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THE IMPACT OF CULTURE ON STRATEGIC INFORMATION SYSTEMS PLANNING

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ABSTRACT

How employees behave or react in an organisation depends on the norms and belief systems of that organisation, which is known as organisational culture. Organisational culture affects the decision making processes deciding the direction of the development of the organisation, and strategic information systems (IS) planning is one such process. The determinants that influence strategic IS planning have been examined and tested in previous studies. However, it is not known how the determinants of strategic IS planning success are affected by culture.

Therefore, the present study aims to investigate the impact of organisational culture on strategic IS planning. It proposes a conceptual model describing how culture affects two important determiners of strategic IS planning success, top management commitment and user participation.

Data were collected via a questionnaire survey of medium-sized and large organisations in the information and communications technology (ICT) industry in New Zealand and Malaysia. Structural equation modelling was used to analyse the survey data and to test the model. Follow-up interviews with five top managers and thirteen general employees resulted in in-depth qualitative data focusing on the relationships found to be interesting in the model.

Fitting the model by using partial least squares structural equation modelling suggested that both user participation and top management commitment affected the two dimensions of strategic IS planning success, communication and technology. User participation affected the strategic IS planning success dimensions relating to communication ($\beta=.30$) and technology ($\beta=.24$); top management commitment affected the strategic IS planning success dimensions relating to communication ($\beta=.31$) and technology ($\beta=.42$). As to the effect of culture dimensions on the determinants of strategic IS planning success, collectivism affected user participation ($\beta=.15$), and uncertainty avoidance affected top management commitment ($\beta=.27$) and user participation ($\beta=.30$). Qualitative data analysis resulted in rich descriptions of the managers' and users' perceptions of the reasons for the effects confirmed by fitting the survey data.

The present study contributes by demonstrating the impact of culture on the determinants of strategic IS planning success.

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LIST OF PUBLICATIONS

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Ali, R. H. R. M., Tretiakov, A., & Crump, B. (2009). Models of national culture in information systems research. In *Proceedings of the 20th Australasian Conference on Information Systems* (pp. 246-256). Melbourne, Australia: Australasian Association of Information Systems.

TABLE OF CONTENTS

ABSTRACT	2
ACKNOWLEDGEMENTS.....	3
LIST OF PUBLICATIONS.....	4
LIST OF TABLES.....	12
LIST OF FIGURES	14
CHAPTER 1: INTRODUCTION	15
1.1 Background of the study.....	15
1.2 Research problem	16
1.3 Research questions and hypotheses	18
1.4 Significance of the study	18
1.4.1 Contributions to the theory	18
1.4.2 Contributions to practice	19
1.5 Scope of the study	19
1.6 Summary of methodology	20
1.7 Organisation of the thesis.....	21
CHAPTER 2: STRATEGIC INFORMATION SYSTEMS PLANNING	23
2.1 Introduction.....	23
2.2 Introducing strategic IS planning	23
2.2.1 Process models	25
2.2.2 Archetypical approaches.....	28
2.3 Evolution with time / maturity.....	30

2.4 Strategic IS planning success.....	31
2.4.1 Conceptualisations of strategic IS planning success.....	31
2.4.1.1 Strategic IS planning success viewed as the success of generic planning....	31
2.4.1.2 Strategic IS planning success viewed as IS / business alignment.....	34
2.4.1.3 Strategic IS planning success viewed as IS / business alignment—an attempt at detailed representation	38
2.4.2 Factors contributing to strategic IS planning success	39
2.4.2.1 Top management commitment.....	43
2.4.2.2 User participation	44
CHAPTER 3: CONCEPTUALIZATION OF CULTURE.....	46
3.1 Introduction.....	46
3.2 Holistic view of culture.....	46
3.3 Levels of culture.....	48
3.4 Dimensions of culture.....	49
3.5 Studies of the impact of culture on IS strategy	56
CHAPTER 4: MODEL DEVELOPMENT AND HYPOTHESES	58
4.1 Introduction.....	58
4.2 Conceptual foundations.....	58
4.2.1 Organisation values	58
4.2.2 Organisation practices	59
4.2.3 Organisation outcomes.....	60
4.3 Research model	60
4.3.1 Hypotheses relating to the effects of organisational practices.....	61
4.3.1.1 H1: Higher levels of top management commitment lead to better strategic IS planning success	61
4.3.1.2 H2: Higher levels of user participation lead to better strategic IS planning success.....	62

4.3.2	Hypotheses relating to the effects of organisational values	64
4.3.2.1	H3: Collectivism affects user participation.....	64
4.3.2.2	H4: Power distance affects user participation.....	64
4.3.2.3	H5a, H5b: Uncertainty avoidance affects user participation and top management commitment	65
CHAPTER 5: RESEARCH DESIGN AND METHODS		66
5.1	Introduction.....	66
5.2	Overall research approach.....	66
5.2.1	Positivist and interpretivist.....	66
5.2.2	Quantitative, qualitative, and mixed	66
5.2.3	Level of analysis.....	67
5.2.4	Key informants approach.....	67
5.2.5	Approach to data collection.....	70
5.3	Overview of research procedures.....	71
5.4	Operationalisation of constructs	73
5.4.1	Strategic IS planning success	73
5.4.2	Organisational practices.....	74
5.4.2.1	Top management commitment.....	74
5.4.2.2	User participation	74
5.4.3	Dimensions of organisational culture.....	75
5.4.3.1	Power distance	75
5.4.3.2	Uncertainty avoidance.....	75
5.4.3.3	Collectivism	75
5.5	The research instruments.....	78
5.5.1	Language related issues.....	78
5.5.2	Questionnaire for the survey	79

5.5.3	The semi-structured interview schedule.....	79
5.6	Participants.....	79
5.6.1	Questionnaire survey	79
5.6.1.1	Population.....	81
5.6.1.2	Sample	82
5.6.2	Interviews	82
5.7	Ethical considerations	83
5.7.1	Questionnaire survey	83
5.7.2	Interviews	84
5.8	Survey pre-testing	84
5.9	Data collection procedures.....	85
5.9.1	Survey procedures	85
5.9.2	Conducting the semi-structured interviews.....	86
5.10	Approach to quantitative data analysis.....	86
5.10.1	Normality, outliers and missing values.....	86
5.10.2	Checking for response bias	86
5.10.3	Representativeness of the sample	87
5.10.4	Checking for common method bias	87
5.10.5	Structural equation modelling.....	88
5.10.6	Effect size	90
5.11	Approach to qualitative data analysis.....	90
CHAPTER 6:	QUANTITATIVE DATA ANALYSIS AND FINDINGS	93
6.1	Introduction.....	93
6.2	Response rate.....	93

6.3 Preliminary analysis.....	94
6.3.1 Assessing normality and outliers	94
6.3.2 Missing values	95
6.4 Demographic data.....	96
6.4.1 Participant characteristics	96
6.4.1.1 The organisations	96
6.4.1.2 The respondents	100
6.5 Response bias	102
6.6 Response representativeness	104
6.7 Descriptive statistics for strategic IS planning.....	105
6.7.1 Years of strategic IS planning experience	105
6.7.2 Outsourcing of strategic IS planning.....	106
6.7.3 Strategic IS planning success	107
6.7.4 Top management commitment.....	108
6.7.5 User participation	111
6.8 Checking for common method bias	112
6.9 Model testing results.....	112
6.9.1 Measurement model.....	113
6.9.1.1 Convergent validity	113
6.9.1.2 Discriminant validity.....	116
6.9.2 Structural model	118
6.10 Cohen's effect sizes	119
6.11 Post-hoc analysis.....	120
6.12 Findings from qualitative interviews.....	121

6.12.1	Relationship between top management commitment and strategic IS planning success	122
6.12.1.1	Mature organisation (MO)	122
6.12.1.2	New organisation (NO).....	125
6.12.1.3	Difference of commitment in strategic IS planning stages.....	126
6.12.2	Relationship between user participation in strategic IS planning success	130
6.12.2.1	Mature organisation.....	130
6.12.2.2	New organisation.....	133
6.12.2.3	Different ways for users to participate.....	135
6.12.3.1	Mature organisation.....	136
6.12.3.2	New organisation.....	138
6.12.4	Other factors contributing to strategic IS planning success	140
CHAPTER 7: DISCUSSION, CONCLUSIONS, AND FURTHER RESEARCH		144
7.1	Introduction.....	144
7.2	Determinants of strategic IS planning success	144
7.2.1	Effects of top management commitment.....	144
7.2.2	Effects of user participation	145
7.3	Effects of culture on determinants of strategic IS planning success.....	146
7.3.1	Effect of collectivism on user participation	147
7.3.2	Effect of uncertainty avoidance on user participation and top management commitment	147
7.3.3	Effect of power distance on user participation.....	149
7.4	Implications of the study	149
7.4.1	Significance for theory.....	149
7.4.2	Significance for practice	150
7.5	Limitations of the study and further research	151

7.6 Conclusion	152
REFERENCES	154
APPENDIX A: Invitation letter	167
APPENDIX B: Ethics notification letter for questionnaire survey	168
APPENDIX C: Ethics notification letter for interviews.....	169
APPENDIX D: Information sheet.....	170
APPENDIX E: Questionnaire survey	173
APPENDIX F: Reminder e-mail.....	179
APPENDIX G: PLS analysis output.....	180
APPENDIX H: Background of the respondent organisations	182
University A (mature organisation).....	182
University B (new organisation).....	182
University C (new organisation).....	182
APPENDIX I: Findings from qualitative interviews with survey participants.....	183
I.1 Approach to data collection	183
I.2 Relationship between user participation and strategic IS planning success	184
I.3 Relationship between top management commitment and strategic IS planning success	187
I.4 Other determinants of strategic IS planning success	190
I.5 Other themes relating to IS planning success	191

LIST OF TABLES

Table 2-1: Strategic IS Planning Success Measures	36
Table 2-2: Items for the Subdimensions of the Measure of Strategic IS Planning Success by Segars and Grover (1998).....	37
Table 2-3: Strategic IS Planning Success Studies	41
Table 3-1: Dimensions of Culture.....	53
Table 5-1: Operationalisation of Constructs	76
Table 6-1: Response Rate	94
Table 6-2: Organisation Type	96
Table 6-3: Types of Branches	97
Table 6-4: Organisation Ownership	97
Table 6-5: Organisation Size	98
Table 6-6: Organisation Activity	98
Table 6-7: Organisation Product	99
Table 6-8: Import / Export Activities.....	99
Table 6-9: Respondent Job Title	100
Table 6-10: Respondent Experience.....	101
Table 6-11: Respondent Education Level.....	102
Table 6-12: Results of Non-Response Bias Tests Based on the Number of Employees and Sales Income	102
Table 6-13: Results of Non-Response Bias Tests Based on Items Used to Measure Determinants of Strategic IS Planning Success Construct	103
Table 6-14: Results of Non-Response Bias Based on Items Used to Measure Strategic IS Planning Success Construct.....	104
Table 6-15: Numbers of Organisations in Different Size Ranges.....	105
Table 6-16: Strategic IS Planning Experience	106
Table 6-17: Strategic IS Planning Outsourcing	106
Table 6-18: Strategic IS Planning Success (Combined)	107
Table 6-19: Strategic IS Planning Success (New Zealand)	108

Table 6-20: Strategic IS Planning Success (Malaysia)	108
Table 6-21: Top Management Commitment (Combined)	109
Table 6-22: Top Management Commitment (New Zealand)	110
Table 6-23: Top Management Commitment (Malaysia)	110
Table 6-24: User Participation (Combined).....	111
Table 6-25: User Participation (New Zealand).....	112
Table 6-26: User Participation (Malaysia)	112
Table 6-27: Factor Loadings	113
Table 6-28: Factor Loadings After Deleting Problematic Items	115
Table 6-29: AVE, Composite Reliability and Cronbach's Alpha	116
Table 6-30: Item Cross-loadings	117
Table 6-31: Squared Root of AVE and Latent Variable Correlations	118
Table 6-32: Cohen's Effect Size for the Effect of Top Management Commitment on Strategic IS Planning Success	120
Table 6-33: Cohen's Effect Size for the Effect of User Participation on Strategic IS Planning Success	120
Table 6-34: Cohen's Effect Size for the Effect of Culture on Determinants of Strategic IS Planning Success	120
Table G-1: PLS Analysis Results Overview.....	180
Table G-2: Latent Variable Correlations.....	180
Table G-3: Outer Model (Weights and Loadings)	181
Table G-4: Path Coefficients	181

LIST OF FIGURES

Figure 1-1. Thesis outline	22
Figure 2-1. Information systems strategy triangle (Pearlson & Saunders, 2010).....	24
Figure 2-2. Strategic IS planning process model (Lederer & Salmela, 1996).....	27
Figure 2-3. Strategic alignment model.....	28
Figure 2-4. Stages of strategic IS planning maturity (Grover & Segars, 2005).....	30
Figure 3-1. Layers of culture (Trompenaars, 1996)	47
Figure 3-2. Virtual onion model (Gallivan & Srite, 2005)	48
Figure 3-3. A dynamic view across levels of culture (Leung et al., 2005).....	49
Figure 4-1. Overview of the research model.....	61
Figure 5-1. Overall mixed method procedures (based on a similar diagram by Creswell and Clark, 2011).....	72
Figure 5-2. Semi-structured interview schedule.....	80
Figure 6-1. The results for the structural model. Solid lines denote hypotheses confirmed at $p < .05$. Numbers next to hypotheses labels are path coefficients; the corresponding p values are given in brackets.....	119
Figure 6-2. Post-hoc analysis—moderating effect of collectivism.....	121

CHAPTER 1: INTRODUCTION

1.1 Background of the study

It is common to view societal values as influencing organisational practices. In other words, what organisations value is affected by the society in which the organisations are located. Low and Chapman (2003) stated “culture is learned from those who surround us on a societal level...the act of observing behaviour of others in our social group is one way we learn the norms of the relevant culture” (p. 59). Thus, what organisations value influences both what they do about information systems (IS) and the consequences of what they do.

There exist two alternative, yet complementary, views of strategy. Organisational strategy can be viewed as a set of high level decisions on priorities and the overall direction. Alternatively, strategy can be viewed as an established pattern of behaviour, and thus it is the employees' behaviour that creates the strategy of the organisation. How the employees behave or react in an organisation is determined by the norms and the belief systems of the organisation, which are known as the organisation's culture. Organisational culture can be defined as the beliefs and values shared by employees in an organisation (Leung, Bhagat, Buchan, Erez, & Gibson, 2005). These shared beliefs and values form the basis of how the employees react on tasks given or challenges arising; therefore, the organisation's culture influences the activities in the organisation. It affects the communication occurring within the organisation and between the organisation and the organisation's environment. The knowledge of the organisation's culture assists the managers in making decisions with regards to the organisation, which includes formulating formal strategies, guidelines, procedures, and policies. The organisation's culture not only affects how the managers make decisions, but also how the employees behave (and thus affects organisational practices). It also affects the decisions made with

regards to the continuous development of the organisation, including strategy development.

One of the important strategy development activities is strategic IS planning, which involves identifying important databases and information systems and selecting enterprise applications to meet current and future needs (Carlson, 1979). Strategic IS planning is intended to result in IT and IS infrastructure and use fulfilling strategic necessities or leading to competitive advantage (Boynton & Zmud, 1987; Ives & Learmonth, 1984; Porter & Miller, 1985).

The business goals of strategic IS planning are achieved via close alignment between IS (and the business processes that rely on them) and the organisation's strategic goals (Basu, Hartono, Lederer, & Sethi, 2002). Ultimately, the aim of strategic IS planning is to facilitate the achievement of the organisation's strategic business goals (Basu et al., 2002). The importance of strategic IS planning has been highlighted in a number of studies (Bechor, Neumann, Zviran, & Glezer, 2010; Pun & Lee, 2000; Spremic & Strugar, 2002).

The culture at societal level influences the organisational culture, which, in turn influences organisational strategy making, including strategic IS planning. The broad aim of the present study is to investigate these influences.

In this chapter, the research problem is discussed and the research questions are listed. Next, the key hypotheses are outlined. Then, the scope of the study and its importance are outlined, and a summary of the methodology is presented. Finally, the structure of the thesis is presented.

1.2 Research problem

It is believed that organisations' values are affected by the society in which the organisations are situated. Davison and Martinsons (2003) have stated, "it is generally agreed that culture at the societal level plays a major role in determining work-related values and attitudes, as well as the behaviours and practices that prevail in a particular business context" (p. 2). For example, an organisation that is situated in a particular country may be influenced by the

local culture as most of the employees and, very likely, the founder have been brought up in this culture. When these employees practice their society's values at the organisation, these values are likely to be accepted and shared among all of the organisation's employees, and thus societal values become organisational values. The organisational values, in their turn, influence both what, and how, the employees do (including how they approach IS planning), and the consequences of what they do.

Even though IS studies comparing IS practices across countries are common, studies investigating the constructs intermediating the influences of societal culture on IS are rare (Davison & Martinsons, 2003). Deeper understanding of how culture affects IS would be gained if more studies of this kind were conducted (Martinsons & Davison, 2003).

Studies have been conducted that highlight the importance and benefits of strategic IS planning at organisations. The determinants that influence the strategic IS planning also have been examined and tested in previous studies. However, it is not known how the determinants of strategic IS planning success are affected by culture.

In sum, the society's values affect the organisational values. These organisational values then affect the organisational practices that could then affect the organisational outcomes. Organisational practices that are relevant to strategic IS planning are the determinants of strategic IS planning success. The knowledge of how organisational values affect the determinants of strategic IS planning success offers an in-depth understanding of how culture (organisational and societal) affects strategic IS planning and strategic IS planning success. Therefore, the present study aims to investigate the impact of culture on the determinants of strategic IS planning success.

Top management commitment and user participation are widely regarded as major determinants of strategic IS planning success. Nonetheless, the effect of culture on top management commitment and user participation has never been studied empirically.

1.3 Research questions and hypotheses

The present study aims to answer the following questions:

1. What is the effect of culture on the determinants of strategic IS planning success?
2. For what reasons are the determinants of strategic IS planning success affected by culture?

To address the research questions, hypotheses relating to the effects of the determinants of strategic IS planning success and related to the effects of organisational culture on the determinants of strategic IS planning success were developed.

Figure 4-1 in Chapter 4 presents the hypotheses. Detailed justifications of the hypotheses can be found in Chapter 4.

As shown in Figure 4-1, organisational practices that are the determinants of strategic IS planning success, namely top management commitment and user participation, affect organisational outcomes conceptualised as strategic IS planning success in terms of communication and technology. Organisational practices mediate the effects of organisational values, namely collectivism, power distance, and uncertainty avoidance, on strategic IS planning success. The first research question of the present study (see section 1.3) is addressed by fitting this model to survey data, whereas the second research question is addressed by conducting qualitative analysis of interview data.

1.4 Significance of the study

The contributions of the present study can be considered from two perspectives: theory and practice.

1.4.1 Contributions to the theory

The present study contributes to the body of strategic IS planning knowledge by providing a model of the impact of culture on strategic IS planning success. Drawing on the theories of strategic IS planning (Lederer &

Salmela, 1996) and culture, the model includes the determinants of strategic IS planning success, which are top management commitment and user participation, and the culture dimensions, which are uncertainty avoidance, power distance, and collectivism. By exploring the connections between the dimensions of culture and the determinants of strategic IS planning success, the present study helps to provide a theoretical foundation in cross-cultural IS planning studies.

1.4.2 Contributions to practice

The present study contributes to practice by exploring the possible mechanisms by which strategic IS planning success is achieved in different cultural contexts. The findings of the study are of relevance for top management involved in developing more efficient and effective strategic IS planning.

The present study has the potential to facilitate management decisions by informing management on the impact of culture dimensions and the possible reasons for such impacts.

1.5 Scope of the study

The scope of the present study was based on the chosen industry, target population, and geographic limits. The information and communication technology (ICT) industry was chosen because organisations in this industry are involved with information systems applications and technologies and therefore are likely to engage in and have experience of strategic IS planning.

The present study focused on organisations in New Zealand and Malaysia, countries with very different societal cultures. The target population in the present study was medium-sized and large organisations in the ICT industry, because it was assumed that these organisations are involved in formal strategic IS planning (unlike smaller organisations, which are likely to lack resources needed for formal IS planning). The sample was drawn from

Kompass.com, New Zealand Business Who's Who, and The National ICT Association of Malaysia databases.

The data were collected from top managers, such as chief information officers, chief executive officers, and IS Managers. These respondents were chosen because they are likely to be knowledgeable about strategic IS planning within their organisations.

Qualitative data were collected by interviewing five senior managers and thirteen IS users from organisations in Malaysia differing in IS maturity levels. These organisations have large ICT departments, indicating that their operations rely heavily on IS, and have experience in strategic IS planning, so that the respondents were knowledgeable about the constructs under study.

1.6 Summary of methodology

The present study adopted a mixed research approach to seeking answers to the research questions. Hypotheses related to the effects of the determinants of strategic IS planning success and related to the effects of culture on the determinants of strategic IS planning success were developed. These hypotheses were developed based on existing literature and were tested by fitting the model to the data, which allowed me to address the first research question.

The questionnaire was developed based on measurement instruments adopted from the literature. The unit of analysis was the organisation. Data were collected from medium-sized and large organisation in the ICT industry in New Zealand and Malaysia. For each organisation, the respondent (the key informant) was the chief information officer (CIO), the chief executive officer (CEO), or the IS manager.

The study relied on the notion of culture to test the research model. The values of culture dimensions were associated with individual organisations.

Interviews were conducted to address the second research question. The constant comparative method was used to analyse the interview data.

1.7 Organisation of the thesis

This thesis comprises seven chapters. Chapter 1, the Introduction, is followed by a literature review, which is organised into chapters 2 and 3.

Chapter 2 covers the conceptualization of strategic IS planning, the models of strategic IS planning success, and the determinants of strategic IS planning success.

Chapter 3 reviews literature related to conceptualisation of culture and different dimensions of culture. It also offers a brief explanation of the levels of culture.

Chapter 4 explains in detail the research model and the hypotheses, including justification of individual hypotheses.

Chapter 5 explains the methodology used in the present study and the procedures for data collection. It introduces the research instruments for collecting both quantitative and qualitative data. The sample selection, questionnaire, and interview administration processes are discussed in detail. Then, the data analysis techniques used in the present study are presented and discussed.

Chapter 6 presents the results from both quantitative and qualitative data collection. The quantitative data are analysed, and the empirical findings are presented in terms of descriptive analysis of the sample and the results of hypothesis testing. The findings from the qualitative (interview) data analysis are also presented.

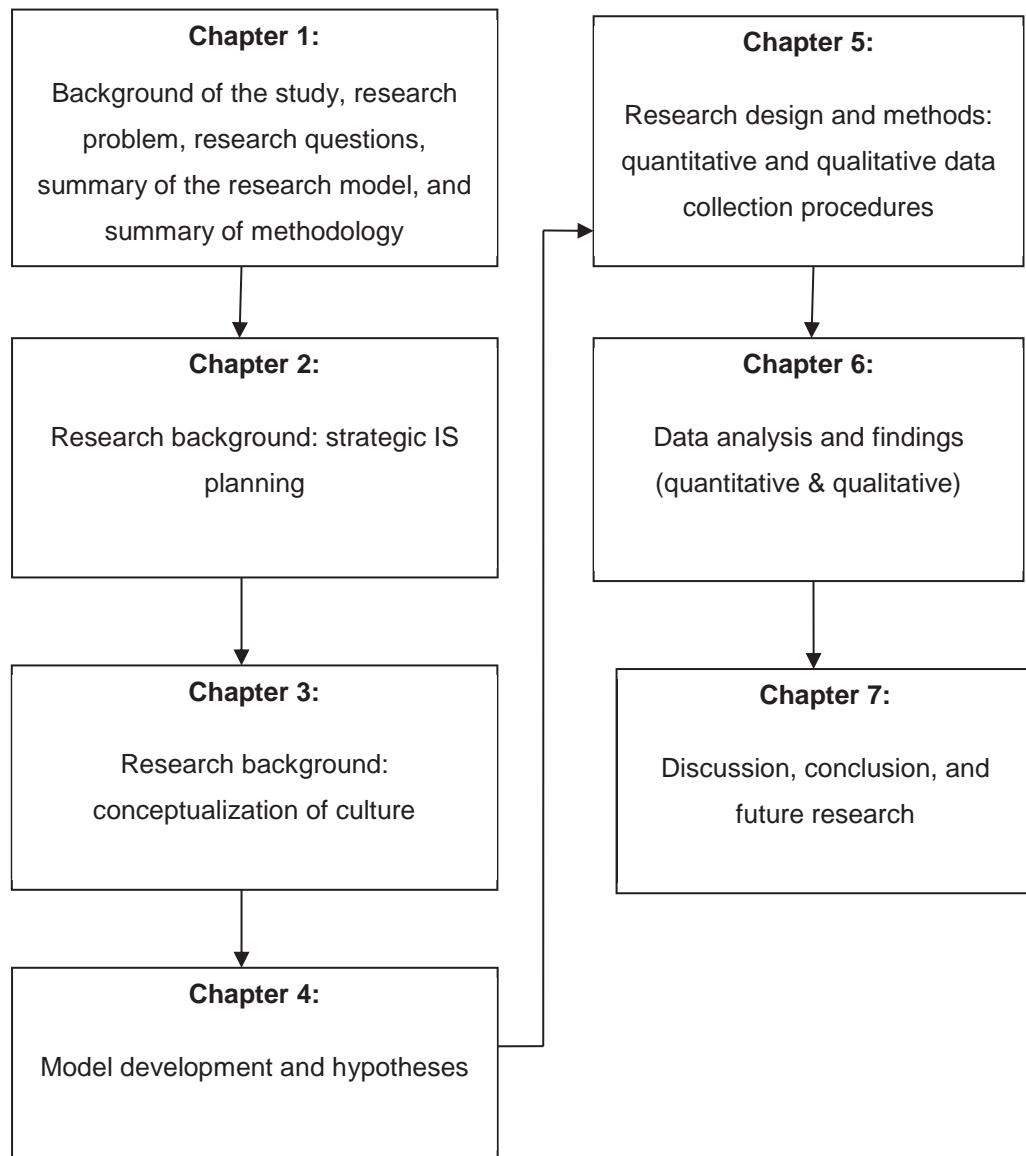


Figure 1-1. Thesis outline.

Chapter 7 discusses the implications of the study. It also draws out the conclusions and the implications for theory and practice, and comments on possible future directions. The thesis outline and contents are illustrated in Figure 1-1.

CHAPTER 2: STRATEGIC INFORMATION SYSTEMS PLANNING

2.1 Introduction

This chapter presents an overview of the literature devoted to strategic IS planning, strategic IS planning success, and strategic IS planning success determinants.

2.2 Introducing strategic IS planning

Many studies have highlighted the importance of information systems at organisations. The roles of information systems range from enabling routine day-to-day transactions to supporting strategic decision making.

The importance of information systems at organisations can be depicted as the IS strategy triangle (shown in Figure 2-1). This model was introduced by Pearson and Saunders (2010) and suggests that information systems strategy can affect the other strategies (organisational and business) as well as be affected by the other strategies.

Business strategy is a set of systematic actions that is intended to enable the organisation to fulfil its business objectives. Organisational strategy is a high level plan that deals with people, business processes, and organisational structure. Organisational strategy is implemented to fulfil the business strategy. Information systems strategy is a high level plan implemented to fulfil business and organisational strategies that deals with collecting and processing information. In its turn, information systems strategy can drive business strategy (e.g., by offering new business models, such as e-business or mass customisation) or organisational strategy (e.g., ERP systems can be used to drive the transformation of organisational processes to fit best practice). Nonetheless, opportunities for information systems strategy to affect business and organisational strategy are relatively rare, and it is common for business strategy to be the dominant force in the triangle.



Figure 2-1. Information systems strategy triangle (Pearlson & Saunders, 2010).

Higher organisational effectiveness is achieved when the three strategies guide the organisation in the same direction, with changes in business strategy immediately translated into changes in organisational and IS strategy. In other words, organisations need to proactively ensure that the strategies are aligned with each other. Because the focus of the present study is on IS strategy, rather than on business or organisational strategy, in most of the rest of this thesis I do not focus on the distinction between business strategy and the organisational strategy implementing it, but rather refer to IS strategy alignment with the other two strategies as IS / business strategy alignment, or simply alignment.

The importance of IS strategy and the need to align it with business and organisational strategies suggest that IS strategy development, strategic IS planning, should be treated by organisations as high priority. Strategic IS planning has been defined as identifying information systems and information technology that are likely to assist an organisation in executing its business plans and realising its business goals (Lederer & Salmela,

1996). It helps an organisation to develop priorities related to information systems (Doherty, Marples, & Suhaimi, 1999). It depicts the view of an organisation's future that guides today's decision making related to information systems (McNurlin, Sprague, & Tung, 2009).

In reviewing the literature, I have identified two major perspectives on strategic IS planning in prior studies: process models and archetypical approaches. Process models depict the typical steps of a strategic IS planning process. In contrast, archetypical approaches identify distinct overall approaches to IS planning, characterised by a broad range of features and variables.

2.2.1 Process models

A widely cited strategic IS planning process model was developed by Lederer and Salmela (1996), who summarised prior strategic IS planning (SISP) research by formulating an input-process-output model. According to the model, a strategic IS plan is formulated in a planning process, which may rely on a formal, well-defined method, such as the method provided by IBM Corporation (<http://www-935.ibm.com/services/us/en/it-services/it-strategy>), or use a less formal approach. As shown in Figure 2-2, the process is influenced by external environment, internal environment, and resources. The external environment includes factors such as economic stability of the industry and of the country, technology trends, and information intensity in the business sector. The internal environment includes the organisation's culture, structure, existing information systems, maturity of information systems management experience, and overall strategic goals. The planning resources include time and effort of the managers and other employees participating in IS planning and access to information about the organisation's overall business strategy. The output of the planning process is the information systems plan that offers a set of recommendations for new information systems or technology. The implementation of the plan results in greater IS / business strategy alignment.

Later, another process model was developed by Mentzas (1997). Whereas Lederer and Salmela's (1996) model includes resources, outputs, and

influences on strategic IS planning, Mentzas (1997) suggested phases that should be followed in a strategic IS planning process. These phases are strategic awareness, situation analysis, strategy conception, strategy formulation, and strategy implementation planning. The strategic awareness phase is to raise awareness of the issue of strategy formulation. The situation analysis phase is to synthesise staff's perspectives on the strengths and weaknesses of the organisation and of the organisation's aims and objectives, internal environment, and resources. The strategy conception phase is to scan the organisation's possible futures to identify opportunities for competitive and performance advantage and to suggest alternative courses of action. Strategy formulation is the phase where a course of action is chosen and is analysed in terms of functions, hierarchies, and responsibilities, as well as the IT architecture required for building the systems required. The last phase is strategy implementation planning, in which a detailed plan needed to implement the system is formulated.

There are some formal methodologies that organisations can use to conduct strategic IS planning. Pant and Hsu (1995) classified the methodologies into alignment methodologies and impact methodologies. Alignment methodologies are the methods that align IS objectives with organisational goals, whereas impact methodologies help to justify new uses of IT (I do not discuss impact methodologies further because helping to justify new uses of IT falls outside the scope of this thesis).

An example of alignment methodologies is the strategic alignment model (SAM) that was introduced by Henderson and Venkatraman (1989) and was validated by Avison, Jones, Powell, and Wilson (2004). The SAM model allows managers to assess the strategic choices and how they relate with each other. The four strategic choices are business strategy, organisational infrastructure and processes, information technology (IT) strategy, and IT infrastructure and processes. Each of the choices has its own components, which are shown in Figure 2-3.

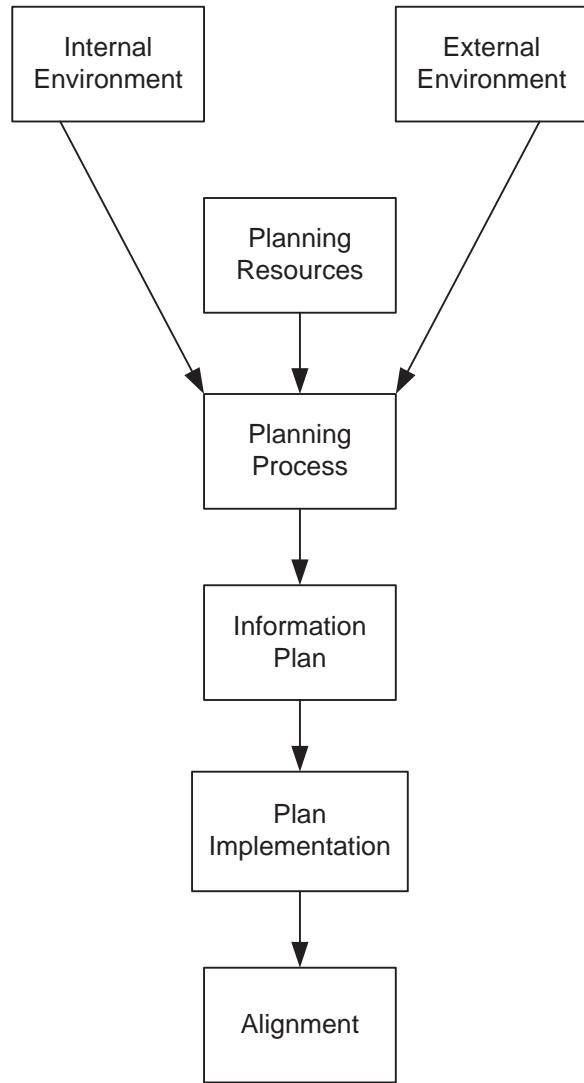


Figure 2-2. Strategic IS planning process model (Lederer & Salmela, 1996).

Other examples of alignment methodologies are Business System Planning (BSP), which focuses on business process and combines top-down planning from top management with bottom-up implementation by employees, ProPlanner, which analyses the major functional areas, and Information Engineering, which provides techniques for collecting data relevant to IS strategy formulation and activities carried out using that data (Pant & Hsu, 1995).

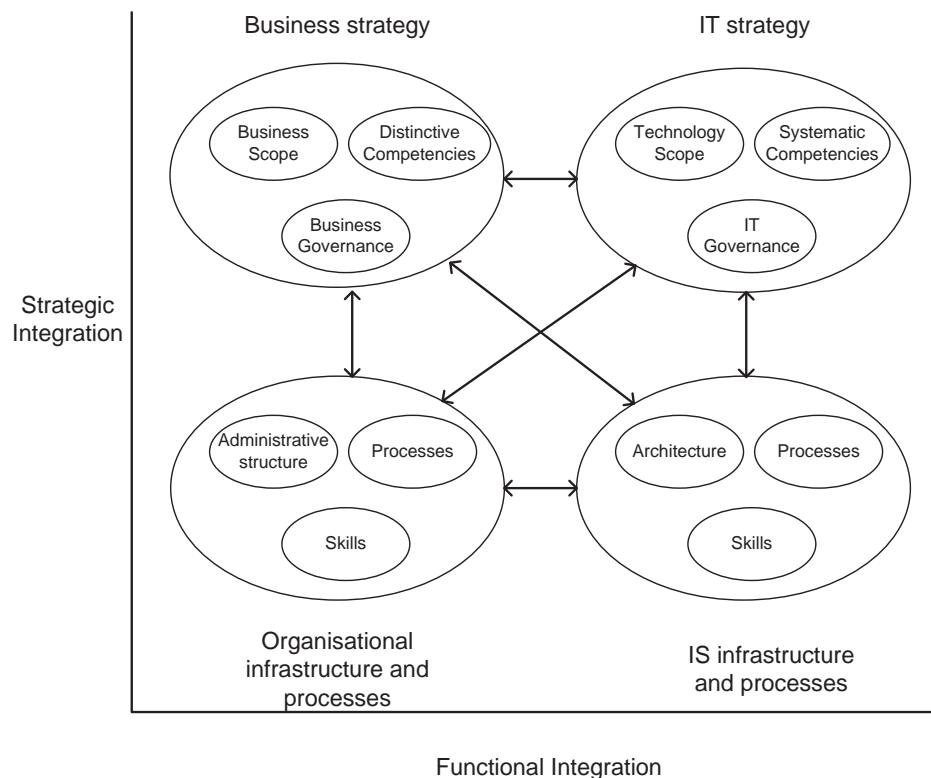


Figure 2-3. Strategic alignment model.

2.2.2 Archetypical approaches

Earl (1993), based on a multiple case study involving 21 large multinational companies headquartered in the United Kingdom (from a range of industries), suggested a taxonomy of approaches to strategic IS planning. Five archetypical approaches were identified, namely business-led, method-driven, administrative, technological, and organisational.

Business-led approach suggests that business planning should drive IS planning. The strategic IS plan should be built based on the current business direction or plans. Top management should drive IS planning and should be closely involved. IS users are expected to contribute to IS planning. The advantage of the approach is that if a realistic detailed formal business plan is available (which may be impossible for organisations operating in volatile environments), the strategic IS plan will be well-aligned and information systems will be seen as strategic resources.

Method driven approach assumes that strategic IS plan formulation relies on the use of a formal technique or method. Administrative approach

emphasises resource planning. Technological approach is based on an assumption that an information systems-oriented model of the business is a necessary outcome of strategic IS planning.

Organisational approach involves IS decisions made through continuous integration between the IS function and the organisation. There is both involvement of top management and participation of users and business managers to collect information regarding business problems and to pursue business initiatives.

The taxonomy by Earl (1993) was later confirmed in the study by Doherty, Marples, and Suhaimi (1999) based on 292 responses obtained in a survey of large organisations in the United Kingdom, with chief information officers (CIOs) used as key informants. Using cluster analysis, their study resulted in four clusters corresponding to different approaches to strategic IS planning. ‘Organisational’, ‘Business-led’, and ‘Administrative’ approaches were clearly found and identified in three different clusters. However, the other two approaches suggested by Earl (1993) namely, ‘Method-driven’ and ‘Technological’ were found to be aggregated together. The study also demonstrated that the ‘Organisational’ approach is the most popular approach, and the respondents believed that they were more successful in strategic IS planning when following the ‘Organisational’ approach.

In addition, an alternative taxonomy was suggested by Segars and Grover (1999), who conducted a study similar in design to Doherty et al. (1999). Whereas Doherty et al. adopted the five strategic IS planning approaches suggested by Earl (1993) to identify their clusters, Segars and Grover (1999) suggested six dimensions of the strategic IS planning process, namely comprehensiveness (extent of solution search), formalization (rules and procedures to guide activity), focus (creativity or control), flow (top down or bottom up), participation (number and variety of planners), and consistency (frequency of planning cycles). Using multivariate cluster analysis of data gathered from 253 organisations, the study identified five profiles that represent different “schools of thought” with respect to the activity of strategic IS planning. These ‘schools of thought’ are labelled as design

school, planning school, positioning school, learning school, and political school.

2.3 Evolution with time / maturity

The concept of how strategic IS planning evolves to maturity was highlighted by Grover and Segars (2005) based on Nolan's IS stages of growth model. They highlighted three stages of strategic IS planning, namely preliminary, evolving, and mature, as shown in Figure 2-4. From the figure, it can be seen that the higher the maturity of strategic IS planning, the higher the strategic IS planning effectiveness.

The first stage is the preliminary stage. In this stage the policies and the procedures are not well defined. Top management commitment and user participation are low. The planning is IS-centric, based on the technology rather than on business goals. As the result, the alignment with business goals is limited. Further, there is no formal evaluation to measure the fit between IS planning and business planning.

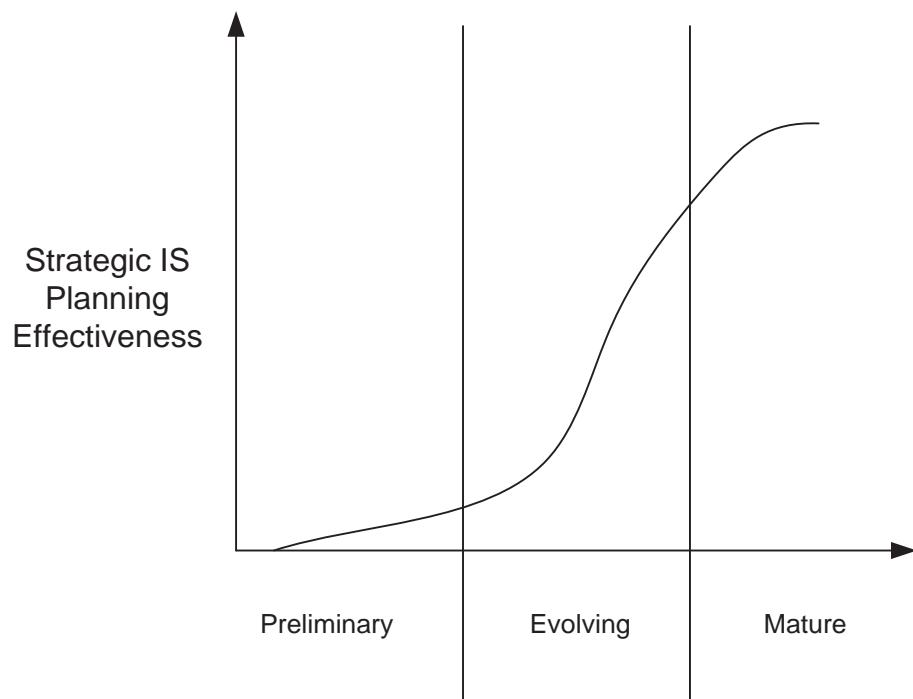


Figure 2-4. Stages of strategic IS planning maturity (Grover & Segars, 2005).

The second stage is the evolving stage. Organisations in this stage have formal procedures for their planning activities. There is higher commitment

by top management and users. Nonetheless, the process for IS planning is still being refined.

Mature stage organisations have large participation from stakeholders, with all employees encouraged to contribute to strategy formation. The organisations have well-established comprehensive planning processes as well as well-developed policies and procedures. Further, IS planning is highly integrated with business planning.

2.4 Strategic IS planning success

2.4.1 Conceptualisations of strategic IS planning success

This section presents the existing models of strategic IS planning success.

The models are discussed within the following three categories:

- the models relying on the measure of strategic IS planning success introduced by Raghunathan and Raghunathan (1994), viewing success as the success of a generic planning process;
- the models relying on the measure of strategic IS planning success introduced by Premkumar and King (1994) and modified by Lederer and Sethi (1996), viewing success as alignment between IS and business;
- the models relying on the measure of strategic IS planning success introduced by Segars and Grover (1998), an attempt at detailed representation of IS/business alignment.

2.4.1.1 *Strategic IS planning success viewed as the success of generic planning*

Raghunathan and Raghunathan (1994) developed a strategic IS planning success measure (see Table 2-1) based on a generic measure of planning success introduced by Venkatraman and Ramanujam (1987). The concept of strategic IS planning success was seen as multidimensional, consisting of the planning process capabilities dimension, and the fulfilment of the planning objectives dimension. Planning process capabilities were seen as affecting the fulfilment of strategic IS planning objectives (and thus, arguably,

could be presented as a determinant of strategic IS planning success rather than its measure).

The model was tested by using data obtained from IS executives from 192 large organisations in manufacturing and service industries in the U.S. Using a covariance-based technique to analyse the data, the study revealed a good fit for a measurement model including the fulfilment of the strategic IS planning objectives construct only, but a poor fit for a measurement model involving both the fulfilment of the planning objectives dimension and the planning capabilities dimension.

In subsequent studies (see Table 2-3), some of the researchers followed Raghunathan and Raghunathan (1994) by including both fulfilment and capabilities as dimensions of strategic IS planning success (Kunnathur & Shi, 2001; Newkirk & Lederer, 2007; Segars & Grover, 1998). Others either considered the fulfilment dimension only (Basu, Hartono, Lederer, & Sethi, 2002; Chi et al., 2005), or considered fulfilment along with another dimension, other than capabilities (Lederer & Sethi, 1996; Premkumar & King, 1994). All of the prior studies used measures of strategic IS planning success that included the fulfilment of objectives dimension, although the specific items used to measure it differed from publication to publication. In the present study, I take a view that the success of strategic IS planning is the extent to which it benefits the organisation, and that aspects of how well the planning process works do not define the success, but are just instruments in achieving success. Therefore, I interpret strategic IS planning success as the fulfilment of planning objectives; this interpretation is consistent with the literature. Henceforth, when referring to strategic IS planning success, unless explicitly specified otherwise, I mean strategic IS planning success in terms of the fulfilment of the planning objectives.

Mirchandani and Lederer (2008) used the measure of strategic IS planning success formulated by Raghunathan and Raghunathan (1994) to test the effects of autonomy of different stages of the strategic IS planning process on strategic IS planning success. The stages of the strategic IS planning

process were defined as strategic awareness, situational analysis, strategy conception, strategy selection, and strategy implementation planning.

The model was tested by using data obtained from CIOs of 131 foreign owned subsidiaries in the U.S. Using the partial least square technique, it was found that greater autonomy of strategy selection results in greater success of IS planning ($\beta = .30$), with the effect of autonomy at other stages not statistically significant. The interpretation of the result was that greater autonomy on the IS planning process inspires a greater commitment from IS managers, thus leading to greater strategic IS planning success. The concept of IS management commitment, however, was not measured. The construct of autonomy for strategic awareness included items reflecting top management commitment, suggesting that the authors viewed it as an important aspect. Nonetheless, the effect of autonomy for strategic awareness on strategic IS planning success was not statistically significant.

Bechor et al. (2010) used the measure of strategic IS planning success formulated by Raghunathan and Raghunathan (1994) to investigate the effects of key success factors on strategic IS planning success in a different context.

The model was tested by using 172 CIOs of various industries in the U.S. Using ANOVA, their study suggested that the combination of strategic IS planning context and approach have moderating influence on the basic relationship between strategic IS planning key success factors and its success. The best predictor for the long-term success of the strategic IS planning process was based on the three-way interaction between the strategic IS planning's key success factors, its approach, and its context. The key success factors included prescriptions that reflect the "rational behaviour" (for example user participation) in the strategic IS planning process. Planning approach included a decision variable representing the planning style adopted during the strategic IS planning process, and planning context included a variable representing the attributes of the organisation and its environment.

2.4.1.2 Strategic IS planning success viewed as IS / business alignment

Premkumar and King (1994) developed a strategic IS planning success measure that focused on the alignment between information systems and business and used it to study the effect of organisational factors on strategic IS planning success. In contrast with the measure by Raghunathan and Raghunathan (1994) that emphasised generic aspects of planning, the measure by Premkumar and King (1994) was more IS specific. The items included in the measure were derived from reviewing the literature. The article does not mention using any systematic procedures to refine the items, such as rating of items by experts or conducting a pilot study to test the measurement model.

To test the effect of organisational factors on strategic IS planning success, they collected data from 249 senior IS executives from large organisations in the manufacturing and services industries in the U.S. By using canonical correlation analysis, it was found that two constructs (that incorporated top management commitment and user participation) namely, resources and quality of implementation correlated with strategic IS planning success. Other constructs found to correlate with strategic IS planning success were the role of IS, the quality of strategic business planning, and the quality of facilitation.

Lederer and Sethi (1996) adapted the measure formulated by Premkumar and King (1994) to investigate the effect of comprehensiveness of the prescriptions (guidelines) on strategic IS planning success.

Their study was concerned with IS executives involved in strategic IS planning in 105 large organisations in manufacturing and services industries. The data were analysed by correlation ranking. The prescriptions that correlated the highest with strategic IS planning success were the ones related to the management of strategic IS planning. All prescriptions relating to the role of participants (prescriptions related to top management commitment and user participation) correlated with strategic IS planning success, in the mid-range of the correlation values for the prescriptions considered.

Basu et al. (2002) used the measure of strategic IS planning success formulated by Lederer and Sethi (1996) to investigate the effect of organisational commitment, senior management commitment, and team involvement on strategic IS planning success. They collected data from top executives in 105 large organisations in the manufacturing and services industries in the U.S.

Confirmatory factor analysis was used to fit the research model, with the measurement model tested separately from the structural model, with both models fitting data sufficiently well according to the values of global indices of fit. Two items of the fulfilment of objectives construct were deleted to ensure discriminant validity: the "increase top management commitment" item cross-loaded on the senior management commitment construct, and the "align IT with business needs" cross-loaded with team involvement. Senior management involvement affected the strategic IS planning success ($\beta=.34$), but the effects of team involvement and organisational commitment were not statistically significant.

Chi et al. (2005) used the measure of strategic IS planning success developed by Lederer and Sethi (1996) to investigate the effects of initiator, planning horizon, scope, and IS role in business, on strategic IS planning success.

Their study involved senior IS managers in 105 large organisations in the manufacturing and services industries in the U.S. Using exploratory factor analysis, the study revealed that all the strategic IS planning success items in the measure by Lederer and Sethi (1996) loaded onto one factor, including the two items that Basu et al. (2002) deleted based on cross loadings. Regression analysis revealed that initiator (that was measured in terms of top management initiating the study) and IS role in business affected environmental assessment, and this, in turn, affected the strategic IS planning success.

Table 2-1: Strategic IS Planning Success Measures

	IS performance	S/business alignment	Detailed representation
Raghunathan & Raghunathan (1994)	<ol style="list-style-type: none"> 1. Enhancing management development 2. Predicting future trends 3. Improving short term IS performance 4. Improving long-term IS performance 5. Improving decision-making 6. Avoiding problem areas 7. Increasing user satisfaction 8. Improving systems integration 9. Improving resource allocation 	<ol style="list-style-type: none"> Premkumar & King (1994) <ol style="list-style-type: none"> 1. Better assessment of technology trends and better systems investment decisions 2. Improved communications with top management 3. Better appreciation of the role of IS and improved communications with users 4. Better integration of business objectives and plans with IS plans 5. Greater exploitation of IS opportunities for gaining competitive advantage 6. Increased user satisfaction with IS services 7. Better planning and control of human, software, and hardware resources Lederer & Sethi (1996) <ol style="list-style-type: none"> 1. Align IT with business needs 2. Gain a competitive advantage 3. Identify new and higher payback applications 4. Identify strategic applications 5. Increase top management commitment 6. Improve communication about IT with users 7. Forecast IT resource requirements 8. Allocate IT resources 9. Develop an information architecture 10. Increase visibility of IT in the organisation 	<ol style="list-style-type: none"> Segars & Grover (1998)^a <ol style="list-style-type: none"> A. Planning alignment B. Planning analysis C. Planning cooperation

Note. For studies that considered dimensions of strategic IS planning success other than the fulfilment of strategic IS planning objectives (or its subdimensions), only the items relating to fulfilment of strategic IS planning objectives are included.
^aItems for the subdimensions are given in Table 2-2.

Table 2-2: Items for the Subdimensions of the Measure of Strategic IS Planning Success by Segars and Grover (1998)

A.	Planning alignment
	<ol style="list-style-type: none"> 1. Understanding the strategic priorities of top management. 2. Aligning IS strategies with the strategic plan of the organisation. 3. Adapting the goals/objectives of IS to changing goals/objectives of the organisation. 4. Maintaining a mutual understanding with top management on the role of IS in supporting strategy. 5. Identifying IT-related opportunities to support the strategic direction of the firm. 6. Educating top management on the importance of IT. 7. Adapting the technology to strategic change. 8. Assessing the strategic importance of emerging technologies.
B.	Planning analysis
	<ol style="list-style-type: none"> 1. Understanding the information needs of organisational subunits. 2. Identifying opportunities for internal improvement in business processes through IT. 3. Improved understanding of how the organisation actually operates. 4. Development of a 'blueprint' which structures organisational processes. 5. Monitoring of internal business needs and the capability of IS to meet those needs. 6. Maintaining an understanding of changing organisational processes and procedures. 7. Generating new ideas to reengineer business processes through IT. 8. Understanding the dispersion of data, applications, and other technologies throughout the firm.
C.	Planning cooperation
	<ol style="list-style-type: none"> 1. Avoiding the overlapping development of major systems. 2. Achieve a general level of agreement regarding the risks/trade-offs among systems projects. 3. Establish a uniform basis for prioritising projects. 4. Maintaining open lines of communication with other departments. 5. Coordinating the development efforts of various organisational subunits. 6. Identifying and resolving potential sources of resistance to IS plans. 7. Developing clear guidelines of managerial responsibility for plan implementation.

2.4.1.3 Strategic IS planning success viewed as IS / business alignment—an attempt at detailed representation

Segars and Grover (1998) developed a detailed operationalisation of the strategic IS planning success construct (see Table 2-1). Strategic IS planning success was operationalised based on the objectives of strategic IS planning. These objectives were identified based on two rounds of interviews with experts (senior IS executives, doctoral students, and IS planning academics). The objectives were grouped into three sub-dimensions of strategic IS planning success based on another round of interviews. The three sub-dimensions were planning alignment, planning analysis, and planning cooperation. The items of each sub-dimension are listed in

Table 2-2.

This model was tested based on the responses from senior IS executives within 253 large organisations from multiple industries in the U.S. Covariance-based analysis was used. Four items out of the 21 considered were deleted because of poor loadings. The overall measurement model (confirmatory factor analysis model) fitted well.

Kunnathur and Shi (2001) tested the measure of strategic IS planning success developed by Segars and Grover (1998) with organisations in China. They collected data from IS managers of 90 medium to large organisations. Using the same analysis technique as Segars and Grover (1998), nine items were deleted due to poor loadings (three from planning alignment, four from planning analysis, and two from planning cooperation). Even after deleting these items, the overall fit of the measurement model (confirmatory factor analysis model) was poor. A covariance based approach to model testing normally requires much larger data sets than were available in the study by Kunnathur and Shi (Kline, 2011).

Newkirk and Lederer (2007) used the measure of strategic IS planning success developed by Segars and Grover (1998) to test the effects of environmental heterogeneity and hostility on strategic IS planning success

(mediated by technical resources planning, personnel resources planning, and data security planning).

Data were collected from IS executives within 220 large organisations in multiple industries in the U.S. They used partial least squares, which enabled them to treat the strategic IS planning success as a formative measure, thus making the issue of item loadings irrelevant. Heterogeneity affected personnel resources planning (which included items relating to top management commitment and user participation) and data security planning. They also found that technical resources and personnel resources affected all three sub-dimensions of strategic IS planning success.

2.4.2 Factors contributing to strategic IS planning success

As seen in Table 2-3, many empirical studies have been conducted to investigate the factors affecting the strategic IS planning. Most of the studies were conducted in the U.S., and only few studies were conducted in Asian countries. Majority of the studies collected data from manufacturing and services companies.

Some studies have taken a planning behaviour perspective when investigating the determinants of strategic IS planning (Bechor et al., 2010; Mirchandani & Lederer, 2008; Mirchandani & Lederer, 2014; Newkirk & Lederer, 2006a, 2006b, 2007), whereas other studies have taken an organisational behaviour perspective (Basu et al., 2002; Lee & Pai, 2003; Premkumar & King, 1994; Wang & Tai, 2003; Yeh, Lee, & Pai, 2011). However, even though issues relating to top management commitment and user participation have been frequently mentioned, none of the studies have focused on these constructs in particular, which is surprising because users and top managers are distinct, highly visible, and important stakeholders.

In most of these studies, constructs including items reflecting top management commitment and user participation were found to affect strategic IS planning success. Nonetheless, only one study (Basu et al., 2002) considered top management commitment as a separate determinant.

No study considered user participation as a separate determinant of strategic IS planning success, which is a knowledge gap.

Table 2-3: Strategic IS Planning Success Studies

Source	Cultural setting	Participating organisations	Measure of SISP success	Determinants of SISP success		Top management commitment	User participation
Raghunathan & Raghunathan (1994) ^a	USA	manufacturing and services					
Premkumar & King (1994) ^a	USA	manufacturing and services					
Lederer & Sethi (1996) ^a	USA	manufacturing and services	Premkumar & King (1994)				
Segars & Grover (1998) ^a	USA	multiple industries	Segars & Grover (1998)				
Kunnathur & Shi (2001) ^a	China	multiple industries					
Basu, et al. (2002)	USA	manufacturing and services	Lederer & Sethi (1996)	Organisational commitment*, senior management commitment*	team involvement	Under team involvement	
Lee & Pai (2003)	Taiwan	multiple industries	Premkumar & King (1994) Segars & Grover (1998)	Organisational context (relationship between top managers and IS executives*, organisational centralization, maturity of IS function*), inter-group behaviour (communication effectiveness, task coordination*, conflicts among stakeholders)	Senior management commitment		
Wang & Tai (2003)	Taiwan	multiple industries	Raghunathan & Raghunathan (1994) Premkumar & King (1994) Lederer & Sethi (1996)	Organisational context (formalization, centralization, future role of IS), planning systems dimensions (organisational co-alignment, environmental assessment)	Initiator*, planning horizon, scope, IS participation in business planning*	Under initiator and IS participation in business planning	
Chi et al. (2005)	USA	manufacturing and services					
Newkirk & Lederer (2006a)	USA	multiple industries	Segars & Grover (1998)	strategic awareness*, situation analysis, strategy conception*, strategy formulation*, and strategic implementation planning			

Source	Cultural setting	Participating organisations	Measure of SISP success	Determinants of SISP success	Top management commitment	User participation
Newkirk & Lederer (2006b)	USA	multiple industries	Segars & Grover (1998)	Dynamism (changeability*, unpredictability*), heterogeneity, hostility (scarcity, competition*)	Covered under personnel resources planning	Covered under personnel resources planning
Newkirk & Lederer (2007)	USA	multiple industries	Segars & Grover (1998)	Technical resources planning*, personnel resources planning*, data security planning	Covered under personnel resources planning	Covered under personnel resources planning
Mirchandani & Lederer (2008)	USA	foreign owned subsidiaries in the US	Raghunathan & Raghunathan (1994)	Autonomy for strategic awareness, situational analysis, strategy conception, strategy selection*, and strategy implementation planning	Under autonomy for strategic awareness	Under autonomy for strategic awareness
Bechor et al. (2010)	USA	multiple industries	Raghunathan & Raghunathan (1994)	Key success factor (formulation, implementation)		
Yeh, Lee, & Pai (2011)	Taiwan	manufacturing, services, and financial	Premkumar & King (1994) Segars & Grover (1998)	CIO knowledge sharing behaviour*		
Mirchandani & Lederer (2014)	USA	manufacturing	Lederer & Sethi (1996)	Core activities*, infrastructure activities*		

Note. For studies that considered dimensions of strategic IS planning success other than the fulfilment of strategic IS planning objectives (or its sub-dimensions), only the results relating to fulfilment of strategic IS planning objectives are included.

^a Studies that formulated new measures of strategic IS success.

*The determinants that were found statistically significant at $p < .05$.

To further justify the focus of the present study on top management commitment and user participation as determinants of strategic IS planning success, in the rest of the section, I introduce a number of studies that addressed the issues of top management commitment and user participation in the context of strategic IS planning and implementation but did not involve measuring strategic IS success.

2.4.2.1 Top management commitment

Teo, Ang, and Pavri (1997) conducted a descriptive investigation of strategic IS planning practices by collecting data from 92 organisations in multiple industries in Singapore. The questionnaire focused on the strategic IS planning benefits and success factors, maturity of practices, and degree of participation by different categories of employees. The respondents rated getting top management support as the most important success factor.

Earl (1993) conducted a qualitative study of strategic IS planning methodologies and their implications for strategic IS planning success. Data were collected via interviews with IS managers from 27 large companies in multiple industries in the United Kingdom. The semi-structured interviews included questions focusing on strategic IS planning benefits, success factors, and concerns. The respondents were asked to rate the concerns and the success factors identified in the interviews. The respondents rated lack of top management acceptance as the third among top strategic IS planning concerns, after resource constraints and planning not fully implemented. The respondents also rated management involvement and top management support as the two most important success factors.

Ismail, Raja Mohd Ali, Mat Saat, and Mohamad Hsbollah (2007) conducted an investigation of the strategic IS planning practices in 19 public higher learning institutions in Malaysia. The semi-structured interview focused on the current status, problems, and benefits of strategic information systems planning. Concern about the lack of commitment from top management emerged as a strong theme.

2.4.2.2 User participation

In the study by Teo et al. (1997), the respondents rated user participation as the third success factor in the order of importance.

Sridhar, Nath, and Malik (2009) conducted a quasi-experimental study on the effect of user involvement and user participation on the quality of IS planning projects by simulating strategic IS planning in an academic environment, using 163 MBA students as participants. The participants were divided into two groups with each group including participants assuming the role of users and participants assuming the role of consultants. Each group was further subdivided into nine teams. The teams were asked to create strategic IS plans. At the end of the experiments, the participants filled in a questionnaire focused on issues relating to user participation and the quality of strategic IS planning projects. The data were analysed using multiple analysis of variance. The results suggested that user participation affected the quality of the IS planning process. I note that a stronger result would have been obtained if the quality of the plans had been rated independently, thus eliminating the issue of common method bias.

Previous literature also revealed that higher level of user participation leads to better success in IS implementation. McKeen and Guimaraes (1997) investigated specific participative behaviours in systems development. Their study covered 151 IS projects in eight large organisations in multiple industries in the U.S. Projects relying on a particular behaviour and projects that did not involve the behaviour were compared according to user satisfaction. A t-test was used to determine if the behaviour affects user satisfaction. The study concluded that user participation affects user satisfaction in all stages of systems development.

Lu and Wang (1997) investigated the relationships between management styles, user participation, and systems success (measured as user satisfaction) over management information systems (MIS) growth stages defined as initiation, development, and maturity. Data were collected from 172 organisations from the manufacturing and services industries in Taiwan.

Correlation analysis was used to analyse the data. The study concluded that user participation positively affects systems success at all three stages.

CHAPTER 3: CONCEPTUALIZATION OF CULTURE

3.1 Introduction

This chapter presents an overview of the literature devoted to the conceptualisation, the levels, and the dimensions of culture. This is followed by focusing on the literature devoted to the effects of culture on strategic IS planning.

3.2 Holistic view of culture

Many scholars have studied culture for decades. However, it is still difficult to define what does culture is, and there is no universally accepted definition of culture (Straub, Loch, Evaristo, Karahanna, & Srite, 2002).

Scholars have defined culture in terms of shared values, norms, and symbols that guide individual behaviour (Parsons & Shils, 1951). Kluckhohn (1951) defined culture as shared patterns of thinking based on values. Similarly, Triandis's (1972) definition of culture also focuses on patterns of thinking and values.

Hofstede (1991), in his frequently cited definition, defined culture as "a collective programming of mind that distinguishes one group of people from another or one society from another" (p. 5). Culture is learned over a lifetime, starting from birth, and encompasses values, attitudes, and beliefs shared by the members of the group.

Similar to Hofstede, Trompenaars (1996) also believes that culture is composed of shared values. He defined culture as being composed of the shared assumptions of beliefs, values and norms, and action and language patterns that distinguish one group from another. He described culture as a set of layers shown in Figure 3-1. The outer layer is the observable reality such as language used, the middle layer is formed by the norms of right or

wrong and the values, whereas the inner layer is formed by basic assumptions underlying norms and values.

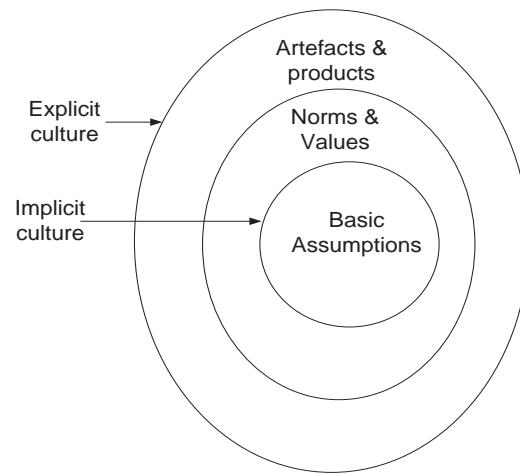


Figure 3-1. Layers of culture (Trompenaars, 1996).

Schein (2010) has a similar view to Hofstede and Trompenaars and asserted that that culture is composed of shared assumptions. He defines culture as “a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems” (p. 17).

Organisational climate is another term that needs to be considered when studying organisational culture. Schneider, Ehrhart, and Macey (2013) defined organisational climate as shared perceptions of the policies, practices, and procedures that employees experience. Denison, Janovics, Young, and Hee Jae Cho (2006) stated that whereas organisational culture refers to the deep structure of organisations which is rooted in values, beliefs, and assumptions held by organisational members, organisational climate refers to how members of the organisation experience the culture of the organisation. The organisational climate is considered as relatively temporary because it can easily change when the circumstances, such as top management's policies, change.

3.3 Levels of culture

Based on social identity theory (SIT), Gallivan and Srite (2005) suggested that an individual is influenced by several layers of cultures (as shown in Figure 3-2).

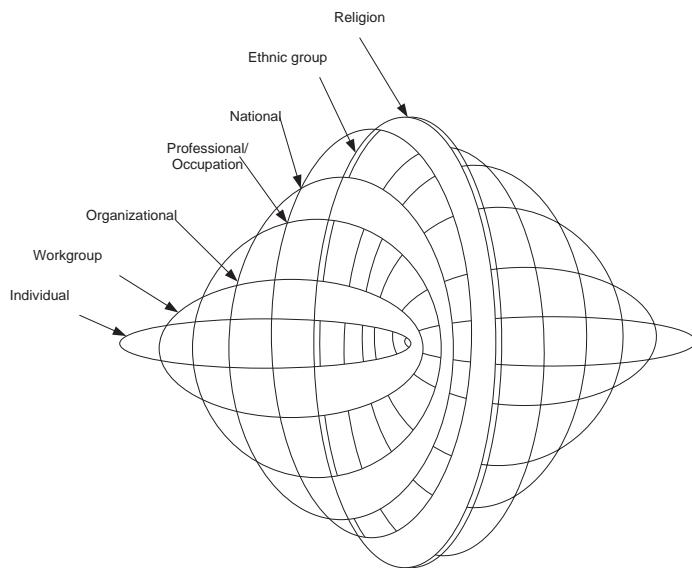


Figure 3-2. Virtual onion model (Gallivan & Srite, 2005).

A single individual may be a member of several overlapping, nested subcultures (which may even hold opposing views on some issues). For example, a person can be a Malay female that works as a senior manager in an organisation located in Malaysia, and thus she would belong at the same time to Malay ethnic culture, Malaysian national culture, managerial occupational culture, and the organisational culture of her particular organisation.

Subcultures, in their turn, exercise mutual influence. For example, Malaysian national culture is influenced by Malay ethnic culture, and the culture of an organisation located in Malaysia and employing Malays is influenced by Malay ethnic culture, Malaysian national culture, the occupational cultures of the employees, according to their roles, and so on.

Similarly, Leung, Bhagat, Buchan, Erez, and Gibson (2005) proposed a view that culture is composed of nested levels ranging from global culture,

through national culture, organisational culture, group culture, and cultural values of an individual, as shown in Figure 3-3.

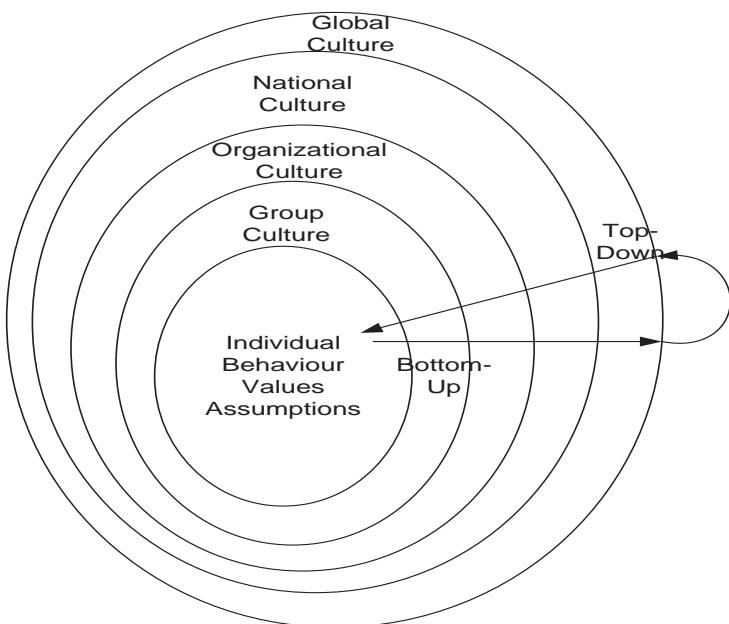


Figure 3-3. A dynamic view across levels of culture (Leung et al., 2005).

3.4 Dimensions of culture

A number of models involving sets of dimensions have been proposed to characterise national and organisational culture quantitatively.

Hofstede (1983) developed his cultural dimensions by exploratory analysis of data obtained in an attitude and value survey of 117,000 IBM employees in 40 nations. Initially, he identified four dimensions of culture based on values held by individuals at work; the dimensions were power distance, uncertainty avoidance, collectivism versus individualism, and masculinity versus femininity. Then, Hofstede and Bond (1988) added another dimension (Confucian dynamism, which was later renamed long-term orientation) based on their study involving 22 countries from five continents (Bond, 1988; Bond & Hofstede, 1989; Hofstede & Bond, 1988). Each country was represented by 50 male and 50 female students from a variety of disciplines.

Hofstede's model differs from the alternatives (discussed later in this review) by not establishing a focus a priori—it is based on a large scale quantitative inductive empirical study. Criticisms of Hofstede's work include possible lack of generalisability (all data were obtained in a single organisation) and the use of old (1967 & 1973) data, as well as over-simplification of culture (Ng, Lee, & Soutar, 2007), as the model reduces a complex phenomenon to just five dimensions—the factors that emerged in factor analysis. Despite these criticisms, Hofstede's model has been highly influential and widely applied (Leidner & Kayworth, 2006; Myers & Tan, 2002; Raja Mohd Ali, Tretiakov, & Crump, 2009).

Even though these dimensions have been initially developed for use at national level, some studies applied them at organisational level. Some studies that have used Hofstede's dimensions at organisational level are the studies by Leach-Lopez, Stammerjohan, and McNair (2007) and by Leimeister, Leimester, Knebel, and Kremar (2009). Magnier-Watanabe and Senoo (2010) conducted a survey study to investigate the influence of organisational characteristics on knowledge management and to assess whether culture of knowledge workers affects the management of knowledge. Data were collected from 14 foreign subsidiaries of a pharmaceutical company in Japan. It was found that organisational characteristics and culture affected knowledge management.

A model of culture based on Hofstede's model (Tang & Koveos, 2008) was developed by House et al. (2001) in a large-scale international project named GLOBE (Global Leadership and Organisational Behaviour Effectiveness). The study involved white collar employees from 43 countries. The GLOBE study identified nine dimensions, namely power distance, uncertainty avoidance, collectivism I (societal collectivism), collectivism II (in-group collectivism), gender egalitarianism, assertiveness, future orientation, performance orientation, and human orientation and validated operationalisations for these dimensions. GLOBE's dimensions have been applied both at the level of a country and at the level of an organisation, and

considerable variance between organisations in the same national culture was discovered (Dorfman, Javidan, Hanges, Dastmalchian, & House, 2012).

Some studies used the dimensions by GLOBE to represent organisational culture. For example, Euwema, Wendt, and Emmerik (2007) conducted a study to investigate the effects of societal culture on group organisational citizenship behaviour (GOCB) and investigate the moderating role of culture on the relationship between directive and supportive leadership and GOCB. Data were collected from 20,336 managers and 95,893 team members in 33 countries. Data were analysed using multi-level analysis where culture was operationalised using two dimensions from the GLOBE model, individualism and power distance.

A survey-based study by Vecchi and Brennan (2011) examined quality priorities and practices by adopting the GLOBE framework. Data were collected from 711 top managements of manufacturing companies, with organisational culture characterised using GLOBE dimensions.

Even though some studies successfully applied Hofstede's dimensions at the organisational level, Hofstede, Neuijen, Ohayv, and Sanders (1990) argued against it based on their study of organisational cultures at ten different organisations in Denmark and the Netherlands. Data from interviews and questionnaire survey suggested that organisations differ by practices more than by values. Their study resulted in six dimensions namely process-oriented vs. results-oriented, employee-oriented vs. job oriented, parochial vs. professional, open-system vs. closed system, loose control vs. tight control, and normative vs. pragmatic. The study was limited in scale, and the later findings of the GLOBE project suggest that Hofstede et al.'s conclusions did not apply universally, and the same set of dimensions can be applied to characterise culture at both nation and organisation levels.

A further model of culture was developed by Trompenaars (1996). Trompenaars defined culture as being composed of the shared assumptions of beliefs, values and norms, and action and language patterns that distinguish one group from another. His study involving 15,000 employees

from 50 different countries focused on minimising conflict between cultures in business organisations and identified seven dimensions of culture. The dimensions were universalism versus particularism, individualism versus communitarianism, specific versus diffuse, neutrality versus affectivity, achieved versus ascribed, inner versus outer directed, and sequential versus synchronic. The first five of these dimensions are defined in terms of how people relate to each other, whereas the remaining two are defined in terms of how individuals relate to nature and to management of time.

Another model was developed by Schwartz (1999) and is based on cultural values underlying the specific norms that tell people what is appropriate in various situations. The model comprises three dimensions: mastery of the social environment versus harmony in the social environment; conservatism versus intellectual and affective autonomy; and hierarchy versus egalitarianism.

The model of culture by Hall and Hall (1990) characterises culture in terms of communication. They believed that the world of communication can be separated into three parts: words, material things, and behaviour. The dimensions of culture in the model by Hall and Hall are high context versus low context communication, monochronic versus polychronic time, space, and speed.

The models introduced so far have been initially introduced to characterise national culture, even though some of them have been also used to characterise organisational culture. An example of an influential model designed explicitly to represent organisational culture is the competing value framework (Cameron & Quinn, 2006). The model differentiates effectiveness criteria that emphasise flexibility, discretion, and dynamism from criteria that emphasise stability, order, and control. Further, the model differentiates effectiveness criteria that emphasise internal orientation, integration, and unity from criteria that emphasise external orientation, differentiation, and rivalry.

Organisational culture inventory, another model introduced to describe organisational culture, was designed to measure normative beliefs and shared behavioural expectations at organisations (Cooke & Szumal, 1993). It involves 12 inventory scales, namely humanistic-encouraging, affiliative, achievement, self-actualizing, approval, conventional, dependent, avoidance, oppositional, power, competitive, and perfectionistic.

Table 3-1: Dimensions of Culture

Theme	Description	Dimensions	National Level	Organisational Level
Distribution of power	The extent to which the group member accept the inequality of power distribution among members.	Power distance; (<i>Hofstede, 1983, GLOBE 2002</i>)	Lau & Eggleton (2004) Leach-Lopez, Stammerjohan, & McNair (2007) Prašnikar, Pahor, & Svetlik (2008) Vinokurova et al.(2009) Chen & Partington (2004)	Dickson, Hartog, & Mitchelson (2003); Leach-Lopez, Stammerjohan, & McNair (2007); Magnier-Watanabe & Senoo (2010) Vecchi & Brennan (2011)
		Hierarchy vs. Egalitarianism (<i>Schwartz, 1999</i>)	Kasser (2011) Clereq, Lim, & Oh (2014)	Siegel, Licht, & Schwartz (2012)
		Involvement (<i>Denison et al., 2006</i>)		Casida & Pinto-zipp (2008)
		Humanistic-encouraging (<i>Cooke & Szumal, 1993</i>)		Klein, France Waxin, & Radnell (2009)
		Power (<i>Cooke & Szumal, 1993</i>)		Klein, France Waxin, & Radnell (2009)
Time	The extent to which the society deals with time.	Long term orientation (<i>Hofstede & Bond 1988, GLOBE 2002</i>)	Prašnikar, Pahor, & Svetlik (2008) Vinokurova et al. (2009) Chen & Partington (2004)	Newman & Nollen (1996) Vecchi & Brennan (2011)
		Polychronic vs. monochronic (<i>Hall & Hall, 1990</i>)	Zhu, Nel, & Bhat (2006)	Kemp & Williams (2013)

		Sequential vs. synchronic (Trompenaars, 1996)	Vinokurova et al.(2009)
Rules and procedures	The extent to which members of the society focus on rules and procedures.	Universalism vs particularism (Trompenaars, 1996) Hierarchy (Cameron & Quinn, 2006) Adhocracy (Cameron & Quinn, 2006)	Carr & Harris (2004) Prašnikar, Pahor, & Svetlik (2008) Oney- Yazıcı, Giritli Topcu- Oraz, & Acar (2007) Zhang & Liu (2006) Oney- Yazıcı, Giritli Topcu- Oraz, & Acar (2007) Casida & Pinto-zipp (2008) Casida & Pinto-zipp (2008)
Control of oneself	The extent to which members of a society see and control themselves.	Consistency (Denison et al., 2006) Adaptability (Denison et al., 2006) Conventional (Cooke & Szumal, 1993)	Klein, France Waxin, & Radnell (2009)
		Individualism vs. collectivism (Hofstede, 1983; GLOBE 2002)	Lee, Trimi, & Kim (2013) Leach-Lopez, Stammerjohan, & McNair (2007) Lau & Eggleton (2004) Prašnikar, Pahor, & Svetlik (2008)
		Inner vs. outer directed (Trompenaars, 1996)	Vinokurova et al.(2009) Chen & Partington (2004) Müller, Spang, & Ozcan (2009) Chen & Partington (2004)
		Conservatism vs. autonomy (Schwartz, 1999) Dependent (Cooke & Szumal, 1993)	Chen & Partington (2004) Klein, France Waxin, & Radnell

			(2009)
Relationship	The extent to which members of a society prefer specific kinds of relationships.	Specific vs. diffuse (<i>Trompenaars, 1996</i>) Space (<i>Hall & Hall, 1990</i>) Clan (<i>Cameron & Quinn, 2006</i>) Affiliative (<i>Cooke & Szumal, 1993</i>) Approval (<i>Cooke & Szumal, 1993</i>)	Jun & Lee (2007) Prašnikar, Pahor, & Svetlik (2008) Kemp & Williams (2013) Duygulu & Ozeren (2009) Zhang & Liu (2006) Oney- Yazıcı, Giritli, Topcu-Oraz, & Acar (2007) Klein, France Waxin, & Radnell (2009) Klein, France Waxin, & Radnell (2009)
Achievement	The extent to which members of the group look at achievement.	Achieved vs. ascribed (<i>Trompenaars, 1996</i>) Performance Orientation vs. Humane orientation (<i>GLOBE, 2002</i>) Mission (<i>Denison et al., 2006</i>) Achievement (<i>Cooke & Szumal, 1993</i>) Avoidance (<i>Cooke & Szumal, 1993</i>) Competitive (<i>Cooke & Szumal, 1993</i>) Perfectionist (<i>Cooke & Szumal, 1993</i>)	Carr & Harris (2004) Prašnikar, Pahor, & Svetlik (2008) Vecchi & Brennan(2011) Casida & Pinto-zipp (2008) Klein, France Waxin, & Radnell (2009) Klein, France Waxin, & Radnell (2009) Klein, France Waxin, & Radnell (2009) Klein, France Waxin, & Radnell (2009)
Communication	The extent to which the information is transmitted	Context (<i>Hall & Hall, 1990</i>), Speed (<i>Hall & Hall, 1990</i>)	Zhu, Nel, & Bhat (2006) Hope & Mihleman (2001)

Risk taking	The extent to which members in the group are willing to take risks to achieve goals.	Uncertainty Avoidance (Hofstede, 1983; GLOBE 2002)	Leach-Lopez, Stammerjohan, & McNair (2007) Prašnikar, Pahor, & Svetlik (2008) Chen & Partington (2004) Ayoun & Moreo, 2008)	Newman & Nollen (1996); Leach-Lopez, Stammerjohan, & McNair (2007); Magnier-Watanabe & Senoo(2010) Vecchi & Brennan, 2011)
		Mastery vs. Harmony (Schwartz, 1999)	Kasser (2011)	
		Market (Cameron & Quinn, 2006)		Duygulu & Ozeren (2009)
				Zhang & Liu (2006)
				Oney- Yazıcı, Giritli, Topcu-Oraz, & Acar (2007)
		Oppositional (Cooke & Szumal, 1993)		Klein, France Waxin, & Radnell (2009)

A summary of culture dimensions suggested in the literature, including examples of studies that applied the dimensions at national and organisational levels, is shown in Table 3-1.

As seen in Table 3-1, some of the dimensions have been successfully applied at both levels, national and organisational. Kwanten and Dickson (2011) reviewed the literature devoted to the interplay between culture at organisational and at societal levels. They argued strongly that it is appropriate to use the same dimensions to characterize culture at both of these levels. The dimensions that have been used at both levels include power distance, individualism versus collectivism, uncertainty avoidance, long-term orientation, hierarchy versus egalitarianism, and polychronic versus monochronic.

3.5 Studies of the impact of culture on IS strategy

In view of the focus of the present thesis on strategic IS planning, this section reviews the prior studies of the effects of culture on IS strategy.

Tai and Phelps (2000) conducted a survey to investigate the effect of culture on differences in IT perceptions between chief executives and IS executives. Executives at small to medium-sized organisations with Western and Chinese cultural orientations, from multiple industries in Hong Kong, were targeted as participants. Data were collected from 32 CEOs and 39 CIOs from companies with Western orientation, and from 31 CEOs and 37 CIOs from companies with Chinese orientation. The questionnaire focused on the importance of IT for the organisation and the relationship between CEO and CIO. In both cultures, the views of CEOs and CIOs on IT were well aligned. However, the results suggested that IT perceptions were affected by culture.

Lai and Wong (2003) investigated the moderating effects of local culture, local regulation, and local competition on how strategy affects IS effectiveness. The study involved foreign affiliates of international firms in Canada, Japan, the UK, and the US, in financial and manufacturing industries. Data were collected from 312 internal IS auditors and IS directors. Local culture was found to moderate the strategy-effectiveness relationship.

The articles introduced in this section are the only two articles addressing the effect of culture on IS strategy. None of these articles addressed strategic IS planning directly. Nonetheless, the results reported by Lai and Wong (2003) indirectly suggest that culture may have an effect on strategic IS planning, which then leads to differences between cultures in the strategy-effectiveness relationship.

CHAPTER 4: MODEL DEVELOPMENT AND HYPOTHESES

4.1 Introduction

This chapter introduces the research model of the present study, including the conceptualisation of the constructs and the justification of the hypotheses.

4.2 Conceptual foundations

The present study draws from two theoretical perspectives: the theory of strategic IS planning, as represented by the body of literature reviewed in Chapter 2, and the concept of culture as a predictor of behaviour, introduced in Chapter 3.

4.2.1 Organisation values

As highlighted in Table 3-1, a number of dimensions are available and have been in use at the national level or organisational level, and some dimensions (in particular, all of the dimensions of the GLOBE model, which are also found in Hofstede's model) have been applied at both the national and the organisational levels.

Power distance, collectivism, and uncertainty avoidance are dimensions found in both Hofstede's model and the GLOBE model. Culture dimensions from Hofstede's model and GLOBE's model are well validated—their nomological validity is well established as the dimensions were demonstrated to have predictive power in many contexts, and the quality of the corresponding measures was verified in multiple studies. Hofstede's dimensions were originally discovered in an organisational context, which resonates with the problem addressed in the present study (success of strategic IS planning at organisations).

Kwantes and Dickson (2011) reviewed the literature devoted to the interplay between culture at organisational and societal levels, and argued strongly

that it is appropriate to use the same dimensions to characterize culture at both levels, and that the effect of national culture on the behaviour of employees at organisations is intermediated by organisational culture.

An example of a study that has applied the power distance, collectivism, and uncertainty avoidance culture dimensions at the organisational level is that conducted by Sturman, Shao, and Katz (2012). Their study aimed to investigate the effect of culture on the curvilinear relationship between performance and turnover. Data were collected from a multinational service-oriented organisation in 24 countries. Using four cultural dimensions, namely in-group collectivism, power distance, uncertainty avoidance, and performance orientation. They found that cultural factors altered the overall probability of voluntary turnover and influenced the degree of curvilinearity in the performance-turnover relationship.

Most importantly, I found that these dimensions relate most clearly to the determinants of strategic IS planning success used in the present study—top management commitment and user participation. The hypotheses relating power distance, uncertainty avoidance, and collectivism dimensions to the determinants of strategic IS planning success (top management commitment and user participation), are graphically depicted in Figure 4-1.

4.2.2 Organisation practices

There is no generally accepted model of strategic IS planning success. Therefore, there is no generally accepted set of determinants of it either. Nonetheless top management commitment and user participation were included as components of determinants found to affect strategic IS planning success in a number of studies (see the last three columns of Table 2-3).

Top management and users influence the strategic IS planning success. In view of research question one of this thesis (what is the effect of culture on the determinants of strategic IS planning success?), considering top management commitment and user participation as separate determinants of strategic IS success is particularly of value because they directly relate to

human behaviour and thus can be directly related to the dimensions of culture.

Therefore, in the present study I hypothesised that top management commitment and user participation are the determinants of strategic IS success and focused on these two determinants only, leaving the study of how culture affects other determinants of strategic IS success to further research (see Figure 4-1).

4.2.3 Organisation outcomes

The intended outcome of the strategic IS planning practices is the strategic IS planning success. Strategic IS planning success can be measured in terms of IS performance or in terms of IS/business alignment. The present study adopts a view that strategic IS planning success can be measured in terms of IS/business alignment because the main purpose of developing the strategic IS plan is to assist the organisation to achieve the organisation's business objectives.

In the present study, IS/business alignment was conceptualised in terms of two dimensions. The first dimension was called "SISP Success-Communication" and refers to human aspects of IS/business alignment: the extent to which communication about IT with users and the visibility of IT in the organisation are improved. The second dimension was called "SISP Success-Technology" and refers to the technology/IS aspect of IS/business alignment: the extent to which the important business applications are defined, the information architecture is developed, and the IT resource requirements are forecasted.

4.3 Research model

In this section, I present the research model and briefly explain the rationale for the hypotheses included in the model. The overall research model is given in Figure 4-1.

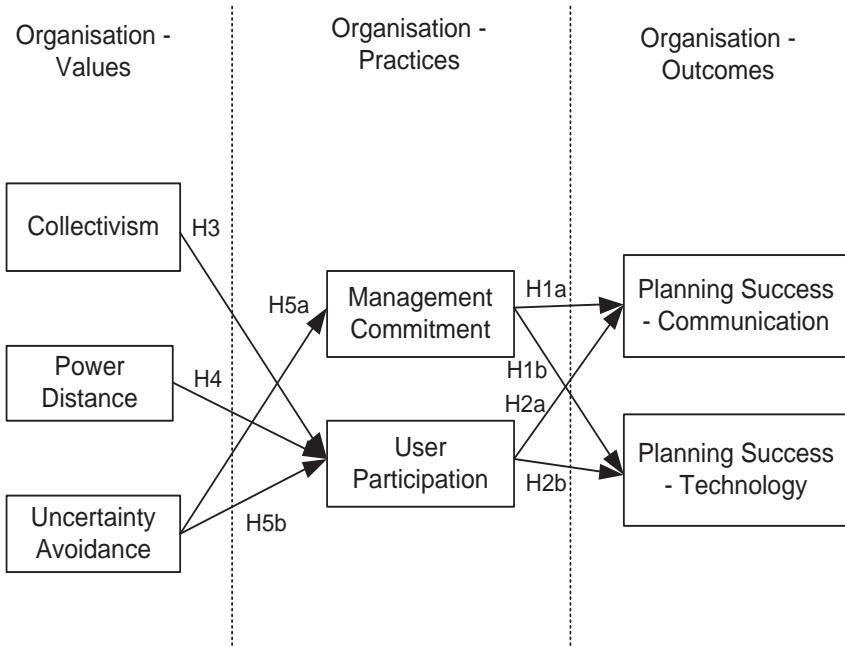


Figure 4-1. Overview of the research model.

The overall structure of the model is as follows. There are three tiers of concepts. The two dimensions of IS planning success are the outcome constructs. The outcome constructs are affected by constructs in the organisational practices tier. Namely, the success of IS planning is hypothesised to be affected by the relevant practices—by how the organisation conducts IS planning. In their turn, practices are affected by constructs in the organisational values tier, based on the assumption that practices congruent with values are more likely to be followed.

4.3.1 Hypotheses relating to the effects of organisational practices

4.3.1.1 *H1: Higher levels of top management commitment lead to better strategic IS planning success*

Top management commitment refers to top management awareness of, involvement in, and proactive advancement of strategic IS planning. Top management commitment affects strategic IS planning success because this level of management provides information about the organisation's strategic goals (as well as about the internal and external environments) to the strategic IS planning process. Moreover, top management may be allocated to the planning process as a resource.

Premkumar and King (1994), in a study of large organisations in manufacturing and services industries in the U.S., found that resources (a construct that included items relating to top management commitment) affected strategic IS planning success. Basu et al. (2002), in a study of large organisations in the manufacturing and services industries in the U.S., found that senior management involvement affected the strategic IS planning success. Chi et al. (2005), in a study of large organisations in the manufacturing and services industries in the U.S., found that initiator (which was measured in terms of top management initiating the study) affected environmental assessment, and environmental assessment affected the strategic IS planning success. Newkirk and Lederer (2007), in a study of large organisations in the U.S., found that personnel resource planning (a construct that included items relating to top management commitment) affected strategic IS planning success.

In a descriptive study of organisations in Singapore (Teo et al., 1997), top management support was rated by respondents as the top critical success factor of strategic IS planning. A similar result was obtained by Earl (1993) in a descriptive study of large organisations in the United Kingdom. Ismail et al. (2007), in a qualitative study of strategic IS planning at public higher learning institutions in Malaysia, found that concern about the lack of commitment from top management emerged as a strong theme in the data collected from the participants.

Thus, it is asserted that

H1a: Higher levels of top management commitment lead to better strategic IS planning success in terms of communication.

H1b: Higher levels of top management commitment lead to better strategic IS planning success in terms of technology.

4.3.1.2 *H2: Higher levels of user participation lead to better strategic IS planning success*

User participation refers to the extent of involvement of regular employees (current or potential users of IS) in the strategic IS planning process. The

involvement may be formal (users included as members of the planning team) or informal (such as when users contribute information about business needs that can be addressed via IS). User participation affects strategic IS planning success because users provide information about the internal and external environment. Users also are allocated as resources to the planning process. Low user participation may result in less information received for conducting effective IS planning.

Premkumar and King (1994), in a study of large organisations in manufacturing and services industries in the U.S., found that resources (a construct that included items relating to user participation) affected strategic IS planning success. Similarly, Newkirk and Lederer (2007), in a study of large organisations in the U.S., found that personnel resource planning (a construct that included items relating to user participation) affected strategic IS planning success. Sridhar et al. (2009), in a simulation study with MBA students, found that user participation affected the quality of the IS planning process.

System implementation is an activity distinct from strategic IS planning. Yet, it is similar to strategic IS planning in terms of the role of user participation—users provide information about the internal and external environment (the business requirements) to both of the processes. A number of researchers have suggested that higher levels of user participation may lead to better success in system implementation.

McKeen and Guimaraes (1997), in a study of IS projects in large organisations in the USA, found that user participation affected the success in all stages of systems development. Lu and Wang (1997), in a study with organisations from the manufacturing and services industries in Taiwan, found that user participation affected systems success at all three stages of MIS growth, defined as initiation, development, and maturity.

Thus, it is asserted that

H2a: Higher levels of user participation lead to better strategic IS planning success in terms of communication.

H2b: Higher levels of user participation lead to better strategic IS planning success in terms of technology.

4.3.2 Hypotheses relating to the effects of organisational values

4.3.2.1 *H3: Collectivism affects user participation*

Collectivism refers to the extent to which members in the group see themselves as belonging to the group.

Leadership in a collectivist society is a group phenomenon, as all members see themselves as responsible for the success of the group. As strategic IS planning is an inherent group activity intended to benefit the whole organisation (rather than specific individuals), it is expected that user participation in strategic IS planning is higher in more collectivist cultures.

Thus, it is asserted that

H3: Higher collectivism leads to higher user participation in strategic IS planning.

4.3.2.2 *H4: Power distance affects user participation*

Power distance refers to the extent of inequality in a group.

Organisations may conduct strategic IS planning using a top-down approach or a bottom-up approach (Ward & Peppard, 2002). The bottom-up approach is where the ideas about system development are routinely initiated by lower level employees. The top-down approach is where the initiative comes primarily or solely from top management. This issue relates to the distribution of decision-making power in the organisation.

High power distance is associated with autocratic leadership and high degree of centralisation of authority. In high power distance culture, top management is expected to act autocratically without consulting the employees (Vitell, Nwachukwu, & Barnes, 1993). Therefore, the top-down perspective should hold for cultures that have large power distance. Thus, high power distance culture results in low levels of participation as, formally or informally, the top-down approach is realised. Organisations with small

power distance culture are more likely to realise, formally or informally, a bottom-up approach to strategic IS planning, thus encouraging user participation. The level of user participation is likely to be higher in low power distance cultures, as employees are inclined (and are encouraged) to express their views, including their view on the proposed systems (Shore & Venkatachalam, 1996).

Thus, it is asserted that

H4: Higher power distance leads to lower user participation in strategic IS planning.

4.3.2.3 H5a, H5b: Uncertainty avoidance affects user participation and top management commitment

Uncertainty avoidance refers to the extent to which members of the group feel uneasy in uncertain situations.

Schneidr and DeMeyer (1991) found that in high uncertainty avoidance cultures managers prefer solutions that reduce uncertainty. Indeed, because strategic IS planning results in a plan that reduces uncertainty about the future for all employees, one would expect that higher uncertainty avoidance is associated with both higher top management commitment and with higher user participation. In contrast, in organisations with low uncertainty avoidance culture, the level of user participation and management support may be lower because they are more interested in retaining flexibility than in advanced planning.

Thus, it is asserted that

H5a: Higher uncertainty avoidance leads to higher top management commitment in strategic IS planning.

H5b: Higher uncertainty avoidance leads to higher user participation in strategic IS planning.

CHAPTER 5: RESEARCH DESIGN AND METHODS

5.1 Introduction

This chapter introduces the paradigms behind the approach to research used in the present study, which is followed by introducing the research procedures, the ethical considerations, and the research participants.

5.2 Overall research approach

5.2.1 Positivist and interpretivist

Overall, the present study followed the positivist paradigm—hypotheses were developed based on existing research and theories and then tested. The reason for the choice of the positivist research paradigm was that the problem addressed in the present study suggested the use of a research paradigm that would allow the results to be generalizable. In particular, research question one (what is the effect of culture on the determinants of strategic IS planning success?) suggested an objective answer.

The study included elements of the interpretivist research paradigm. The reason for including elements of interpretivist research was to explore inductively the mechanism behind the relationships found to be significant. The inductive, interpretivist aspect of the present study addressed research question two (for what reasons are the determinants of strategic IS planning success affected by culture?).

5.2.2 Quantitative, qualitative, and mixed

The distinction between quantitative and qualitative research emphasises the kind of data used in the research. Quantitative research involves numerical representation and manipulation (Casebeer & Verhoef, 1997). Qualitative research relies on rich data without any predefined structure. Quantitative research allows formal hypothesis testing by using inferential statistics and thus is particularly suitable for the positivist paradigm. Rich

data collected in qualitative research offer a basis for inductive sense-making by the researcher and thus is particularly suitable for interpretive research. A combination of quantitative and qualitative research is known as mixed research (Tashakkori & Teddlie, 2003). The present study employed mixed research—quantitative research to address research question one (what is the effect of national culture on the determinants of strategic IS planning success?), and qualitative research to address research question two (for what reasons are the determinants of strategic IS planning success affected by national culture?)

Creswell and Clark (2011) suggested three designs of mixed research: triangulated (*QUAL, QUAN*: qualitative research and quantitative research complementing each other and playing equally important roles), exploratory (*QUAL → quan*: intensive exploration via qualitative research followed by quantitative research used to complement qualitative research results), and explanatory (*QUAN → qual* : the results of quantitative research complemented by qualitative research used to enrich and explain the quantitative findings).

The second research question of the present study suggested the use of an interpretive, inductive approach to interpret the results of hypotheses testing used to address research question one. Therefore, the present study followed the explanatory (*QUAN → qual*) design.

5.2.3 Level of analysis

The unit of analysis in the present study was the organisation. The respondent was the Chief Information Officer (CIO) or Chief Executive Officer or other member of the top management. Henceforth, we refer to organisations for which the data were obtained as "participant organisations" and to managers who provided information about their organisations (and thus acted as key informants) as "respondents".

5.2.4 Key informants approach

The key informants approach suggests that key informants report their assessments of the constructs of interest to the researcher based on their

knowledge, rather than their personal attitudes and perceptions (Wagner, Rau, & Lindemann, 2010).

In the present study, the key informant approach was applied where senior managers acted as the key informants. It was believed that they had an extensive knowledge of both IS and culture in their organisations, could access the organisation's data, and had the capability to complete the questionnaire (Basu et al., 2002; Lee & Jung-Chi, 2003).

The present study did not use multiple informants because the use of multiple informants does not necessarily result in more accurate information when some of the informants are less knowledgeable than others. At present, there is no reliable way to quantitatively aggregate data from informants that differ in knowledge and experience. Even though designing the study to use multiple informants in each organisation would make the study essentially unfeasible (it was difficult enough to get a single informant to participate), the benefits are uncertain. In contrast, interpreting data from a single but knowledgeable key informant is straightforward.

Strategic IS planning is considered as a strategic level agenda. Thus, a general employee may not have enough knowledge to answer the questions pertaining to the organisation as a whole. Wagner et al. (2010) emphasized that key informants should be knowledgeable about the issues on which they inform.

Senior managers may be better informers than lower level employees even for aspects such as user participation in strategic IS planning. According to Lines (2004),

the essence of participation is a conscious and intended effort by individuals at a higher level in an organisation to provide visible extra role or role-expanding opportunities for individuals or groups at a lower level in the organisation to have a greater voice in one or more areas of organisational performance. (p. 195)

This statement clearly suggests that participation is something that senior managers are informed about (and users are not informed about). The

senior managers know if user input is taken into account in strategic IS planning. Further, individual users only know about their own participation, but not about other users. In contrast, a senior manager has a whole-organisation view. Only a senior manager is likely to know the overall pattern and extent of user participation. Snow and Hrebinak (1980), who studied organisational strategy, posited that senior managers have knowledge about the entire organisational system and that less senior managers do not have access to information about how the total system operates.

Many empirical studies have been conducted using the key informants approach. A study by Wang, Klein, and Jiang (2006) tested a model involving top management support and user support as determinants of Enterprise Resource Planning (ERP) system implementation success, with ERP leaders used as key respondents. Doherty, King, and Al-Mushayt (2003) studied the impact of inadequacies in the treatment of organisational issues on information systems development projects and used IS executives as key respondents.

Wagner et al. (2010) highlighted some limitations of using key informants such as systematic biases, differences related to informants' varying organisational roles, inaccuracy of recalling past events, and memory failure. Nonetheless, they recognised that alternatives to using key respondents are often not feasible. For example, instead of using key respondents, one could directly observe strategic IS planning activities. It is obvious however that observing IS planning activities at sufficient number of organisations to allow statistical analysis at the level of the organisation is not feasible even for a very well-resourced study.

Peterson (2011) and Archer (2005) suggested that in order to measure culture at the level of the organization, it is more appropriate to ask questions about culture from knowledgeable individuals (well-chosen key respondents), rather than to mechanically average everyone's views.

Jaskyte and Dressler (2004) suggested statistical procedures intended to aggregate the cultural beliefs of multiple key respondents to give more

weight to more knowledgeable respondents. One can argue, however, that this procedure is not very well established, and, based on the view that culture is not an arithmetical mean of everyone's views at a particular point in time but rather something that exhibits itself over time and persists in time, the most straightforward approach remains the use of a single, most experienced and knowledgeable, respondent.

Thus, the use of top managers as key informants in the present study was considered appropriate because of their overview of and involvement in the strategic IS planning process and because of their knowledge of how other employees at the organisation contribute to the process.

5.2.5 Approach to data collection

Data collection was conducted in two phases: quantitative (survey) and qualitative (interviews). According to Creswell and Clark (2011), the results of quantitative research can be complemented by qualitative research that is used to enrich and explain the quantitative findings.

In the present study, self-administered on-line and postal questionnaires were used for quantitative data collection. The survey involved 104 organisations in two different geographical locations, New Zealand and Malaysia. The questionnaire survey allowed the collection of data from a wide geographical area at relatively low cost (in particular, costs were kept in check by administering the survey on-line for most of the respondents). Another benefit of this data collection method is that it allowed the collection of data from multiple respondents at the same time, making it possible to complete data collection within the time available for the present study.

Eighteen semi-structured interviews were conducted to collect qualitative data. A semi-structured interview format was suitable for the present study because questions could be formulated to initiate discussions on issues relating to the relationships of interest (selected based on the quantitative data analysis). Participants for the semi-structured interviews were recruited using two methods; first, I approached IS executives, and second, I

approached users (non-management employees) identified by the IS executives in their interviews.

In the present study, users are defined, following Alter (2008), as non-management employees who perform work (processes and activities) using information, technology, and other resources to produce specific products and/or services for specific internal (management level) or external customers. Thus, users may have different job roles, such as clerk, secretary, or academician, but they are the direct users of the organisation's information systems. Users were included in the semi-structured interviews to get a different perspective about the organisation's strategic IS planning, complementing the perspective of senior managers.

5.3 Overview of research procedures

The present study involved a quantitative survey and a series of qualitative semi-structured interviews. The overall research procedures are presented in Figure 5-1.

As for the quantitative aspect of the present study, the research model formulated based on domain understanding gained via a literature review was tested by:

- a) operationalising the constructs involved in the model;
- b) using the resulting measures to collect quantitative data via a survey;
and
- c) testing the model using the data collected.

As for the qualitative aspect of the present study,

- a) a semi-structured interview schedule was formulated to focus the interviews on the relationships confirmed in testing the research model;
- b) the interview schedule was used to guide interviews resulting in the collection of qualitative data;
- c) the qualitative data were analysed by using a constant comparative method.

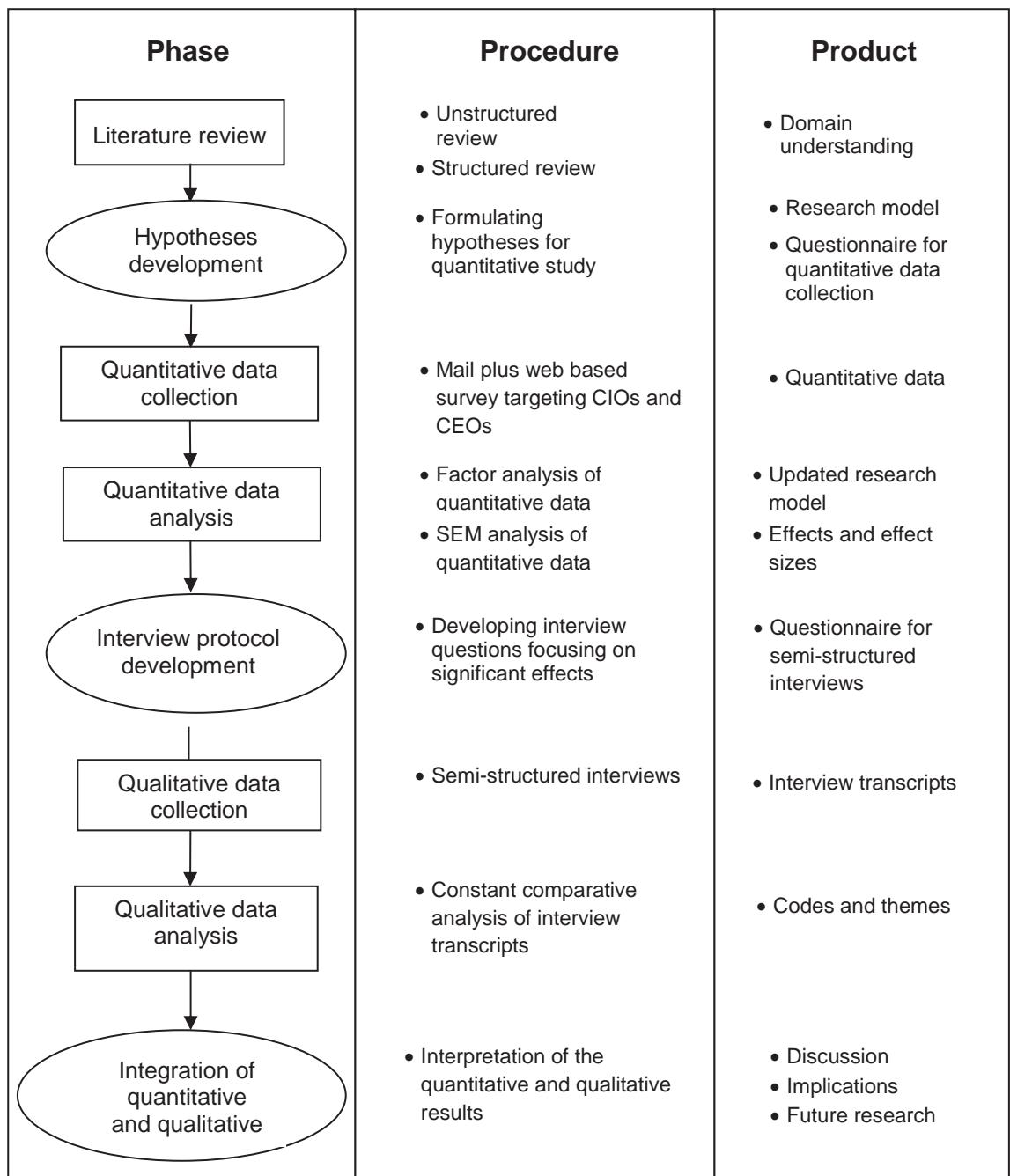


Figure 5-1. Overall mixed method procedures (based on a similar diagram by Creswell and Clark, 2011).

As seen in Figure 5-1, quantitative data played the central role in the present study, as the interview protocol was primarily based on the findings of quantitative data analysis rather than directly on the literature.

5.4 Operationalisation of constructs

The research model depicting the impact of national culture on strategic IS planning included seven constructs (see Figure 4-1). This section presents the items used to measure each of the constructs. Full text of the items is given in Table 5-1, and the questionnaire as it was distributed to the respondents is presented in Appendix E.

5.4.1 Strategic IS planning success

Strategic IS planning success was operationalised by using a measure developed by Lederer and Sethi (1996). The content of the measure by Lederer and Sethi (1996) is consistent with the view of strategic IS planning success in terms of achieving alignment of IS (and broader internal environment) with the business goals of the organisation. The measure by Lederer and Sethi (1996) was created based on the measure by Premkumar and King (1994) and is the best validated of the IS success measures available in the literature (see Table 2-1).

As far as the alternatives are concerned, the measure by Raghunathan and Raghunathan (1994) was seen as not suitable for the present study because it does not cover alignment, and the measure by Segars and Grover (1998) was not considered because of its uneven performance in past studies.

Initially, there were ten items as shown in Table 2-3. However, some items were not included in the present study for certain reasons. Some items refer to information that the respondents were unlikely to have, items related to alignment and competitive advantage that only happen after the plan has been implemented, which is not assured (see Hartono et al., 2003 for evidence that strategic IS plans are often not implemented). Even if the plan is implemented, the value of the resulting changes might vary because of unpredictable changes in the business environment. Further, even if competitive advantage is achieved, it is difficult to tell if this was because the strategic IS plan has been implemented or because of changes in areas not related to strategic IS planning.

Other reasons for removing items were the inability of the key informants to determine if the applications identified are “higher payback” (before they are implemented, or even after they are implemented), content overlapping with management commitment (item related to increasing the senior management commitment), and because it was assumed that resources may be allocated in the implementation stage, not in the planning stage (items related to resources allocation).

The measure used in the present study had five items (see Table 5-1), which were measured on a 5-point Likert scale, from *Not at all* to *To a very great extent*.

5.4.2 Organisational practices

This subsection describes the operationalisation of the direct determinants of strategic IS planning success according to the research model (see Figure 4-1).

5.4.2.1 Top management commitment

Top management commitment was operationalised by using a measure developed by Basu et al. (2002). This measure was the only one available that had been explicitly developed to operationalise top management commitment, even though a number of other studies used measures incorporating items covering some of the content of this construct.

The measure had six items, which were measured on a 5-point Likert scale, from *Not at all* to *To a very great extent*.

5.4.2.2 User participation

User participation was operationalised by adapting the measure of participation by Papke-Shields, Malhotra, and Grover (2002), who introduced it in the context of a study of the determinants of strategic manufacturing planning success. Even though a number of existing studies of strategic IS planning success included items relating to user participation, I adapted a measure known to work successfully in a related domain (rewording items to fit the content of user participation in strategic IS planning) because I

expected the resulting measure to have good measurement properties (such as convergent and discriminant validity).

The measure had two items, which were measured on a 5-point Likert scale, from *Strongly disagree* to *Strongly agree*.

5.4.3 Dimensions of organisational culture

This subsection describes the operationalisation of the dimensions of culture hypothesised in the research model (see Figure 4-1) to affect the determinants of strategic IS success.

5.4.3.1 Power distance

Power distance was operationalised by using a measure developed by Srite and Karahanna (2006). This measure was used because it had been successfully used by Srite and Karahanna in the context of an IS related study, who formulated it based on the measure by Hofstede (1983).

The measure had seven items, which were measured on a 5-point Likert scale, from *Strongly disagree* to *Strongly agree*.

5.4.3.2 Uncertainty avoidance

Uncertainty avoidance was operationalised by using a measure developed by Srite and Karahanna (2006).

The measure had six items, which were measured on a 5-point Likert scale, from *Strongly disagree* to *Strongly agree*.

5.4.3.3 Collectivism

Collectivism was operationalised by using a measure developed by Srite and Karahanna (2006).

The measure had five items, which were measured on a 5-point Likert scale, from *Strongly disagree* to *Strongly agree*.

Table 5-1: Operationalisation of Constructs

Construct	Definition	Items	Source
Strategic Information Systems Planning (SISP) Success	The extent of SISP success in terms of the achievement of the benefits of the SISP.	D1. Identify strategic applications. D2. Improve communication about IT with users. D3. Forecast information technology resource requirements. D4. Develop information architecture. D5. Increase the visibility of information technology in the organisation.	Basu, Hartono, Lederer, and Sethi (2002)
Top Management Commitment	The extent of top management commitment to the SISP process.	C1. The planning team identifies senior management's key planning issues at the start of the strategic IS planning. C2. The planning team briefs senior management with the strategic IS planning study's scope, objectives, and approaches to gain senior management's commitment at the start of the strategic IS planning. C3. The planning team briefs senior management throughout the strategic IS planning to maintain senior management's commitment. C4. Senior management provides feedback throughout the strategic IS planning study. C5. Senior management provides guidance throughout the strategic IS planning study. C6. A top executive champions the strategic IS planning study.	Basu, Hartono, Lederer, and Sethi (2002)
User Participation	The extent of participation of regular employees in the SISP process.	B1. Our process of strategic IS planning includes numerous participants. B2. The level of participation in strategic IS planning by diverse interests in the organisation is high.	Papke-Shields, Malhotra and Grover (2002)
Power Distance	Inequality of power distribution among the employees in the organisation.	E1. Managers should make most decisions without consulting subordinates. E2. Managers should not ask subordinates for advice, because they might appear less powerful. E3. Decision making power should stay with senior management in the organisation and not be delegated to lower level employees.	Srite and Karahanna (2006)

		E4. Employees should not question their manager's decisions.
		E5. A manager should perform work which is difficult and important, and delegate tasks which are repetitive and mundane to subordinates.
		E6. Higher level managers should receive more benefits and privileges than lower level managers and professional staff.
		E7. Managers should be careful not to ask the opinions of subordinates too frequently, otherwise the manager might appear to be weak and incompetent.
Uncertainty Avoidance	The extent to which the employees prefer to maintain current situation and dislike future uncertainty.	E8. Rules and regulations are important because they inform workers what the organisation expects of them. E9. Order and structure are very important in a work environment. E10. It is important to have job requirements and instructions spelled out in detail so that people always know what they are expected to do. E11. It is better to have a bad situation that you know about than to have an uncertain situation which might be better. E12. Providing opportunities to be innovative is more important than requiring standardised work procedures. E13. People should avoid making changes because things could get worse.
Collectivism	The employees' sense of belonging to the organisation.	E14. Being accepted as a member of a group is more important than having autonomy and independence. E15. Being accepted as a member of a group is more important than being independent. E16. Group success is more important than individual success. E17. Being loyal to a group is more important than individual gain. E18. Individual rewards are not as important as group welfare.

Note. The questionnaire is presented in full in Appendix E.

5.5 The research instruments

This section describes the two instruments of data collection, the questionnaire for the survey and the interview schedule for the semi-structured interviews.

5.5.1 Language related issues

The respondents in the present study were company CIOs and CEOs in New Zealand and in Malaysia. Even though English is not the main language in Malaysia, it was not necessary to translate the questionnaire because English is the primary language of business communication in Malaysia and most business documents are written in English (Gill, 2005; Vasan, 1994). Indeed, both in New Zealand and in Malaysia, the language of commerce was initially established under British influence.

Following the guidelines by Harkness, Vijver, and Mohler (2003) for the use of survey questions across countries without translation, the survey questions were carefully examined to ensure that the meanings of all terms were the same in both countries and then pretested with both Malaysian and New Zealand participants. No adjustments were necessary, and the only difference between the New Zealand and Malaysian versions of the questionnaire was the currency sign in the question about annual sales revenue.

It is a common practice to use survey questions validated in English speaking countries in Malaysia without translation. Three examples are the study by Zain, Rose, Abdullah, and Masrom (2005), who tested the Technology Acceptance Model (TAM) with managers of manufacturing companies in Malaysia; the study by Amin (2007), who tested TAM with customers of banks; and Hussein, Abdul Karim, and Selamat (2007), who tested DeLone and McLean's IS success model with employees of government agencies.

Similarly, to the survey questions, the interview questions were presented to all participants in English. Semi-structured interviews were conducted in

English with all participants, although the interviewer was also able to provide clarifications in Malay when necessary.

5.5.2 Questionnaire for the survey

There were four sections in the survey questionnaire (see Appendix E). The first section gathered information about the organisation's experience in strategic IS planning. If the respondents answered that they had no experience in strategic IS planning, they were advised to skip to the last part of the questionnaire, which covered demographic questions.

The second section of the questionnaire covered the items measuring strategic IS planning success and its determinants in the research model—top management commitment and user participation.

The third section of the questionnaire covered the items measuring the organisational culture dimensions, which included power distance, uncertainty avoidance, and collectivism.

The last section of the questionnaire sought demographic data on the participating organisations and the respondents.

5.5.3 The semi-structured interview schedule

The schedule for the semi-structured interviews (see Figure 5-2) was developed after the results of the survey were known. Questions were formulated to enquire about the mechanisms behind the relationships found to be statistically significant.

5.6 Participants

This section describes the participants in the questionnaire survey and in the interviews.

5.6.1 Questionnaire survey

Even though the unit of analysis in the survey was the organisation, the actual respondents were top managers answering on behalf of their organisations. This section discusses the population of the survey, the survey sample, and the selection of the respondents.

Key Questions

Research Questions: What is the effect of culture on the determinants of strategic IS planning success? For what reasons are the determinants of strategic IS planning success affected by culture?

1. What is the role of top management in strategic IS planning at your organisation?
2. What is the role of users in strategic IS planning at your organisation? By users, I mean employees who are going to use the systems defined via strategic IS planning.
3. Do different types of users, such as users from different departments, participate in different ways? How would you describe the difference, if any?
4. Based on your experience, in which ways does top management commitment to the strategic IS planning process impact the ultimate success of strategic IS planning at your organisation, if at all?
5. Based on your experience, in which ways does user participation impact the ultimate success of strategic IS planning at your organisation, if at all?

Closing Questions

1. Is there anything more you would like to say regarding the determinants of SISP success?
 2. Are there any further issues that you would like to discuss?
- 3A. (USERS ONLY) Who else at your organisation should I interview?
(Probe: What makes these people particularly valuable for this research?)
- 3B. (TOP MANAGERS ONLY) It is of critical importance for the success of my research that I interview both managers and users. Can you recommend some users that I could interview at your organisation?

Figure 5-2. Semi-structured interview schedule.

5.6.1.1 Population

The population in the survey consisted of organisations in the ICT industry operating in New Zealand and Malaysia. These two countries were chosen because they differ in Hofstede's dimensions and because of convenience (I am from Malaysia, and I resided in New Zealand and in Malaysia during the period of the study). It was expected that because of the difference in Hofstede's dimensions between New Zealand and Malaysia, a sample of organisations from both countries would be likely to offer a wide enough spread of values on culture dimensions to allow testing of the research model (see Figure 4-1). In this respect, the rationale for the research design was similar to the one provided by Furner and George (2009).

Organisations in the ICT industry were chosen because by the nature of their business they rely a lot on information technology and, therefore, I believed that they were more likely to conduct strategic IS planning than organisations in other industries. Only medium-sized and large organisations were included, because small organisations are less likely to have strategic IS planning (King & Teo, 1997).

Organisations from the ICT industry with 20 or more full-time employees were included. The same inclusion criterion was applied in both countries. The reason for choosing the cut-off of 20 full-time employees was because according to Small and Medium Enterprise Corporation Malaysia's (2009) definition, organisations in the ICT sector with 20 or more full-time employees are classified as medium or large organisations (and organisations with less than 20 full-time employees are classified as small). The definition of the New Zealand Centre for SME Research (<http://www.massey.ac.nz/massey/research/centres-research/new-zealand-centre-for-sme-research/nzsmers.cfm>, retrieved March 2009) was also considered. According to the New Zealand Centre for SME Research, for an organisation to be considered medium in size (or large), it has to have 50 or more full-time employees. The cut-off of 50 or more employees resulted in too few organisations in Malaysia included in the sample. Therefore, the cut-off of 20 was used. The survey results confirmed the appropriateness of the

cut-off because the sample included a large number of organisations with less than 50 full-time employees that did have strategic IS planning in place.

5.6.1.2 *Sample*

The organisations were drawn from the Kompass.com database (273 organisations in New Zealand and 215 in Malaysia), The New Zealand Business Who's Who database (179 organisations in New Zealand), and The National ICT Association of Malaysia database (242 organisations in Malaysia). All of the organisations meeting the size and the industry criteria listed in these databases were included in the sample, which resulted in a total of 452 organisations from New Zealand and 457 from Malaysia (after duplicates were removed).

To be listed on the database, an organisation has to pay a fee. Therefore, not all existing organisations were covered in the databases. This was a potential source of bias.

For each organisation, one target respondent was selected. Target respondents were top managers in the IS department (e.g., CIOs, IT directors, or senior IT managers). If contact details of a person from the IS department were unavailable, another person at the top management level was chosen, such as the CEO, Director, or General Manager. They were invited to answer the questionnaire if they were familiar with the state of strategic IS planning within the organisation, otherwise, they were asked to pass the questionnaire to whomever they felt was the most appropriate person. The questionnaire included the details of the actual respondent; therefore, it was possible to verify if the respondent was appropriate.

5.6.2 *Interviews*

The interviews were conducted after the results from the quantitative data were analysed. The quantitative data analysis results suggested that conducting interviews in a high collectivism culture would be of particular interest. Therefore, employees at three organisations in Malaysia (high collectivism culture) were interviewed.

These organisations were chosen based on certain characteristics. First, the organisations had a large ICT department, suggesting that their operations rely heavily on the information systems. Second, these organisations had experience in strategic IS planning.

Initially, ICT directors of the three organisations were invited to participate in the study. As they were not available, the ICT deputy directors, ICT managers, or ICT heads of unit were invited to represent the top management perspectives. Two ICT deputy directors and three ICT managers agreed to participate.

As part of the interview, they were asked to nominate some suitable employees to represent the users of the information system at the organisations. As the result, 13 users agreed to participate in the present study.

Users are defined as non-management employees who perform work (processes and activities) using information, technology, and other resources to produce specific products and/or services for specific internal (management level) or external customers (Alter, 2008).

5.7 Ethical considerations

Research ethics considerations were applied to ensure that the present study did not result in harm to the participants. Discussions with two Massey University lecturers (a peer review) were conducted in regard to the content of the survey questionnaire, the schedule for interviews, the data collection procedures, as well as other aspects of the research design. The following subsections discuss the ethical issues and the related procedures in detail.

5.7.1 Questionnaire survey

It was concluded that the survey questionnaire was unlikely to cause harm to the participants because participation was voluntary, and the data were to be treated as confidential. The peer review concluded that the research complied with Massey University Code of Ethical Conduct (MUHECa, 2009).

In line with the regulations for research involving human participants at Massey University (MUHECa), the Screening Questionnaire to Determine the Approval Procedure (MUHECb) was completed to determine the level of risk of the research. The peer review concluded that the study was low risk. Therefore, a Low Risk Notification Form (MUHECc) was completed. The screening questionnaire and the low-risk notification form were submitted to the Massey University human ethics committee to be recorded in the low risk database (see Appendix B).

An invitation letter (see Appendix A) was sent to each participant (after they were contacted) and an information sheet (see Appendix C) explaining the study was sent to all participants along with the survey questionnaire. The information sheet indicated the participants' rights, including the right to: decline to participate; refuse to answer any particular question; ask any questions about the study at any time during participation; be given access to a summary of the findings of the study when it is concluded; withdraw from the research project at any stage.

5.7.2 Interviews

Participants were asked for permission for the interviews to be digitally recorded. No recordings were made when the permission was not granted. Only one respondent refused to be recorded. Therefore the answers were noted. Participants were informed that they could request to stop the recording or stop the interview session altogether at any time before or during the interview.

The same procedure as with the survey, involving a peer review, was applied to the interviews. As in the case of the survey, the peer review concluded that the study should be classified as low risk, so a low-risk notification was filed.

5.8 Survey pre-testing

Survey pre-testing was conducted in three stages. First, a hardcopy of the questionnaire package was sent to 10 IS researchers and staff members of Massey University. I asked these pilot participants to identify any omissions,

errors, inconsistencies, or problems with the design of the questionnaire. This resulted in minor adjustments.

Second, a copy of the questionnaire was sent to two organisations in New Zealand and two organisations in Malaysia (which were not included in the sample). Out of four questionnaires sent out, only three were answered and returned. This resulted in the correction of a few typographical errors. The wording of questions and of survey instructions was as in Appendix E.

Third, the questionnaire was piloted with 45 companies in each country (New Zealand and Malaysia) which were included in the sample. For the New Zealand sample, out of 45 questionnaires sent, five were answered and returned. For the Malaysian sample, no answered questionnaires were returned.

5.9 Data collection procedures

This section describes the procedures involved in data collection (for both the survey and for the semi-structured interviews). Data collection was conducted between March, 2010 and August, 2014.

5.9.1 Survey procedures

I phoned each potential respondent and asked whether they would be interested in participating in the study. For those who answered yes, they were then asked to choose from two options: (i) to receive the questionnaire package as a hard copy by post or (ii) to receive the questionnaire package in digital form by email. Those who opted to receive the questionnaire in digital form were offered two further options: (i) to answer an online survey using a web browser or (ii) to answer through email, by editing a Word document and emailing it as an attachment. In all cases, the respondents chose to receive the survey package in digital form and to answer an online survey using a web browser.

Two weeks after the initial mail out, the non-respondents received a reminder email with the URL of an online survey. Two weeks after the first reminder, the second (and the final) reminder was sent.

5.9.2 Conducting the semi-structured interviews

Prior to the interview sessions, invitations over the phone were made to the participants selected for semi-structured interviews. Those who agreed to be interviewed were asked to state their preferred time and date for the interview. All except one of the participants agreed for the interview to be digitally recorded. The interview sessions with ICT Deputy Directors and managers took place at each participant's office for a duration of about one or one and half hours. The interview sessions with the users were conducted at either a meeting room or a multi-purpose room at their organisations, for about 30 minutes to one hour per session.

5.10 Approach to quantitative data analysis

The following sections describe the procedures involved in the preparation and the analysis of the survey data.

5.10.1 Normality, outliers and missing values

Normality was assessed using the Kolmogorov-Smirnov statistics. Outliers were detected visually by plotting box plots, by comparing the original mean with 5% trimmed mean, and via Mahalanobis test (with $p = .05$). For missing values, mean replacement was used. These procedures were adopted following Pallant (2011).

5.10.2 Checking for response bias

Response bias happens when the characteristics of the respondents differ from the characteristics of the sample. Response bias is particularly likely when the response rates are low: the participants who choose to respond may systematically differ from the population average (e.g., managers at organisations undergoing change or in distress may have less time available to respond to surveys).

To test for response bias, responses from early respondents (responding to initial contact) and from late respondents (responding after two reminders) were compared using the Mann-Whitney U test. The test was conducted for the number of employees and for annual sales income, similar to the work

by Bearden, Money, and Nevins (2006). In addition, the test was also conducted with the indicators of top management commitment, user participation, and strategic IS success constructs. These procedures were adopted following Pallant (2011).

5.10.3 Representativeness of the sample

To verify that the sample of the study represented the population, the numbers of employees in the respondent organisations were compared to the averages for medium and large organisations available from Statistics New Zealand (Statistics of New Zealand, 2008) and from the Malaysian Information and Communications Technology Statistics agency (Department of Statistics, 2009). Comparisons for New Zealand and Malaysia and for medium-sized and large organisations were conducted separately, resulting in two *t*-tests. These procedures were adopted following Darroch and McNaughton (2003).

5.10.4 Checking for common method bias

Common method bias refers to bias in the data set that can occur when a single informant enters data for both dependent and independent constructs (Podsakoff & Organ, 1986). The present study used only one top manager of each organisation to answer all the questions related to all the constructs. This may create bias in terms of consistency motive and social desirability.

Consistency motive bias. Top managers may answer that their commitment was high, and because of that they may answer that strategic IS planning was a success. Their answer may reflect a belief that top management commitment should result in strategic IS planning success. Similarly, the respondents might believe that user participation leads to strategic IS planning success, and rate user participation higher when they rate strategic IS planning success as high.

Social desirability bias. Top managers might want to present a favourable view about themselves as top managers. For example, managers from a high power distance culture might want to present strategic IS success as the result of their commitment (and not as a result of user involvement).

Then, they would tend to overestimate top management commitment and underestimate user involvement.

The extent to which common method bias affects the outcomes of research relying on cross-sectional surveys has been debated in the literature, with some authors providing evidence that the effect is high (Sharma, Yetton, & Crawford, 2009) and others concluding that the effect is low (Spector, 2006). Even though in MIS research it is quite common to ignore the possible presence of common method variance (Straub, Boudreau, & Gefen, 2004), I considered measures to guard against it.

Some authors suggest that common method variance can be reduced by using a questionnaire with items presented in a random order, to make it difficult for the respondents to understand the constructs measures, thus preventing them from reflecting their beliefs about the constructs in their answers (Podsakoff & Organ, 1986; Straub et al., 2004). This type of questionnaire was not used because it could have made it difficult for the respondents to understand the meaning of the items. The questionnaire involved seven constructs measured via 31 items. If the items in the questionnaire were mixed, it would result in a document that is very difficult to read, very likely causing the respondents to answer incorrectly or to abandon the questionnaire altogether.

Common method bias was assessed by using Harman's single factor test (Harman, 1967). The method assumes that a substantial amount of common variance in the indicator data should lead to a single common factor emerging in exploratory factor analysis (Podsakoff & Organ, 1986). The absence of a single common factor was seen as evidence that common method variance was not a major problem.

5.10.5 Structural equation modelling

Structural Equation Modelling (SEM) allows researchers to test a model involving hypothesised cause effect relationships between constructs (such as in the research model in Figure 4-1). There are two approaches in SEM, namely covariance-based (implemented in LISREL and Mplus) and

variance-based (PLS) techniques (Gefen, Straub, & Boudreau, 2000). The PLS technique is particularly suitable for exploratory studies involving new measures and testing new theories, whereas the co-variance based technique is particularly suitable for confirmatory studies involving well established measures and theories (Hair, Ringle, & Sarstedt, 2011). The present study relied on poorly established measures, and all of the relationships in the research model, except for the relationships between top management commitment and strategic IS planning success, were never tested in prior research. The exploratory nature of the present study further justifies the use of PLS.

The PLS technique evaluates the measurement model and the structural model at the same time (Henseler, Ringle, & Sinkovics, 2009). The evaluation of the measurement model includes assessing convergent and discriminant validities, which reflect the quality of the indicators used in the measurement model.

Convergent validity represents the extent to which the set of items used to measure a construct indeed measures a single construct. In the present study, convergent validity was estimated via item reliability (the loading of individual items on the construct), the construct reliability (the extent to which items measuring the construct vary together), and the average variance extracted (the average variance predicted by the latent construct in its reflective indicators) (Fornell & Larcker, 1981). Construct reliability was assessed via composite reliability provided by the PLS algorithm and via Cronbach's alpha.

Discriminant validity refers to the extent to which items used to measure a construct measure the intended construct, rather than other constructs in the model (Gefen & Straub, 2005). In the present study, the discriminant validity was determined by verifying that the square root of average variance extracted (AVE) for each construct is greater than the correlations between the construct and other constructs in the model. As an alternative assessment, I verified that items loaded on their own construct better than on any other constructs in the model (Thompson, Higgins, & Howell, 1991).

The explanatory power of the structural model was assessed via the statistical significance and the magnitude of path coefficients and via average variance explained in dependent variables (measured via R-square values). In particular, the hypotheses stated were confirmed or rejected based on the statistical significance of the corresponding path coefficients.

5.10.6 Effect size

Effect sizes allow the comparison between effects found to be statistically significant. It is important to consider effect sizes because statistical significance may be due to the size of the data set (if the number of cases is large enough, even weak relationships can become statistically significant) (Cohen, 1988).

Effect sizes for predictor variables (constructs hypothesised to directly affect other constructs) were calculated based on the formula by Cohen (1988):

$$f^2 = \frac{R_{\text{included}}^2 - R_{\text{excluded}}^2}{1 - R_{\text{included}}^2},$$

where f^2 is the effect size, R_{included}^2 is the average variance in a dependent variable explained when the predictor variable is included in the model, and R_{excluded}^2 is the average variance explained when the predictor variable is excluded from the model.

The interpretation of the effect size (whether the effect is small, medium, or large) followed Cohen (1988): small effect for f^2 values close to or smaller than .02 , medium effect for f^2 values close to .15 , and large effect for f^2 values close to or larger than .35.

5.11 Approach to qualitative data analysis

The constant comparative method (Erlandson, Harris, Skipper, & Allen, 1993) was used to analyse and interpret qualitative data.

I personally conducted all interviews and took notes. For all interviews, digital recordings were made except for one where notes were taken. I listened to the recordings and had them transcribed. The analysis of qualitative data was informed by my reflections during and after the

interviews and by listening to the recordings, as well as by coding the transcripts and the interview notes. My analysis was informed by my understanding of the domain and by my knowledge of the results of the quantitative survey.

I coded the transcripts and the interview notes by following the procedure suggested by Erlandson et al. (1993). Before coding the data, I read the transcript from beginning to the end in a single reading, several times. Then I divided the data into units so that each unit corresponded to an independent thought (in most cases a unit corresponded to a complete sentence). Then, I assigned meaningful codes to data units one by one (units for which I could not find an appropriate code were assigned temporarily to a "miscellaneous" stack). When considering each unit, I compared it with the units already coded, and assigned an existing code or introduced a new code as appropriate. The coding of all units (including the ones set aside in the "miscellaneous" stack) was repeated several times, with codes merged, renamed, and split as appeared appropriate.

Based on Erlandson et al. (1993), investigator triangulation was used to strengthen the credibility of the results of qualitative analysis. Another researcher was asked to analyse the data independently; then, the outcomes were compared. Any discrepancies were discussed, but no formal interrater reliability checks were conducted, and the other researcher played a supplementary rather than an equal role. When writing up the results, I included my analysis in full, following Erlandson et al.'s (1993) suggestion that investigator triangulation should not result in data reduction. The involvement of the other researcher provided an alternative vantage point and allowed me to have more confidence in the analysis results.

The interview schedule used for qualitative data collection was based on the results of quantitative data analysis, and I was aware of the results of quantitative data analysis while conducting the interviews and while analysing the qualitative data. The interpretation of the overall results of the present study, presented in Chapter 7, is based on comparing and

contrasting insights gained from both qualitative and quantitative stages of the study.

CHAPTER 6: QUANTITATIVE DATA ANALYSIS AND FINDINGS

6.1 Introduction

This chapter introduces the results of quantitative data reliability and validity checks, the descriptive statistics characterising the sample, and the results of model testing. Then the results of qualitative data analysis are discussed.

Chapter 5 introduced the techniques applied in the present chapter. The explanations of the techniques and the rationales for their choice are not repeated in the present chapter.

6.2 Response rate

This section presents the response rate of the questionnaire survey from New Zealand and Malaysia (the unit of analysis was an organisation, with a member of top management contacted to provide responses on behalf of the organisation). A study sample that comprised 909 IT and telecommunications companies (452 in New Zealand and 457 in Malaysia) was compiled from commercial B-2-B databases. Organisations that were included in the pre-testing were excluded from the main survey, leaving 819 organisations in the sample. Some of the telephone numbers were invalid. This reduced the total number of organisations in the sample from 819 to 742.

A total of 142 responses were received. Out of 142 responses, only 108 (53 from New Zealand and 55 from Malaysia) were usable. The other 34 responses were considered unusable as respondents did not have any experience in strategic IS planning and answered section F (the demographic part) only. Excluding these organisations, the response rate was 14.6% (108/742). Table 6-1 presents the response numbers.

Table 6-1: Response Rate

Description	Number
Initial number of organisations	909
Number of organisations included in pilot testing	90
Number of organisations that had invalid phone numbers	77
Number of organisations included	742
Total number of responses	142
Total number of responses usable for analysis	108
Total number of responses unusable for analysis	34
Usable response rate (108/742)	14.6%

This response rate was considered reasonable because of the senior position of the respondents. In prior quantitative studies that used Chief Executive Officers (CEOs) or Chief Information Officers (CIOs) as key informants the response rates were in the range of 6% to 20%. For example, Simons, Pelled, and Smith (1999) gained only a 6% response rate when conducting their study with CEOs, CFOs and managers. Preston et al. (2006) conducted a study with CIOs in the U.S. and France and received only a 9% response rate in the U.S. and 15% in France. A higher response rate of 17% was reported by McLeod, MacDonell, and Doolin (2007) when they conducted a study with 460 IS managers in New Zealand organisations, but the Bechor et al. (2010) study attracted just 9% of respondents.

6.3 Preliminary analysis

This section presents a procedure for assessing normality, checking the outliers, and the consideration of missing values.

6.3.1 Assessing normality and outliers

Data entered manually were checked for possible data entry errors, which involved two procedures. First, the minimum and maximum values were checked for each indicator, to verify that they were in range, with the

absence of out-of range values suggesting that manual data entry errors were not likely.

Normality was assessed using the Kolmogrov-Smirnov statistics, at $p=.05$. First, the normality was assessed separately for the New Zealand and Malaysia data. Second, the normality was assessed by combining the data from the two countries. All items violated the assumption of normality, except for the items of the power distance construct. Even though the PLS approach used in data analysis does not require normality, the statistical power in PLS tends to be lower with nonnormal data (Marcoulides & Saunders, 2006).

To test for outliers, I conducted visual inspection of box plots, compared the 5% trimmed mean with the original mean for separate indicators and for sums of indicators, as well as executed the Mahalanobis test at $p = .05$. Two outliers were detected.

The outliers were cases where respondents answered only 50% (the first three sections) of the questionnaire. Venaik (1999) suggested that any case that has missing values for all indicators of one or more constructs should be deleted. Therefore, the two outlier cases were deleted from the data set.

6.3.2 Missing values

Most of the cases had less than 10% of missing data. There were two cases with missing values above 10%, which were deleted following the suggestion by Hair et al. (2006). There were no cases with missing values for all indicators for any of the constructs (apart from the two cases that were deleted at the normality assessment stage).

Mean replacement (replacing the missing value by the mean value for the indicator) was used to deal with the remaining missing data (which is an option in SmartPLS software). According to Cohen and Cohen (1975), mean replacement reduces the risk of non-representativeness resulting from dropping cases and the loss of statistical power due to reducing sample size.

Thus, in most situations using mean replacement is preferable to using list-wise deletion (deleting cases with missing values).

6.4 Demographic data

This section presents the descriptive statistics for the demographic data. The demographic data are then used to check for non-response bias and for response representativeness.

6.4.1 Participant characteristics

This section presents the characteristics of the participant organisations and of the respondents. The characteristics of the respondents were not used as indicators of model constructs and were analysed only to verify that the respondents were the appropriate persons to answer the questionnaire and thus to verify the credibility of the response.

6.4.1.1 *The organisations*

This section presents the characteristics of the respondent organisations, including the organisation type, size, activity, and products. These data were collected to better understand the background of the organisations included in the sample.

As seen in Table 6-2, the majority of responding organisations (nearly 80%) were head offices (74% of the organisations operating in New Zealand, and 85% of the organisations operating in Malaysia).

Table 6-2: Organisation Type

Type	New Zealand		Malaysia		Combined	
	n	%	n	%	n	%
Head Office	37	74	46	85.2	83	79.8
Branch	13	26	8	14.8	21	20.2
Total	50	100	54	100	104	100

As seen in Table 6-3, the main offices of some of the branches were situated in a different country from the branch surveyed (in most cases, in Australia for New Zealand and in Singapore for Malaysia). It may be argued that branches with head offices in other countries may have espoused national

culture influenced by the national culture of the head office country, resulting in greater variation of cultural dimensions in the data set.

Table 6-3: Types of Branches

Head office at	New Zealand		Malaysia		Combined	
	N	%	n	%	n	%
Same country	1	8.3	4	44.4	5	23.8
Other country	11	91.7	5	55.6	16	76.2
Total	12	100	9	100	21	100

Most of the organisations were registered as companies (see Table 6-4). Partnerships and sole proprietorships were considerably less common. This was clearly the case in both countries.

Table 6-4: Organisation Ownership

Ownership	New Zealand		Malaysia		Combined	
	n	%	n	%	n	%
Sole proprietorship	1	2	2	3.7	3	2.9
Partnership	1	2	4	7.4	5	4.8
Company	48	96	48	88.9	96	92.3
Total	50	100	54	100	104	100

As seen in Table 6-5, 49% of the responding organisations were large organisations, with more than 100 full-time employees. Another 48% were medium-sized organisations with employee numbers ranging between 20 and 99. The remaining 3% did not report organisation size. Larger organisations were better represented among the organisations operating in Malaysia.

The sales income per annum was measured using the New Zealand Dollar (NZD). The sales income of organisations from Malaysia was converted to the New Zealand dollar at a rate of 0.423 (the exchange rate as of August, 2010). As shown in Table 6-5, 36% of the organisations reported an annual sales income of less than NZD 100 million. Another 16% reported an annual sales income of more than NZD 100 million. Many respondents did not

answer the question regarding sales income per annum. Some of the respondents stated that such information was confidential.

Table 6-5: Organisation Size

Size	New Zealand		Malaysia		Combined	
	n	%	n	%	n	%
Number of employees						
50 and below	21	42	7	13	28	26.9
51 to 100	16	32	6	11	22	21.2
101 and more	11	22	40	74.1	51	49.1
No response	2	4	1	1.9	3	2.9
Sales income per annum in millions (NZD)						
50 and below	21	42	14	26	35	33.6
51 to 100	2	4	1	2	3	2.9
101 to 250	1	2	4	7	5	4.8
251 and above	5	10	7	13	12	11.5
No response	21	42	28	52	49	47.1

As seen in Table 6-6, most of the organisations reported being involved in services (71%). Retailing was the least common (14%). The majority of organisations reported being involved in only one activity (71%): services, distribution, retail, or manufacturing. Another 24% reported being involved in a combination of two or three activities. It should be noted that the total number of organisations does not equal 104 because some organisations may have more than one activity. The majority of the participating organisations from New Zealand were involved in services, whereas for the organisations from Malaysia both manufacturing and services were equally common.

As seen in Table 6-7, hardware as a product was more common for the organisations operating in Malaysia.

As seen in Table 6-8, 38% of the sample organisations reported neither importing nor exporting their products or services, so that their business focused only on the internal market; 34% reported either importing or exporting, whereas another 22% were involved in both import and export. Organisations operating in New Zealand were more likely to be involved in import or export activities.

Table 6-6: Organisation Activity

Activity	New Zealand		Malaysia		Combined	
	n	%	n	%	n	%
Manufacturing	12	24	37	68.5	29	27.9
Distributor	13	26	11	20.3	24	23.1
Retailer	12	24	3	5.6	15	14.4
Services	37	74	37	68.5	74	71.2
No response	5	10			5	4.8
Combination of Activities						
One activity	29	58	45	83.3	74	71.2
Two activities	7	14	6	11.1	13	12.5
Three or more	9	18	3	5.6	12	11.5
No response	5	10			5	4.8
Total	50	100	54	100	104	100

Table 6-7: Organisation Product

Products	New Zealand		Malaysia		Combined	
	n	%	n	%	n	%
Hardware	7	14	12	22.2	19	18.3
Software	20	40	10	18.5	30	28.8
Hardware and software	13	26	16	29.6	29	27.9
Neither hardware nor software	7	14	16	29.6	23	22.1
No response	3	6			3	2.9
Total	50	100	54	100	104	100

Table 6-8: Import / Export Activities

Import / export	New Zealand		Malaysia		Combined	
	n	%	n	%	n	%
Import	12	24	7	12.9	19	18.3
Export	13	26	3	5.6	16	15.4
Import and export	6	12	17	31.5	23	22.1
Neither	16	32	24	44.4	40	38.5
No response	3	6	3	5.6	6	5.8
Total	50	100	54	100	104	100

6.4.1.2 The respondents

This section presents the characteristics of the respondents, including their job title, education level, as well as experience in their current organisation and the ICT industry (in terms of years).

Table 6-9 shows that of the 104 respondents in the present study; 28% held top managerial positions in their organisation. IS Senior Managers represented 6% of the sample respondents, and IS Managers represented 45%.

Table 6-9: Respondent Job Title

Job title	New Zealand		Malaysia		Combined	
	n	%	n	%	n	%
CIO/COO/CTO	2	4	2	3.7	4	3.8
CEO/CFO	6	12	1	1.9	7	2.9
Director/Managing Director	18	36	5	9.3	23	22.1
IS Senior Manager	1	2	5	9.3	6	5.8
IS Manager	18	36	30	55.6	48	45.2
Other	4	8	10	18.5	14	13.5
No response	1	2	1	1.9	2	1.9
Total	50	100	54	100	104	100

The respondents' experience in their current organisation and in the industry is presented in Table 6-10. Their experience in their current organisation ranged from 1 to 25 years, with an average of eight years reported. The overwhelming majority of the respondents reported more than three years of experience in their organisation. Even though there were 15% who had less than three years' experience in their current organisation, as top management they were assumed to be knowledgeable about what was happening in their organisation.

The respondents' experience in their industry ranged from 1 to 32 years, with an average of 12 years reported. The overwhelming majority of the respondents reported more than seven years of experience in their industry. As presented in Table 6-11, the overwhelming majority of the respondents were highly educated.

Overall, the respondents' experience in their organisation and in their industry, as well as their level of education, qualified them as knowledgeable enough to provide appropriate answers to the questionnaire. The level of education of the participants from Malaysia was more uniform; whereas the respondents from New Zealand were more likely to have either postgraduate education or to not to have a university education at all.

Table 6-10: Respondent Experience

Experience	New Zealand		Malaysia		Combined	
	n	%	n	%	n	%
In organisation:						
Less than 3 years	7	14	9	16.7	16	15.4
3 – 6 years	12	24	25	46.3	37	35.6
7 – 10 years	15	30	10	18.5	25	24.0
11 – 14 years	5	10	4	7.4	9	8.7
More than 14 years	10	20	5	9.3	15	14.4
No response	1	2	1	1.9	2	1.9
Total	50	100	54	100	104	100
Means	2.98		2.45		7.76	
In industry:						
Less than 3 years	5	10	1	1.9	6	5.8
3 – 6 years	8	16	10	18.5	18	17.3
7 – 10 years	11	22	22	40.7	33	31.7
11 – 14 years	6	12	9	16.7	15	14.4
More than 14 years	20	40	11	20.4	31	29.8
No response			1	1.9	1	1.0
Total	50	100	54	100	104	100
Means	3.56		3.36		11.95	

Table 6-11: Respondent Education Level

Education Level	New Zealand		Malaysia		Combined	
	n	%	n	%	n	%
Post-secondary	5	10	2	3.7	7	6.7
Undergraduate	27	54	47	87	74	71.2
Postgraduate	6	12	2	3.7	8	7.7
Others	8	16			8	7.7
No response	4	8	3	5.6	7	6.7
Total	50	100	54	100	104	100

6.5 Response bias

Because the response rate was low, a non-response bias test was conducted. The Mann-Whitney U test was applied to compare the early respondents (n=83) and late respondents (n=21).

As seen in Table 6-12, no significant differences were found at the significance level of .05 for both the number of employees and annual sales income.

Table 6-12: Results of Non-Response Bias Tests Based on the Number of Employees and Sales Income

	Employees	Income
Mann-Whitney U	831.500	257.500
Wilcoxon W	1062.500	335.500
Z	-.071	-.010
Asymp. Sig. (2-tailed)	.943*	.992*

* $p < 0.05$.

A response bias test comparing the early and late responses was also conducted on each of the user participation, top management commitment, and strategic IS planning success items.

Table 6-13 presents the mean and the corresponding two-tailed p -value for each item in top management commitment and user participation. Again,

there were no significant differences between the early and late responses (at the significance level of .05).

Table 6-13: Results of Non-Response Bias Tests Based on Items Used to Measure Determinants of Strategic IS Planning Success Construct

Item	Response	n	Mean Rank	p-value
B1	Early	83	52.73	.572
	Late	20	48.95	
B2	Early	82	53.40	.312
	Late	21	46.55	
C1	Early	83	54.06	.252
	Late	21	46.33	
C2	Early	81	52.69	.394
	Late	21	46.90	
C3	Early	82	52.70	.614
	Late	21	49.26	
C4	Early	83	51.60	.518
	Late	21	56.05	
C5	Early	83	53.57	.447
	Late	21	48.29	
C6	Early	83	52.01	.996
	Late	20	51.98	

Note. Some n values might differ because of missing data.

Table 6-14: Results of Non-Response Bias Based on Items Used to Measure Strategic IS Planning Success Construct

Item	Response	n	Mean Rank	p-value
D1	Early	82	54.05	.137
	Late	21	44.00	
D2	Early	82	50.79	.387
	Late	21	56.74	
D3	Early	83	53.60	.409
	Late	21	48.17	
D4	Early	80	49.08	.734
	Late	18	51.39	
D5	Early	82	49.97	.258
	Late	20	57.78	

Note. Some *n* values might differ because of missing data.

Table 6-14 presents the mean and the corresponding two-tailed *p*-value for each item in the strategic IS planning success construct. There were no significant differences between early and late responses (at the significance level of .05).

Thus, the response bias tests comparing early and late respondents did not find any evidence of response bias.

6.6 Response representativeness

Table 6-15 shows the number of organisations in different size ranges among the respondents' organisations and in the population. As seen from the table, for New Zealand the percentages for the respondents are similar to the percentages in the population, whereas for Malaysia the percentage of larger organisations for the respondents was considerably larger than in the population. This is, most likely, because smaller organisations did not register with the databases from which the contact details were obtained.

Table 6-15: Numbers of Organisations in Different Size Ranges

Full Time Employees	New Zealand		Malaysia	
	Response	Statistics New Zealand ^a	Response	ICT Malaysia Services Statistics
20 to 99	n (%)	n (%)	n (%)	n (%)
100 and above	39(78)	210(57.9)	10(18.5)	316(80)

^aAdopted from Statistics New Zealand (2008). ^bAdopted from ICT Malaysia Services Statistics (2008). The number of organisations where the number of employees was less than 20 (from Statistics of New Zealand and ICT Malaysia Services Statistics) were not included.

Standard response representativeness tests were conducted by comparing the number of employees in respondent organisations with publicly available statistics; *t*-tests comparing the number of employees in different size ranges with the averages for the population did not find statistically significant differences (at the significance level of .05). Thus, even though smaller organisations from Malaysia appeared to be under represented among the respondents (18.5% compared to 80% in the population), according to the test, the organisations that were included were typical in terms of the number of employees.

6.7 Descriptive statistics for strategic IS planning

This section presents the descriptive statistics relating to the responding organisations' strategic IS planning experience.

6.7.1 Years of strategic IS planning experience

Table 6-16 presents organisation experience in strategic IS planning. Almost half of the organisations (45%) reported more than 10 years of strategic IS planning experience, and about two-thirds of them (75%) reported more than five years of strategic IS planning experience. This suggests that most of the responding organisations had mature strategic IS planning processes. The organisations from New Zealand tended to be more experienced in strategic IS planning than the organisations from Malaysia.

Table 6-16: Strategic IS Planning Experience

Years of Experience	New Zealand		Malaysia		Combined	
	n	%	n	%	n	%
0-4 years	2	4	12	22.2	14	13.5
5-9 years	12	24	18	33.3	30	28.8
10-14 years	14	28	10	18.5	24	23.1
15-19 years	9	18			9	8.7
20 and above	9	18	5	9.3	14	13.5
No response	4	8	9	16.7	13	12.5
Total	50	100	54	100	104	100

6.7.2 Outsourcing of strategic IS planning

Table 6-17 presents the percentage of outsourcing of strategic IS planning, as reported by the survey participants. Most of the organisations (66%) reported that they developed their planning in-house. Organisations from New Zealand were more likely to conduct IS planning in-house than organisations from Malaysia. Only 3% reported that they fully or more than 80% outsourced their strategic IS planning. Thus, most of the respondents were in a position to answer the survey questions based on the experience of conducting all aspects of strategic IS planning in-house.

Table 6-17: Strategic IS Planning Outsourcing

Percentage of outsourcing	New Zealand		Malaysia		Combined	
	n	%	n	%	n	%
0 to 20%	38	76.0	31	57.4	69	66.3
More than 20% to 40%	5	1.0	8	14.8	13	12.5
More than 40% to 60%	1	2.0	2	3.7	3	2.9
More than 60% to 80%	1	2.0	5	9.3	6	5.8
More than 80% to 100%	1	2.0	2	3.7	3	2.9
No response	4	8.0	6	1.1	10	9.6
Total	50	100	54	100	104	100

6.7.3 Strategic IS planning success

As seen in Table 6-18, item means for strategic IS planning success were between 3.7 and 4.1. All items were keyed on a Likert scale from *Not at all* (1) to *To a very great extent* (5). Thus, overall the respondents agreed that their organisations were successful at strategic IS planning.

The respondents tended to agree strongly that strategic IS planning within their organisations was successful at helping the organisation to identify strategic applications, with the corresponding item having the highest mean (4.1).

The item with the lowest score related to increasing the visibility of IT in the organisation (item D5 with mean score of 3.7). This may indicate that at some of the respondents' organisations improving the visibility of IT was not seen as a desirable outcome of IS planning. (Indeed, a defendable view of strategic IS planning is that it should result in IT being less visible, allowing employees to focus more on the organisation's core competences).

Table 6-18: Strategic IS Planning Success (Combined)

Measures	Code	n ^a	Min	Max	Mean	SD
<i>Planning Success - Communication</i>						
Improve communication about IT with users.	D2	103	1	5	3.8	.93
Increase the visibility of information technology in the organisation.	D5	102	1	5	3.7	.93
<i>Planning Success - Technology</i>						
Identify strategic applications.	D1	104	2	5	4.1	.80
Forecast information technology resource requirements.	D3	104	2	5	3.9	.76
Develop information architecture.	D4	98	1	5	3.8	.90

^aNumber of interpretable responses.

As seen in Table 6-19 and Table 6-20, the summary statistics for individual countries were similar to the ones for the combined data set.

Table 6-19: Strategic IS Planning Success (New Zealand)

Measures	Code	n ^a	Min	Max	Mean	SD
<i>Planning Success - Communication</i>						
Improve communication about IT with users.	D2	49	1	5	3.7	1.03
Increase the visibility of information technology in the organisation.	D5	48	1	5	3.5	1.11
<i>Planning Success – Technology</i>						
Identify strategic applications.	D1	49	2	5	4.0	.82
Forecast information technology resource requirements.	D3	50	2	5	3.8	.82
Develop information architecture.	D4	44	1	5	3.6	.99

^aNumber of interpretable responses.

Table 6-20: Strategic IS Planning Success (Malaysia)

Measures	Code	n ^a	Min	Max	Mean	SD
<i>Planning Success - Communication</i>						
Improve communication about IT with users.	D2	54	2	5	4.0	.81
Increase the visibility of information technology in the organisation.	D5	54	2	5	3.9	.70
<i>Planning Success – Technology</i>						
Identify strategic applications.	D1	54	2	5	4.2	.78
Forecast information technology resource requirements.	D3	54	2	5	3.9	.72
Develop information architecture.	D4	54	2	5	3.9	.80

^aNumber of interpretable responses.

6.7.4 Top management commitment

As seen in Table 6-21, item means for top management commitment were between 3.4 and 3.7. The mean over all of the items was 3.5. All items were keyed on a Likert scale from *Not at all* (1) to *To a very great extent* (5). Thus,

overall the respondents agreed that top management commitment to strategic IS planning at their organisations was high.

The highest mean (3.7) was for the item (C6) that related to top executives championing strategic IS planning. The item with the lowest score related to senior management providing guidance throughout the strategic IS planning process (C5), with the mean of 3.4.

Table 6-21: Top Management Commitment (Combined)

Measures	Code	n ^a	Min	Max	Mean	SD
The planning team identifies senior management's key planning issues at the start of the strategic IS planning.	C1	104	1	5	3.6	.86
The planning team briefs senior management with the strategic IS planning study's scope, objectives, and approaches to gain senior management's commitment at the start of the strategic IS planning.	C2	102	1	5	3.6	.98
The planning team briefs senior management throughout the strategic IS planning to maintain senior management's commitment.	C3	102	1	5	3.5	.91
Senior management provides feedback throughout the strategic IS planning study.	C4	104	1	5	3.5	.90
Senior management provides guidance throughout the strategic IS planning study.	C5	104	1	5	3.4	.90
A top executive champions the strategic IS planning study.	C6	104	1	5	3.7	.98

^aNumber of interpretable responses.

As seen in Table 6-22 and Table 6-23, the summary statistics for individual countries were similar to the ones for the combined data set.

Table 6-22: Top Management Commitment (New Zealand)

Measures	Code	n ^a	Min	Max	Mean	SD
The planning team identifies senior management's key planning issues at the start of the strategic IS planning.	C1	50	1	5	3.5	1.02
The planning team briefs senior management with the strategic IS planning study's scope, objectives, and approaches to gain senior management's commitment at the start of the strategic IS planning.	C2	48	1	5	3.3	1.08
The planning team briefs senior management throughout the strategic IS planning to maintain senior management's commitment.	C3	49	1	5	3.3	1.00
Senior management provides feedback throughout the strategic IS planning study.	C4	50	1	5	3.4	.96
Senior management provides guidance throughout the strategic IS planning study.	C5	50	1	5	3.2	.90
A top executive champions the strategic IS planning study.	C6	49	1	5	3.7	1.13

^aNumber of interpretable responses.

Table 6-23: Top Management Commitment (Malaysia)

Measures	Code	n ^a	Min	Max	Mean	SD
The planning team identifies senior management's key planning issues at the start of the strategic IS planning.	C1	54	2	5	3.7	.68
The planning team briefs senior management with the strategic IS planning study's scope, objectives, and approaches to gain senior management's commitment at the start of the strategic IS planning.	C2	54	2	5	3.9	.77
The planning team briefs senior management throughout the	C3	53	2	5	3.7	.75

strategic IS planning to maintain senior management's commitment.							
Senior management provides feedback throughout the strategic IS planning study.	C4	54	2	5	3.6	.83	
Senior management provides guidance throughout the strategic IS planning study.	C5	54	2	5	3.6	.86	
A top executive champions the strategic IS planning study.	C6	54	1	5	3.8	.85	

^aNumber of interpretable responses.

6.7.5 User participation

As seen in Table 6-24, item means for user participation were 3.7 and 4.1. The mean over all of the items was 3.9. All items were keyed on a Likert scale from *Strongly disagree* (1) to *Strongly agree* (5). Thus, overall the respondents agreed that user participation was high, and was at roughly the same level as top management commitment.

The highest mean was for item B1 that related to strategic IS planning process involving numerous participants.

Table 6-24: User Participation (Combined)

Measures	Code	n ^a	Min	Max	Mean	SD
Our process of strategic IS planning includes numerous participants.	B1	103	1	5	4.1	.92
The level of participation in strategic IS planning by diverse interests in the organisation is high.	B2	103	1	5	3.7	1.07

^aNumber of interpretable responses.

As seen in Table 6-25 and Table 6-26, the summary statistics for individual countries were similar to the ones for the combined data set.

Table 6-25: User Participation (New Zealand)

Measures	Code	n ^a	Min	Max	Mean	SD
Our process of strategic IS planning includes numerous participants.	B1	49	1	5	4.0	1.09
The level of participation in strategic IS planning by diverse interests in the organisation is high.	B2	49	1	5	3.5	1.14

^aNumber of interpretable responses.

Table 6-26: User Participation (Malaysia)

Measures	Code	n ^a	Min	Max	Mean	SD
Our process of strategic IS planning includes numerous participants.	B1	54	1	5	4.1	.74
The level of participation in strategic IS planning by diverse interests in the organisation is high.	B2	54	1	5	3.9	.98

^aNumber of interpretable responses.

6.8 Checking for common method bias

Harman's single-factor test (1967) was used to check for common method bias. All items measuring the dependent and independent variables were entered into a single exploratory factor analysis. This resulted in seven factors (the same number as the number of constructs in the model) with eigenvalues greater than 1.0. Thus, according to the single factor test, common method bias was not a particular concern.

6.9 Model testing results

Model testing results are organised in two sections. First, I present the assessment of the measurement model. Then, I present the results of hypotheses testing for individual hypotheses, followed by discussions of variance extracted and of indirect effects.

6.9.1 Measurement model

This section discusses the results from convergent validity tests and discriminant validity tests.

6.9.1.1 *Convergent validity*

Convergent validity was assessed via item reliability (the loading of individual items on the construct), the construct reliability (the extent to which items measuring the construct vary together), and the average variance extracted (the average variance predicted by the latent construct in its reflective indicators).

Table 6-27 presents the loadings of indicators for each construct. Reliability of indicators for each construct was determined by examining the loadings of indicators on their intended constructs. Chin (1998) suggested that loadings above .7 are preferable, but loadings above .6 are acceptable. Based on Chin's (1998) recommendations, items with loadings greater than .6 were retained for further analysis (of discriminant validity, and, ultimately, of the structural model).

Table 6-27: Factor Loadings

Item	Factor Loading
User Participation (AVE =.70)	
B1	.84
B2	.89
Top Management Commitment (AVE =.55)	
C1	.77
C2	.81
C3	.83
C4	.77
C5	.70
C6 ^a	.51
SISP- Communication (AVE =.81)	
D1	.88
D2	.93

	SISP-Technology (AVE =.63)
D3	.80
D4	.75
D5	.82
	Collectivism (AVE =.49)
E1	.84
E2	.84
E3	.84
E4 ^a	.55
E5 ^a	-.09
	Power Distance (AVE =.27)
E6 ^a	.52
E7	.73
E8 ^a	.47
E9 ^a	.46
E10 ^a	.19
E11 ^a	.38
E12	.69
	Uncertainty Avoidance (AVE =.34)
E13	.76
E14	.82
E15	.75
E16 ^a	.27
E17 ^a	.44
E18 ^a	.06

^aItems that were deleted due to loadings below than .6.

Overall, 11 items were deleted: one from the measures of the strategic IS planning success and its determinant (C6), and ten from the measures for national culture dimensions (E4, E5, E6, E8, E9, E10, E11, E16, E17, and E18). Some of these items also had low loadings (and were removed from their measures) in previous literature, such as E5, E10, E11, E12, E14, E15, E16, E17, and E18 in the study by Srite and Karahanna (2006). After the removal of these items, the results of loadings are shown in Table 6-28.

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Table 6-28: Factor Loadings After Deleting Problematic Items

Item	Factor Loading
User Participation (AVE =.70)	
B1	.87
B5	.80
Top Management Commitment (AVE =.61)	
C1	.77
C2	.82
C3	.84
C4	.77
C5	.71
SISP- Communication (AVE =.81)	
D1	.88
D2	.93
SISP-Technology (AVE =.63)	
D3	.80
D4	.75
D5	.83
Collectivism (AVE =.74)	
E1	.85
E2	.86
E3	.88
Power Distance (AVE =.81)	
E7	.93
E12	.87
Uncertainty Avoidance (AVE =.69)	
E13	.82
E14	.86
E15	.80

The values of composite reliability and of Cronbach's alpha (measuring construct reliability), along with the AVE values, are listed in Table 6-29. Fornell and Larcker (1981) suggested that AVE values of .5 and above correspond to acceptable levels of construct validity. They also suggested

the cut-off points of .7 and .5 for composite reliability and Cronbach's alpha, respectively.

All constructs had AVE values between .61 and .81, thus meeting the convergent validity criterion.

Table 6-29: AVE, Composite Reliability and Cronbach's Alpha

Construct	AVE	Composite reliability	Cronbach's alpha
SISP-Communication	.81	.90	.78
SISP-Technology	.63	.83	.70
User Participation	.70	.82	.57
Top Management Commitment	.61	.89	.84
Collectivism	.74	.90	.84
Power Distance	.81	.89	.77
Uncertainty Avoidance	.69	.87	.78

6.9.1.2 *Discriminant validity*

Discriminant validity was assessed by verifying that all indicators load on their own construct higher than on any other construct in the model and by comparing the square root of the AVE for each construct with the construct's correlations with other constructs of the model.

Loadings for all of the indicators in the model, on all constructs, are listed in Table 6-30. In all cases, indicators loaded on their own construct higher than on other constructs, suggesting that the measures in the model have discriminant validity.

Table 6-30: Item Cross-loadings

	UP	TMC	SISP - Com	SISP - Tech	COL	PD	UA
B1	.87	.24	.33	.30	.17	.10	.37
B2	.80	.15	.29	.27	.19	.24	.19
C1	.23	.77	.34	.41	.09	.20	.35
C2	.23	.82	.28	.38	.12	.22	.24
C3	.14	.84	.29	.38	.14	.18	.24
C4	.14	.77	.25	.34	.06	.08	.04
C5	.17	.71	.30	.34	.06	.23	.08
D1	.29	.30	.89	.45	.24	.09	.39
D2	.38	.37	.93	.58	.01	.11	.43
D3	.21	.43	.30	.80	.15	.02	.06
D4	.35	.25	.51	.75	-.04	-.03	.17
D5	.26	.42	.58	.82	.09	.04	.28
E1	.17	.13	.17	.15	.85	.10	.19
E2	.12	.12	.20	.08	.86	.12	.18
E3	.23	.09	.02	.04	.88	.10	.15
E7	.20	.27	.11	.06	.14	.93	.28
E12	.15	.15	.09	-.04	.06	.87	.22
E13	.29	.22	.47	.28	.10	.13	.82
E14	.35	.26	.41	.18	.17	.32	.88
E15	.20	.16	.19	.07	.24	.26	.79

Note. UP = User Participation. TMC = Top Management Commitment. COL = Collectivism. PD = Power Distance. UA = Uncertainty Avoidance.

Square roots of AVE and construct to construct correlations are given in Table 6-31. In all cases, the square root of the AVE was clearly greater than the correlations of the constructs with other constructs, suggesting good discriminant validity.

Table 6-31: Squared Root of AVE and Latent Variable Correlations

	COL	SISP-Com	SISP-Tech	PD	TMC	UA	UP
COL	.861						
SISP-Com	.124	.902					
SISP-Tech	.096	.580	.791				
PD	.117	.111	.013	.898			
TMC	.126	.378	.474	.237	.783		
UA	.196	.452	.219	.287	.265	.831	
UP	.212	.373	.340	.197	.234	.347	.836

Note. COL =Collectivism. TMC = Top Management Commitment. PD = Power Distance. UA = Uncertainty Avoidance. UP = User Participation. SISP-Com = SISP-People. SISP-Tech = SISP-Technology. Diagonal elements are the square roots of AVE; off-diagonal elements are correlations between constructs.

6.9.2 Structural model

This section provides a PLS estimation for the structural model. Figure 6-1 presents the overview of the results, with supported and unsupported hypotheses represented by solid and dashed lines, respectively. In the figure, the values of path coefficients (β values) are given next to hypotheses labels, with the corresponding p -values a given in parentheses, next to their path coefficients.

Both user participation and top management commitment affected all dimensions of strategic IS planning success. Comparing the effects of the direct determinants of strategic IS planning success dimensions, top management commitment had about the same effect on SISP-Communication as user participation (path coefficients for both were .30). The effect of top management commitment on SISP-Technology was greater than the effect of user participation (the path coefficients were .418 and .242, respectively).

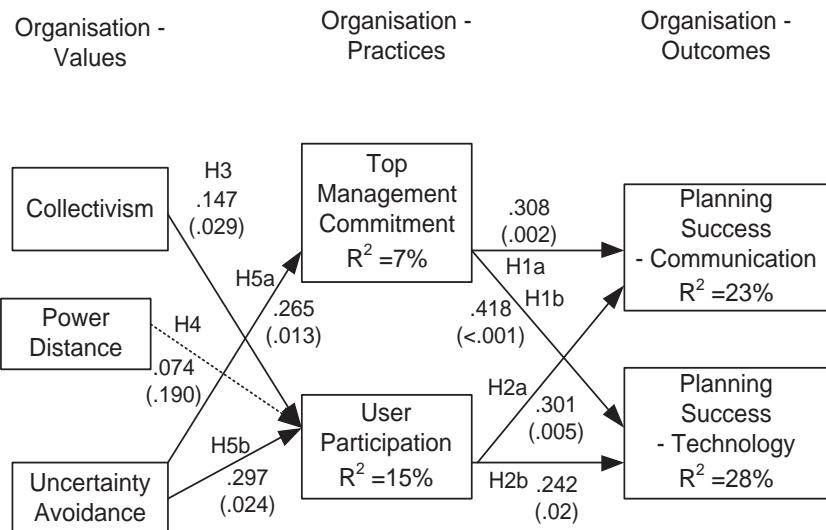


Figure 6-1. The results for the structural model. Solid lines denote hypotheses confirmed at $p < .05$. Numbers next to hypotheses labels are path coefficients; the corresponding p values are given in brackets.

Only two of the culture values, collectivism and uncertainty avoidance, affected the immediate determinants of strategic IS planning success. Uncertainty avoidance affected both top management ($p = .013$, $\beta = .265$) and user participation ($p = .024$, $\beta = .297$), and collectivism affected user participation ($p = .029$, $\beta = .147$). The effect of power distance on user participation was not statistically significant.

In terms of the variance explained, according to R^2 values, the model predicted 28% of the variance in SISP-Technology and 23% of the variance in SISP-Communication. The variance explained in the determinants of strategic IS success—top management commitment and user participation—was considerably smaller, 7% and 15%, respectively.

6.10 Cohen's effect sizes

Table 6-32 shows the effect sizes for the effect of management commitment on the dimensions of strategic IS success. According to Cohen's interpretation of effect size (f^2) values, the effect on SISP-Communication was large and the effects on SISP-Technology was medium.

Table 6-32: Cohen's Effect Size for the Effect of Top Management Commitment on Strategic IS Planning Success

Construct	R^2 excluded	f^2	Effect size
SISP-Communication	.035	.86	large
SISP-Technology	.154	.12	medium

Table 6-33 shows the effect sizes for the effects of user participation on the dimensions of strategic IS success. According to Cohen's interpretation of effect size (f^2) values, the effects on SISP-Communication and on SISP-Technology were medium to small.

Table 6-33: Cohen's Effect Size for the Effect of User Participation on Strategic IS Planning Success

Construct Excluded	R^2 excluded	f^2	Effect size
SISP-Communication	.173	.09	medium to small
SISP-Technology	.183	.08	medium to small

Table 6-34 shows the effect sizes for the effects of culture on the determinants of strategic IS planning success. According to Cohen's interpretation of effect size (f^2) values, the effect of collectivism (COL) on user participation was small and the effect of uncertainty avoidance (UA) on top management commitment was medium to small.

Table 6-34: Cohen's Effect Size for the Effect of Culture on Determinants of Strategic IS Planning Success

Construct Excluded	R^2 excluded	f^2	Degree of Effect
COL	.132	.02	Small
UA	.079	.08	Medium to small

Note. COL = collectivism. UA = uncertainty avoidance.

6.11 Post-hoc analysis

The relatively weak effect of collectivism on user participation (weaker than the effect of uncertainty avoidance) was an unexpected result. To further explore the effects of user participation, a post-hoc analysis was conducted

to consider the possible moderation effect of collectivism on the relationship between user participation and strategic IS planning success. The results of the analysis are shown in Figure 6-2.

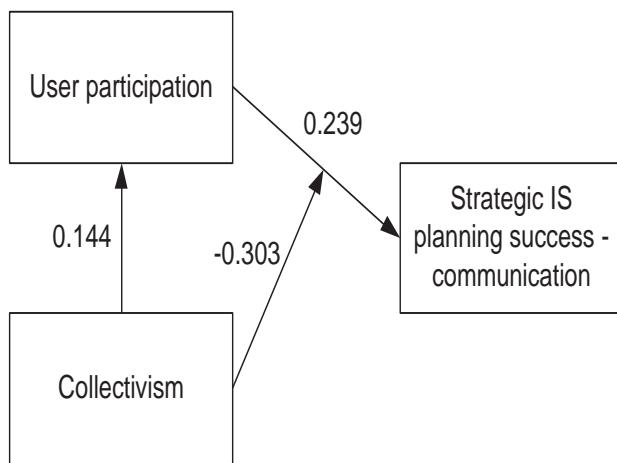


Figure 6-2. Post-hoc analysis—moderating effect of collectivism.

The moderation effect of collectivism on the relationship between user participation and strategic IS planning success - communication, was found to be negative ($\beta = -.303$). This suggests that in more collectivist organisations user participation (as captured by the user participation construct in the present study) matters less. This may be due to employees in collectivist cultures participating informally, outside of the formal strategic IS planning process.

This finding motivated me to conduct qualitative data collection in Malaysia, where organisations have a more collectivist culture compared to New Zealand because of the influence of the more collectivist culture at the level of the society.

6.12 Findings from qualitative interviews

This section discusses qualitative findings derived from interviews with senior managers and users by constant comparative analysis. The section covers qualitative results for organisations in which both top managers and users have been interviewed. Some further qualitative results (for a subset

of the organisations included in the quantitative study, in which only managers have been interviewed) are presented in Appendix I.

In discussing the results I distinguish the respondents from mature organisations (MO) and those from new organisations (NO). This is because these organisations have different characteristics based on the strategic IS planning stages. The details of the organisations that took part in the study are given in Appendix H. For each of the organisations, the responses from senior managers and users were collected and analysed.

6.12.1 Relationship between top management commitment and strategic IS planning success

This section presents the responses with regards to top management commitment in strategic IS planning development. The quantitative results suggested that top management commitment promotes strategic IS planning success. Top management commitment can be considered from the perspective of the roles played by the top management, the difference of commitment in different strategic IS planning stages, and the transfer of knowledge from top management to the strategic IS planning development.

All interviewees agreed that support from top management was important to achieving strategic IS planning success whereas lack thereof resulted in failure of the planning.

6.12.1.1 Mature organisation (MO)

All of the MO respondents agreed that top management commitment is important for strategic IS planning success. Respondent 22 noted that such commitment is important not only in the planning process but also throughout the implementation stage.

Obviously, the top management commitment plays crucial roles in ensuring successful IS planning and implementation. (Respondent 22, Male, 39 yo, PhD, Academician, 14 yeo)

If there is no commitment from top management, SISP activities are not likely to be treated as high priority, as asserted by Respondent 8.

If the top management does not assist in SISP, the activities may just be a side support rather than an objective to be reached. The top management must understand the aim of their functions. (Respondent 8, Male, 34 yo, Undergraduate Degree, Officer, 9 yeo)

The role of top management has been highlighted in different ways, namely as support provider, decision maker, and inputs provider. Details of these perspectives are discussed below.

6.12.1.1 Support provider

Top management is important in providing support especially in terms of approving budget.

As we need approval for the budget, their support technically gives us the green light, therefore, making it easy to get the budget. (Respondent 1, Female, 50 yo, Master's Degree, ICT Deputy Director, 25 yeo)

Users also agreed that top management is important in strategic IS planning success in terms of providing funding.

Particularly in the aspect of funding allocation and assessment whether such investment is in alignment with [organisation's] mission and strategic direction. (Respondent 18, Male, 39 yo, PhD, Academician, 14 yeo)

Respondent 6 highlighted that top management is important not only for providing budget and financial support, but also they are needed to provide encouragement in other ways.

Of course, it would if we wanted it that way, but the top management are not interested. Then we become discouraged. Actually, the one that gets us into the spirit is the top management. If they see anything important, they will move towards that; everyone would move towards that. If they think it does not have any priority, other people will not

have the spirit to do it either. (Respondent 6, Female, 49 yo, Master's Degree, Executive, 10 yeo)

6.12.1.1.2 Decision maker

Apart from providing support, top management is also important in giving direction with regards to strategic IS planning, as pointed by Respondent 5.

It is important, because all of the decisions are in the top management's hand. Any moves that are to be made should be with their knowledge and approval. (Respondent 5, Female, 35-44 yo, Undergraduate Degree, Executive, 17 yeo)

Some respondents emphasized that it is important that users support the managements' participation in decision making capacity by following orders and, beyond following orders, by actively anticipating top managements' needs.

It is very important. Orders from the top management should be carried out by all the officers here. When there are involvements or orders, the lower staffs would take more care and would cater to all the top management's needs. (Respondent 9, Female, 37 yo, Undergraduate Degree, Officer, 12 yeo)

6.12.1.1.3 Inputs provider

Users agreed that top management is important in providing inputs with regards to strategic IS planning. Respondent 3 highlighted the inputs with regards to the latest ICT development.

The top management is important in the success of the SISP because ICT is always changing...for the IT-savvy top management, they will know the latest development in ICT, and that makes planning on reformation easier. (Respondent 3, Male, 37 yo, Undergraduate Degree, Officer, 14 yeo)

Inputs to widen the scope of strategic IS planning were highlighted by Respondent 8.

I see it like this. If the top management does not get involved, the middle management can still make effective decisions...but only as far as satisfying the users. However, when the top management gets involved, the scope for effectiveness can be widened. (Respondent 8, Male, 34 yo, Undergraduate Degree, Officer, 9 yeo)

6.12.1.2 New organisation (NO)

The responses of NO employees suggested similar roles for top management: support provider, decision maker, and inputs provider.

6.12.1.2.1 Support provider

Responses from senior managers suggested that top management is important in providing support especially in terms of approving budget as suggested by Respondent 15 and Respondent 16.

Yes, it is important. Because if the top management is involved, all the projects will take more priority. We will execute it, and the top management can provide a budget for the projects. If the top management is not involved, these projects will stay on paper only. There won't be any implementation, or the implementation will not be 100%. (Respondent 15, Male, 34 yo, Undergraduate Degree, Head of MIS Division, 11 yeo)

Yes, it sure is. If there were no support, we would not be where we are today....If there were no support, the whole thing would not work. (Respondent 16, Male, 32 yo, Undergraduate Degree, Head of IT Department, 7 yeo)

Users also highlighted the importance of top management in strategic IS planning success in terms of providing funding.

I think the top management is important to support ICT development in any organisation because they are the ones who will be channelling the funds. (Respondent 11, Male, 41 yo, Undergraduate Degree, Executive, 12 yeo)

6.12.1.2.2 Decision maker

Respondent 10 added that the top management commitment in terms of giving approvals is also important.

Because in this entire organisation, he is the most important person. We can only plan, but it is the top management that makes the final call. Any planning we do needs approval from the top management.
(Respondent 10, Male, 32 yo, Undergraduate Degree, Officer, 4 yeo)

6.12.1.2.3 Inputs provider

Respondent 12 suggested that top management provides inputs by giving direction.

I think that the top management was elected based on their experience, skills, and knowledge. They are the one that is going to lead the departments in the right direction. So if they are not there, how is this possible? (Respondent 12, Female, 37 yo, Undergraduate Degree, Officer, 4 yeo)

In sum, both MO and NO employees agreed that top management commitment is important for strategic IS planning success. The responses suggested three major roles for top management: support provider, decision maker, and inputs provider. Whether the organisation has already matured or is still new, top management was seen as an important factor for the strategic IS planning to succeed.

This section focused on the respondents' views relating to the importance of top management's commitment for strategic IS planning success. The next section discusses the respondents' views regarding top management's commitment at different stages of the strategic IS planning process.

6.12.1.3 Difference of commitment in strategic IS planning stages

Regarding the difference in top management commitment at different stages of the strategic IS planning process, the views of MO respondents were quite similar to those expressed by NO respondents.

Responses from MO varied between the managers and the users. Respondent 2, who is the Head of MIS Unit at MO, stated that top management is involved only at the initial stage of the process.

They may be involved initially, but not when the real system is about to be developed. (Respondent 2, Female, 40-50 yo, Undergraduate Degree, Head of MIS Division, 10 yeo)

However, Respondent 5, a user at MO, suggested that top management should be involved over the whole strategic IS planning process.

Actually, they should be involved too [monitor the whole process]. If they were just to give the input and not monitor [laugh]. We may not know what the outcome would be. (Respondent 5, Female, 35-44 yo, Undergraduate Degree, Executive, 17 yeo)

The response from Respondent 13, a user at NO, was similar to that from the manager at MO and suggested that top management should only monitor the initial stages of strategic IS planning.

Here, the top management monitors the introduction. If he does not monitor it, he will ask his assistant to do so. (Respondent 13, Male, 32 yo, Master's Degree, Executive, 7 yeo)

However, Respondent 11, an executive from NO, suggested that top management should be involved only if there are issues in conducting the planning, such as insufficient expertise or insufficient resources.

Top management supports, for like when there is not enough money invested into it, they provide support from a financial standpoint by increasing the implementation budget. If there is insufficient expertise, he will hire an outside vendor. (Respondent 11, Male, 41 yo, Undergraduate Degree, Executive, 12 yeo)

The responses regarding whether top management's knowledge about ICT has implications for top management's commitment differed between MO and NO.

Respondent 8 from MO thought there is not much difference because top management is likely to be giving input about other matters, such as management issues.

Even if they do have ICT knowledge, the decisions they make regarding ICT may not necessarily be right, because to strategize a decision in the technical field, they really do have to have IT knowledge. As for the top management that are not very knowledgeable in IT, they can give input in terms of management. Now IT will make things smoother. I do not think there is much of a difference. (Respondent 8, Male, 34 yo, Undergraduate Degree, Officer, 9 yeo)

However, most of the users (both MO and NO) highlighted that top management with IT knowledge could communicate better with the development team and provide better support to the process, as corroborated by the following comments.

The more knowledgeable ones are able to give comments and opinions relevant to the needs of the organisation for ICT. For the lesser informed, they will just accept what is given to them. There is also a difference in terms of support. This is because they work easier with the top management with a wider knowledge because aside from their views and opinions, they can see the importance of ICT in the development of an organisation more clearly. (Respondent 3, Male, 37 yo, Undergraduate Degree, Officer, 14 yeo)

Top Management that have information regarding ICT would give more commitment and emphasis towards the SISP compared to top managements that don't have the knowledge. (Respondent 9, Female, 37 yo, Undergraduate Degree, Officer, 12 yeo)

Maybe it is different....The top management that already has the knowledge knows the importance, and it would be easier for you to understand the importance of SISP in the organisation. (Respondent 6, Female, 49 yo, Master's Degree, Executive, 10 yeo)

Surely it would be different because if they have ICT knowledge, they will be interested in doing more. If not, they would just sit back and follow. (Respondent 7, Female, 46 yo, High School Certificate, Clerk, 11 yeo)

ICT managers at NO did not agree with each other. Respondent 14, the ICT Deputy Director, asserted that if top management does not have any knowledge or interest in ICT the organisation is likely to end up using outdated technology.

Quite different [support in ICT] indeed, I believe. If we get a manager that couldn't be bothered with these things, we would probably be using Windows XP till now just to save on cost. (Respondent 14, Female, 38 yo, Undergraduate Degree, ICT Deputy Director, 12 yeo)

The response given by a Head of IT Department at NO suggested that top management's commitment makes little difference because of the nature of the top management's responsibilities.

I guess due to responsibilities since they are the ones with the authority and monitoring. (Respondent 16, Male, 32 yo, Undergraduate Degree, Head of IT Department, 7 yeo)

Respondent 11 from NO asserted that even though top management does not have a deep knowledge of IS or technology, their input is still important for developing strategic IS planning.

In my opinion, the top management does not know much about ICT. However, he will give the relevant instructions to the ICT director and give them clear guidelines of what he expects from them. (Respondent 11, Male, 41 yo, Undergraduate Degree, Executive, 12 yeo)

In sum, responses from both organisations were quite similar in highlighting that top management are most important in the initial stage. This is because in the initial stage the planning team needs to ensure that it has the correct information and understanding of the vision, mission, goals, strategies, and the direction of the organisation. According to Cassidy (2006), it is important

to understand the vision, mission, goals, objectives, strategies, and culture of the organisation at the initial stage. Top management can provide this information. Users from MO (but not from NO) suggested difference between top management that has knowledge of ICT and top management that does not have such knowledge.

These findings are consistent with the quantitative result suggesting that top management commitment affects strategic IS planning success, and offer better understanding of how the positive effect of top management commitment is realised. These findings help to address the second research question of the present thesis (for what reasons are the determinants of strategic IS planning success affected by culture?).

6.12.2 Relationship between user participation in strategic IS planning success

Most of the interviewees agreed that user participation is important for achieving strategic IS planning success. Many different ways were used by the interviewees to describe the participation by users (the general employees who directly used the applications) in their organisations.

6.12.2.1 *Mature organisation*

Respondent 18 clearly stated the importance of user participation in the implementation stage.

To some extent, users involvement especially at the IS designing and testing stage seems very helpful. (Respondent 2, Male, 39 yo, PhD, Academician, 14 yeo)

The importance of participation by non-management employees has been highlighted by emphasising their roles as inputs providers, feedback providers, and system users.

6.12.2.1.1 Inputs provider

The contribution of the user as inputs provider varies from giving inputs at the initial stage of the strategic IS planning process to clarifying system requirements at the implementation stage.

The importance of user participation in strategic IS planning as input provider in the implementation stage was highlighted by Respondent 3 and Respondent 8.

The user is very important in the development of a system because it is them that are going to be using the system. If the system is developed without the involvement of the user, the system will not work well and will not achieve its purpose. (Respondent 3, Male, 37 yo, Undergraduate Degree, Officer, 14 yeo)

I highlighted everything from the tiniest detail to the biggest that needed to be put across [in the system development stage]. That is why I said the users' involvement is very important. (Respondent 8, Male, 34 yo, Undergraduate Degree, Officer, 9 yeo)

Respondent 7 added that users can give inputs to the policy maker, too.

Users come from many different races and countries. So with the help of users, the policy maker can gain insight. The policy maker may have just been focusing on one aspect, probably because of a limited budget. However, if there were requests and requirements that can push the organisation forward, surely it will broaden their [the policy maker] view. (Respondent 7, Female, 46 yo, High School Certificate, Clerk, 11 yeo)

6.12.2.1.2 Feedback provider

Feedback from users is important to ensure the success of strategic IS planning. Respondent 18 highlighted the importance of users' feedback in the early stages of system development.

Their comments and perspective at these early stages do help to minimise correction/major refinement upon its execution. (Respondent 18, Male, 39 yo, PhD, Academician, 14 yeo)

6.12.2.1.3 Systems user

Respondent 4 and Respondent 5 suggested that the importance of user participation in strategic IS planning stems from the users' intimate connection to the systems in which strategic IS planning ultimately results.

Yes, they are important because they will be the ones using it. It is just that the needs of each department are different. (Respondent 4, Female, 48 yo, Undergraduate Degree, Secretary, 26 yeo)

To me the user is important....Because, the user is the person who will be using this system later on....The user knows better when it comes to the strengths and weaknesses of the system. (Respondent 5, Female, 35-44 yo, Undergraduate Degree, Executive, 17 yeo)

Respondent 4 added an example of how a system user can contribute to decision making.

Take the thumbprint system for example. Let's say an employee comes to work late because he works at another job under orders. At the end of the day, he will not achieve the required hours for that day. At the end of the month, his total hours of attendance will not be 100%. In this case, it is important to involve the users to counter issues like this. (Respondent 4, Female, 48 yo, Undergraduate Degree, Secretary, 26 yeo)

Respondents were also asked whether they had learnt anything by participating in the strategic IS planning process. The respondents listed five points that they learnt: i) the difficulty of plan preparation, ii) the breadth of demands from users, iii) the number of critiques, iv) the level of patience of the planners, and v) the role of inputs from other departments.

Some of them include how hard it is to prepare a plan for the development of a system where many ideas and analyses are required. Secondly, the demands of users with different wants. Thirdly, the amount of criticism received on a plan that is to be worked upon and fourthly, the need for a high level of patience when they receive last

minute information that might disrupt the entire planning process. (Respondent 3, Male, 37 yo, Undergraduate Degree, Officer, 14 yeo)

When they are involved in decision-making, they will come to know about goals that are not within their function. If those goals are new to them, and if it is a priority to achieve them, but the information has not been obtained yet, they can take that as a lesson to improve their productivity. Indirectly, the users are receiving input. (Respondent 8, Male, 34 yo, Undergraduate Degree, Officer, 9 yeo)

6.12.2.2 New organisation

Respondents from NO agreed that user participation is important for strategic IS planning success, for example as stated by Respondent 13. Users can provide the information that they have (Respondent 12).

It is not just important, in my opinion, it is very important [stresses]. (Respondent 13, Male, 32 yo, Master's Degree, Executive, 7 yeo)

We as the users can help ICT out with what we have. (Respondent 12, Female, 37 yo, Undergraduate Degree, Officer, 4 yeo)

The same user roles have been identified as in the interviews with MO participants: inputs provider, feedback provider, and system user.

6.12.2.2.1 Inputs provider

The importance of the user as inputs provider varies from giving inputs at the initial stage of the strategic IS planning process to clarifying system requirements at the implementation stage. A manager highlighted the importance of users in clarifying system requirements.

It is important because they are the ones that can submit an ICT project that is needed. If there's no user involvement, ICT people tend to think in a more complicated way. In my experience, users only ask for 2-3 modules, but ICT people can suggest up to 10 modules that users will not even use. (Respondent 15, Male, 34 yo, Undergraduate Degree, Head of MIS Division, 11 yeo)

6.12.2.2 Feedback provider

Feedback from users is also important to ensure the success of strategic IS planning, as mentioned by Respondent 10.

If there is no information from the other departments, a functional system cannot be created because...user feedback is very important. ICT develops the systems; the user uses it. ICT needs to get feedback from their users on whether the system they have developed meets their needs or not. I think a system that is developed without taking user feedback into consideration is useless. (Respondent 10, Male, 32 yo, Undergraduate Degree, Officer, 4 yeo)

He also highlighted how users, as feedback providers, can contribute to decision making relating to strategic IS planning.

I feel that when the top management makes a decision, they do it based on feedback obtained from users. Everything is based upon our vision and mission. As far as user feedback goes, I would say maybe 100%, or at least 40% of it is taken into consideration while never losing sight of our vision and mission. (Respondent 10, Male, 32 yo, Undergraduate Degree, Officer, 4 yeo)

6.12.2.3 Systems user

Respondent 16 asserted the relative importance of end-users for strategic IS planning, compared to administrators.

We are definitely very important especially the last end-users because they are the ones that use the system the whole day, 8 hours per day, as compared to the administrator that checks the monthly report. If there is no participation from the end-users when developing, things will not be easy. (Respondent 16, Male, 32 yo, Undergraduate Degree, Head of IT Department, 7 yeo)

Respondents were also asked whether they had learnt anything by participating in the strategic IS planning process. By participating in the planning process, users have learned how to consider IS from a long-term

perspective and how to improve inter-department communication (highlighted by Respondent 10). Further, users learned to appreciate the nature of ICT jobs, as highlighted by Respondent 15.

Users might indirectly learn how to plan the needs of a system according to what is requested. The users will not only think of short-term necessities but will learn to plan ahead, for instance if the system is needed for three years. It will also teach them to improve inter-department communication. (Respondent 10, Male, 32 yo, Undergraduate Degree, Officer, 4 yeo)

Users might learn the nature of an ICT job that most people do not know about. When they are involved, they will know the system behind planning. Users may also be able to learn the process of developing a system, the phases in system development, and the difficulties of developing a system. (Respondent 15, Male, 34 yo, Undergraduate Degree, Head of MIS Division, 11 yeo)

In sum, both employees from both MO and NO organisations suggested the importance of user participation in strategic IS planning success. The roles suggested by the responses can be summarised as input provider, feedback provider, and systems user. Whether the organisation has already matured or is relatively new, user participation was suggested as an important factor in the success of strategic IS planning.

The responses suggested that users learn from participating in the IS planning process about the process and the IS plan. Further, they learn about broader issues relating to IS and to how IS professionals and their department relate to the rest of the organisation. Some of the issues were the breadth of demands on IS planners, the extensive critiques of their work, and the patience required of them to constructively accept these inputs. The users also learned about the nature of ICT jobs and learned about the need for and the means of interdepartmental communication.

6.12.3 Different ways for users to participate

User participation in strategic IS planning ranged from formal to informal.

6.12.3.1 Mature organisation

Formal participation involved appointing user representatives from each department.

Actually, it depends on whether the department wants to be involved, the Steering Committee might already represent the academic. (Respondent 1, Female, 50 yo, Master's Degree, ICT Deputy Director, 25 yeo)

There may be too many departments so we will take the major ones first. The rest like Department H are not so important, so we have to identify the important ones first. (Respondent 2, Female, 40-50 yo, Undergraduate Degree, Head of MIS Division, 10 yeo)

Formal user participation was limited to the initial stage of the project, as stated by Respondent 8.

The limitation is that users can only contribute ideas for the foundation of the development of the system. The Computer Centre does the actual development. (Respondent 8, Male, 34 yo, Undergraduate Degree, Officer, 9 yeo)

Respondent 6 suggested that participation depends on the situation at particular departments.

If it is planning concerning the B department, it'll depend on the generation of wealth. Not everyone is involved. (Respondent 6, Female, 49 yo, Master's Degree, Executive, 10 yeo)

The assertion that users from different departments participate in different ways was confirmed by Respondent 1.

...[unlike another department] they [academic department] make a complaint [informally] but there are no suggestions to how resolve the issue. (Respondent 1, Female, 50 yo, Master's Degree, ICT Deputy Director, 25 yeo)

However, some users perceived that there should be no differences in the way users participate because they are working at the same organisation and because they are serving the same customers, as observed by Respondent 8.

They play the same role, but it depends on their respective fields and functions because our stakeholders are the same....Their role should be the same. Teamwork will vary. (Respondent 8, Male, 34 yo, Undergraduate Degree, Officer, 9 yeo)

Some users who did not participate in the strategic IS planning process felt they should be participating for specific reasons, as stated by Respondent 4 and Respondent 7.

Because it is the users that will be using it. (Respondent 4, Female, 48 yo, Undergraduate Degree, Secretary, 26 yeo)

Because I want to simplify my job. (Respondent 7, Female, 46 yo, High School Certificate, Clerk, 11 yeo)

Respondent 9 had volunteered to participate in strategic IS planning because she felt that information technology could help him in his job.

It's because of the initiative because the system or technology that we asked for could help out with our daily tasks. So, I thought that if I were involved directly, I would get what I wanted. (Respondent 9, Female, 37 yo, Degree, Officer, 12 yeo)

Other users refused to participate because they felt that participating would increase their workload, as stated by Respondent 4.

Because if they do volunteer to participate, their workload increases. (Respondent 4, Female, 48 yo, Undergraduate Degree, Secretary, 26 yeo)

When probed further regarding how users participate in strategic IS planning, a manager stated that it was hard to find any volunteers.

Well, as usual [laugh]. It is not easy for people to volunteer for it...there are people around, but not many want to contribute. (Respondent 1, Female, 50 yo, Master's Degree, ICT Deputy Director, 25 yeo)

Some of the users participated when officially ordered to do so by their superiors, as stated by Respondent 3 and Respondent 5.

I receive official orders that help in the development process of the system. That has become a part of my task and responsibility. (Respondent 3, Male, 37 yo, Undergraduate Degree, Officer, 14 yeo)

It usually depends on the head of a department. Before this there was a strategic planning, we have our own senior representative. So, it depends on the instructions from the party in the higher up. (Respondent 5, Female, 35-44 yo, Undergraduate Degree, Executive, 17 yeo)

6.12.3.2 New organisation

User participation varied between indirect and direct participation, with the mode of participation depending on the user's department. Respondent 13 commented that he would state his complaints directly to ICT department personnel (over the phone) as he had many friends in the department.

I also have friends who are in this ICT field. So we often communicate and discuss the ICT-related matters. At the same time, I will be sure to state any complaints I have regarding the technology used or the system itself...this may be because people at ICT know me. (Respondent 13, Male, 32 yo, Master's Degree, Executive, 7 yeo)

Some users suggested that participation would depend on the user's individual tasks, as asserted by Respondent 10 and Respondent 12.

As of now, yes, but only the systems I work with which is the system that reviews and checks records. If you are asking of systems developed outside my department, then no. (Respondent 10, Male, 32 yo, Undergraduate Degree, Officer, 4 yeo)

I think it depends on the individual departments...they can contribute ideas to their Heads of Departments and the Heads of Departments rallies this along to the committee, it should be sufficient to get the results they desire. The user does not need to be at the meeting themselves. It is just that the users have to be given an opportunity to voice their opinions because everyone will have something different to say. (Respondent 12, Female, 37 yo, Undergraduate Degree, Officer, 4 yeo)

How users participated differed depending on their department and their tasks. If the department was not considered to be one of the main departments, such as KES (at NO), participation could be less active (Respondent 10).

I think it depends on the functioning of the department itself. Here, we are actively involved in updating student information as it is something needs to be constantly looked after from time to time. Now take the KES department for example....because their role is not quite as critical, their relationship with Computer Centre is only through phone....There is no need to meet them in person. (Respondent 10, Male, 32 yo, Degree, Officer, 4 yeo)

Users volunteered to participate in the strategic IS planning process because they expected to use the system once it was implemented (Respondent 11), because of general interest in ICT (Respondent 13), or because they felt personally responsible for the system's success (Respondent 12).

We want to be involved in the development of a system because we will be the ones who are going to use it. If we only participate because we are ordered to do so, we will not know what the full function of the system is all about. (Respondent 11, Male, 41 yo, Undergraduate Degree, Executive, 12 yeo)

I have a deep interest in ICT, and I also have many friends who are in this ICT field. So we often communicate and discuss ICT-related

matters. (Respondent 13, Male, 32 yo, Master's Degree, Executive, 7 yeo)

I have to get involved because it is my responsibility. (Respondent 12, Female, 37 yo, Undergraduate Degree, Officer, 4 yeo)

In summary, most users at both MO and NO organisations did not participate (whether they were purposely not given a chance to participate or because they themselves did not want to participate) formally in strategic IS planning. Some of the users participated only if the planning was related to their immediate tasks or to their department, or they were directed to participate. Very few users ever volunteered to participate in the planning process. Those who did volunteer were users who had an interest in the new applications or felt a sense of personal responsibility towards the organisation.

These findings are consistent with a view that in organisations with high collectivism cultures formal user participation in strategic IS planning matters less than in organisations with low collectivism cultures. Formal participation is restricted because very few users are appointed to steering committees or similar formal structures, but users can influence the process informally. Some users do not wish to participate in IS planning formally because such participation would increase their workload; this is particularly understandable because they have opportunities to exercise influence informally without having to spend time at formal meetings.

From the above discussions, it can be seen that top management commitment and user participation are important determinants of strategic IS planning success. The participation by users can be formal or informal. The next section discusses other factors suggested by the respondents as contributing to strategic IS planning success.

6.12.4 Other factors contributing to strategic IS planning success

This section discusses other factors contributing to strategic IS planning success (other than user participation and top manager commitment) that emerged from the analysis.

Respondents from MO suggested some other factors, namely staff knowledge, users' feedback, users' satisfaction, goals of the planning, facilities, resources, and interest in IT. Respondent 18 suggested that employees have knowledge about their roles in their organisations. Therefore, they can come up with sound ideas about IS needed to support these roles.

Everybody in the organisation should know their roles and sincerely voice out the needs of good information system. (Respondent 18, Female, 43 yo, Master's Degree , Academician, 14 yeo)

Some respondents suggested that users' feedback is important to ensure the success of strategic IS planning, as pointed by Respondent 3 and Respondent 5.

Feedback from users may prove to be a factor. SISP will only be considered successful if it manages to get good feedback from its users. (Respondent 3, Male, 37 yo, Undergraduate Degree, Officer, 14 yeo)

Besides the user and top management, our customers here should be surveyed as well. Are they satisfied with the system? So the people who are affected by our system should know the level of satisfaction. (Respondent 5, Female, Between 35-44 yo, Undergraduate Degree, Executive, 17 yeo)

Respondent 3 suggested that strategic IS planning goals and targets are important.

In my opinion, the target is important in SISP planning. The SISP will be a success if the planning invested in it can reach a set target. (Respondent 3, Male, 37 yo, Undergraduate Degree Officer, 14 yeo)

Sufficient resources (financial and non-financial) are also one of the factors in strategic IS planning success, as pointed by Respondent 4 and Respondent 1.

We must have the equipment and facilities. To build something new, the equipment has to be up-to-standard too. There is no point in fancy planning and building new things if we still use the old equipment. (Respondent 4, Female, 48 yo, Undergraduate Degree, Secretary, 26 yeo)

Budget [laugh] and human resource. Planning is another thing people refuse to do. Money, people. Even outsourcing has limited allocation. (Respondent 1, Female, 50, Master's Degree, ICT Deputy Director, 25 yeo)

Respondent 4 suggested that interest in IT should be one of the factors since without this, motivation to achieve the success of strategic IS planning may be lacking.

Sometimes we feel that they know more than us, but we should not be surprised if we are more knowledgeable than them [laughing]. With IT, you have to be interested. If you are uninterested, you will not make it. Some people can understand ICT but if uninterested they will not be motivated to use it. I once worked with someone. He did not want to know what was in the emails; he wanted them in hardcopy. He did not want to know about meeting schedules in the system; everything had to be printed out. He only skimmed over the emails he got. (Respondent 4, Female, 48 yo, Undergraduate Degree, Secretary, 26 yeo)

Since he has a post, he has officers that do the work for him. So for him, using the system is an annoyance because he has to learn something new. (Respondent 4, Female, 48 yo, Undergraduate Degree, Secretary, 26 yeo)

Respondents from NO suggested that knowledge can be one of the factors that contribute to strategic IS planning success. Some respondents highlighted the importance of knowledge about the system.

If the user is not directly involved and only has a limited knowledge on the system, it may affect its efficacy. (Respondent 10, Male, 32 yo, Undergraduate Degree, Officer, 4 yeo)

If there is the latest version of computers but no one knows how to operate them, then what is the point? I would rather have an ordinary system which everyone can use; that would be better. (Respondent 12, Female, 37 yo, Undergraduate Degree, Officer, 4 yeo)

Others highlighted the importance of managers' interest in ICT and the role of the implementation team.

However, based on my experience, it is usually based on interest. If the top management is aged older than 50 years old, they are usually less enthusiastic about ICT, but the ones in their 30's and 40's definitely are. (Respondent 12, Female, 37 yo, Undergraduate Degree, Officer, 4 yeo)

I will give input on ICT, but from an audio visual perspective, I do not see a problem. Maybe it is because of my interest in it. I can also contribute some knowledge towards ICT development in this university's organisation. Example, it is my field where I choose to help build audio and video production in this organisation. (Respondent 13, Male, 32 yo, Master's Degree, Executive, 7 yeo)

It is important for the implementers to function. If not, it would be a failure. (Respondent 14, Female, 38 yo, Undergraduate Degree, ICT Deputy Director, 12 yeo)

At NO, infrastructure was highlighted as an additional factor contributing to the success of strategic IS planning.

The campus infrastructure capacity has to be good enough for the next level planning. If it is not ready, there cannot be a bigger and better planning. (Respondent 16, Male, 32 yo, Undergraduate Degree, Head of IT Department, 7 yeo)

CHAPTER 7: DISCUSSION, CONCLUSIONS, AND FURTHER RESEARCH

7.1 Introduction

This chapter discusses the main findings of the present study by integrating the quantitative and the qualitative findings and interpreting them in view of the literature.

7.2 Determinants of strategic IS planning success

Based on the review of the literature, I concluded that top management commitment and user participation are the determinants of strategic IS planning success that are most likely to be affected by culture. Therefore, the present study answers the first research question (what is the effect of culture on the determinants of strategic IS planning success?) by considering the effects of culture on top management commitment and user participation.

7.2.1 Effects of top management commitment

The present study demonstrated a strong relationship between top management commitment and strategic IS planning success, with top management commitment affecting both dimensions of strategic IS planning success, SISP-Communication and SISP-Technology. In terms of Cohen's effect size, the effect of top management commitment on SISP-Communication was large, and the effect on SISP-Technology was medium.

The analysis of the semi-structured interviews with senior managers and users showed that top managers contribute to strategic IS planning in a variety of ways. They provide the knowledge of business strategy, provide the resources (funding, training, consultants), as well as drive the process through their vision and example, or by compulsion (by relying on their

authority to impose the desired behaviour on the subordinates). Top management commitment is a critical success factor—without it a failure of strategic IS planning is assured.

Findings from the present study are consistent with the findings in the literature. Al-Mashari, Al-Mudimigh, and Zairi (2003), based on a multiple case study of critical success factors in implementing enterprise resource planning (ERP), found that top managers should have a clear understanding of the business strategy to ensure that strategic IS planning aligns with business planning. Teo and Ang (2001), based on a quantitative study on major IS planning problems with top managers from multiple industries, suggested that failing to have top management commitment results in planning failure.

7.2.2 Effects of user participation

The present study demonstrated a strong and positive relationship between user participation and strategic IS planning success, with user participation affecting both of the IS planning success dimensions, communication and technology. In terms of Cohen's effect size, the effects of user participation on SISP-Communication and SISP-Technology were medium to small.

Interview participants differed in their views on the importance of user participation to strategic IS planning success. There was a range of views on the optimal extent of user participation, with some of them indicating that user participation should be primarily emphasised in the implementation stage. Views relating to the reasons for user participation ranged from users demanding participation to managers using compulsion to ensure that users participate. Along with the importance of getting information from users into the strategic IS planning process, some of the participants highlighted the role of information flow from the strategic IS planning process to a user as both a reason for user participation and a benefit of user participation.

The results were consistent with previous literature suggesting the importance of user participation in strategic IS planning (refer to Premkumar & King, 1994 and Chi et al., 2002).

The results were also consistent with previous literature suggesting the importance of user participation in systems development, an activity distinct from but related to strategic IS planning. McGill and Klobas (2008), based on an experimental study that investigated the role of user involvement in user application success, revealed that user participation can increase communication between the users and the developers, which leads to systems success. McLeod et al. (2007), based on a quantitative study of IS managers, also revealed that having user participation in the IS development process facilitates effective communication between developers and users. Similar conclusions were drawn in the studies by Lapiedra, Alegre, and Chiva (2006); Subramanyam, Weisstein, and Krishnan (2010); and Majid, Noor, Adnan, and Mansor (2010).

Even though the present study found that user participation affects strategic IS planning success, the effect of user participation on the technology dimension of IS planning success (SISP-Technology) was markedly smaller compared to the effect of top management commitment. This might be because strategic IS planning is driven by top management and can be successful even without formal participation from users. This result, however, contrasts with the results from previous literature emphasizing that user participation is a critical factor in ensuring the success of strategic IS planning (Premkumar & King, 1994).

7.3 Effects of culture on determinants of strategic IS planning success

The present study revealed that the determinants of strategic IS planning success investigated here, namely user participation and top management commitment, are affected by culture dimensions: collectivism affects user participation and uncertainty avoidance affects top management commitment and user participation. These results answer the first research question (what is the effect of culture on the determinants of strategic IS planning success?).

7.3.1 Effect of collectivism on user participation

Collectivism was found to affect user participation in strategic IS planning. In terms of Cohen's effect size, the effect of collectivism on user participation was small. Further, collectivism was found to have negative effect on the relationship between user participation and strategic communication dimension of IS planning success (SISP-Communication). In other words, in collectivist culture user participation is slightly higher, but it matters less for achieving strategic IS planning success.

A possible interpretation of this result is that formal participation in strategic IS planning success matters less in collectivist culture because users participate informally. The findings from semi-structured interviews were consistent with this interpretation. Users in the higher collectivism culture of organisations in Malaysia did informally participate in strategic IS planning. Results from both mature and new organisations highlighted that only a few representatives from users, such as the heads of department, were invited to participate in a formal process (for example, by joining steering committees). However, the general users were able to influence the strategic IS planning informally, not only by influencing their heads of department, but by communicating directly with their colleagues at ICT departments. Greater formal participation was not sought, suggesting that informal participation was effective enough to address user concerns.

7.3.2 Effect of uncertainty avoidance on user participation and top management commitment

Uncertainty avoidance was found to affect user participation and top management commitment in strategic IS planning. In terms of Cohen's effect size, the effect of uncertainty avoidance on user participation and top management commitment was medium to small.

Responses from semi-structured interviews suggested that users participate because they are the ones who will be using the applications in the future. By participating, they can provide inputs and give feedback about the future

application, thus reducing uncertainty about the new applications that will be implemented in the future.

Uncertainty avoidance affecting user participation is consistent with previous literature. Choe (1998), based on a quantitative study that investigated the effect of user participation in designing accounting information systems, revealed that information gained through high user participation is positively related to stronger performance in high uncertainty tasks. Hofstede (1983) suggested that in high uncertainty avoidance societies, group members typically need to establish consensus in order to ensure that they have sufficient information to prepare detailed procedures.

The participant views on top management commitment in strategic IS planning differed between MO (mature organisation) participants and NO (new organisation) participants. MO participants' views of the role of top management ranged from providing input to being an evaluator of the future system. Evaluation of the system by top management reduces risk and uncertainty resulting from the implementation of the new technology. In contrast, NO participants' viewed the top management as an information provider and as a decision maker only. They did not see the importance of evaluation and monitoring of new technology by top management. Thus, it appears that maturity is associated with greater awareness of uncertainties and risks associated with information systems use.

The finding that uncertainty avoidance affects user participation and top management commitment is consistent with the findings of prior studies. Jung, Su, Baeza, and Hong (2008) investigated the relationship between culture and total quality management (TQM) implementation performance. The analysis of data collected from 186 managers of multinational companies from the U.S., Mexico, and China revealed that uncertainty avoidance affects the managers' decision-making process related to TQM issues. Mirchandani and Lederer (2010), who investigated the impact of national culture on IS planning autonomy, with data collected from CIOs of large organisations, also found that uncertainty avoidance affects management commitment.

7.3.3 Effect of power distance on user participation

The results of the present study are consistent with a view that power distance does not affect user participation in strategic IS planning. Qualitative analysis of interview data (and thus, in higher power distance organisations) offers an interpretation for this result. Even though in higher power distance cultures users might be more inclined to delegate strategic decisions to managers, managers in such cultures may be in a better position to use compulsion to ensure that users participate.

7.4 Implications of the study

The aim of the present study was to investigate the impact of culture on strategic IS planning. The results have implications to both theory and practice.

7.4.1 Significance for theory

Top management commitment and user participation as the determinants of strategic IS planning success. The present study contributes to the body of knowledge on the determinants of strategic IS planning. Previous studies on strategic IS planning success suggested that it was influenced by various factors that often included top management commitment and user participation as part of their content. The present study is the first to have investigated the effects of both user participation and management commitment as separate constructs in their own right, both in terms of confirming the existence of the effects and empirically exploring the mechanisms behind the effects. (Basu et al., 2002 investigated the effect of top management commitment as a separate construct, but their model did not involve user participation.)

Effect of culture on the determinants of strategic IS planning success.

The present study is the first study to have investigated the effects of culture at an organisation on the determinants of strategic IS success. The study identified collectivism and uncertainty avoidance as culture dimensions relevant to strategic IS planning (with collectivism affecting user participation

in strategic IS planning and uncertainty avoidance affecting user participation and top management commitment to strategic IS planning). The mechanisms behind the effects were also empirically explored.

7.4.2 Significance for practice

Highlighting the importance of top management commitment to strategic IS planning. The results of the present study suggested that top managers need to be aware that their commitment affects the strategic IS planning success. Top managers should not view strategic IS planning as a mainly technology related activity that can be delegated to IT personnel. Top managers should be involved in the strategic IS planning process and drive the process.

Highlighting the importance of user participation in strategic IS planning. The results of the present study suggest that user participation in strategic IS planning contributes to strategic planning success and is of benefit to both the organisation and to users as individuals. Top managers should not prevent users from participating but should find a way to encourage and involve users while maintaining control of the overall process.

Highlighting the effects of collectivism and uncertainty avoidance on management and employee behaviour with respect to strategic IS planning. The results of the present study suggest that considering the cultural dimensions of collectivism and uncertainty avoidance at an organisation helps understanding manager and employee behaviour in the context of strategic IS planning. In particular, uncertainty avoidance has substantial predictive power with respect to both user participation and top management commitment in strategic IS planning. With this understanding, top management may develop a more proactive and suitable strategic IS planning, particularly in circumstances where there are variations in culture, such as where branch offices or supply chain partners from a variety of cultural contexts are involved.

7.5 Limitations of the study and further research

Relying on commercial B-2-B databases. The present study used commercial databases as a way to obtain contact details of potential respondents. However, the information in the database reflected the actual situation with some delay—it was not entirely current. For example, it included the profiles of companies that had ceased operation. Thus, it is likely that it also did not include the profiles of some of the companies that were recently established, resulting in a bias. Moreover, to be listed in the database, companies had to pay a fee. Thus, it is likely that smaller companies or companies in a difficult financial situation were underrepresented, thus resulting in bias. In particular, for companies in Malaysia, the ratio of small companies among the respondents was substantially smaller than one would expect based on official statistics. Alternative approaches to sampling organisations for quantitative studies that would not suffer from these drawbacks would be desirable.

Single informant for representing targeted organisations. Information about a given participating organisation was obtained from a single respondent. Using a top manager as a single respondent justified this approach, because top managers are highly knowledgeable about their organisations. It is desirable that the results of the study are repeated by using multiple key informants, which may require designing an approach for aggregating quantitative data obtained from respondents that differ in their knowledge of the organisation's values.

The use of culture dimensions. The present study relied on differences between organisations, rather than on differences between individuals. Therefore, the generalizability of the results depends on the extent to which the dimensions of culture used in the present study capture the relevant aspects of culture. Even though the dimensions used in the present study have been demonstrated to be highly effective in the IS research context, the use of quantitative culture dimensions has been criticised for reducing the complex phenomenon of culture too much. Research employing multiple

case studies and thus capturing richer data for individual cases can perhaps throw more light on this issue.

Only two countries included for cultural variability. The present study was conducted in two cultures only, New Zealand and Malaysia. Using a larger number of cultures would allow one to make stronger claims regarding the generalisability of the results.

Only one industry covered. The present study initially focused on organisations in the ICT industry. This, however, was in part mitigated by covering organisations from the educational sector in the follow-up qualitative study. One should take care when generalising the results to other industries.

Small sample size. The size of the data set was relatively small ($n=104$). Due to the relatively small sample size, more versatile analyses such as conducting a separate analysis for each country could be employed. One has to note, though, that in the present study all companies in the chosen industry segment listed in all of the relevant publicly available databases were included in the survey sample—the study covered all of the existing relevant organisations with contact details available in the public domain. Thus, to get a larger data set, organisations in multiple countries (or larger countries) would need to be included.

7.6 Conclusion

Top management commitment and user participation, taken together, were found from the present study to account for a substantial part of the variability in strategic IS planning success. Top managers and users have a wide range of views on the roles of top management commitment and user participation, which were qualitatively explored in the present study.

It was found that culture dimensions (collectivism and uncertainty avoidance) affect the determinants of strategic IS planning success, with collectivism affecting user participation and uncertainty avoidance affecting user participation and top management commitment. However, the results of the

study were consistent with the view that power distance (another culture dimension that may be relevant to IS planning success) does not affect user participation.

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APPENDIX A: Invitation letter

[Recipient Name]
[Designation]
[Company Name]
[Address 1]
[Address 2]
[Address3]

Dear Sir/Madam,

Project Title: A Survey of the Impact of Culture on Strategic Information Systems Planning

The purpose of this letter is to introduce myself and invite you to consider participating in a research project I am conducting for my doctoral thesis at Massey University, New Zealand which focuses on the impact of culture on information systems planning.

Recently, New Zealand established free trade agreements with China, Malaysia, Australia, Thailand, Singapore, Trans-Pacific and ASEAN, while six other FTAs are currently being negotiated. The increased pace of globalisation in New Zealand makes it crucial to investigate the impact of culture on critical processes in business organisations, including information systems planning. The current study is devoted to the impact of culture on information systems planning. The outcome of the study will improve the ability of New Zealand managers to formulate strategy in multicultural business environment. The attached information sheet gives further details of the research.

As you are the [designation] of your organisation, I am writing to you to ask if you would spare 7 - 10 minutes of your time to complete the enclosed questionnaire. Your responses will reflect the practices in your organisation. Your individual identity and responses to all survey questions will be kept completely confidential. You may email any queries you have concerning this research to the email address given below.

A self-addressed, pre-paid envelope is also enclosed. The envelope is numbered which allows me to note that you have responded and ensures that I do not send you a reminder. If you are not the appropriate recipient of this letter, I should be most grateful if you would pass it on to the correct person.

I will summarise the results of the study along with the underlying theory and literature and make them available to participants.

I appreciate that you are busy and so I thank you for your time.

I look forward to receiving your completed questionnaire.

Yours sincerely,

Raja Haslinda Raja Mohd Ali,
Doctoral Research StudentEmail:
R.H.Raja-Mohd-Ali@massey.ac.nz

APPENDIX B: Ethics notification letter for questionnaire survey



Massey University

30 April 2009

Raja Haslinda Raja Mohd Ali
418 Botanical Road
PALMERSTON NORTH

OFFICE OF THE ASSISTANT
TO THE VICE-CHANCELLOR
(Research Ethics)
Private Bag 11 222
Palmerston North 4442
New Zealand
T 64 6 350 5573/350 5575
F 64 6 350 5622
humanethics@massey.ac.nz
animalethics@massey.ac.nz
gtc@massey.ac.nz
www.massey.ac.nz

Dear Haslinda

Re: The Impact of National Culture on Information Systems Planning

Thank you for your Low Risk Notification which was received on 28 April 2009.

Your project has been recorded on the Low Risk Database which is reported in the Annual Report of the Massey University Human Ethics Committees.

The low risk notification for this project is valid for a maximum of three years.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis that it is safe to proceed without approval by one of the University's Human Ethics Committees.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

A reminder to include the following statement on all public documents:

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research."

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Research Ethics), telephone 06 350 5249, e-mail humanethics@massey.ac.nz".

Please note that if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to provide a full application to one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

A handwritten signature in black ink that reads "Sylvia Rumball".

Sylvia V Rumball (Professor)
Chair, Human Ethics Chairs' Committee and
Assistant to the Vice-Chancellor (Research Ethics)

cc Dr Alexei Tretiakov
Department of Management
PN214

Dr Barbara Crump
Department of Management
Wellington

Prof Claire Massey, HoD
Department of Management
PN214

Massey University Human Ethics Committee
Accredited by the Health Research Council



APPENDIX C: Ethics notification letter for interviews



MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA

27 November 2013

Raja Haslinda Raja Mohd Ali
5 Salisbury Avenue
Terrace End
PALMERSTON NORTH 4410

Dear Haslinda

Re: The Impact of National Culture on Strategic Information Systems Planning

Thank you for your Low Risk Notification which was received on 12 November 2013.

Your project has been recorded on the Low Risk Database which is reported in the Annual Report of the Massey University Human Ethics Committees.

The low risk notification for this project is valid for a maximum of three years.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis that it is safe to proceed without approval by one of the University's Human Ethics Committees.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

A reminder to include the following statement on all public documents:

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research."

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor John O'Neill, Director (Research Ethics), telephone 06 350 5249, e-mail humanethics@massey.ac.nz".

Please note that if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to provide a full application to one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

John G O'Neill (Professor)
Chair, Human Ethics Chairs' Committee and
Director (Research Ethics)

cc Dr Alexei Tretiakov
School of Management
PN214

Prof Sarah Leberman, HoS
School of Management
PN214

Massey University Human Ethics Committee
Accredited by the Health Research Council

Research Ethics Office
Massey University, Private Bag 11222, Palmerston North 4442, New Zealand T +64 6 350 5573 F +64 6 350 5575
E humanethics@massey.ac.nz animaletics@massey.ac.nz gtc@massey.ac.nz www.massey.ac.nz

APPENDIX D: Information sheet

A Study of the Impact of Culture on Strategic Information Systems Planning

Dear Respondent,

You are invited to participate in this study regarding the determinants of strategic information systems planning that I am conducting as part of my doctoral study. You are under no obligation to accept this invitation. However, your contribution will be valuable and much appreciated. If you are not the appropriate recipient of this questionnaire, I would be most grateful if you would pass it on to the appropriate person. Please read below for details of my study.

Researcher Introduction

I am Raja Haslinda Binti Raja Mohd Ali, and I am currently pursuing my doctoral degree at Massey University in Palmerston North, New Zealand. My supervisors are Dr. Alexei Tretiakov and Dr. Barbara Crump and my area of interest is in studying the strategic information systems planning in organisations. I am conducting this study as part of the fulfillment of the requirements for the PhD in Information Systems from Massey University.

Project Description and Invitation

The purpose of this study is to investigate the impact of culture on strategic information systems planning in IT and IT-related organisations in different cultural contexts. The findings of this study will benefit the management and organisations that plan to be involved or are currently involved in strategic information systems planning. Therefore, I am inviting you to participate in this study.

Participant Identification and Recruitment

Your name and address have been obtained either from the Kompass.com or New Zealand Business Who's Who Database. As a member of the management team in

your organisation, it is believed that you have an extensive knowledge about information systems in your organisation.

Data Management

The information that you provide will be treated in the strictest confidence. It will be securely stored at Massey University and will only be viewed and used by myself and my supervisors for the purpose of statistical analysis. Your responses will be aggregated with the responses of all other respondents to form general results. In this way, no individual organisation can be identified. All information that will be able to identify you individually will be kept confidential.

Participant's Rights

You have the right to:

- decline to participate;
- refuse to answer any particular question;
- ask any questions about the study at any time during participation;
- be given access to a summary of the findings of the study when it is concluded;
- withdraw from the research project at any stage.

Committee Approval Statement

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by the University's Human Ethics Committees. The researchers named below are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher, please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Research Ethics), telephone 06 3505249, email humanethics@massey.ac.nz.

Project Procedures

If you are willing to participate in this study, I sincerely thank you. The estimated completion time for this questionnaire is an average of 15 minutes. Please complete the enclosed questionnaire and return it in the enclosed prepaid envelope.

Alternatively, you may complete the online questionnaire at <http://is-research.massey.ac.nz/strategy/11>.

Project Contacts

Please do not hesitate to contact myself or my supervisors if you have any questions about this study at the addresses below:

Doctoral Research Student

Raja Haslinda Raja Mohd Ali
Department of Management
PN241
Massey University
Private Bag 11 222
Palmerston North, New Zealand.

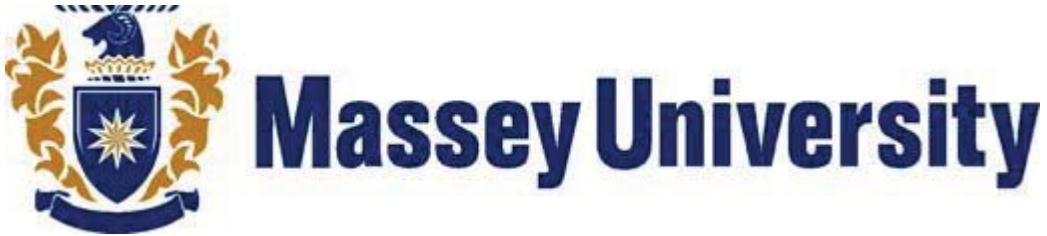
Mobile phone :++6460212945645
Home phone : ++646 3548285
E-mail :R.H.Raja-Mohd-Ali@massey.ac.nz

Alternatively, you may contact one of my supervisors:

Main Doctoral Supervisor
Dr. Alexei Tretiakov
Department of Management
PN241
Massey University
Private Bag 11 222
Palmerston North, New Zealand.
E-mail : A.Tretiakov@massey.ac.nz

Co Doctoral Supervisor
Dr. Barbara Crump
Department of Management
Massey University
Private Box 756
Wellington, New Zealand.
E-mail : B.J.Crump@massey.ac.nz

APPENDIX E: Questionnaire survey



**A SURVEY OF THE IMPACT OF CULTURE ON
STRATEGIC INFORMATION SYSTEMS
PLANNING**

This questionnaire will take you about 7-10 minutes to complete.

Please return in the self-addressed, prepaid envelope provided.

A. Overview on strategic Information Systems (IS) planning

In this section, we are interested in the overall view of your organisation's strategic IS planning.

- A1. Does your organisation have experience in strategic IS planning development?

Yes

No (Please go to Section F)

- A2. Please indicate the extent of your organisation's experience in strategic IS planning development.

_____ Years

- A3. Please indicate the extent to which your organisation outsources strategic IS planning development.
_____ (%) Outsourced

B. User participation

In this section, we are interested in the degree of user participation in strategic IS planning development in your organisation.

Please tick (✓) where appropriate

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

- B1. Our process of strategic IS planning includes numerous participants.
- B2. The level of participation in strategic IS planning by diverse interests in the organisation is high.

C: Management commitment

In this section, we are interested in the involvement of senior management in strategic IS planning development in your organisation.

Please tick (✓) where appropriate

1	2	3	4	5
Not at all	To a very little extent	To some extent	To a great extent	To a very great extent

- C1. The planning team identifies senior management's key planning issues at the start of the strategic IS planning.
- C2. The planning team briefs senior management with the strategic IS planning study's scope, objectives, and approaches to gain senior management's commitment at the start of the strategic IS planning.
- C3. The planning team briefs senior management throughout the strategic IS planning to maintain senior management's commitment.
- C4. Senior management provides feedback throughout the strategic IS planning study.
- C5. Senior management provides guidance throughout the strategic IS planning study.

- C6. A top executive champion the strategic IS planning study.

<input type="checkbox"/>				
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

D: Strategic Information Systems planning success

In this section, we are interested in the outcomes of strategic IS planning in your organisation in terms of the achievement of typical strategic IS planning objectives. Please, indicate the degree to which each statement applies to your organisation.

Please tick (✓) where appropriate

	1	2	3	4	5
	Not at all	To a very little extent	To some extent	To a great extent	To a very great extent
D1. Identify strategic applications.	<input type="checkbox"/>				
D2. Improve communication about IT with users.	<input type="checkbox"/>				
D3. Forecast information technology resource requirements.	<input type="checkbox"/>				
D4. Develop information architecture.	<input type="checkbox"/>				
D5. Increase the visibility of information technology in the organisation.	<input type="checkbox"/>				

E: Values and work environment

In this section, we are interested in the prevailing values in your organisation. Please, indicate the degree to which each statement reflects the views of a typical employee in your organisation.

Please tick (✓) where appropriate

	1	2	3	4	5
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

Collectivism

E1. Being accepted as a member of a group is more important than having autonomy and independence.	<input type="checkbox"/>				
E2. Being accepted as a member of a group is more important than being independent.	<input type="checkbox"/>				
E3. Group success is more important than individual success.	<input type="checkbox"/>				
E4. Being loyal to a group is more important than individual gain.	<input type="checkbox"/>				
E5. Individual rewards are not as important as group welfare.	<input type="checkbox"/>				

Power distance

E6. Managers should make most decisions without consulting subordinates.	<input type="checkbox"/>				
E7. Managers should not ask subordinates for advice, because they might appear less powerful.	<input type="checkbox"/>				

		1 Strongly disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
E8.	Decision making power should stay with senior management in the organisation and not be delegated to lower level employees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E9.	Employees should not question their manager's decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E10.	A manager should perform work which is difficult and important, and delegate tasks which are repetitive and mundane to subordinates.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E11.	Higher level managers should receive more benefits and privileges than lower level managers and professional staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E12.	Managers should be careful not to ask the opinions of subordinates too frequently, otherwise the manager might appear to be weak and incompetent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Uncertainty avoidance

E13.	Rules and regulations are important because they inform workers what the organisation expects of them.	<input type="checkbox"/>				
E14.	Order and structure are very important in a work environment.	<input type="checkbox"/>				
E15.	It is important to have job requirements and instructions spelled out in detail so that people always know what they are expected to do.	<input type="checkbox"/>				
E16.	It is better to have a bad situation that you know about than to have an uncertain situation which might be better.	<input type="checkbox"/>				
E17.	Providing opportunities to be innovative is more important than requiring standardized work procedures.	<input type="checkbox"/>				
E18.	People should avoid making changes because things could get worse.	<input type="checkbox"/>				

F: Your organisation and you

In this section, we would like to gain an understanding of the characteristics of your organisation.

F1. Your organisation is a

Head Office	<input type="checkbox"/>
Branch	<input type="checkbox"/>

If the answer is "Branch", please state the country of origin of the organisation: _____

F2. Please indicate the legal form of your business ownership.

Sole Proprietorship	<input type="checkbox"/>
Partnership	<input type="checkbox"/>
Company	<input type="checkbox"/>

F3. Approximately, how many people are employed at your organisation?

_____ Full time employees _____ Part time employees

F4. Please indicate the activities of your organisation. (Tick as many as appropriate)

Manufacturer	<input type="checkbox"/>
Distributor	<input type="checkbox"/>
Retailer	<input type="checkbox"/>
Services	<input type="checkbox"/>

F5. In the last 12 months, has your organisation been engaged in importing?

Yes No

F6. In the last 12 months, has your organisation been engaged in exporting?

Yes No

F7. Please indicate the product of your organisation. (*If applicable*)

Hardware Software

F8. Please indicate your organisation's sales revenue over the past 12 months.

NZD _____

F9. Please indicate the number of years you (as an individual) have been employed in your organisation's industry.

_____ Years

F10. Please indicate the number of years you have been employed in your present organisation.

_____ Years

F11. Please indicate your present position in your organisation.

F12. Please indicate your highest educational attainment.

F13. Further study in this topic requires that we actually visit ICT firms and talk to the senior management.

May we contact you for further research?

Yes

No

F14. If YES, please provide your contact details in the Call For Participation form attached and we will contact you for further information.

Again, thank you for your willingness to share your ideas and contribute to increasing the knowledge on the impact of culture on strategic information systems planning.

APPENDIX F: Reminder e-mail

Dear <>,

You may recall receiving a questionnaire two weeks ago inviting you to take part in a survey in relation to the above subject. Your help with this survey is vital as the information you provide will help me to answer my research questions. At the time of sending this email, I have not yet received your response. If you have already returned your questionnaire, then accept our appreciation for your time and participation in the research.

However, if you have not yet completed the questionnaire, I would be grateful if you could do so at:

<http://is-research.massey.ac.nz/sisp>

At the end of the survey, you will be asked to enter the ID number. Your ID number is <>. This number is not to identify you as an individual but it allows me to cross your name off once you have responded and ensures that I do not send you a reminder.

As mentioned in my previous email, all your answers will be completely confidential, and neither your name nor your organisation's name will be associated with your answers.

I appreciate that you are busy and so I thank you in advance for your commitment and your time.

Yours sincerely,

Raja Haslinda Raja Mohd Ali
Department of Management
Massey University
Palmerston North

APPENDIX G: PLS analysis output

Table G-1: PLS Analysis Results Overview

	AVE	Composite Reliability	R Square	Cronbach's Alpha	Communality	Redundancy
UP	.699	.822	.151	.699	.699	.029
TMC	.613	.888	.070	.843	.613	.037
SISP-Comm	.815	.898	.229	.776	.815	.111
SISP-Tech	.626	.834	.280	.702	.626	.136
COL	.742	.896		.836	.742	
PD	.807	.893		.766	.807	
UA	.691	.870		.782	.691	

Table G-2: Latent Variable Correlations

	Col	SISP-Comm	SISP-Tech	PD	TMC	UA	UP
Col	1.000						
SISP-Comm	.124	1.000					
SISP-Tech	.096	.580	1.000				
PD	.117	.111	.013	1.000			
TMC	.126	.378	.474	.237	1.000		
UA	.196	.452	.219	.287	.265	1.000	
UP	.212	.373	.340	.197	.234	.347	1.000

Table G-3: Outer Model (Weights and Loadings)

	COL	SISP-Comm	SISP-Tech	TMC	PD	UA	UP
B1							.868
B2							.820
C2				.771			
C3				.818			
C4				.842			
C5				.767			
C6				.710			
D1		.879					
D2		.926					
D3			.796				
D4			.751				
D5			.825				
E1	.850						
E2	.858						
E3	.876						
E7				.929			
E12				.866			
E13					.824		
E14					.876		
E15					.793		

Table G-4: Path Coefficients

	COL	SISP-Comm	SISP-Tech	LTO	TMC	PD	UA	UP
COL								.144
SISP-Comm								
SISP-Tech								
TMC		.308	.418					
PD							.096	
UA					.265			.340
UP		.301	.242					

APPENDIX H: Background of the respondent organisations

University A (mature organisation)

University A was established in 1984 to develop and advance management education. Currently the university has more than 3000 employees. The university has a main campus and a branch campus branch, which are located in different cities. The majority of the employees are Malays (the dominant ethnic group in Malaysia). The academic programs focus on the fields of management, accounting, economics, information technology, public administration, human resource management, entrepreneurship, finance, banking, communications, law, and tourism.

University B (new organisation)

University B was established in 2002 to develop and advance management education. Currently the university has more than 2000 employees who are located at the main campus and 27 employees at a campus branch in the same city. The majority of the employees are Malays. Academic programs focus on the fields engineering, communication media, and entrepreneurship.

University C (new organisation)

University C was established in 2004 to offer a number of industry specific courses. This university is one of the 11 institutes under a main campus university. Currently, University C has 186 employees. The academic programs offered are aimed to produce highly competent personnel for the marine and maritime industry.

APPENDIX I: Findings from qualitative interviews with survey participants

This appendix discusses qualitative findings derived from telephone interviews with New Zealand and Malaysia CIOs, CEOs, and senior managers by constant comparative analysis.

I.1 Approach to data collection

The questionnaire used in the survey asked the participants if they would like to participate in an interview. The participants who answered yes formed a base for the selection of telephone interview participants. Several criteria were applied.

First, only participants whose organisations have experience in strategic IS planning were included. From the 19 participants from New Zealand and 10 from Malaysia who agreed to be interviewed, only 12 participants from New Zealand and six from Malaysia had strategic IS planning experience.

Next, the participants were selected based on their type of organisation—head office, but not branch organisations were included, because I believed that head office organisations would have more control over strategic IS planning and better knowledge of strategic IS planning outcomes.

The final sample included eight participants from New Zealand and five from Malaysia. The respondents differed in terms of the number of years of experience and in terms of job titles, and the participants' organisations differed in terms of the numbers of employees and in terms of business activities. These differences ensured that the responses were provided from a variety of points of view, resulting in rich data for qualitative data analysis.

The following interview schedule was used.

1. Based on your experience, in what way does the level of user participation impact the ultimate success of SISP?

2. Could you give some examples of how user participation made a difference to the success of SISP?
3. Based on your experience, in what way does top management commitment and support impact the ultimate success of SISP?
4. Could you give some examples of how top management support (or lack of it) made a difference to the success of SISP?

I.2 Relationship between user participation and strategic IS planning success

Three of the interviewees strongly related to the idea that user participation leads to strategic IS planning success. One of them asserted:

...participation of users is vital. I think the chances of success are a lot less if we don't get the users involved in the process. (Participant 3, male, CEO, New Zealand)

He underscored the importance of communication with the users as affecting the outcome.

If people don't accept or understand what the strategic IS planning is looking to create, then they're less likely to be involved in the potential of the outcome or understand in fact what you're trying to achieve. (Participant 3, male, CEO, New Zealand)

Another interviewee noted:

In my experience, the level of success is largely influenced by the level of user participation. (Participant 4, male, Managing Director, New Zealand)

Two other interviewees elaborated on the kind of information users contribute to strategic IS planning.

...understanding of the processes and why the systems are there...
(Participant 2, male, CEO, New Zealand)

[The] user have the hands-on knowledge, data, information on the daily operation and activities, business process, culture, skill, resources,

infrastructure and other contributing factors of SISP. (Participant 7, male, IS Senior Manager, Malaysia)

Another participant used the term “technologically aware organisation” to describe an organisation with high user participation.

I'd say its high, we're a very technologically aware organisation...so our people are very aware of information systems' requirements and would demand input into it. (Participant 2, male, CEO, New Zealand)

Nonetheless, some of the respondents argued that user participation is more appropriate in the implementation stage.

...wherever we have a large number of business users participating in the actual strategic IS planning and you tend to get a bit more washy...and participation of users generally comes down to the individual projects. (Participant 1, male, Operations Manager, New Zealand)

Similarly (in the sense of suggesting that user participation is more appropriate in the implementation stage), another participant highlighted:

Users should involve more in testing. If user involve, then we will get better outcome because the user has already confirmed that this is the systems that they want. The more users' involvement, the better. (Participant 6, female, IS Senior Manager, Malaysia)

Another respondent noted the importance of user participation in the user requirement stage.

User participate more in user requirement stage. Before proceed to the next level, the user requirement should be run. After determine what user wants...through seminar or meeting with user for about one week, if ok, then only proceed to the next level. (Participant 5, male, Chief Finance Officer, Malaysia)

Another manager made a comment suggesting an element of compulsion in how user participation is achieved.

In our organisation, IT head have to get all division, department, unit team leader and team member to participate and give their full co-operation and commitment. (Participant 7, male, IS Senior Manager, Malaysia)

When asked further about how user participation made a difference to the success of strategic IS planning in the participant's organisation, one participant suggested that the users need to know the overall direction of the organisation, which enables them to make meaningful contributions.

As a result of having those people (the users) involved...the outcomes were very much more of a success. I think because of the users having known where we were going and having had some input in to what the result would be. (Participant 3, male, CEO, New Zealand)

In summary, the participants differed in their views on the role of user participation, ranging from emphasising active participation of users in the strategic IS planning process to emphasising user participation in the implementation of IS planning.

Participants emphasised the importance of two-way communication with the users. Not only do some users contribute their knowledge to the strategic IS planning process, but also their participation enables them to understand the strategic direction of the organisation, thus making eventual success more likely.

There was a range of opinions on why users participate in strategic IS planning. These ranged from users proactively demanding to participate in a technology aware organisation to an element of compulsion to ensure participation.

Participants from New Zealand tended to view user participation as positive or essential at all stages of strategic IS planning process, and even considered the possibility of users demanding to participate, whereas participants from Malaysia tended to have a more limited view of user participation.

I.3 Relationship between top management commitment and strategic IS planning success

All interviewees agreed that support from top management was important to achieving strategic IS planning success, whereas lack thereof resulted in failure of the planning. Many different terms were used by the interviewees to describe the commitment and support from top management in their organisation.

Yeah, top management is very important. (Participant 3, male, CEO, New Zealand)

They are important since they are the driver; without them, the project will not be happening. They are the decision maker. (Participant 5, male, Chief Finance Officer, New Zealand)

An interviewee noted that top management would only support the projects that could give added value to the organisation where they “can increase productivity, increase revenue at the end of the day” (Participant 5, male, Chief Finance Officer, Malaysia).

Participant 3 shared his experience on how commitment and support from top management resulted in strategic IS planning success.

...the commitment of top management [is when the top management] agree with the processes, understand what was happening, [provide] support in terms of funding, and allowed the process to continue...the people [employees] see that top management want this to happen, it has been the contributing factor to having the strategies play out and operate well. (Participant 3, male, CEO, New Zealand)

Interviewees were asked about the type of commitment and support that management should or could give. Two interviewees mentioned the importance of top managers contributing their knowledge of the business strategy.

The senior management has to be really crystal clear about the strategy and that's the most valuable thing that they can provide in

order for us to develop an effective strategic IS planning. (Participant 1, male, Operations Manager, New Zealand)

Top management should have the knowledge and information on business plan where strategic IS planning must integrate or align to...is very important to success in strategic IS planning. (Participant 7, male, Senior Manager, Malaysia)

Management clarity and, in the case of a Malaysian senior manager, enforcement were noted as critical in the strategic IS planning process.

It is very important, staffs like to see that, well in fact they need to know, that it's a directive. (Participant 2, male, Chief Operation Officer, New Zealand)

Top management has to support in terms of enforcement....So, without enforcement/direction, the employee would not commit. (Participant 6, female, IS Senior Manager, Malaysia)

The role of top management in decision making was also noted.

I think the result of top management having input and supporting the processes that will happen need the decisions to get made in the right away and that, in fact, the ultimate outcome is much more of a success. (Participant 3, male, CEO, New Zealand)

The level of awareness towards IT functions and responsibilities was also identified as another indication of top management commitment and support and noted as "very important to success in strategic IS planning" (Participant 7, male, Senior Manager, Malaysia).

Participant 5 gave other examples of support that his organisation's top management had given to ensure the success of strategic IS planning.

...in normal situation, the top management will give training, look for the best consultant, ask for gap analysis...before making the right decision. (Participant 5, male, Chief Finance Officer, Malaysia)

Interviewees were probed further regarding what would happen if top management did not provide commitment and support. Responses referred to the development of strategic IS planning affecting implementation time and failure of the strategic IS planning.

There is a time where to fully develop the strategic IS planning took a longer time because the level of awareness at top management of the IT functions, responsibilities, costs and benefits are low. (Participant 7, male, Senior Manager, Malaysia)

I think if top management didn't, isn't supportive of any changes, any systems planning, then ultimately that system planning tends to fail...without that top management support a lot of the things that need to happen, can't happen. (Participant 3, male, CEO, New Zealand)

Participant 3 related his experience of a situation where lack of top management commitment actually led to strategic IS planning failure.

...we introduced some systems planning...and there wasn't really full support from management on that process and I think the project to make that happen has really failed or has not come through to conclusion. So when we've seen management not involved...the project sort of dies and takes a bit of a slow death. (Participant 3, male, CEO, New Zealand)

In summary, the view of the participants was that top managers contributed the knowledge of business strategy, provided the resources (funding, training, consultants), and drove the process, by vision and example, or by compulsion. Top management commitment was seen as a critical success factor—without it a failure of strategic IS planning is assured.

Overall, participants tended to agree about the role of management commitment to a greater extent than they agreed on the role of user participation.

Although one of the participants from Malaysia suggested that the role of management extends beyond decision-making, to exercising compulsion,

participants from New Zealand tended to emphasise providing vision and managing by example.

I.4 Other determinants of strategic IS planning success

Three interviewees suggested that relevant leadership and other skills should be one of the determinants. They mentioned that the leader should have the ability and skill to deliver strategic IS planning.

...the ability for the CTO to interpret the direction of strategic IS planning and to effectively deliver and to obtain the focus on the projects that are delivered to through the course of delivery strategic IS planning. (Participant 1, male, Operations Manager, New Zealand)

...the correct planning and direction would come from the skill and experience of personnel developing and executing the strategic IS planning. (Participant 7, male, IS Senior Manager, Malaysia)

If you have a good project manager that can manage the project well, proper planning will contribute to the success. (Participant 6, female, IS Senior Manager, Malaysia)

Participant 3 suggested people power and communication as determinants of strategic IS planning success.

If you just had people sitting down putting it on paper, you probably won't get as good an outcome as having people work through the process and actually consider the things that may or may not wrong that need to happen or they're going to make a difference and doing those in isolation is not, in the past, proven to be the best way to make those things happen... (Participant 3, male, Chief Executive Officer, New Zealand)

He added:

...communication around that process is a very important part of the overall process. (Participant 3, male, Chief Executive Officer, New Zealand)

Another suggestion was from Participant 4 who stated that the costs of planning are an important factor to consider.

I think that financials need to be considered. The financial costs need to be brought into that strategic IS planning process in terms of what are the paybacks, what are the investments...do we believe of the achievements of the outcomes of the planning process. (Participant 4, male, Managing Director, New Zealand)

I.5 Other themes relating to IS planning success

Some interviewees expressed opinions on the alignment of strategic IS planning with business planning. They stated that strategic IS planning should be based on the strategic direction of the organisation. Therefore, participation, especially from senior management, is most important in preparing the business strategic plan and not the strategic IS plan.

So really our strategic information systems planning is based on following the strategic direction...so I would say that the level has to be fairly senior but light...and that's where it is most effective. (Participant 1, male, Operations Manager, New Zealand)

But another interviewee suggested that strategic IS planning should not be simply an add-on to the strategic business planning, but it should be a key part of the organisation's strategy.

...organisations that still use information systems planning as purely an add-on to their existing business planning, it's a little outdated...
(Participant 4, male, Managing Director, New Zealand)

He added:

...a lot of organisations are looking at how they can use information systems to improve their company's performance and improve efficiencies, as a key part of their strategy, overall strategy. (Participant 4, male, Managing Director, New Zealand)