0.053    0.034   -0.006    0.026
TRNG3       0.038    0.005   -0.005   -0.050    0.026    0.015    0.009
IS1         0.054    0.015   -0.016   -0.014    0.095   -0.028   -0.053
IS2         0.049    0.014   -0.016    0.056    0.153   -0.093   -0.115
GLOBAL2    -0.053   -0.029    0.031   -0.023   -0.130    0.048    0.106
GLOBAL3    -0.059    0.003   -0.003   -0.024   -0.142    0.089    0.075
EASE1      -0.040   -0.002    0.003    0.031   -0.049    0.008    0.009
EASE2       0.036   -0.043    0.046   -0.053    0.018   -0.024    0.062
EASE3      -0.008    0.042   -0.045    0.003   -0.014    0.046   -0.038
EASE4       0.015    0.024   -0.025    0.024    0.053   -0.017   -0.060
TRNG1       0.001   -0.012    0.013   -0.001    0.002   -0.011    0.011
TRNG3      -0.002    0.015   -0.016    0.002   -0.002    0.013   -0.014
IS1         0.003    0.002   -0.002   -0.035   -0.029    0.034    0.030
IS2        -0.003   -0.002    0.002    0.032    0.026   -0.031   -0.027
GLOBAL1     0.007   -0.044    0.047    0.002    0.017   -0.054    0.037
CURR2      -0.011    0.022   -0.024    0.058    0.036   -0.025   -0.070
CURR1       0.005    0.031   -0.033   -0.003    0.006    0.028   -0.032
GLOBAL2     0.004   -0.022    0.023   -0.034   -0.026    0.007    0.053
GLOBAL3    -0.005    0.013   -0.014   -0.032   -0.041    0.052    0.019
MED1       -0.012    0.006   -0.006   -0.007   -0.030    0.026    0.010
MED2       -0.028   -0.013    0.014    0.044   -0.012   -0.029   -0.002
MED3        0.041    0.007   -0.007   -0.035    0.048   -0.002   -0.010
MED4        0.028    0.004   -0.004   -0.023    0.032   -0.002   -0.007
Performa   -0.007   -0.105    0.113    0.085    0.072   -0.179    0.031
Utilisat   -0.028   -0.008    0.009    0.091    0.034   -0.074   -0.050
Personal    0.034   -0.062    0.066   -0.015    0.054   -0.077    0.042
Longterm   -0.002   -0.065    0.069    0.034    0.030   -0.089    0.029
Trust       0.051   -0.018    0.019   -0.034    0.069   -0.031   -0.002
English     0.014   -0.029    0.031   -0.005    0.024   -0.032    0.015
Material   -0.059    0.020   -0.021    0.030   -0.087    0.057   -0.002
Culture     0.027   -0.046    0.049   -0.012    0.043   -0.053    0.025
Business   -0.035   -0.022    0.023    0.100    0.031   -0.079   -0.050
Memitic    -0.057   -0.003    0.004    0.092   -0.022   -0.031   -0.039
Cocerciv    0.018    0.003   -0.003    0.060    0.097   -0.071   -0.085
Normativ   -0.024   -0.063    0.067    0.063    0.015   -0.096    0.022
Quality     0.000    0.034   -0.036    0.301    0.299   -0.282   -0.314
security    0.003    0.000    0.000   -0.294   -0.290    0.275    0.306
Technica    0.001    0.020   -0.022    0.000    0.000    0.000    0.000
TTF         0.003   -0.082    0.088   -0.046   -0.039   -0.034    0.124
Ease of     0.062   -0.078    0.083   -0.103    0.023   -0.033    0.118
Training    0.048   -0.049    0.053   -0.081    0.014   -0.013    0.083
IS Suppo   -0.057    0.026   -0.028    0.000   -0.115    0.084    0.028
Communic   -0.066   -0.078    0.084   -0.027   -0.159    0.020    0.169
Mediatio    0.019   -0.006    0.006    0.040    0.079   -0.063   -0.055
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)Theta   .. Outer residual covariance

	EASE1	EASE2	EASE3	EASE4	CURR1	CURR2	GLOBAL1
EASE1	0.676						
EASE2	0.175	0.710					
EASE3	0.400	0.236	0.887				
EASE4	0.059	0.224	0.303	0.812			
CURR1	-0.124	-0.121	-0.181	-0.268	0.538		
CURR2	-0.098	-0.030	-0.093	-0.162	0.236	0.390	
GLOBAL1	-0.125	-0.105	-0.150	-0.249	0.043	0.042	0.506
MED1	-0.209	-0.272	-0.207	0.000	-0.071	-0.028	-0.112
MED2	-0.069	-0.188	-0.184	-0.105	-0.027	-0.050	-0.104
MED3	-0.042	-0.150	0.077	0.181	-0.176	-0.251	-0.181
MED4	-0.055	-0.151	0.017	0.159	-0.188	-0.262	-0.160
TRNG1	-0.082	-0.028	-0.093	-0.063	-0.001	0.067	-0.006
TRNG3	-0.106	0.038	0.044	0.058	0.058	-0.007	-0.107
IS1	-0.069	0.118	0.027	0.056	-0.104	-0.175	-0.096
IS2	-0.044	0.001	-0.028	0.195	-0.171	-0.166	-0.161
GLOBAL2	-0.131	-0.128	-0.240	-0.173	-0.017	-0.014	0.208
GLOBAL3	-0.052	-0.234	-0.209	-0.276	0.028	0.007	0.188
EASE1	0.320	-0.192	-0.036	-0.280	0.050	-0.002	0.034
EASE2	-0.178	0.345	-0.197	-0.112	0.052	0.066	0.053
EASE3	0.066	-0.109	0.476	-0.016	-0.017	-0.002	0.000
EASE4	-0.250	-0.094	-0.076	0.519	-0.117	-0.078	-0.111
TRNG1	0.013	-0.029	-0.060	-0.054	-0.027	0.032	0.046
TRNG3	-0.016	0.037	0.075	0.067	0.034	-0.041	-0.058
IS1	-0.014	0.062	0.029	-0.072	0.034	-0.006	0.033
IS2	0.012	-0.056	-0.026	0.065	-0.031	0.006	-0.030
GLOBAL1	-0.015	0.017	0.027	-0.020	-0.128	-0.100	0.305

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CURR2       0.011      0.092      0.083      0.066      0.065      0.248     -0.158
CURR1      -0.021     -0.006     -0.016     -0.055      0.378      0.102     -0.144
GLOBAL2    -0.022     -0.006     -0.065      0.053     -0.186     -0.155      0.010
GLOBAL3     0.051     -0.119     -0.043     -0.061     -0.133     -0.128      0.000
MED1       -0.095     -0.061     -0.094     -0.031      0.029      0.090      0.022
MED2        0.044      0.018     -0.073     -0.135      0.071      0.066      0.028
MED3        0.065      0.047      0.183      0.152     -0.082     -0.140     -0.055
MED4        0.052      0.045      0.123      0.131     -0.094     -0.151     -0.035
Performa    0.142      0.069     -0.007      0.015      0.021      0.008     -0.024
Utilisat    0.047      0.039      0.105     -0.028      0.011     -0.019     -0.054
Personal   -0.047      0.066     -0.056     -0.027     -0.087     -0.096      0.036
Longterm    0.072      0.036     -0.076     -0.181      0.083      0.172      0.095
Trust      -0.034      0.063      0.001      0.090     -0.075     -0.027     -0.043
English    -0.114     -0.084     -0.248     -0.288      0.033      0.031      0.172
Material   -0.051     -0.109     -0.174     -0.200      0.041      0.048      0.101
Culture    -0.082      0.001     -0.160     -0.143     -0.040     -0.019      0.094
Business    0.065      0.073      0.007     -0.020     -0.125     -0.092      0.008
Memitic    -0.066      0.040     -0.037     -0.054     -0.150     -0.075      0.066
Cocerciv    0.154      0.135      0.069      0.024     -0.122     -0.055     -0.121
Normativ    0.129     -0.014      0.005      0.009      0.041     -0.078      0.052
Quality    -0.112     -0.108     -0.007      0.129     -0.011     -0.022     -0.080
security   -0.076     -0.051      0.041      0.067      0.083     -0.027      0.004
Technica   -0.114     -0.096      0.021      0.119      0.045     -0.029     -0.045
TTF         0.000      0.000      0.000      0.000      0.000      0.000      0.000
Ease of     0.443      0.456      0.543      0.421     -0.217     -0.120     -0.198
Training   -0.105      0.001     -0.036     -0.011      0.028      0.039     -0.057
IS Suppo    0.060     -0.061      0.002     -0.139      0.150      0.184      0.140
Communic   -0.130     -0.145     -0.210     -0.271      0.203      0.169      0.238
Mediatio   -0.129     -0.237     -0.127      0.034     -0.113     -0.133     -0.151
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OTheta   .. Outer residual covariance

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           MED1       MED2       MED3       MED4       TRNG1      TRNG3      IS1
---------------------------------------------------------------------------------
MED1        0.632
MED2        0.409      0.754
MED3        0.368      0.454      0.896
MED4        0.428      0.431      0.827      0.921
TRNG1      -0.104     -0.234     -0.279     -0.285      0.757
TRNG3      -0.206     -0.262     -0.200     -0.254      0.383      0.847
IS1        -0.164     -0.218     -0.085     -0.091      0.001      0.051      0.792
IS2        -0.050     -0.218     -0.001      0.009     -0.020      0.108      0.490
GLOBAL2    -0.060     -0.029     -0.127     -0.161     -0.056     -0.095     -0.108
GLOBAL3    -0.022     -0.048     -0.182     -0.090     -0.076     -0.139     -0.134
EASE1      -0.023      0.069     -0.042     -0.034     -0.015     -0.106     -0.101
EASE2      -0.086     -0.051     -0.150     -0.130      0.039      0.038      0.086
EASE3      -0.031     -0.054      0.077      0.037     -0.029      0.044     -0.004
EASE4       0.161      0.015      0.181      0.177     -0.005      0.058      0.028
TRNG1       0.049      0.019     -0.028     -0.006      0.150     -0.222     -0.023
TRNG3      -0.062     -0.024      0.035      0.008     -0.188      0.279      0.029
IS1        -0.061     -0.002     -0.044     -0.053      0.011     -0.029      0.163
IS2         0.055      0.002      0.040      0.048     -0.010      0.027     -0.149
GLOBAL1    -0.052     -0.051      0.009      0.020      0.006     -0.049      0.032
CURR2       0.032      0.003     -0.061     -0.082      0.079      0.050     -0.048
CURR1      -0.015      0.023      0.002     -0.019      0.010      0.112      0.015
GLOBAL2    -0.001      0.024      0.061      0.017     -0.044     -0.038      0.019
GLOBAL3     0.034      0.002     -0.004      0.080     -0.065     -0.085     -0.014
MED1        0.135     -0.128     -0.217     -0.174      0.107      0.030     -0.007
MED2       -0.080      0.227     -0.120     -0.161     -0.028     -0.031     -0.064
MED3       -0.098     -0.048      0.348      0.262     -0.081      0.021      0.063
MED4       -0.036     -0.070      0.281      0.359     -0.088     -0.034      0.056
Performa   -0.040      0.043     -0.109     -0.096     -0.026     -0.064      0.003
Utilisat   -0.020      0.101      0.146      0.040     -0.056      0.005     -0.148
Personal    0.006     -0.094     -0.051      0.030     -0.063      0.078      0.154
Longterm   -0.066     -0.018     -0.218     -0.233     -0.034     -0.155     -0.031
Trust      -0.052     -0.049     -0.069     -0.064     -0.026      0.092      0.208
English     0.086     -0.069     -0.211     -0.152      0.135      0.017      0.009
Material   -0.070     -0.002     -0.147     -0.091     -0.067     -0.097      0.085
Culture    -0.003     -0.088     -0.173     -0.100     -0.004      0.041      0.163
Business   -0.100     -0.015     -0.118     -0.150     -0.037     -0.007      0.147
Memitic    -0.049     -0.035     -0.136     -0.165      0.024      0.059      0.199
Cocerciv   -0.078      0.110     -0.008     -0.034     -0.056     -0.041      0.094
Normativ   -0.120     -0.114     -0.103     -0.114     -0.087     -0.077     -0.027
Quality     0.061      0.125      0.179      0.128     -0.061      0.059      0.166
security   -0.071     -0.069      0.029     -0.016     -0.041      0.087      0.079
Technica   -0.008      0.033      0.125      0.066     -0.062      0.089      0.148
TTF         0.000      0.000      0.000      0.000      0.000      0.000      0.000
Ease of    -0.232     -0.172      0.000     -0.026     -0.084      0.000      0.040
Training   -0.168     -0.278     -0.274     -0.305      0.666      0.662      0.026
IS Suppo    0.113      0.235      0.044      0.042      0.011     -0.087     -0.683
Communic   -0.072     -0.063     -0.225     -0.214     -0.014     -0.068     -0.152
Mediatio    0.560      0.604      0.658      0.678     -0.237     -0.265     -0.177
=================================================================================
```

OTheta   .. Outer residual covariance
```
=================================================================================
```

	IS2	GLOBAL2	GLOBAL3	EASE1	EASE2	EASE3	EASE4
IS2	0.748						
GLOBAL2	-0.124	0.485					
GLOBAL3	-0.159	0.246	0.598				
EASE1	-0.072	0.035	0.140	0.354			
EASE2	-0.027	0.038	-0.043	-0.159	0.363		
EASE3	-0.054	-0.083	-0.028	-0.016	-0.186	0.428	
EASE4	0.171	-0.029	-0.109	-0.254	-0.098	-0.078	0.515
TRNG1	-0.058	0.019	0.031	0.044	0.000	-0.037	-0.029
TRNG3	0.073	-0.024	-0.039	-0.055	0.000	0.047	0.036
IS1	-0.130	0.008	0.012	-0.017	0.059	0.029	-0.074
IS2	0.118	-0.007	-0.011	0.016	-0.054	-0.027	0.067
GLOBAL1	0.000	0.025	-0.020	-0.017	0.016	0.029	-0.020
CURR2	-0.006	-0.197	-0.201	-0.048	0.032	0.016	0.012
CURR1	-0.021	-0.188	-0.167	0.004	0.018	0.007	-0.033
GLOBAL2	0.035	0.304	0.040	-0.014	0.002	-0.057	0.060
GLOBAL3	-0.009	0.073	0.403	0.090	-0.079	0.004	-0.024
MED1	0.032	0.022	0.051	-0.014	0.016	-0.043	0.032
MED2	-0.137	0.053	0.024	0.072	0.046	-0.052	-0.112
MED3	0.076	-0.050	-0.114	-0.048	-0.062	0.102	0.061
MED4	0.086	-0.084	-0.021	-0.043	-0.044	0.067	0.059
Performa	0.018	-0.066	-0.019	0.113	0.022	-0.164	-0.048
Utilisat	-0.114	0.181	-0.151	0.008	0.001	0.066	-0.062
Personal	0.172	-0.046	0.097	-0.025	0.083	-0.068	-0.018
Longterm	-0.048	0.019	0.070	0.137	0.083	-0.152	-0.165
Trust	0.071	-0.065	0.049	-0.053	0.039	-0.054	0.063
English	-0.053	0.100	0.203	0.073	0.097	-0.105	-0.135
Material	-0.110	0.112	0.347	0.106	0.035	-0.118	-0.091
Culture	0.058	0.017	0.216	0.029	0.102	-0.126	-0.068
Business	0.038	0.092	0.130	0.057	0.052	-0.106	-0.058
Memitic	0.083	0.097	0.101	-0.008	0.085	-0.081	-0.033
Cocerciv	-0.032	-0.018	0.048	0.060	0.036	-0.068	-0.071
Normativ	0.004	0.125	0.153	0.114	-0.040	-0.092	-0.029
Quality	0.230	-0.105	-0.219	-0.090	-0.079	0.067	0.164
security	0.003	0.062	-0.039	-0.071	-0.041	0.080	0.082
Technica	0.140	-0.024	-0.155	-0.097	-0.073	0.090	0.149
TTF	0.000	0.000	0.000	0.060	0.033	-0.144	-0.008
Ease of	0.035	-0.207	-0.240	0.000	0.000	0.000	0.000
Training	0.041	-0.082	-0.117	-0.032	0.060	-0.069	0.022
IS Suppo	-0.674	0.126	0.159	0.062	-0.046	0.107	-0.107
Communic	-0.190	0.218	0.247	0.111	0.071	-0.155	-0.113
Mediatio	-0.093	-0.093	-0.082	0.031	-0.093	-0.085	0.140

OTheta .. Outer residual covariance

	TRNG1	TRNG3	IS1	IS2	GLOBAL1	CURR2	CURR1
TRNG1	0.166						
TRNG3	-0.209	0.263					
IS1	0.017	-0.022	0.154				
IS2	-0.016	0.020	-0.140	0.128			
GLOBAL1	0.024	-0.030	0.018	-0.016	0.290		
CURR2	0.013	-0.016	-0.023	0.021	-0.118	0.292	
CURR1	-0.047	0.059	0.019	-0.017	-0.143	0.104	0.380
GLOBAL2	-0.002	0.002	-0.008	0.007	0.009	-0.156	-0.187
GLOBAL3	0.009	-0.012	-0.002	0.002	-0.034	-0.165	-0.165
MED1	0.036	-0.045	-0.023	0.021	-0.025	0.053	-0.013
MED2	0.003	-0.004	0.037	-0.034	-0.023	0.017	0.024
MED3	-0.048	0.061	-0.004	0.004	0.039	-0.056	0.003
MED4	-0.028	0.035	-0.012	0.011	0.051	-0.079	-0.018
Performa	0.040	-0.050	-0.020	0.019	-0.022	0.062	0.038
Utilisat	-0.026	0.033	-0.019	0.017	-0.051	-0.015	0.014
Personal	-0.057	0.072	-0.011	0.010	0.056	-0.063	-0.065
Longterm	0.078	-0.098	-0.005	0.005	-0.012	0.120	-0.002
Trust	-0.046	0.058	0.069	-0.063	-0.013	0.019	-0.043
English	0.055	-0.070	0.030	-0.027	0.061	-0.067	-0.067
Material	0.031	-0.038	0.092	-0.084	-0.036	-0.053	-0.078
Culture	-0.009	0.012	0.049	-0.045	0.036	-0.049	-0.086
Business	0.004	-0.006	0.047	-0.043	-0.003	-0.061	-0.123
Memitic	-0.001	0.001	0.052	-0.047	0.049	-0.052	-0.155
Cocerciv	0.003	-0.003	0.061	-0.056	-0.070	0.016	-0.069
Normativ	0.012	-0.015	-0.025	0.022	-0.012	-0.110	-0.011
Quality	-0.062	0.078	-0.026	0.024	0.012	0.049	0.069
security	-0.063	0.079	0.044	-0.040	-0.009	-0.054	0.067
Technica	-0.076	0.095	0.011	-0.010	0.001	-0.004	0.083
TTF	0.033	-0.041	-0.020	0.018	-0.022	0.057	0.002
Ease of	-0.015	0.019	-0.010	0.009	-0.013	0.115	-0.029
Training	0.000	0.000	-0.018	0.016	-0.032	0.103	0.063
IS Suppo	0.027	-0.034	0.000	0.000	-0.005	-0.002	0.003
Communic	0.053	-0.067	0.002	-0.002	0.000	0.000	0.000
Mediatio	0.037	-0.047	-0.056	0.051	-0.045	0.016	-0.001

OTheta .. Outer residual covariance

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	GLOBAL2	GLOBAL3	MED1	MED2	MED3	MED4	Performa
GLOBAL2	0.303						
GLOBAL3	0.039	0.373					
MED1	-0.022	0.003	0.211				
MED2	0.003	-0.025	-0.065	0.239			
MED3	0.040	-0.022	-0.176	-0.112	0.307		
MED4	-0.003	0.064	-0.138	-0.154	0.226	0.312	
Performa	-0.051	-0.035	0.081	0.097	-0.155	-0.169	1.000
Utilisat	0.184	-0.148	-0.077	0.044	0.091	-0.016	0.170
Personal	-0.023	0.111	0.057	-0.059	-0.043	0.032	0.002
Longterm	-0.073	-0.050	0.132	0.108	-0.202	-0.244	0.617
Trust	-0.031	0.072	0.029	0.013	-0.039	-0.041	0.046
English	-0.006	0.094	0.162	-0.011	-0.179	-0.127	0.128
Material	-0.014	0.205	0.058	0.078	-0.140	-0.103	0.281
Culture	-0.033	0.151	0.119	-0.003	-0.144	-0.086	0.169
Business	0.092	0.106	0.056	0.086	-0.102	-0.156	0.471
Memitic	0.091	0.072	0.096	0.058	-0.121	-0.171	0.384
Cocerciv	0.038	0.090	-0.044	0.119	-0.036	-0.073	0.189
Normativ	0.070	0.081	0.050	0.011	-0.047	-0.075	0.505
Quality	-0.020	-0.126	-0.089	0.005	0.104	0.063	-0.094
security	0.046	-0.047	-0.049	-0.030	0.092	0.054	-0.268
Technica	0.016	-0.104	-0.083	-0.015	0.119	0.071	-0.221
TTF	-0.001	-0.047	0.126	0.025	-0.128	-0.168	0.649
Ease of	-0.011	-0.083	-0.012	-0.018	0.050	-0.001	0.496
Training	-0.047	-0.107	0.145	-0.020	-0.105	-0.157	0.279
IS Suppo	-0.029	0.037	-0.080	0.097	-0.009	0.010	-0.348
Communic	0.000	0.000	0.162	0.081	-0.218	-0.242	0.539
Mediatio	0.024	0.003	0.000	0.000	0.000	0.000	0.307

OTheta   .. Outer residual covariance

	Utilisat	Personal	Longterm	Trust	English	Material	Culture
Utilisat	1.000						
Personal	-0.261	1.000					
Longterm	0.004	0.034	1.000				
Trust	-0.127	0.499	0.144	1.000			
English	-0.256	0.232	0.136	0.261	1.000		
Material	-0.217	0.270	0.468	0.254	0.299	1.000	
Culture	-0.311	0.780	0.292	0.740	0.645	0.569	1.000
Business	-0.024	0.128	0.473	0.249	0.384	0.508	0.432
Memitic	-0.024	0.236	0.399	0.276	0.449	0.496	0.507
Cocerciv	-0.130	-0.049	0.269	0.145	0.111	0.201	0.134
Normativ	0.129	0.022	0.385	0.080	0.216	0.399	0.229
Quality	0.180	-0.178	-0.266	-0.161	-0.244	-0.365	-0.325
security	0.045	-0.224	-0.341	-0.202	-0.267	-0.306	-0.364
Technica	0.136	-0.245	-0.370	-0.221	-0.311	-0.408	-0.419
TTF	0.011	0.162	0.687	0.190	0.160	0.460	0.349
Ease of	0.056	0.088	0.406	0.158	-0.119	0.130	0.109
Training	-0.027	0.081	0.247	0.125	0.173	0.141	0.194
IS Suppo	0.135	-0.260	-0.313	-0.246	-0.057	-0.219	-0.297
Communic	0.006	0.111	0.701	0.123	0.265	0.547	0.360
Mediatio	0.071	0.053	0.247	0.037	0.024	0.169	0.101

OTheta   .. Outer residual covariance

	Business	Memitic	Cocerciv	Normativ	Quality	security	Technica
Business	1.000						
Memitic	0.882	1.000					
Cocerciv	0.689	0.413	1.000				
Normativ	0.599	0.366	0.127	1.000			
Quality	-0.256	-0.268	-0.093	-0.178	1.000		
security	-0.403	-0.349	-0.267	-0.266	0.352	1.000	
Technica	-0.402	-0.376	-0.221	-0.271	0.817	0.827	1.000
TTF	0.529	0.491	0.246	0.418	-0.263	-0.172	-0.264
Ease of	0.384	0.276	0.290	0.315	-0.214	-0.129	-0.208
Training	0.240	0.292	0.068	0.118	-0.141	-0.069	-0.128
IS Suppo	-0.371	-0.403	-0.158	-0.205	-0.079	0.047	-0.018
Communic	0.454	0.429	0.144	0.426	-0.329	-0.128	-0.276
Mediatio	0.186	0.173	0.129	0.094	-0.012	-0.143	-0.095

OTheta   .. Outer residual covariance

	TTF	Ease of	Training	IS Suppo	Communic	Mediatio
TTF	1.000					
Ease of	0.634	1.000				
Training	0.503	0.267	1.000			
IS Suppo	-0.518	-0.369	-0.297	1.000		
Communic	0.860	0.309	0.390	-0.260	1.000	
Mediatio	0.541	0.185	-0.009	-0.137	0.325	1.000

```
=======================================================================
0          ==PLSW no prob, eh?
0CPU-Time =    0 min  0.16 sec
 Total =        0 min  0.16 sec
0          No errors reported.
```

Appendix L : PLS Bootstrap file

```
Output results with Construct Level sign change preprocessing:

Bootstrap raw data generated for Professor John G. D'Ambra

Number of cases in full model: 107

Number of cases per sample: 107

Number of samples generated: 500

Number of good samples: 497

The following samples were not included in the calculations due
to error detection:
    5,276,281
```

```
Outer Model Weights:
```

	Original sample estimate	Mean of subsamples	Standard error	T-Statistic
Performa:				
PERF1	0.2203	0.2210	0.0131	16.8499
PERF2	0.2178	0.2196	0.0120	18.1609
PERF3	0.2339	0.2370	0.0148	15.8244
PERF4	0.2076	0.2079	0.0126	16.5179
PERF5	0.2172	0.2144	0.0182	11.9324
Utilisat:				
EmailHou	0.1656	0.1873	0.1356	1.2215
EmarHour	0.4117	0.3941	0.0947	4.3459
EmailHou	0.3762	0.3630	0.0668	5.6294
EmarHour	0.3029	0.3042	0.0955	3.1708
Personal:				
PER3	0.2357	0.2350	0.0154	15.3056
PER5	0.2514	0.2453	0.0156	16.1288
PER7	0.2526	0.2577	0.0161	15.7142
PER2	0.2104	0.2073	0.0233	9.0132
PER6	0.2416	0.2386	0.0215	11.2312
Longterm:				
LONG2	0.5479	0.5475	0.1983	2.7636
LONG3	0.4926	0.4856	0.1876	2.6260
Trust :				
TURST1	0.2580	0.2550	0.0261	9.8935
TURST2	0.2975	0.2974	0.0223	13.3273
TRUST3	0.3194	0.3213	0.0253	12.6331
TRUST4	0.2853	0.2837	0.0289	9.8832
English :				
ENG2	0.2719	0.2684	0.0168	16.2263
ENG3	0.2520	0.2496	0.0204	12.3395
ENG5	0.2829	0.2841	0.0127	22.3202
ENG6	0.2830	0.2832	0.0136	20.8625
Material:				
WEST1	0.3341	0.3232	0.0717	4.6581
WEST2	0.4027	0.4062	0.0431	9.3395
WEST4	0.4388	0.4413	0.0390	11.2457
Culture :				
PER3	0.1123	0.1124	0.0148	7.5912
PER5	0.1099	0.1078	0.0139	7.8857
PER6	0.1119	0.1111	0.0146	7.6544
PER7	0.1167	0.1191	0.0132	8.8616
LONG2	0.0467	0.0408	0.0248	1.8859
LONG3	0.0380	0.0336	0.0268	1.4157
TURST1	0.0940	0.0916	0.0157	6.0009
TURST2	0.1051	0.1032	0.0142	7.4054
TRUST3	0.1159	0.1143	0.0123	9.3871
TRUST4	0.0919	0.0907	0.0197	4.6736
ENG2	0.1036	0.0991	0.0158	6.5425
ENG3	0.0934	0.0897	0.0167	5.5973
ENG5	0.1038	0.1007	0.0148	7.0107
ENG6	0.1036	0.1001	0.0151	6.8555
WEST1	0.0604	0.0553	0.0199	3.0306
WEST2	0.0902	0.0866	0.0192	4.6969
WEST4	0.0922	0.0876	0.0186	4.9677
PER2	0.0980	0.0975	0.0160	6.1240
Business:				
MIMECTIC	0.1566	0.1556	0.0139	11.2284
MIMECTIC	0.1600	0.1593	0.0142	11.2448
MIMECTIC	0.1596	0.1595	0.0160	9.9931

```
        MIMECTIC        0.1592      0.1579      0.0132      12.0397
        COERCIVE        0.1277      0.1223      0.0225       5.6867
        COERCIVE        0.1280      0.1225      0.0198       6.4728
        COERCIVE        0.1119      0.1033      0.0250       4.4713
        COERCIVE        0.0894      0.0806      0.0339       2.6402
        NORMATIV        0.1109      0.1130      0.0209       5.3057
        NORMATIV        0.1051      0.1061      0.0226       4.6429
        NORMATIV        0.0963      0.0963      0.0233       4.1267
        NORMATIV        0.0720      0.0738      0.0284       2.5392

Memitic :
        MIMECTIC        0.2625      0.2624      0.0070      37.3287
        MIMECTIC        0.2686      0.2687      0.0066      40.5358
        MIMECTIC        0.2678      0.2691      0.0089      30.2560
        MIMECTIC        0.2675      0.2673      0.0082      32.5634

Cocerciv:
        COERCIVE        0.3175      0.3242      0.0489       6.4928
        COERCIVE        0.3193      0.3264      0.0459       6.9558
        COERCIVE        0.2794      0.2713      0.0456       6.1326
        COERCIVE        0.2248      0.2065      0.0703       3.1958

Normativ:
        NORMATIV        0.3346      0.3384      0.0488       6.8573
        NORMATIV        0.3184      0.3163      0.0377       8.4378
        NORMATIV        0.2907      0.2884      0.0539       5.3884
        NORMATIV        0.2196      0.2156      0.0538       4.0837

Quality :
        TEL3            0.5537      0.5501      0.0252      22.0104
        TEL4            0.5558      0.5583      0.0369      15.0644

security:
        TEL5            0.5631      0.5695      0.0434      12.9895
        TEL6            0.5260      0.5207      0.0288      18.2733

Technica:
        TEL3            0.3337      0.3316      0.0308      10.8495
        TEL4            0.3320      0.3329      0.0354       9.3880
        TEL5            0.3464      0.3470      0.0261      13.2469
        TEL6            0.3247      0.3200      0.0375       8.6660

TTF     :
        EASE1           0.1255      0.1241      0.0140       8.9620
        EASE2           0.1132      0.1098      0.0199       5.6742
        EASE3           0.0665      0.0645      0.0237       2.8013
        EASE4           0.0879      0.0834      0.0216       4.0683
        CURR1           0.1365      0.1338      0.0152       9.0071
        CURR2           0.1554      0.1519      0.0140      11.0703
        GLOBAL1         0.1375      0.1372      0.0148       9.3043
        MED1            0.1166      0.1104      0.0186       6.2667
        MED2            0.1021      0.0984      0.0232       4.4096
        MED3            0.0549      0.0518      0.0260       2.1080
        MED4            0.0476      0.0425      0.0258       1.8452
        TRNG1           0.0952      0.0946      0.0209       4.5468
        TRNG3           0.0720      0.0685      0.0249       2.8872
        IS1             0.0906      0.0905      0.0219       4.1279
        IS2             0.1011      0.0991      0.0243       4.1645
        GLOBAL2         0.1370      0.1347      0.0175       7.8156
        GLOBAL3         0.1240      0.1206      0.0168       7.3994

Ease of :
        EASE1           0.3944      0.4106      0.0630       6.2622
        EASE2           0.3734      0.3724      0.0573       6.5159
        EASE3           0.2326      0.2240      0.0605       3.8467
        EASE4           0.3005      0.2879      0.0534       5.6229

Training:
        TRNG1           0.6271      0.6453      0.0921       6.8107
        TRNG3           0.4976      0.4733      0.0991       5.0229

IS Suppo:
        IS1            -0.5136     -0.5153      0.0392      13.1003
        IS2            -0.5650     -0.5604      0.0456      12.4017

Communic:
        GLOBAL1         0.2436      0.2455      0.0158      15.3775
        CURR2           0.2707      0.2700      0.0190      14.2496
        CURR1           0.2355      0.2352      0.0198      11.9139
        GLOBAL2         0.2487      0.2473      0.0185      13.4656
        GLOBAL3         0.2197      0.2168      0.0176      12.4758

Mediatio:
        MED1            0.4118      0.4246      0.0782       5.2667
        MED2            0.3372      0.3492      0.0628       5.3693
        MED3            0.2187      0.2092      0.0683       3.1998
        MED4            0.1904      0.1668      0.0749       2.5410
=================================================================
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Outer Model Loadings:
=====================================================================
                    Original    Mean of      Standard    T-Statistic
                    sample      subsamples   error
                    estimate
Performa:
(Composite Reliability =       0.961 , AVE =      0.831 )
       PERF1        0.9280      0.9247       0.0195      47.4829
       PERF2        0.9127      0.9113       0.0279      32.7390
       PERF3        0.9424      0.9421       0.0170      55.3615
       PERF4        0.9078      0.9042       0.0265      34.2872
       PERF5        0.8649      0.8583       0.0347      24.9582

Utilisat:
(Composite Reliability =       0.854 , AVE =      0.597 )
       EmailHou     0.6227      0.6222       0.1442       4.3195
       EmarHour     0.8765      0.8558       0.0711      12.3202
       EmailHou     0.8443      0.8258       0.0884       9.5512
       EmarHour     0.7210      0.7032       0.1022       7.0547

Personal:
(Composite Reliability =       0.921 , AVE =      0.701 )
       PER3         0.8446      0.8433       0.0362      23.3452
       PER5         0.8812      0.8850       0.0292      30.1924
       PER7         0.8617      0.8733       0.0360      23.9416
       PER2         0.7347      0.7339       0.0645      11.3888
       PER6         0.8575      0.8617       0.0397      21.6060

Longterm:
(Composite Reliability =       0.960 , AVE =      0.923 )
       LONG2        0.9651      0.9567       0.0691      13.9624
       LONG3        0.9566      0.9463       0.0677      14.1233

Trust   :
(Composite Reliability =       0.919 , AVE =      0.740 )
       TURST1       0.8144      0.8107       0.0428      19.0500
       TURST2       0.8933      0.8951       0.0252      35.5178
       TRUST3       0.8795      0.8814       0.0336      26.1431
       TRUST4       0.8523      0.8543       0.0616      13.8249

English :
(Composite Reliability =       0.955 , AVE =      0.841 )
       ENG2         0.8891      0.8905       0.0251      35.4548
       ENG3         0.8891      0.8933       0.0398      22.3601
       ENG5         0.9459      0.9508       0.0092     102.6497
       ENG6         0.9420      0.9458       0.0140      67.1989

Material:
(Composite Reliability =       0.882 , AVE =      0.715 )
       WEST1        0.7161      0.7045       0.0854       8.3879
       WEST2        0.8955      0.8953       0.0246      36.4740
       WEST4        0.9119      0.9127       0.0177      51.4800

Culture :
(Composite Reliability =       0.896 , AVE =      0.333 )
       PER3         0.6447      0.6571       0.0667       9.6713
       PER5         0.6876      0.6850       0.0580      11.8588
       PER6         0.6609      0.6654       0.0637      10.3682
       PER7         0.6910      0.7190       0.0536      12.9027
       LONG2        0.2945      0.2697       0.1514       1.9451
       LONG3        0.2648      0.2478       0.1624       1.6306
       TURST1       0.5640      0.5602       0.0881       6.4034
       TURST2       0.6504      0.6507       0.0746       8.7202
       TRUST3       0.6984      0.7003       0.0587      11.8902
       TRUST4       0.6238      0.6230       0.0972       6.4168
       ENG2         0.5893      0.5755       0.0940       6.2681
       ENG3         0.5463      0.5364       0.0961       5.6833
       ENG5         0.6133      0.6088       0.0926       6.6196
       ENG6         0.6134      0.6072       0.0950       6.4552
       WEST1        0.4078      0.3870       0.1222       3.3374
       WEST2        0.4915      0.4816       0.1195       4.1121
       WEST4        0.5355      0.5203       0.1192       4.4927
       PER2         0.5756      0.5816       0.0911       6.3202

Business:
(Composite Reliability =       0.897 , AVE =      0.434 )
       MIMECTIC     0.8146      0.8123       0.0430      18.9415
       MIMECTIC     0.8337      0.8313       0.0378      22.0610
       MIMECTIC     0.8311      0.8323       0.0375      22.1461
       MIMECTIC     0.8301      0.8268       0.0384      21.6119
       COERCIVE     0.6601      0.6413       0.1189       5.5506
       COERCIVE     0.6639      0.6440       0.1122       5.9176
       COERCIVE     0.5809      0.5477       0.1452       4.0012
       COERCIVE     0.4674      0.4372       0.1884       2.4815
       NORMATIV     0.5795      0.5904       0.0927       6.2515
       NORMATIV     0.5513      0.5562       0.0987       5.5869
       NORMATIV     0.5034      0.5123       0.1225       4.1078
       NORMATIV     0.3802      0.3942       0.1348       2.8205
```

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Memitic :
(Composite Reliability =        0.967 , AVE =       0.879 )
    MIMECTIC          0.9251        0.9240      0.0168      55.0028
    MIMECTIC          0.9508        0.9495      0.0133      71.5769
    MIMECTIC          0.9436        0.9437      0.0167      56.4184
    MIMECTIC          0.9312        0.9299      0.0176      52.7839

Cocerciv:
(Composite Reliability =        0.926 , AVE =       0.758 )
    COERCIVE          0.9023        0.9116      0.0287      31.4476
    COERCIVE          0.9279        0.9350      0.0198      46.8451
    COERCIVE          0.8739        0.8604      0.0849      10.2878
    COERCIVE          0.7700        0.7437      0.1460       5.2722

Normativ:
(Composite Reliability =        0.916 , AVE =       0.733 )
    NORMATIV          0.8729        0.8739      0.0303      28.8510
    NORMATIV          0.8996        0.8990      0.0239      37.5842
    NORMATIV          0.8335        0.8267      0.0743      11.2181
    NORMATIV          0.8156        0.8059      0.0772      10.5693

Quality :
(Composite Reliability =        0.896 , AVE =       0.812 )
    TEL3              0.9009        0.8996      0.0325      27.7271
    TEL4              0.9017        0.9048      0.0223      40.4565

security:
(Composite Reliability =        0.915 , AVE =       0.843 )
    TEL5              0.9238        0.9262      0.0227      40.6215
    TEL6              0.9122        0.9074      0.0405      22.5231

Technica:
(Composite Reliability =        0.835 , AVE =       0.559 )
    TEL3              0.7349        0.7333      0.0729      10.0812
    TEL4              0.7376        0.7416      0.0549      13.4387
    TEL5              0.7847        0.7858      0.0495      15.8586
    TEL6              0.7330        0.7244      0.0916       8.0055

TTF     :
(Composite Reliability =        0.870 , AVE =       0.297 )
    EASE1             0.5692        0.5756      0.0783       7.2722
    EASE2             0.5390        0.5268      0.0972       5.5440
    EASE3             0.3356        0.3315      0.1238       2.7111
    EASE4             0.4337        0.4127      0.1039       4.1744
    CURR1             0.6795        0.6818      0.0789       8.6142
    CURR2             0.7809        0.7799      0.0563      13.8607
    GLOBAL1           0.7029        0.7104      0.0631      11.1413
    MED1              0.6063        0.5849      0.1007       6.0228
    MED2              0.4964        0.4883      0.1143       4.3414
    MED3              0.3220        0.3097      0.1307       2.4634
    MED4              0.2804        0.2545      0.1311       2.1391
    TRNG1             0.4925        0.4990      0.1125       4.3792
    TRNG3             0.3908        0.3787      0.1298       3.0110
    IS1               0.4562        0.4619      0.1084       4.2077
    IS2               0.5018        0.4992      0.1106       4.5359
    GLOBAL2           0.7174        0.7160      0.0706      10.1576
    GLOBAL3           0.6338        0.6292      0.0776       8.1686

Ease of :
(Composite Reliability =        0.849 , AVE =       0.585 )
    EASE1             0.8037        0.8108      0.0362      22.2155
    EASE2             0.7980        0.7966      0.0512      15.5798
    EASE3             0.7562        0.7407      0.0733      10.3208
    EASE4             0.6961        0.6794      0.0899       7.7419

Training:
(Composite Reliability =        0.880 , AVE =       0.786 )
    TRNG1             0.9134        0.9198      0.0278      32.8701
    TRNG3             0.8585        0.8403      0.0760      11.2944

IS Suppo:
(Composite Reliability =        0.924 , AVE =       0.859 )
    IS1              -0.9196       -0.9214      0.0310      29.6392
    IS2              -0.9340       -0.9359      0.0179      52.0362

Communic:
(Composite Reliability =        0.911 , AVE =       0.672 )
    GLOBAL1           0.8427        0.8495      0.0331      25.4800
    CURR2             0.8412        0.8416      0.0329      25.5567
    CURR1             0.7875        0.7877      0.0558      14.1226
    GLOBAL2           0.8349        0.8358      0.0389      21.4482
    GLOBAL3           0.7919        0.7889      0.0443      17.8678

Mediatio:
(Composite Reliability =        0.916 , AVE =       0.733 )
    MED1              0.8883        0.8902      0.0321      27.6872
    MED2              0.8722        0.8758      0.0408      21.3612
    MED3              0.8324        0.8033      0.0996       8.3580
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MED4               0.8296      0.7962      0.1044      7.9499
=====================================================================
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Path Coefficients Table (Original Sample Estimate):

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=====================================================================
          Performa  Utilisat  Personal  Longterm  Trust     English
Material  Culture   Business  Memitic   Cocerciv  Normativ  Quality   security
Technica  TTF       Ease of   Training  IS Suppo  Communic  Mediatio
Performa            0.0000    0.1620    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.6480    0.0000    0.0000    0.0000    0.0000    0.0000
Utilisat            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    -0.3700   0.1030    0.0000    0.0000    0.0000    0.0000    0.0000
0.0480    0.0980    0.0000    0.0000    0.0000    0.0000    0.0000
Personal            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Longterm            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Trust               0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
English             0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Material            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Culture             0.0000    0.0000    0.4600    0.0780    0.3490    0.3740
0.2080    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Business            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.5960    0.4010    0.3300    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Memitic             0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Cocerciv            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Normativ            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Quality             0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
security            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Technica            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.6000    0.6160
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
TTF                 0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.3010    0.1490    -0.1750   0.5730    0.2770
Ease of             0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Training            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
IS Suppo            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Communic            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
Mediatio            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
=====================================================================
```

Path Coefficients Table (Mean of Subsamples):

```
=====================================================================
          Performa  Utilisat  Personal  Longterm  Trust     English
Material  Culture   Business  Memitic   Cocerciv  Normativ  Quality   security
Technica  TTF       Ease of   Training  IS Suppo  Communic  Mediatio
Performa            0.0000    0.1682    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.6467    0.0000    0.0000    0.0000    0.0000    0.0000
Utilisat            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    -0.3977   0.1178    0.0000    0.0000    0.0000    0.0000    0.0000
0.0528    0.0899    0.0000    0.0000    0.0000    0.0000    0.0000
Personal            0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
```

	Performa	Utilisat	Personal	Longterm	Trust	English	Material	Culture	Business	Memitic	Cocerciv	Normativ	Quality	security	Technica	TTF	Ease of	Training	IS Suppo	Communic	Mediatio
Longterm	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Trust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
English	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Material	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Culture	0.0000	0.0000	0.4633	0.0679	0.3441	0.3626	0.1980	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Business	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5930	0.3808	0.3363	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Memitic	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cocerciv	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Normativ	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
security	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Technica	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6002	0.6127	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TTF	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2955	0.1462	-0.1741	0.5653	0.2629
Ease of	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Training	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
IS Suppo	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Communic	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mediatio	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

==

Path Coefficients Table (Standard Error):

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	Performa	Utilisat	Personal	Longterm	Trust	English	Material	Culture	Business	Memitic	Cocerciv	Normativ	Quality	security	Technica	TTF	Ease of	Training	IS Suppo	Communic	Mediatio
Performa	0.0000	0.0782	0.0000	0.0000	0.0000	0.0000	0.0000	0.0595	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Utilisat	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1171	0.1373	0.0000	0.0000	0.0000	0.0000	0.0000	0.1149	0.1146	0.0000	0.0000	0.0000	0.0000	0.0000
Personal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Longterm	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Trust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
English	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Material	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Culture	0.0000	0.0000	0.0549	0.0494	0.0458	0.0551	0.0424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Business	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0516	0.0786	0.0739	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	Performa	Utilisat	Personal	Longterm	Trust	English	Material	Culture	Business	Memitic	Cocerciv	Normativ	Quality	security	Technica	TTF	Ease of	Training	IS Suppo	Communic	Mediatio
Memitic	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cocerciv	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Normativ	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
security	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Technica	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0583	0.0565	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TTF	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0527	0.0350	0.0432	0.0583	0.0651
Ease of	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Training	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
IS Suppo	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Communic	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mediatio	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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Path Coefficients Table (T-Statistic)

|	Performa	Utilisat	Personal	Longterm	Trust	English	Material	Culture	Business	Memitic	Cocerciv	Normativ	Quality	security	Technica	TTF	Ease of	Training	IS Suppo	Communic	Mediatio
Performa	0.0000	2.0723	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10.8905	0.0000	0.0000	0.0000	0.0000	0.0000
Utilisat	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.1610	0.7499	0.0000	0.0000	0.0000	0.0000	0.0000	0.4176	0.8549	0.0000	0.0000	0.0000	0.0000	0.0000
Personal	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Longterm	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Trust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
English	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Material	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Culture	0.0000	0.0000	8.3786	1.5777	7.6148	6.7821	4.9074	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Business	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	11.5578	5.1013	4.4645	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Memitic	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cocerciv	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Normativ	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
security	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Technica	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10.2914	10.9111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

```
TTF                   0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000      0.0000      0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
  0.0000    0.0000      5.7164    4.2514    4.0555    9.8266    4.2535
Ease of               0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000      0.0000      0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
  0.0000    0.0000      0.0000    0.0000    0.0000    0.0000    0.0000
Training              0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000      0.0000      0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
  0.0000    0.0000      0.0000    0.0000    0.0000    0.0000    0.0000
IS Suppo              0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000      0.0000      0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
  0.0000    0.0000      0.0000    0.0000    0.0000    0.0000    0.0000
Communic              0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000      0.0000      0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
  0.0000    0.0000      0.0000    0.0000    0.0000    0.0000    0.0000
Mediatio              0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
0.0000      0.0000      0.0000    0.0000    0.0000    0.0000    0.0000    0.0000
  0.0000    0.0000      0.0000    0.0000    0.0000    0.0000    0.0000
================================================================
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Appendix M : PLS Graphic with moderating effect
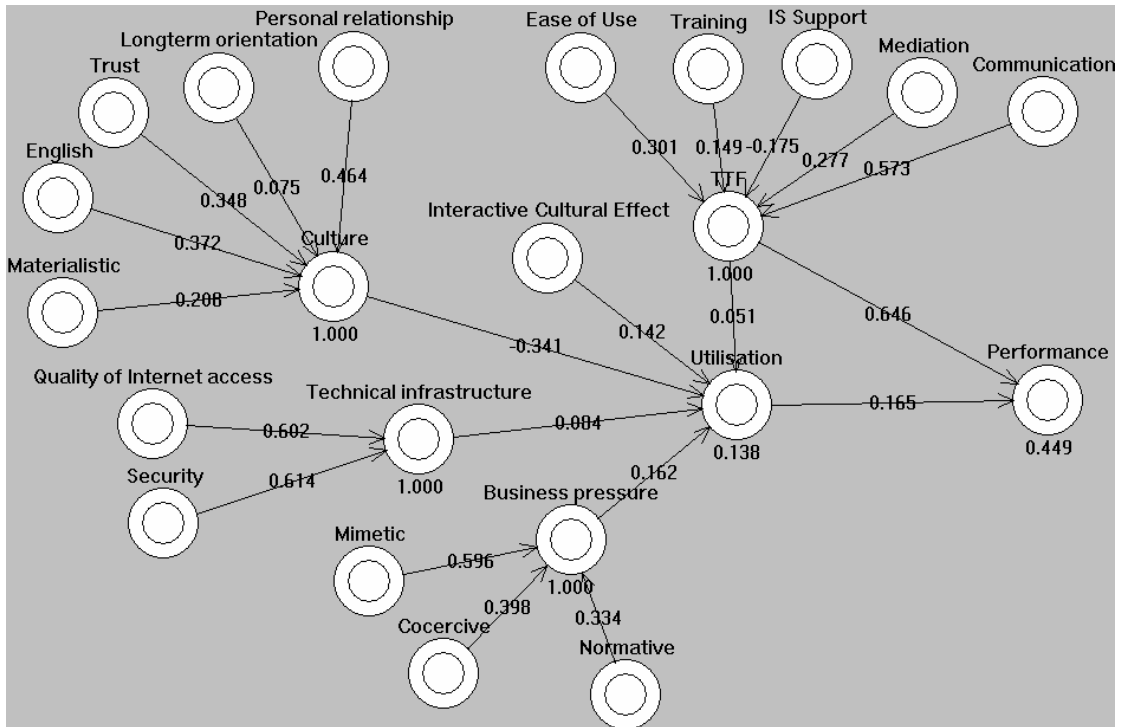
Appendix N : PLS Graphic with control variables