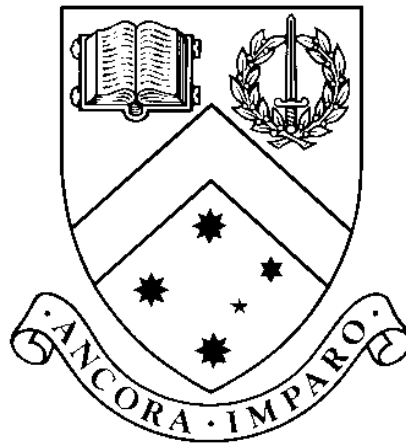


**Factors Affecting the E-business Systems Adoption
Process in Saudi Small and Medium Enterprises
(SMEs)**

ALI ABU ABID



**Submitted in total fulfillment of the requirements of the
degree of Doctor of Philosophy**

May, 2013

Faculty of Information Technology
Monash University
Australia

Notice 1

Under the Copyright Act 1968, this thesis must be used only under the normal conditions of scholarly fair dealing. In particular no results or conclusions should be extracted from it, nor should it be copied or closely paraphrased in whole or in part without the written consent of the author. Proper written acknowledgement should be made for any assistance obtained from this thesis.

ABSTRACT

Electronic business (e-business) systems are important for SMEs operating in Saudi Arabia. Despite its importance, little is known about how SMEs operating in Saudi Arabia (which has some unique SME characteristics) approach e-business systems adoption process. Much of the current e-business literature focuses on the adoption decision of e-business systems. As e-business systems are complex and inter-organisational in nature, an improved understanding can be developed when adoption process of these systems is considered as a temporal process involving multiple stages. Relatively limited empirical research is however reported that focuses on the multiple stages of the e-business systems adoption process. This is particularly true for Saudi Arabia in which SMEs are expressing an interest in e-business systems adoption. Motivated by these concerns, this study examines the e-business adoption process among Saudi SMEs by developing a three-stage e-business adoption model which is rooted in the ideas borrowed from the Diffusion of Innovation (DOI) literature. The model incorporates a total of 19 ‘stage specific’ factors and 10 ‘common’ factors identified from various streams of literature. The model was then evaluated using an online experts panel and a case study in which 20 SMEs from Saudi Arabia participated.

The case study findings indicate that a total of 14 ‘stage specific’ factors (i.e. *compatibility, complexity, trialability, observability, perceived e-business attributes, availability of technical expertise, knowledgeable employee attitude toward technology, communication, customer readiness, security concerns, high competence in IS, perceived e-business value, owner attitude toward technology, and training*) are important for Saudi SMEs to adopt e-business systems. In addition, eight ‘common’ factors (i.e. *cost, relative advantage, management support, external pressure, owner-manager characteristic, organisational readiness and awareness, trading partners’ readiness, and organisational culture*) are important for Saudi SMEs to adopt e-business systems. Interestingly, some differences are noted in the influence of these factors among SMEs across the manufacturing and service sectors.

The research model and the case study findings are useful. The model assists researchers in understanding the e-business systems adoption process in SMEs based on the notion of a ‘stage model’ approach. Knowledge of the factors supported through the case study provides useful guidelines for those SMEs which are contemplating the introduction of e-business systems for the first time. These guidelines identify those specific factors which SME management should care for during each of the three stages of the e-business systems adoption initiatives in their companies. This will in turn facilitate eventual implementation success of e-business systems for the SME context. E-business researchers are encouraged to replicate this study to other countries particularly for those in the Arabian Gulf region.

DECLARATION

This is to certify that

- The thesis comprises only my original work toward the PhD.
- Due acknowledgement has been made in the text to all other material used.
- The thesis is less than 100,000 words in length, exclusive of tables, maps, bibliographies and appendices.

..... 31st May 2013

ACKNOWLEDGEMENTS

Foremost, I would like to express my sincere gratitude to my supervisor Dr. Md. Mahbubur Rahim for the continuous support of my Ph.D research, for his patience, motivation, enthusiasm, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better supervisor and mentor for my Ph.D study.

Besides my supervisor, I would like to thank my associate supervisor Professor Stephen Burgess for his encouragement, insightful comments, and immense knowledge.

Special thanks to my mother Mrs Shareefa Awad Al Zaher for supporting me spiritually throughout my life until she died. May Allah bless her with the higher rank of paradise (Jannah).

Great thanks extend to my wonderful wife, Mrs Salihah Abu Muzhir for her patience and kind support. Furthermore, I thank my lovely daughters Lubna, Lina, and Basmah, who are endless sources of cheerfulness.

In addition, thank you to all the case study participants and to staff in the SMEs Development Centre in the Abha Chamber of Commerce and Industry, Saudi Arabia for their involvement, valuable responses, and cooperation.

I would like to thank all the administrative staff and the colleagues in the Faculty of Information Technology, Monash University. Last but not the least, thank you to Dr. Jan Miller for her kind contribution in proof reading the thesis.

Table of Contents

CHAPTER 1: INTRODUCTION	1
1.0 Motivations for the Research	1
1.1 Research Goal and Questions	2
1.2 Outline of the Research Design	3
1.3 Outcomes of the Study	4
1.4 Organisation of the Thesis	4
CHAPTER 2: LITERATURE ANALYSIS	7
2.0 Introduction	7
2.1 E-business	7
2.1.1 Definition of E-business	7
2.1.2 E-commerce and E-business	7
2.1.3 E-business Taxonomy	8
2.1.4 Benefits of E-business	10
2.1.5 E-business in the Arabian Gulf Region: Current Status	11
2.2 Small and Medium Enterprises (SME): An Overview	11
2.2.1 Definition of SME	11
2.2.2 Characteristics of SMEs	12
2.2.3 SME in the Arabian Gulf Region (including Saudi Arabia)	13
2.3 Understanding Adoption of Technological Innovations	13
2.3.1 Defining Adoption	13
2.3.2 IT Adoption Theories	14
2.3.3 Types of IT Adoption Research	16
2.4 Factor-based IT/E-business Adoption Studies	17
2.4.1 Factor-based IT/E-business Studies	17
2.4.2 Factor-based IT/E-business Adoption Stage Model Theories	18
2.4.3 Factor-based Empirical Literature on E-business Adoption	22
2.5 Adoption of E-business in SMEs	29
2.5.1 E-business Adoption in USA SMEs	29
2.5.2 E-business Adoption in EU SMEs	32
2.5.3 E-business Adoption in Australian SMEs	35
2.5.4 E-business Adoption in Developed Asian SMEs	37
2.6 Adoption of E-business s in Arabian Gulf Region (including Saudi Arabia)	39
2.7 Summary	39
CHAPTER 3: RESEARCH APPROACH	40
3.0 Introduction	40
3.1 Research in E-business	40
3.1.1 Research Traditions	40
3.1.2 Stages of the Research Cycle	41
3.1.3 Purpose of Research	41
3.1.4 Research Methods in E-business	41
3.2 Research Characteristics of this Study	42
3.3 Research Method used in this Study	42
3.4 Research Design Developed for this Study	43
3.5 Case Organisations: Selection Strategy	46
3.5.1 Target Population	46
3.5.2 Choice of Industry	46
3.5.3 Number of Cases	46
3.5.4 Unit of Analysis	46

3.6 Data Collection Techniques	47
3.7 Analysing Collected Data	48
3.8 Application of Qualitative Analysis.....	49
3.9 Interpreting Collected Data.....	49
3.10 Challenges Encountered in this Study	50
3.11 Approach Used for Evaluating Research Propositions:.....	51
3.11.1 Factors included in the Research Model: Measurement Approach.....	51
3.11.2 Measurement Scale for Factors	52
3.12 Research Ethics	53
3.13 Validity of Research Findings	53
3.14 Selection of an Appropriate Sample of Case Organisations	54
3.15 Language and translation	54
3.16 Summary	54
CHAPTER 4: RESEARCH MODEL DEVELOPMENT	55
4.0 Introduction.....	55
4.1 Development of the Research Model.....	55
4.1.1 The Filtering Process Used for Shortlisting Factors	55
4.1.2 Factors Affecting the Initiation Stage of E-business Adoption.....	58
4.1.3 Factors Affecting the Adoption Decision of E-business Adoption.....	58
4.1.4 Factors Affecting the Implementation Stage of e-Business Adoption.....	58
4.2 Research Model Evaluation by the Domain Experts in Online Panel	59
4.2.1 Selection Process for Domain Experts	59
4.2.2 Online Experts Panel.....	61
4.2.3 Privacy of the Participants.....	61
4.3 Strategies for Discussion in the Online Experts Panel.....	61
4.3.1 Home Page of the Online Experts Panel	62
4.3.2 Summary of the Evaluation Process for the Research Model Over Three Weeks.....	62
4.3.3 Evaluation of the Research Model based on the Experts' Suggestions	65
4.4 Week One Overview	65
4.4.1 Week One Discussion	68
4.4.2 Researcher's Reflection on Experts' Comments on Week One.....	68
4.5 Week Two Overview	69
4.5.1 Week Two Discussion.....	71
4.5.2 Researcher's Reflection on Experts' Comments on Week Two	72
4.6 Week Three Overview	73
4.6.1 Week Three Discussion.....	76
4.6.2 Researcher's Reflection on Experts' Comments on Week Three	76
4.7 Revised Research Model and Propositions.....	77
4. 8 Summary	91
CHAPTER 5: DESCRIPTION OF CASE ORGANISATIONS.....	92
5.0 Introduction.....	92
5.1 Brief Description of Saudi SMEs	92
5.2 A Review of Case Organisations	93
5.2.1 Manufacturing SMEs	94
5.2.2 Service SMEs	98
5.3 Summary	102
CHAPTER 6: CASE STUDY FINDINGS-Part1	103
6.0 Introduction.....	103
6.1 E-business Adoption Stages.....	103
6.2 Initiation Stage.....	103

6.3 Adoption Decision Stage	122
6.4 Implementation Stage	140
6.5 Summary	150
CHAPTER 7: CASE STUDY FINDINGS-Part2	152
7.0 Introduction.....	152
7.1 Common Factors Affecting the Stages of E-business Systems Adoption	152
7.1.2 Common Factors Affecting Initiation Stage	153
7.1.2 Common Factors Affecting Adoption Decision Stage.....	174
7.1.3 Common Factors Affecting the Implementation Stage.....	190
7.2 Summary	210
CHAPTER 8: ANALYSIS AND DISCUSSION OF THE RESEARCH FINDINGS ...	212
8.0 Introduction.....	212
8.1 Discussion on the Influence of the Factors	212
8.1.1 Factors Affecting Initiation Stage	212
8.1.2 Factors Affecting the Adoption Decision Stage.....	216
8.1.3 Factors Affecting the Implementation Stage.....	221
8.1.4 Common Factors Affecting Three Stages of E-business Adoption	223
8.2 A Comparison of Factors between Manufacturing SMEs and Service SMEs.....	229
8.2.1 Initiation Stage	229
8.2.2 Adoption Decision Stage.....	231
8.2.3 Implementation Stage.....	233
8.3 Final Research Model	235
8.4 Research Propositions: Revisited.....	238
8.5 Summary	241
CHAPTER 9: CONCLUSION.....	242
9.0 Significance of the Study	242
9.1 Research Findings.....	242
9.1.1 How do the unique employee characteristics of SMEs operating in Saudi Arabia affect the e-business systems adoption process?	242
9.1.2 In what ways do the Saudi government support programs influence the e-business systems adoption process for Saudi SMEs?	243
9.1.3 How do the factors (which are technical, organisational, and environmental in nature) affect the key stages of e-business adoption process of the Saudi SMEs?	243
9.1.4 How does the influence of the factors (which are technical, organisational, and environmental in nature) affecting the key stage of the e-business adoption process of Saudi SMEs vary between manufacturing and service sectors?	244
9.1.5 Are there any common or new factors that are perceived important across the key stages of e-business adoption by Saudi SMEs?.....	244
9.2 Contributions to Research and Practice	245
9.3 Limitations of the Research	246
9.4 Directions for Further Research.....	246
REFERENCES.....	247
Appendix A: Factors Pool.....	262
Appendix B: Case Study Interview Protocol	272
Appendix C: Human Ethic Certificate Approval	277
Appendix D: Consent Form for Participating in E-business Systems Adoption Study.....	278
Appendix E: Factors included in the Research Model: Measurement Approach.....	279

List of Tables

TABLE 2.1: SME DEFINITIONS (MEASURED IN TERMS OF NUMBER OF EMPLOYEES)	
BY REGION	12
TABLE 2.2: MICRO LEVEL ADOPTION THEORIES	14
TABLE 2.3: MACRO LEVEL ADOPTION THEORIES	15
TABLE 2.4: SOME EXAMPLES REPRESENTING GROUP OF FACTORS USED IN IT/E-BUSINESS	
STUDIES	18
TABLE 2.5: STAGE MODEL THEORIES	19
TABLE 2.6: A LIST OF FACTORS AFFECTING IT/E-BUSINESS ADOPTION STAGES:	
A SUMMARY	20
TABLE 2.7: STAGE MODEL E-BUSINESS ADOPTION EMPIRICAL LITERATURE	23
TABLE 2.8: EMPIRICAL LITERATURE INVOLVING FACTOR-BASED STAGE MODEL	
E-BUSINESS ADOPTION: A SUMMARY	25
TABLE 2.9: EMPIRICAL LITERATURE INVOLVING FACTOR-BASED E-BUSINESS	
ADOPTION PROCESS	28
TABLE 2.10: E-BUSINESS ADOPTION BY SMEs IN USA: A SUMMARY	30
TABLE 2.11: E-BUSINESS SYSTEMS ADOPTION BY SMEs IN EU: A SUMMARY	33
TABLE 2.12: E-BUSINESS SYSTEMS ADOPTION BY SMEs IN AUSTRALIA:	
A SUMMARY	36
TABLE 2.13: E-BUSINESS SYSTEMS ADOPTION BY SMEs IN DEVELOPED	
ASIAN COUNTRIES: A SUMMARY	38
TABLE 4.1: LIST OF THE FACTORS WITH SIMILAR MEANINGS	56
TABLE 4.2: RESEARCH PROPOSITIONS FOR INITIATION STAGE	81
TABLE 4.3: RESEARCH PROPOSITIONS FOR ADOPTION DECISION STAGE	85
TABLE 4.4: RESEARCH PROPOSITIONS FOR IMPLEMENTATION STAGE	87
TABLE 4.5: RESEARCH PROPOSITIONS FOR THE COMMON FACTORS	91
TABLE 5.1: A SUMMARY OF THE CHARACTERISTICS OF PARTICIPATING	
MANUFACTURING SMEs	96
TABLE 5.2: A SUMMARY OF THE CHARACTERISTICS OF PARTICIPATING	
SERVICE SMEs	100
TABLE 8.1: TYPE OF INFLUENCE OF COMMON FACTORS AFFECTING THREE	
STAGES OF E-BUSINESS SYSTEMS ADOPTION IN SAUDI SMEs	224
TABLE 8.2: THE INFLUENCE OF THE FACTORS AFFECTING THE INITIATION	
STAGE OF E-BUSINESS:	229
TABLE 8.3: THE INFLUENCE OF THE FACTORS AFFECTING THE ADOPTION	
DECISION STAGE OF E-BUSINESS:	232
TABLE 8.4: THE INFLUENCE OF FACTORS AFFECTING IMPLEMENTATION	
STAGE OF E-BUSINESS:	234
TABLE 8.5: NUMBER OF FACTORS IN REVISED AND FINAL RESEARCH MODEL	237
TABLE 8.6: RESULTS PERTAINING TO THE SUGGESTIONS MADE BY PROPOSITIONS (P1-P7)	238
TABLE 8.7: RESULT PERTAINING TO THE SUGGESTIONS MADE BY PROPOSITIONS (P8-P15)	239
TABLE 8.8: RESULTS PERTAINING TO THE SUGGESTIONS MADE BY PROPOSITIONS (P16-P19)	240
TABLE 8.9: RESULTS PERTAINING TO THE SUGGESTIONS MADE BY PROPOSITIONS (P20-P29)	241

List of Figures

FIGURE 1.1: A THREE-PHASE RESEARCH DESIGN	3
FIGURE 1.2: STRUCTURE OF THE THESIS	6
FIGURE 3.1 Research design	45
FIGURE 3.2 MEASUREMENT SCALE IDENTIFYING THE LEVEL OF INFLUENCE OF A FACTOR ON THE STAGES OF E-BUSINESS SYSTEMS	53
FIGURE 4.1 Initial research model	59
FIGURE 4.2 HOME PAGE CONTENT	62
FIGURE 4.3 THE CONTENT OF WEEK ONE (CONTINUED)	66
FIGURE 4.4 THE CONTENT OF WEEK ONE	67
FIGURE 4.5 REFINED RESEARCH MODEL BASED ON WEEK'S ONE COMMENTS	69
FIGURE 4.6 REFINED RESEARCH MODEL BASED ON WEEK TWO'S COMMENTS	73
FIGURE 4.7 WEEK THREE'S CONTENTS (CONTINUED)	74
FIGURE 4.8 REVISED RESEARCH MODEL BASED ON THE ONLINE EXPERTS PANEL EVALUATIONS	78
Figure 5.1 Locations of participating SMEs for both sectors	93
FIGURE 6. 1: FACTORS AFFECTING INITIATION STAGE	103
FIGURE 6.2: INFLUENCE OF COMPATIBILITY ON THE INITIATION STAGE	104
FIGURE 6.3: INDICATORS OF COMPATIBILITY PRESENTED BY THE PARTICIPATING SMEs	106
FIGURE 6.4: INFLUENCE OF COMPLEXITY ON THE INITIATION STAGE	107
FIGURE 6.5: INDICATORS OF COMPLEXITY PRESENTED BY PARTICIPATING SMEs	109
FIGURE 6.6: INFLUENCE OF TRIALABILITY ON THE INITIATION STAGE	110
FIGURE 6.7: INDICATORS OF TRIALABILITY DEMONSTRATED BY PARTICIPATING SMEs	112
FIGURE 6.8: INFLUENCE OF OBSERVABILITY ON THE INITIATION STAGE	113
FIGURE 6.9: INDICATORS OF OBSERVABILITY PRESENTED BY PARTICIPATING SMEs	114
FIGURE 6. 10: INFLUENCE OF THE PERCEIVED E-BUSINESS ATTRIBUTES ON THE INITIATION STAGE	115
FIGURE 6.11: INDICATORS OF PERCEIVED E-BUSINESS ATTRIBUTES DEMONSTRATED BY PARTICIPATING SMEs	117
FIGURE 6.12: INFLUENCE OF THE AVAILABILITY OF TECHNICAL EXPERTISE ON THE INITIATION STAGE	118
FIGURE 6.13: INDICATORS OF AVAILABILITY OF TECHNICAL EXPERTISE DEMONSTRATED BY PARTICIPATING SMEs	119
FIGURE 6.14: INFLUENCE OF THE KNOWLEDGEABLE EMPLOYEES' ATTITUDE TOWARD E-BUSINESS ON THE INITIATION STAGE	120
FIGURE 6.15: INDICATORS OF KNOWLEDGEABLE EMPLOYEES' ATTITUDE TOWARD E-BUSINESS	122
FIGURE 6.16: FACTORS AFFECTING ADOPTION DECISION STAGE	123
FIGURE 6.17: INFLUENCE OF THE COMMUNICATION ON THE ADOPTION DECISION STAGE	123
FIGURE 6. 18: INDICATORS OF COMMUNICATION DEMONSTRATED BY PARTICIPATING SMEs .	125
FIGURE 6.19: INFLUENCE OF E-BUSINESS LAW ON THE ADOPTION DECISION STAGE	126
FIGURE 6.20: INDICATORS OF E-BUSINESS LAW DEMONSTRATED BY PARTICIPATING SMEs ...	127
FIGURE 6.21: INFLUENCE OF CUSTOMER READINESS ON THE ADOPTION DECISION STAGE	128

FIGURE 6.22: INDICATORS OF CUSTOMER READINESS DEMONSTRATED BY PARTICIPATING SMES	129
FIGURE 6. 23: INFLUENCE OF SECURITY CONCERNS ON THE ADOPTION DECISION STAGE.....	130
FIGURE 6.24: INDICATORS OF SECURITY CONCERNS DEMONSTRATED BY PARTICIPATING SMES	131
FIGURE 6.25: INFLUENCE OF THE HIGH COMPETENCE IN IS ON THE ADOPTION DECISION STAGE	132
FIGURE 6.26: INDICATORS OF HIGH COMPETENCE IN IS DEMONSTRATED BY PARTICIPATING SMES	133
FIGURE 6.27: INFLUENCE OF THE PERCEIVED E-BUSINESS VALUE ON THE ADOPTION DECISION STAGE	134
FIGURE 6.28: INDICATORS OF PERCEIVED E-BUSINESS VALUE DEMONSTRATED BY PARTICIPATING SMES	135
FIGURE 6.29: INFLUENCE OF OWNER ATTITUDE TOWARD TECHNOLOGY ON THE ADOPTION DECISION STAGE	136
FIGURE 6.30: INDICATORS OF OWNER ATTITUDE TOWARD TECHNOLOGY DEMONSTRATED BY PARTICIPATING SMES	137
FIGURE 6.31: INFLUENCE OF KNOWLEDGEABLE EMPLOYEE ATTITUDE TOWARD TECHNOLOGY ON THE ADOPTION DECISION STAGE	138
FIGURE 6.32: INDICATORS OF KNOWLEDGEABLE EMPLOYEE ATTITUDE TOWARD TECHNOLOGY DEMONSTRATED BY PARTICIPATING SMES.....	139
FIGURE 6. 33: FACTORS AFFECTING IMPLEMENTATION STAGE	140
FIGURE 6.34: INFLUENCE OF TRAINING ON THE IMPLEMENTATION STAGE.....	141
FIGURE 6.35: INDICATORS OF TRAINING DEMONSTRATED BY PARTICIPATING SMES	142
FIGURE 6.36: INFLUENCE OF HIGH COMPETENCE IN IS ON THE IMPLEMENTATION STAGE.....	143
FIGURE 6.37: INDICATORS OF HIGH COMPETENCE IN IS DEMONSTRATED BY PARTICIPATING SMES	145
FIGURE 6.38: INFLUENCE OF THE PERCEIVED E-BUSINESS ATTRIBUTES ON THE IMPLEMENTATION STAGE	146
FIGURE 6.39: INDICATORS OF PERCEIVED E-BUSINESS ATTRIBUTES DEMONSTRATED BY PARTICIPATING SMES	147
FIGURE 6. 40: INFLUENCE OF THE LOWER LEVEL EMPLOYEES' ATTITUDE TOWARD TECHNOLOGY ON THE IMPLEMENTATION STAGE	148
FIGURE 6.41: INDICATORS OF LOWER LEVEL EMPLOYEES' ATTITUDE TOWARD TECHNOLOGY DEMONSTRATED BY PARTICIPATING SMES.....	150
FIGURE 7.1: COMMON FACTORS AFFECTING ALL THREE STAGES OF THE E-BUSINESS SYSTEMS ADOPTION	152
FIGURE 7.2: INFLUENCE OF COST ON THE INITIATION STAGE	153
FIGURE 7.3: INDICATORS OF COST DEMONSTRATED BY THE PARTICIPATING SMES	154
FIGURE 7.4: INFLUENCE OF THE RELATIVE ADVANTAGE ON THE INITIATION STAGE	155
FIGURE 7.5: INDICATORS OF THE RELATIVE ADVANTAGE OF E-BUSINESS SYSTEMS DEMONSTRATED BY	157
FIGURE 7.6: INFLUENCE OF EXTERNAL PRESSURE ON THE INITIATION STAGE	158

FIGURE 7.7: INDICATORS OF EXTERNAL PRESSURE DEMONSTRATED BY PARTICIPATING SMES	159
FIGURE 7. 8: INFLUENCE OF MANAGEMENT SUPPORT ON THE INITIATION STAGE.....	160
FIGURE 7.9: INDICATORS OF THE MANAGEMENT SUPPORT DEMONSTRATED BY PARTICIPATING SMES	161
FIGURE 7.10: INFLUENCE OF THE GOVERNMENT SUPPORT PROGRAMS ON THE INITIATION STAGE.....	162
FIGURE 7.11: INDICATORS OF THE GOVERNMENT SUPPORT PROGRAMS DEMONSTRATED BY PARTICIPATING	163
FIGURE 7.12: INFLUENCE OF THE UNCERTAINTY IN THE BUSINESS ENVIRONMENT ON THE INITIATION STAGE	164
FIGURE 7.13: INDICATORS OF THE UNCERTAINTY IN BUSINESS ENVIRONMENT DEMONSTRATED BY	165
FIGURE 7.14: INFLUENCE OF THE OWNER-MANAGER CHARACTERISTICS ON THE INITIATION STAGE	166
FIGURE 7.15: INDICATORS OF THE OWNER-MANAGER CHARACTERISTICS DEMONSTRATED BY PARTICIPATING.....	167
FIGURE 7.16: INFLUENCE OF ORGANISATIONAL READINESS AND AWARENESS ON THE INITIATION STAGE	168
FIGURE 7.17: INDICATORS OF ORGANISATIONAL READINESS AND AWARENESS DEMONSTRATED BY.....	169
FIGURE 7.18: INFLUENCE OF TRADING PARTNERS' READINESS ON THE INITIATION STAGE	170
FIGURE 7.19: INDICATORS OF THE TRADING PARTNERS' READINESS DEMONSTRATED BY PARTICIPATING	171
FIGURE 7.20: INFLUENCE OF THE ORGANISATIONAL CULTURE ON THE INITIATION STAGE.....	172
FIGURE 7.21: INDICATORS OF THE ORGANISATIONAL CULTURE OF E-BUSINESS SYSTEMS DEMONSTRATED BY	173
FIGURE 7.22: INFLUENCE OF E-BUSINESS COST ON THE ADOPTION DECISION STAGE	174
FIGURE 7.23: INDICATORS OF THE COST OF E-BUSINESS SYSTEMS DEMONSTRATED BY PARTICIPATING	175
FIGURE 7.24: INFLUENCE OF THE RELATIVE ADVANTAGE ON THE ADOPTION DECISION STAGE	176
FIGURE 7.25: INDICATORS OF THE RELATIVE ADVANTAGE OF E-BUSINESS SYSTEMS DEMONSTRATED BY	177
FIGURE 7.26: INFLUENCE OF EXTERNAL PRESSURE ON THE ADOPTION DECISION STAGE	177
FIGURE 7.27: INDICATORS OF THE EXTERNAL PRESSURE DEMONSTRATED BY PARTICIPATING SMES	178
FIGURE 7.28: INFLUENCE OF MANAGEMENT SUPPORT ON THE ADOPTION DECISION STAGE	179
FIGURE 7.29: INDICATORS OF MANAGEMENT SUPPORT DEMONSTRATED BY PARTICIPATING SMES	180
FIGURE 7.30: INFLUENCE OF GOVERNMENT SUPPORT PROGRAMS ON THE ADOPTION DECISION STAGE	180
FIGURE 7.31: INDICATORS OF GOVERNMENT SUPPORT PROGRAMS DEMONSTRATED BY PARTICIPATING	181
FIGURE 7.32: INFLUENCE OF UNCERTAINTY IN BUSINESS ENVIRONMENT ON THE ADOPTION DECISION STAGE.....	182
FIGURE 7.33: INDICATORS OF THE UNCERTAINTY IN BUSINESS ENVIRONMENT DEMONSTRATED BY	183

FIGURE 7.34: INFLUENCE OF OWNER-MANAGER CHARACTERISTICS ON THE ADOPTION DECISION STAGE	184
FIGURE 7.35: INDICATORS OF OWNER-MANAGER CHARACTERISTICS DEMONSTRATED BY PARTICIPATING	185
FIGURE 7.36: INFLUENCE OF ORGANISATIONAL READINESS AND AWARENESS ON THE ADOPTION DECISION.....	185
FIGURE 7.37: INDICATORS OF ORGANISATIONAL READINESS AND AWARENESS DEMONSTRATED BY THE.....	186
FIGURE 7.38: INFLUENCE OF TRADING PARTNERS' READINESS ON THE ADOPTION DECISION STAGE	187
FIGURE 7.39: INDICATORS OF TRADING PARTNERS' READINESS DEMONSTRATED BY THE PARTICIPATING	188
FIGURE 7.40: INFLUENCE OF ORGANISATIONAL CULTURE ON THE ADOPTION DECISION STAGE	189
FIGURE 7.41: INDICATORS OF ORGANISATIONAL CULTURE OF E-BUSINESS SYSTEMS DEMONSTRATED BY.....	190
FIGURE 7.42: INFLUENCE OF COST ON THE IMPLEMENTATION STAGE	191
FIGURE 7.43: INDICATORS OF THE COST OF E-BUSINESS SYSTEMS DEMONSTRATED BY PARTICIPATING SMES	192
FIGURE 7.44: INFLUENCE OF RELATIVE ADVANTAGE ON THE IMPLEMENTATION STAGE.....	193
FIGURE 7.45: INDICATORS OF RELATIVE ADVANTAGE DEMONSTRATED BY PARTICIPATING SMES	194
FIGURE 7.46: INFLUENCE OF EXTERNAL PRESSURE ON THE IMPLEMENTATION STAGE	195
FIGURE 7.47: INDICATORS OF EXTERNAL PRESSURE DEMONSTRATED BY PARTICIPATING SMES	196
FIGURE 7.48: INFLUENCE OF MANAGEMENT SUPPORT ON THE IMPLEMENTATION STAGE	197
FIGURE 7.49: INDICATORS OF THE MANAGEMENT SUPPORT DEMONSTRATED BY PARTICIPATING SMES	198
FIGURE 7.50: INFLUENCE OF THE GOVERNMENT SUPPORT PROGRAMS ON THE IMPLEMENTATION STAGE	199
FIGURE 7.51: INDICATORS OF GOVERNMENT SUPPORT PROGRAMS DEMONSTRATED BY PARTICIPATING.....	200
FIGURE 7.52: INFLUENCE OF UNCERTAINTY IN BUSINESS ENVIRONMENT ON THE IMPLEMENTATION STAGE.....	201
FIGURE 7.53: INDICATORS OF UNCERTAINTY IN BUSINESS ENVIRONMENT DEMONSTRATED BY	202
FIGURE 7.54: INFLUENCE OF OWNER-MANAGER CHARACTERISTICS ON THE ADOPTION DECISION STAGE	203
FIGURE 7.55: INDICATORS OF OWNER-MANAGER CHARACTERISTICS DEMONSTRATED BY PARTICIPATING	204
FIGURE 7.56: INFLUENCE OF ORGANISATIONAL READINESS AND AWARENESS ON THE IMPLEMENTATION	205
FIGURE 7.57: INDICATORS OF ORGANISATIONAL READINESS AND AWARENESS DEMONSTRATED BY.....	206
FIGURE 7.58: INFLUENCE OF TRADING PARTNERS' READINESS ON THE IMPLEMENTATION STAGE.....	207
FIGURE 7.59: INDICATORS OF THE TRADING PARTNERS' READINESS DEMONSTRATED BY PARTICIPATING	208
FIGURE 7.60: INFLUENCE OF ORGANISATIONAL CULTURE ON THE IMPLEMENTATION STAGE ..	209

FIGURE 7.61: INDICATORS OF ORGANISATIONAL CULTURE OF E-BUSINESS	
SYSTEMS DEMONSTRATED BY	210
Figure 8.1: Influence of factors affecting the e-business initiation stage.....	213
FIGURE 8.2: INFLUENCE OF FACTORS AFFECTING THE E-BUSINESS	
ADOPTION DECISION STAGE.....	217
FIGURE 8.3: INFLUENCE OF FACTORS AFFECTING THE IMPLEMENTATION STAGE.....	221
FIGURE 8.4: REVISED RESEARCH MODEL BASED ON THE EVALUATION OF	
THE ONLINE EXPERTS PANEL	236
FIGURE 8.5: FINAL RESEARCH MODEL	237

GLOSSARY

Business to Business	B2B
Business to Consumer	B2C
Business to Employees	B2E
Consumer to Business	C2B
Consumer to Consumer	C2C
Customer Relationship Management	CRM
Department of Trade and Industry	DTI
Diffusion of Innovation	DOI
Electronic Business	e-business
Electronic Data Interchange	EDI
Enterprise Resource Planning	ERP
European Union	EU
Financial Assistance Program	FAP
Geographic Information System	GIS
Gross Domestic Product	GDP
Information and Communication Technology	ICT
Information System	IS
Information Technology	IT
Kingdom of Saudi Arabia	KSA
manufacturing	MAN
Saudi Industrial Development Fund	SIDF
Service	SER
Small and Medium Enterprise	SME
Social Cognitive Theory	SCT
Technology Acceptance Model	TAM
Technology-Organisation-Environment	TOE
Theory of Planned Behaviour	TPB
Theory of Reasoned Action	TRA
Unified Theory of Acceptance and Use of Technology	UTAUT
United Arab Emirates	UAE
United States of America	USA

CHAPTER 1: INTRODUCTION

1.0 Motivations for the Research

Small and Medium Enterprises (SMEs) are known to make a valuable contribution to the economic progress of a nation. Traditionally, they account for a large proportion of a nation's workforce and contribute to national Gross Domestic Product (GDP) (Hashim 2010). Due to the unique characteristics of SMEs (e.g. limited resources and lack of market access), they often introduce innovative Information Technology (IT) solutions to remain competitive. Due to the rapid spread of the Internet and acceptance of web technologies by individual citizens and large businesses alike, there is a growing trend among SMEs to introduce e-business systems. Currently, there exists a rich body of scholarly literature on electronic business (e-business) systems in SMEs. Much of the literature however focuses on the SMEs operating in the developed Western nations. Although, scholars have begun to pay attention to e-business adoption phenomena for developing nations context, relatively little has so far been reported for the oil rich Saudi Arabia which boasts the largest oil reserve in the world (Global Oil Reserve 2010).

SMEs play an important role to enhance the economy of Saudi Arabia. They contribute 28% of total national economic activity and employ about 40% of the entire workforce in Saudi Arabia (Hertog 2010). Due to rapid globalisation, SMEs in Saudi Arabia are however encountering greater intensity of competition. Moreover, computer and Internet literacy is gradually increasing in Saudi Arabia (Shaikh 2009). Hence, the expectations on the part of the Saudi population in general and large industries in particular, for SMEs to deliver products and services in a more innovative manner are increasing. In response, Saudi SMEs are expected to adopt innovative e-business systems. However, successful adoption of these systems require the existence of a range of facilitating factors (Dubelaar, Sohal et al. 2005). Existing e-business literature (e.g. Wen and Chen 2010) identifies a rich set of factors which are typically classified into three categories: (e.g. technology, organisation, and environment) and are expressed in terms of the Technology-Organisation-Environment (TOE) framework (Tornatzky and Fleischer 1990). It is not however known whether these factors (which were identified and assessed for the SMEs operating among many Western nations and some developed Asian countries) equally apply to SMEs operating in Saudi Arabia. This is due to two reasons. First, Saudi Arabia (located in the Arabian Gulf region) is characterised by a large power distance (PD score: 80) and uncertainty avoidance (UA score: 68) which are the predominant cultural characteristics for this region (Hofstede 2010). This implies that at an organisational level, a clear distinction is likely to be maintained between owners and operational levels of management. These characteristics are quite different from those found among organisations operating in developed nations. Second, the employment context within Saudi SMEs is strongly dominated by two distinct types of expatriates (Hertog 2010). One group involves knowledgeable and educated managers and another group includes a less educated labour force employed from various developing Asian and African countries (e.g. India, Philippines, and Sudan). Therefore, the cultural traits and education level of employees among Saudi SMEs is quite heterogeneous. Hence, unlike other developed nations, the employee characteristics of Saudi SMEs are quite different due to the involvement of three distinct groups of people (i.e. owners, knowledgeable expatriates, and a less educated labour force). As technology adoption in SMEs are known to be influenced by the characteristics of employees (Chuang TT., Nakatani K. et al. 2007), it is argued that the attitude of these varied groups of people may in turn affect successful e-business adoption in Saudi SMEs.

These two characteristics (i.e. power distance and diverse range of people in SMEs) are quite unique to the Saudi context, which in turn calls for further research attention to study how various factors affect the e-business systems adoption process in Saudi Arabia.

In addition, this study is motivated by a number of theoretical concerns reported in the literature. First, various scholars (e.g. Vega, Chiasson et al., 2008) urge e-business researchers to broaden their investigation agenda by addressing the influence of government assistance programs, to understand the uptake of e-business systems, particularly within a SME context. Despite such calls, few scholars have actually examined how the existence of such programs may influence the broader adoption process of e-business systems amongst SMEs in an emerging economy like Saudi Arabia. At present, it is not known how the government support programs contribute in promoting the uptake of e-business systems among SMEs. Second, it is not clear in the Saudi context how, over time, SMEs conceive, decide, implement and then use e-business systems, and what issues, challenges, and facilitators may affect their e-business adoption process. Much of the existing e-business literature on SMEs focuses on understanding either adoption decision making or implementation which represents a particular (though important) stage of the broader e-business adoption process. In contrast, relatively less emphasis is given in the scholarly literature about understanding e-business adoption as a temporal process involving multiple stages particularly for the non-developed nations' perspective. This aspect thus calls for further research to examine the e-business adoption process among Saudi SMEs.

Finally, manufacturing and service sectors of Saudi Arabia have significant contribution to national GDP (Hertog 2010). Therefore, they were chosen to be our focus of this study. It is not known whether the presence of factors affecting various stages of the e-business systems adoption process would differ between manufacturing and service sectors. It is argued that industry characteristics of Saudi SMEs may have an effect on how various factors are perceived important by Saudi SMEs. This is because of the possible variation in the existence of competition between manufacturing and service SMEs (Jeon, Han et al. 2006).

1.1 Research Goal and Questions

In light of the motivations (presented in Section 1.0), this study seeks to address the following broad research goal:

“To develop a comprehensive model that facilitates understanding of the e-business systems adoption process for the SMEs operating in Saudi Arabia and how various factors influence the key stages of that process.”

This broad goal is then translated into the following specific research questions:

- a) How do the unique employee characteristics of SMEs operating in Saudi Arabia affect the e-business systems adoption process?
- b) In what ways do the Saudi government support programs influence the e-business systems adoption process for Saudi SMEs?
- c) How do the factors (which are technical, organisational, and environmental in nature) affect the key stages of e-business adoption process of the Saudi SMEs?
- d) How does the influence of the factors (which are technical, organisational, and environmental in nature) affecting the key stage of the e-business adoption process of Saudi SMEs vary between manufacturing and service sectors?
- e) Are there any common or new factors that are perceived important across the key stages of e-business adoption by the Saudi SMEs?

1.2 Outline of the Research Design

A three-phase research design was adopted to answer the research questions: conceptual study (Phase 1), online experts panel (Phase 2), and a case study with multiple cases (Phase 3). Figure 1.1 shows the relationship among these three phases. A detailed discussion of the research design and the selection of research methods used to address the above-mentioned research questions are presented in Chapter 3, but a brief description is offered next.

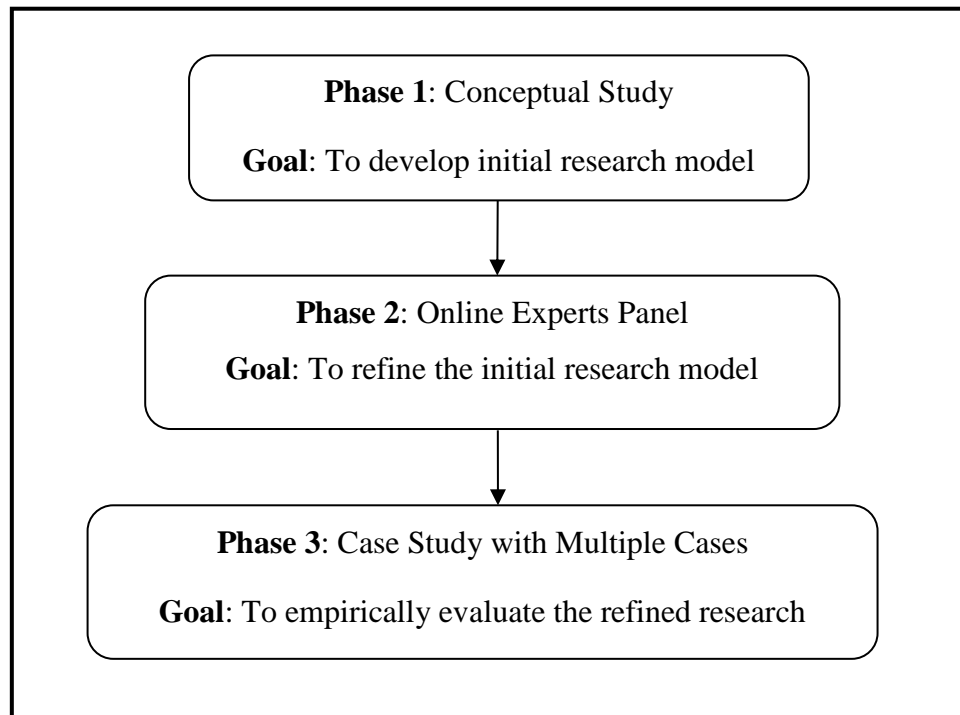


Figure 1.1: A three-phase research design

Phase 1 is concerned with a critical analysis of the existing e-business systems adoption literature. This phase identifies that adoption of e-business systems in SMEs drawing on the notion of a ‘stage model approach’ has not been adequately investigated for the context of the developing countries including Saudi Arabia. This research gap drives the conceptual study which focuses on the development of an initial research model. The model introduces a set of common and stage specific factors which affect the three stages (i.e. *initiation*, *adoption decision*, and *implementation*) of the e-business systems adoption process in SMEs. Based on this research model, a total of 29 propositions are developed.

The empirical components of this research involve: a) an online experts panel (Phase 2), and b) a case study with multiple cases (Phase 3). The online expert panel includes eight academic experts and their feedback is used to refine the initial research model developed in Phase 1. In Phase 3, data collected from 20 Saudi SMEs are analysed to evaluate the refined research model and the research propositions drawn from that model.

1.3 Outcomes of the Study

This study develops a research model to help explain the factors affecting the e-business systems adoption process in Saudi SMEs and then derives a set of research propositions which are later evaluated using empirical case data. The study thus makes a contribution to theory development and practices within the e-business systems adoption discipline. The specific outcomes of this study are:

- An empirically validated research model of e-business adoption process using data collected from 20 Saudi SMEs. The model clearly shows that a combination of common factors and stage specific factors jointly affect all three stages of the e-business systems adoption process in Saudi SMEs.
- A detailed explanation about the key factors which affect the e-business systems adoption process in SMEs operating within two important sectors (i.e. manufacturing and service) in Saudi Arabia. This study thus contributes to build an empirical foundation for understanding the adoption of e-business systems for a developing country context (i.e. Saudi Arabia).
- A set of useful guidelines for the senior management of those SMEs that are contemplating the introduction of e-business systems for the first time. By consulting the proposed e-business systems adoption research model, SME management would develop awareness about how various factors influence each of the three key stages of the e-business systems adoption process.
- A reduction in the uncertainty associated with the e-business systems adoption process by generating management awareness of the influence of key factors and thus helps SMEs to avoid disappointing e-business failures.

1.4 Organisation of the Thesis

The rest of the thesis is structured as follows: Chapter 2 presents a literature analysis of the e-business systems adoption process and proposes a definition of e-business appropriate for this study. The chapter further identifies the research gap by highlighting the need to study e-business systems adoption process from a ‘stage model’ perspective for the Saudi Arabian SMEs’ context. It then presents those few studies that have discussed the influence of various factors affecting e-business systems adoption in SMEs. The chapter also describes the adoption processes that SMEs generally initiate to introduce e-business systems, and the benefits that are likely to emerge as a result.

Chapter 3 presents the research approach employed in this study. The chapter explains why an online experts panel and a case study with multiple cases were adopted. It also provides the rationale for selecting the manufacturing and service industry sectors and choice of the case sites, and discusses the unit of analysis, and the techniques used for data collection and analysis.

Chapter 4 reports the development of a research model and derives a set of research propositions from that model which relates two sets of factors (i.e. *common factors* and *stage specific factors*) with each of the three stages of the e-business systems adoption process. The model is then refined based on the online experts panel evaluation.

Chapter 5 provides a brief review of the SMEs which participated in this study. Their nature of business and IT functions are described. Finally, the salient characteristics of the e-business systems used by these SMEs are discussed.

Chapter 6 and Chapter 7 offer an analysis of case study data based on the influence of the factors on each stage of the e-business systems adoption process for the participating Saudi SMEs. Chapter 8 provides a rich discussion of the key findings of this study in light with the model and existing literature and evaluates the research propositions.

Finally, Chapter 9 summarises the research findings and discusses them in relation to the research objectives. This chapter also highlights the contributions of the research findings for theory and practice. Additionally, the limitations of the research are outlined, and the areas for future research are suggested. Figure 1.2 shows the structure of the thesis.

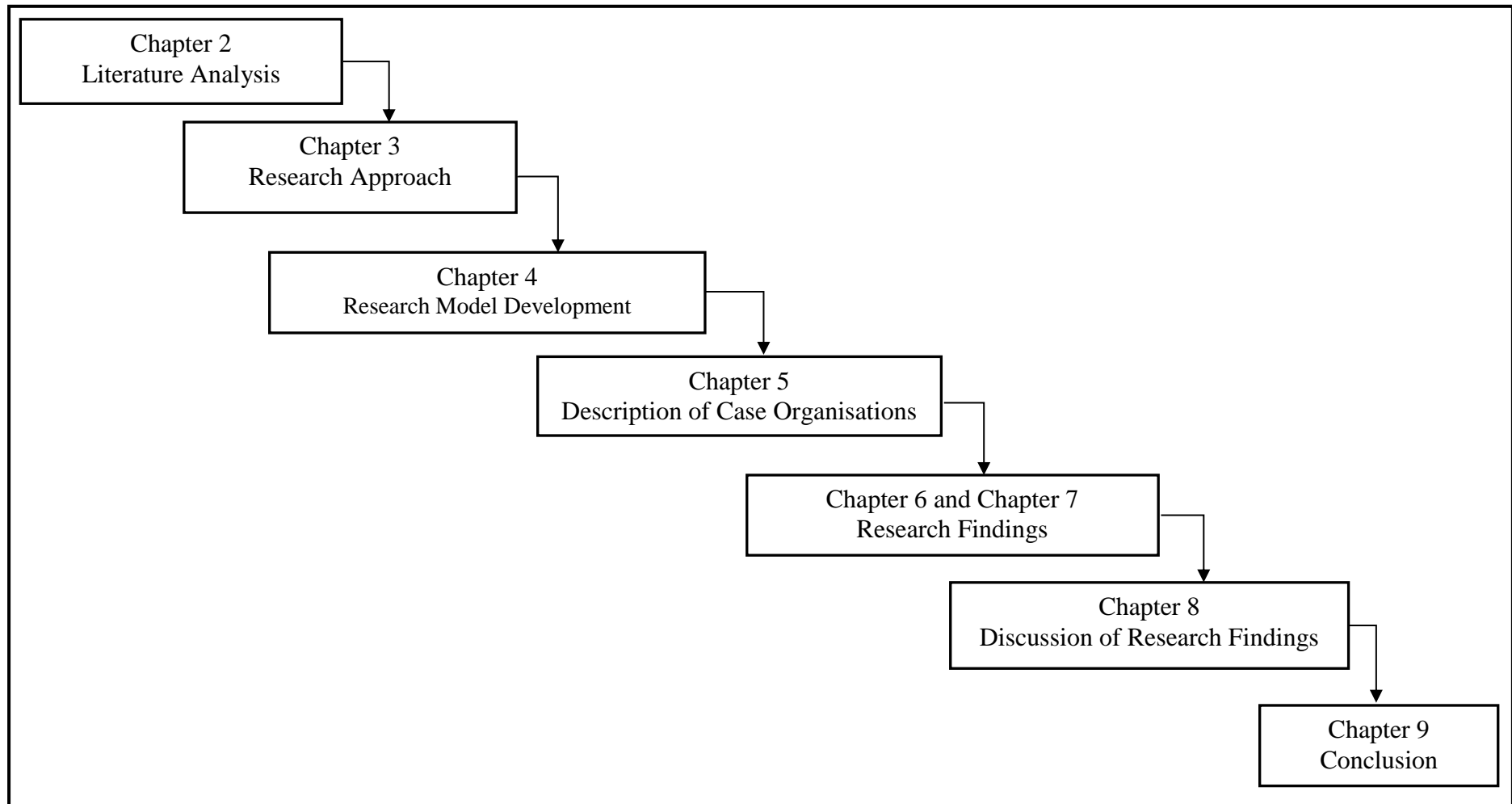


Figure1.2: Structure of the thesis

CHAPTER 2: LITERATURE ANALYSIS

2.0 Introduction

This chapter provides a critical analysis of the background literature related to the research questions indicated in Section 1.1. The chapter is divided into seven sections. Section 2.1 defines the meaning of ‘e-business’ and offers a discussion on an e-business taxonomy, benefits from e-business systems, and e-business adoption in the Arabian Gulf region. Section 2.2 provides an overview of SMEs, which includes a definition of SMEs and a discussion on the characteristics of SMEs in general, and SMEs operating in the Arabian Gulf region (including Saudi Arabia) in particular. Adoption of technological innovations is discussed in Section 2.3. This section defines the term ‘adoption’, describes various IT adoption theories, and elaborates on types of IT adoption research. Then, factor-based IT/e-business adoption studies are discussed in Section 2.4. Adoption of e-business by SMEs is discussed in Section 2.5. Next, adoption of e-business by SMEs operating in the Arabian Gulf region is discussed in Section 2.6. Finally, Section 2.7 summarises the chapter.

2.1 E-business

2.1.1 Definition of E-business

The term ‘e-business’ has many interpretations. A review of the literature suggests that the notion of e-business has been described by scholars from three different perspectives: technology, business model, and system. First, e-business is not just the Internet; it also involves a wider range of technologies such as wireless, intranets, portals, and content management software among others (Stone 2003). Second, e-business refers to a business model that enables buyers and sellers to exchange information and services through electronic means (Davies and Garcia-Sierra 1999). Third, e-business is defined as “a system where Internet technology is employed to streamline the business processes of organisations to improve their productivity and efficiency” (Muffatto and Payaro 2004, p. 341). Each perspective, by itself, is inadequate because a successful e-business initiative requires innovative and smart development, operation and acceptance of systems built with web-enabled and many relevant associated technologies, standards and protocols, which need to streamline and automate business (intra-organisational and inter-organisational) processes. Thus, in this study, a broad viewpoint of e-business is accepted which is consistent with the views of Browne, Robinson et al. (2003). Therefore, e-business is defined as “conducting business both internally and externally using online technologies to improve business performance” (p.55).

2.1.2 E-commerce and E-business

There exists confusion between two closely related terms: e-commerce and e-business. In general, e-commerce refers to the practice of purchasing and/or selling of goods and services over the Internet (Simpson and Docherty 2004). In other words, e-commerce is the application of the Internet and web technologies to conduct business transactions (Zwass 1994). In contrast, e-business has a much wider integrative use, connecting business systems together, and is more complex in nature than pure e-commerce (Martin and Matlay 2003). According to the Department of Trade and Industry (2001), e-business describes a superior

level of integration of communications technologies with business processes and management practices frequently executed via the Internet. E-business involves the utilisation of the Web to perform business, as well as purchasing and selling, connects key players to critical business systems and allows access to the information they need (Simpson and Docherty 2004). Using this definition, e-commerce can be considered as a subset of e-business.

2.1.3 E-business Taxonomy

Several e-business taxonomies are reported in the literature. However, a popular and simple taxonomy is offered by Turban, King et al. (2010). According to them, there are five types of e-business: business to business (B2B), business to consumer (B2C), consumer to consumer (C2C), consumer to business (C2B) and business to employees (B2E). Some of these types such as B2B, B2C, C2C and C2B are also consistent with the views expressed by Lim (2001) and Rayport and Jaworski (2001).

B2B E-business: The participants involved in this type of e-business initiative are organisations. B2B e-business represents the largest and oldest category of e-business and accounts for about 85% of e-business transactions (Turban, King et al. 2010). Many forms of B2B e-business exist. Popular B2B e-business includes: Electronic Data Interchange (EDI) systems, e-procurement systems, and B2B online marketplaces.

EDI represents “the movement of business documents electronically between organisations in a structured, machine-retrievable, data format that permits data to be transferred, without rekeying, from a business application in one location to a business application in another location” (Hansen and Hill 1989, p. 404). When successfully implemented among supply chain members, EDI can provide both operational and strategic advantages to organisations (Kurnia and Rahim 2007). Despite such advantages, there are several concerns associated with the use of EDI. Examples include a high cost for smaller companies and difficulty to agree on the use of standards (Hernandez, Jimenez et al. 2010).

E-procurement systems refer to web-based business applications that automate procurement activities such as sourcing, ordering, commissioning, receipting and making payment (Soar, Vaidya et al. 2004). These systems can be used to request for quotations, online auctions or e-markets (Puschmann and Alt 2005). When successfully implemented, e-procurement systems can provide such benefits as reduced transaction costs, greater inter-organisational coordination within the supply chain, improved relationships with business partners, and more competitive sourcing opportunities for the buyer organisations (Rahim and As-Saber 2011). These systems too can be quite expensive and would require investment in e-catalogues. Moreover, many scholars (e.g. Gunasekaran and Ngai 2007; Tan, Chong et al. 2009; Abu Abid, Rahim et al. 2010) have confirmed these benefits for the SMEs context.

An online B2B marketplace is defined as “an infrastructure that creates a trading community linked by the Internet and provides the mechanism for B2B transactions using common standards and industry-wide computer systems” (Zhu 2002, p. 93) . It is used to improve supply chain efficiency. A B2B marketplace provides several opportunities. These are to automate collaborative business processes with trading partners, produce internal efficiencies, and access new markets at minimal cost (Balocco R., Perego A. et al. 2010). On the other hand, there are also potential disadvantages of using an online B2B marketplace such as loss of privacy or personal information, possible for fraud, inability to inspect or experience the

product prior to purchase, and low reliability of the online shopping experience (Chong, Shafaghi et al. 2010).

B2C E-business: This is the most popular type of e-business. B2C e-business involves electronic interactions of products or services between a business and its individual consumers (Lim 2001). There are several forms which B2C e-business undertakes. Popular examples include online banking and online auctions (Gunasekaran and Ngai 2008). Online banking is defined as “carrying out banking transactions over the Internet, which include balance inquiry, transaction history, account transfer, on-line bill payments, and on-line loan applications” (Kim and Prabhakar 2004, p. 55). Internet banking provides customers several benefits including 24/7 accessibility to bank services and cost-effectiveness (Kim and Prabhakar 2004). Many people however are still reluctant to use Internet banking due to trust and privacy concerns (Pikkarainen, Pikkarainen et al. 2004). Hajiaghayi, Kleinberg et al. (2004) define an online auction as “a setting in which agents arrive dynamically and require that an allocation and payment decision is made before they depart” (p.2). It has several advantages such as the introduction of discipline in the process, the involvement of an intermediary, the shortening of price negotiations from months to hours, thus saving considerable time and effort and reducing the likelihood of significant changes in business conditions that might affect price, and the process leads to a market price (Emiliani 2000). Online auction however does not provide buyers with an option for personally viewing and evaluating items before purchasing. This may lead to the possibility of fraud (Ockenfels, Reiley et al. 2006).

C2C E-business: This type of e-business is one in which both the buyers and the sellers are individuals (Rayport and Jaworski 2001). There are several ways to conduct C2C e-business. The most popular C2C activities are auctions, such as eBay. In addition, there are other activities of C2C e-business such as personal services, exchanges, selling virtual properties, and support services (Turban, King et al. 2010). C2C auctions let applicants to sell items for negligible commissions. Informed customers who use low-priced B2C auctions can make profits by selling their items in C2C auctions with premiums. In particular, profit-seeking can be protected against being undersold by using the reserve price rules available in the C2C auction market (Lennon, Kim et al. 2007). Using a C2C auction provides numerous advantages such as availability anywhere/any time, convenience, more participants, and more products (Lin and Joyce 2004). On the contrary, the main weaknesses of C2C auctions are the inability to physically see and touch the merchandise, and concerns about security and privacy (De Ruiter and Van Heck 2004).

C2B E-business: This refers to those e-business initiatives in which individuals utilise the web to sell products or provide services to businesses. These individuals may even seek sellers to bid on their products or services (Rayport and Jaworski 2001). Priceline.com is a famous organiser of C2B transactions. It was launched in early 1998 with a single idea which permitting customers to title their own rates for airline tickets and hotel. Priceline negotiated a sequences of deals with airlines and hotels, which naturally have unemployed capacity, to sell their excess at a discount (Wingfield, Lynn et al. 2000). In late of 2006, Priceline sold approximately 624,000 airline tickets as well as rent roughly 180,000 room nights, up significantly from the prior year (Priluck 2006). Priceline.com has several disadvantages. For example, there is no guarantee that Priceline will find a savings offer that perfectly matches a customer’s request. The customer may specify a specific flight or airline but it may not be available. This would mean possibly staying at a hotel with a lower rating or less convenient location. The customer does not have control of his details once the request is placed with

Priceline.com. The bottom line for them is that they find a flight, hotel or rental car that is available for the price customers state (Mefford 2009).

B2E E-business: This is a type of e-business in which a business delivers products, services, or information to its own employees using online technologies (Turban, King et al. 2010). A B2E application has three mechanisms: online business processes, online management of people and online services to the workplace community (Singh, Waddell et al. 2008). According to Singh, Waddell et al. (2008), these systems offer a number of benefits: staff are capable of making decisions with latest information and are competent to perform better responses to organisational issues; time is saved searching for relevant information thus enabling an employee to spend that time on other value adding activities and thereby enhancing productivity. In addition, many scholars (e.g. Gunasekaran and Ngai 2007; Tan, Chong et al. 2009; Abu Abid, Rahim et al. 2010) confirmed these benefits in the SME context. Common barriers to B2E e-business adoption include increased costs of technology; change management, high employee turnover, and information overload (Rahim and Singh 2008).

2.1.4 Benefits of E-business

When successfully implemented, e-business applications can offer many benefits to consumers, organisations (SMEs and large), and society at large. These are briefly described below.

Benefits for consumers: E-business can provide better services for consumers. Free availability of information can help consumers compare product characteristics across suppliers (Chen and Dubinsky 2003). E-business provides 24/7 access which facilitates shopping or performing other transactions 24 hours a day and from almost any location (Tassabehji 2003), for instance, checking balances, payments, and obtaining travel information. E-business further helps provide cheaper products by offering price rates which enable consumers not only to have a whole range of prices to choose from and customise, but also access to international prices for the same product (Tassabehji 2003).

Benefits for organisations: Cost reduction (Gunasekaran, McGaughey et al. 2009) and access to global markets (Pearson and Grandon 2006) represent two widely cited benefits for organisations. E-business has significantly decreased operational costs and the costs associated with creating, distributing, and, processing (Spanos and Voudouris 2009). In addition, e-business assists reduced inventories and overheads through enabling 'pull-type' management of supply chain, lower telecommunications costs and digitisation of products and processes (Arvaniti C. 2010). Another significant benefit of e-business to organisations is opening national and international markets to organisations to conduct their business transactions (Tassabehji 2003). Many scholars (e.g. Gunasekaran and Ngai 2007; Tan, Chong et al. 2009; Abu Abid, Rahim et al. 2010) have confirmed these benefits in the SMEs' context.

Benefits for society: Society as a whole can benefit from e-business as a result of improved public services (Berman BJ. and Tettey WJ. 2001), greater standards of living, and cleaner environment (Oh, Cruickshank et al. 2009). E-business facilitates delivery of public services by providing (for example) health services over the Internet and filling in taxes through the Inland Revenue website (Tassabehji 2003). E-business enables more flexible work practices which improve the quality of life for all people in society. People living in developing

countries and countryside areas could have the ability to enjoy and access products, services, and information by using the e-business systems which otherwise would not be so easily available to them (Tassabehji 2003). When people use e-business to perform their transactions from their homes, this has a potential impact on the environment by reducing environmental pollution as fewer people have to travel to work regularly (Marasini, Ions et al. 2008).

2.1.5 E-business in the Arabian Gulf Region: Current Status

The Arabian Gulf region represents a vast geographical area and includes such countries as Bahrain, Kuwait, Oman, Qatar, Kingdom of Saudi Arabia (KSA) and United Arab Emirates (UAE) (Oxford Analytica 2010). This region is endowed with a large reserve of oil and natural gas. The region also has one of the fastest growing economies in the Arab world, and the future economic outlook looks positive due to high world prices of oil and natural gas (Darrat and Al-Sowaidi 2010). The flourishing economy of the Gulf Region has led to a number of government initiatives promoting a leading innovation-based knowledge economy, the most notable being establishment of ‘smart cities’, for instance, Dubai Internet City and King Abdullah Economic City in Saudi Arabia. These cities contribute to an increased number of organisations implementing e-business (Manibo 2010). In particular, Saudi Arabia is considered the largest IT (including e-business) market in the Middle East, with an estimated value to reach in 2014 to US\$4.6bn (Report linker 2010). E-business spending in Saudi Arabia has held up better than in some other countries located in the Middle Eastern region (AlGhamdi, Drew et al. 2012). Despite the global financial crisis that restricts the global economic slowdown, Saudi Arabia remains a profitable market for e-business products and services as it invests to improve its Information and Communication Technology (ICT) infrastructure (Tashkandi 2010).

Growing population and government projects in Saudi Arabia are known to be positive motivators for IT market (Report linker 2010). Per capita IT (including e-business) spends are estimated to attain US\$173 by 2014 (Report linker 2010). In Saudi Arabia, a positive market trajectory can be supported by growing population and youthful demographics.

2.2 Small and Medium Enterprises (SME): An Overview

There exists a lack of agreement among scholars about the definition of SMEs. This section discusses various viewpoints presented by scholars about the definition of SMEs and highlights the characteristics of SMEs in general and SMEs operating within the the Arabian Gulf region (including Saudi Arabia) in particular.

2.2.1 Definition of SME

There is no single definition of SME. Such criteria as employment, sales and investment are often used by scholars for defining SME. Even the SME’s definition on the basis of a particular criterion (e.g. size) is not uniform across countries (Ayyagari M., Beck T. et al. 2007). For example, in the United States of America (USA), a SME represents an enterprise with less than 500 employees (Ward 2010), while the European Union (EU) defines SME as an enterprise with 250 or less employees (European Commission 2005).

Quite often, a finer distinction is made within SMEs by differentiating among micro, small, and medium enterprises. According to the EU, micro enterprises are businesses having one to

nine employees, small as businesses having 10 to 49 employees, and medium as businesses having 50 to 249 employees. In contrast, in the USA, a small business which has less than 100 employees, whereas a medium has less than 500 employees (Wen and Chen 2010). Table 2.1 shows the definition of SMEs used across various regions of the world. It can be observed that there is no agreement about the measurement of micro, small, and medium enterprises. For example, the medium enterprise varies from less than 100 employees to less than 500 employees.

In this study, the number of employees is considered as a criterion to define a SME and the definition of a Saudi SME provided by Otsuki (2002) is accepted, which considers a SME as an enterprise with less than 100 employees. For the purpose of this study, the definition of a micro enterprise (an enterprise which has less than 10 employees) is accepted, because the majority of countries around the globe use it.

Table 2.1: SME definitions (measured in terms of number of employees) by region

Regions	Literature sources	Micro	Small	Medium
USA	Ward (2010)	<5	<100	<500
EU	European Commission (2005)	<10	<50	<250
Australia	Australian Bureau of statistics (2004)	<5	<20	<200
Asian				
• Singapore	Hew and Loi (2004)	<10	<50	<200
• Malaysia	Hew and Loi (2004)	<10	<50	<200
• Korean	Hew and Loi (2004)	<10	<50	<200
• Hong Kong	Hew and Loi (2004)	<10	<50	<200
Gulf Region				
• Saudi Arabia	Otsuki (2002)	Not specified	<60	<100
• Bahrain	Hertog (2010)	<10	<50	<150
• Oman	Hertog (2010)	<5	<20	<100
• UAE	Hertog (2010)	<10	<20	<100

2.2.2 Characteristics of SMEs

Globally, SMEs are recognised to play a significant role to enhance their national economy. They make important contributions to technological progress, increased business competitiveness, and creation of new jobs in the private sector (Lin, Huang et al. 2007). SMEs are generally recognised as a vibrant and growing sector in most economies around the world (Chatzoglou, Vraimaki et al. 2010). Existing literature describes the following key characteristics of SMEs:

- SMEs are businesses with limited resources (Levy, Powell et al. 2005).
- SMEs are usually more entrepreneurial and ready to experiment and innovate in terms of business models and operations than larger organisations (Chen and Dubinsky 2003).
- Due to limited resources in terms of expertise, finance, and knowledge, SMEs need more support (preferably from government agencies) to fulfil their needs for management, marketing, commercialisation, or IT development (Gengatharen and Standing 2005).
- SMEs have low survival rates (Dutta and Evrard 1999). For example, the population of SMEs in the EU is constantly changing, with almost a million new SMEs

registered each year within the EU (Dutta and Evrard 1999). However, within the same period, about the same number of businesses closed down.

- e) SME owners/managers generally seek a diversity of objectives and have much shorter-term objectives compared to managers in larger organisations (Jeon, Han et al. 2006).
- f) SMEs focus on flexibility so that they can adjust their companies to quickly respond to unexpected changes in the environment (Lin, Huang et al. 2007).

2.2.3 SME in the Arabian Gulf Region (including Saudi Arabia)

According to some scholars (e.g. Hertog 2010), economic diversification and job creation for the Arabian Gulf nations will be affected if SMEs do not play a substantial role in the society. SMEs represent 90-99% of total business in the Gulf region. For example, in Bahrain SMEs represent 98.6% of total businesses, while in Kuwait, SMEs represent 90 % (Hertog 2010). SMEs have a significant role in creating job opportunities for workforces in the Gulf Region. For instance, SMEs comprise 63% of the overall workforce in the United Arab Emirate (Gulf States 2010) . Generally, SMEs in the Gulf region constitute more than 90% of businesses in every country of the region. Large shares of SMEs are active in the trade sector; other important sectors include small-scale workshops, hotels and restaurants as well as contracting. SMEs however are less visible in heavy industry (e.g. manufacturing) and other capital-intensive sectors. The UAE and Qatar seem slightly less varied than the other Arabian Gulf countries (Hertog 2010).

In Saudi Arabia, SMEs are considered to be one of the driving forces for economic uplift. According to Shaikh (2009), approximately 96% of Saudi businesses have less than 100 employees and 95% of commercial registrations in Saudi Arabia are SMEs. In addition, about 71% of manufacturing establishments are also SMEs. Nevertheless, SMEs contribute around 28% in the total activities of the national economic of Saudi Arabia (Hertog 2010). In Saudi Arabia, there are more than 700,000 active SMEs. About 47% of these SMEs take part in commercial and hotels businesses, 27% in construction, 12% in industry, 6% in social services and 8% in sundry other sectors (Shaikh 2009).

2.3 Understanding Adoption of Technological Innovations

2.3.1 Defining Adoption

There is a rich body of literature on adoption of technological innovations including IT systems in general and e-business in particular. Various scholars have attributed somewhat different shades of meaning to the term ‘adoption’ (Rahim 2003). Thus, prior to offering a critical synthesis of the relevant adoption literature, it is important to clarify how the term ‘adoption’ is interpreted in the literature and then to establish how it has been used in this study.

One group of scholars (e.g. Daniel, Wilson et al. 2002; Xu, Rohatgi et al. 2007; Alonso-Mendo, Fitzgerald et al. 2009; Magal, Kosalge et al. 2009) consider ‘adoption’ to represent a particular stage of the technological innovation adoption process in organisations. According to them, the term ‘adoption’ refers to the ‘decision making stage’ when an innovation (e.g. IT system or process) is chosen for subsequent use. Adoption is generally operationalised when an organisation has a specific plan or intention to accept an innovation (e.g. software). Another group of scholars (e.g. Iacovou, Benbasat et al. 1995) use the term ‘adoption’ in a

broader sense. According to them, adoption represents the actual implementation stage in which adoption is operationalised as the actual level of innovation use within an organisation and synonymous with IT/e-business use, utilisation, and acceptance (Rahim 2003). In this study, the viewpoint of the first group of scholars is accepted. Hence, adoption represents one of the key stages of the technological innovation adoption process followed by an organisation. It does not represent the entire e-business innovation adoption process.

2.3.2 IT Adoption Theories

The IT adoption literature includes a range of theoretical frameworks that can help explain the IT adoption process. According to Carr (1999), two types of theories relating to IT adoption can be identified: micro and macro. The former focuses on the use of IT applications by individuals; the latter is concerned with the adoption of a wide range of information technologies and practices at individual organisations. Both types of theoretical frameworks have been regularly consulted by scholars to explain adoption of e-business systems.

2.3.2.1 Micro Level Adoption Theories

A large part of the existing IT/e-business adoption studies involve development and empirical evaluations of micro level theoretical models to help explain IT/e-business adoption by individuals. A list of widely cited micro level IT adoption theories are shown in Table 2.2. The third column of the table shows some examples of the application of the theories in relation to IT or B2C e-business adoption context.

Table 2.2: Micro level adoption theories

Theory	Literature Sources	Theory applications in IT/E-business Studies
Theory of Reasoned Action (TRA)	Fishbein and Ajzen (1975)	Lee and Kim (2005)
Theory of Planned Behaviour (TPB)	Ajzen (1991)	Celuch, Taylor et al. (2004)
Technology Acceptance Model (TAM)	Davis (1989)	Kim and Malhotra (2005)
Technology Acceptance Model (TAM II)	Venkatesh and Davis (2000)	Tao, Cheng et al. (2009)
Unified Theory of Acceptance and Use of Technology (UTAUT)	Venkatesh et al. (2003)	Garfield (2005)
Social Cognitive Theory	Bandura (1986)	Liaw, Chang et al. (2006)

Many of these theories have used arguments drawn from the Theory of Reasoned Action (TRA) (Fishbein and Ajzen 1975), and Theory of Planned Behaviour (TPB) (Ajzen I. 1991) derived from social psychology literature to help explain an individual's intention to adopt an IT application. TRA has been used to predict and explain various types of technology adoption behaviour in several disciplines. In IT, TRA is commonly used for predicting computer technology acceptance (behaviour) through behavioural intentions (Fishbein and Ajzen 1975). TPB represents an extension of TRA with the attachment of the alternative determinant of behaviour, perceived behavioural control. For the IT context, TPB refers to insights of internal constraints as well as external constraints on behaviour (Ajzen 1991).

The Technology Acceptance Model (TAM) is an adaptation of TRA and is popularly used to explain computer usage behaviour as well. It includes the impact of external factors on internal beliefs, attitudes and intention (Davis 1989). TAM2 extended TAM by including ‘subjective norm’ as an added predictor of intention in the case of mandatory settings (Venkatesh and Davis 2000). The aim of the Unified Theory of Acceptance and Use of Technology (UTAUT) is to illuminate user intentions to practice an Information System (IS) and subsequent usage behaviour. It has consolidated prior studies on acceptance and usage of IT and produced a complete view of user acceptance and usage behaviour pertaining to IT (Venkatesh, Morris et al. 2003). The Social Cognitive Theory (SCT) is a widely accepted model of individual behaviour to explain the effect of cognitive factors on computer use (Bandura A. 1989). In this theory, the interaction between the individual and behavior involves the effects of an individual’s views and actions. The interaction between the individual and the external environment involves human beliefs and cognitive capabilities that are established and modified by social effects and structures within this environment (Bandura 1989).

2.3.2.2 Macro Level Adoption Theories

Literature on IT/e-business adoption includes a range of macro level theories to help explain organisational adoption and use of IT systems. A total of six theories (shown in Table 2.3) are identified which have been used by many scholars to examine adoption of various types of IT/e-business applications (e.g. EDI, CASE software) in organisations (Jeyaraj A., Rottman JW. et al. 2006). These theories are employed at different IT adoption stages such as ‘adoption’ (Davis 1989; Simpson and Docherty 2004; Fygenson 2006; Magal, Kosalge et al. 2009) and ‘diffusion’ (Panzano, Seffrin et al. 2004). The third column of the table shows some examples of the application of these theories in relation to IT or B2B e-business adoption.

Table 2.3: Macro level adoption theories

Theory	Literature Sources	Theory applications in IT/E-business Studies
Diffusion/Implementation Model	Kwon and Zmud (1987)	Ramdani and Kawalek (2008)
Diffusion of Innovation (DOI) Theory	Rogers (2003)	Lin (2008)
Tri-Core Model	Swanson (1994)	Wu (2004)
Technology Organisation Environment (TOE)	Tornatzky and Fleischer (1990)	Neirotti, Paolucci et al. (2013)
Delone and Mclean IS Success Model	Delone and McLean (2003)	Liu and Chang (2013)

The diffusion/implementation model is developed by Kwon and Zmud (1987). It defines five contextual factors (the community of a user, characteristics of an organisation, characteristics of a technology, characteristics of task, and environmental aspects) each of these factors might influence any of six stages of IT adoption (i.e. *initiation, adoption, adaptation, acceptance, routinisation, and infusion*). Whereas, DOI theory defines why, how, and at what rate new technological innovations spread through cultures operating at the organisation level (Rogers 2003).

According to Swanson (1994), the Tri-core model has identified the cores of know-how which participate in the development of technological innovations in an organisation. It consists of technical core, administrative core, and IS core.

The TOE framework was developed by Tornatzky and Fleischer (1990). It consists of three aspects of an organisation's characteristics that influence the adoption process of a technological innovation: organisational characteristics, technological characteristics, and environmental characteristics. Organisational characteristics describe several aspects of an organisation, for example industry sector, company's size, and managerial structure. Whereas the technological characteristics refer to both internal and external technologies related to an organisation. Environmental characteristics describe the situation around an organisation such as its business, its industry, competitors, suppliers, buyers, trading partners, and its contact with a government. This framework is frequently used and well accepted among the IS scholars because of the comprehensive nature of the number and type of factors included in the framework.

Finally, the IS adoption success model was developed by Delone and McLean (2003). It consists of six interrelated dimensions of IS adoption success: system, use, information, service quality, net benefits, and user satisfaction. This model has two important contributions: a) it offers a scheme for grouping the multitude of measures of the success of IS that have been used in the literature, b) it proposes a model of sequential interdependencies among the groups (Seddon 1997). The model comprehensively reviewed different IS success measures and is frequently used by the IS scholars.

2.3.3 Types of IT Adoption Research

Drawing upon Markus and Robey's (1988) taxonomy of 'theories of technology adoption' that highlights the important role of theoretical commitments in explaining the technology adoption, two distinct types of IT/e-business adoption research can be observed: process-oriented adoption and factor-based adoption. Each is explained below.

2.3.3.1 Process-Oriented IT/E-business Adoption Studies

Process-oriented studies generally discuss how an innovation can be understood through analysing the cognitive, social, and political processes that prevail within organisations. Innovation in organisations is typically characterised as an on-going, recursive process of loops, decisions and re-decisions on implementation details (Wilkins and Swatman 2000). Process-oriented studies are based on the notion that implementation processes rather than factors are important for understanding the outcomes of innovation (Mohr 1982). As such, differences in the adoption outcomes can be partially attributed to the differences in the implementation process. Process-oriented studies do not consider factors to be the necessary and sufficient conditions that alone cause outcomes because it is the actual adoption processes that are believed to affect outcomes. Another important characteristic of the process-oriented studies is that they encapsulate the emergent causality principle, which asserts that the use and consequences of the adoption of technology emerge from complex social interactions (Markus and Robey 1988). The characteristics of process-oriented studies, when applied to e-business adoption research, mean that outcomes of e-business adoption cannot be predicted from the level of factors, but can be partially predicted from knowledge of e-business adoption processes. Furthermore, the adoption of e-business is viewed as a complex process and that outcomes emerge from interactions among adopters, the

environment and technology. Advocates of this position argue that, due to the complex view of the adoption process, adoption of e-business can only be studied within the context in which it occurs. According to Kurnia and Johnston (2000), e-business adoption is considered to be “re-invention and there exists a multi-directional notion of causality between the adopters and the environment” (p.302) . Some examples of process-oriented e-business adoption studies reported in the literature include the works of Narayanan, Marucheck et al. (2009), Li and Williams (2012) , and Zhao and Luo (2013).

2.4 Factor-based IT/E-business Adoption Studies

Factor-based studies are characterised by the notion that a set of antecedent factors can be found that affect the outcomes of technology introduction. Factors represent those conditions that should be present in a business to facilitate technology adoption (Rahim 2003). For instance, a factor may represent a condition of an organisation (e.g. management support, IT maturity), technology (e.g. complexity, cost, compatibility) or business environment (e.g. trust, dependency, pressure) that should be present in organisations to affect IT/e-business adoption. Factor-based studies generally use a single organisation as the unit of analysis and assume that the factors have a causal status in determining IT/e-business adoption decisions. They posit that the factors are a necessary and sufficient condition for the outcome of the adoption decision. Within the factors based literature, two different streams exist. One stream of studies focuses on identifying factors affecting the adoption decision of IT/e-business applications. Another stream considers IT/e-business in terms of stage models and identifies a set of factors affecting each stage.

2.4.1 Factor-based IT/E-business Studies

A large portion of the factor-based IT/e-business literature focuses on the application of macro level theories to help explain IT/e-business adoption decisions made within an organisation. Drawing on a review of literature, the TOE framework identifies three broad groups of factors: (a) the properties of the IT/e-business systems being introduced (T), (b) the characteristics of the organisation introducing IT/e-business (O), and (c) the conditions predominant in the environment within which the organisation operates (E). Some examples representing each of these groups of factors are shown in Table 2.4. The ‘Properties of e-business’ proposes that an adopter organisation realise the significance of a factor in this group, the more possible it is that the organisation would adopt IT/e-business. Whereas, ‘Characteristics of Adopter Organisations’ specifies that, even though e-business systems might have the possible to offer considerable profits, it is unlikely to be adopted if assured organisational conditions do not prevail within the adopter organisations. Therefore, the sophistication of organisations in relate to their degree of top management support, financial resources, IT capability, formal and informal links, and a suitable organisational structure might affect the adoption of IT/e-business. Finally, the ‘Conditions in the Environment’ recommends that the more the effect of environmental pressures on an organisation, the greater is the probability of an organisation adopting e-business.

Table 2.4: Some examples representing group of factors used in IT/e-business studies applying macro level theoretical frameworks

Factors Groupings	Individual Factors	Relevant Theories
Properties of e-business	Complexity	Diffusion/Implementation Model (Kwon and Zmud 1987); Innovation Diffusion Theory (Rogers 1995)
	Compatibility	Diffusion of Innovation Theory in IS (Moore and Benbasat 1991); Innovation Diffusion Theory (Rogers 1995); Delone and Mclean IS Success Model (Delone and McLean 2003)
	Cost	Transaction Cost Theory (Williamson 1985)
Adopter Characteristics of Organisation	Technology support infrastructure	TOE Framework (Tornatzky and Fleischer 1990); Delone and Mclean IS Success Model (Delone and McLean 2003)
	Top management support	TOE Framework (Tornatzky and Fleischer 1990)
Conditions in the Environment	Uncertainty	Diffusion/Implementation Model (Kwon and Zmud 1987)
	Power of trading partners	Diffusion/Implementation Model (Kwon and Zmud 1987)

2.4.2 Factor-based IT/E-business Adoption Stage Model Theories

A review of the broader technological innovation adoption literature highlights the existence of several stage models. A summary of these models is shown in Table 2.5. From this table, it appears that the number of stages in explaining technology innovation (e.g. EDI, IT) may vary from three to six. It is however possible to describe the technological innovation process in terms of three core stages: initiation, adoption and implementation. This view is consistent with such scholars as Thompson (1965), Pierce and Delbecq (1977), and Zmud (1982). It is argued that those models (e.g. Rogers 1983; Kwon and Zmud 1987; Cooper and Zmud 1990) which identified more than three stages can be considered to be an extension of the initiation and implementation stages. For instance, Rogers (1983) expands the initiation stage to include ‘knowledge’ and ‘persuasion’ and adds a sub-stage of the implementation stage called ‘confirmation’, and Kwon and Zmud (1987) have expanded the implementation stage to ‘acceptance’, ‘use’ and ‘incorporation’ stages.

Table 2.5: Stage model theories

Studies	Type of Technology	Stages
Thompson (1965)	No specific technology	Three stages: generation, acceptance and implementation
Pierce and Delbecq (1977)	No specific technology	Three stages: initiation , adoption and implementation
Zmud (1982)	Software	Three stages: iInitiation, adoption and implementation
Rogers (1983)	No specific technology	Five stages: knowledge, persuasion, decision, implementation and confirmation
Kwon and Zmud (1987)	Generic technology	Six stages: initiation, adoption, adaptation, acceptance, use and incorporation
Zmud and Apple (1989)	Generic technology	Six stages: initiation, adoption, adaptation, acceptance, routinisation and infusion
Cooper and Zmud (1990)	Generic technology	Six stages: initiation, adoption, adaptation, acceptance, routinisation and infusion
Rogers (1995)	Generic technology	Five stages: agenda-setting, matching, redefining, clarifying and routinizing

The three stage model attributed to Thompson (1965) and restated by Pierce and Delbecq (1977) and Zmud (1982) is representative of the literature on innovation adoption stages: initiation of an innovative idea; adoption decision of an innovation as represented by an organisational mandate for amend; and, implementation of the innovation such that it becomes entrenched within an organisation. A high level summary of the factors affecting each stage included in the stage model theories is shown in Table 2.6.

Table 2.6: A list of factors affecting IT/e-business adoption stages: A summary

Studies	Type of Technology	Adoption Stages		
		Initiation	Adoption Decision	Implementation
Thompson (1965)	No specific technology	Need resource for innovation Production-oriented over specification and commitment of resources Professionalism Ease of and freedom of communication Low level of parochialism Stratification	Professional growth Diversity of values	Professional training. Higher degree of co-ordination Organisation restructure
Pierce and Delbecq (1977)	No specific technology	Differentiation Professionalism Decentralisation Less restricted communication flows Formulisation Stratification Environmental uncertainty	Lack of singleness of purpose Diversity of values Professionalism. Environmental uncertainty	Lack of singleness of purpose Diversity of values Professionalism. Decentralisation. Environmental uncertainty
Zmud (1982)	Software	Professionalism Centralisation	Formalisation	Professionalism
Rogers (1983)	No specific technology	Relative advantage Compatibility Complexity trialability Observability	Trialability Relative advantage Uncertainty Change agents External pressure	Uncertainty Active information seeking Change agent Relative advantage

(Continued)

Table 2.6: A list of factors affecting IT/e-business adoption stages: A summary (Continued)

Studies	Type of Technology	Adoption Stages		
		Initiation	Adoption Decision	Implementation
Kwon and Zmud (1987)	Generic technology	Compatibility Relative advantage Complexity Centralisation Formalisation Heterogeneity Competition pressure	Specialisation Informal network Relative advantage Formalisation	Uncertainty Relative advantage
Zmud and Apple (1989)	Generic technology	Compatibility Relative advantage Complexity Centralisation Formalisation Heterogeneity Competition pressure	Specialisation Informal network Relative advantage	Uncertainty Relative advantage
Cooper and Zmud (1990)	Generic technology	Compatibility. Relative advantage. Complexity Centralisation, Formalisation	Compatibility Cost Top management support User resistance to change	Uncertainty Task-technology interaction Cost Organisational change
Rogers (1995)	Generic technology	Relative advantage Compatibility Complexity Trialability Observability	Relative advantage Trialability Uncertainty	Relative advantage Uncertainty

2.4.3 Factor-based Empirical Literature on E-business Adoption

A review of the e-business literature indicates the existence of two streams of studies: one stream focuses on e-business adoption involving stage model concept, and another stream addresses a particular stage of e-business adoption. Relatively, few studies fall into the first category and the dominance of the second group of studies can be observed in the SME context. A detailed discussion of each group is provided below.

2.4.3.1 E-business Adoption Studies: Stage-based Perspective

In general, relatively few adoption studies are reported in the e-business literature that uses the concept of stage models. A review of e-business literature identifies several studies reporting stage-based perspective. These studies (which are summarised in Table 2.7) lead to the following observations: First, there is no agreement among the scholars about the number of stages used in examining e-business introduction. It varies from three to six stages. Second, very few of the of the e-business stage model studies focus on SMEs. Third, often different names are given to a stage that represents somewhat similar concepts. For example, the ‘idea generation’ stage used by Reich and Benbasat (1990) is similar in meaning to the ‘identifying e-business opportunities’ stage of Cavaye and Cragg (1995).

Table2.7: Stage model e-business adoption empirical literature

Studies	Type of E-business System	Research Approach	Country	Stages	Organisation Size
Reich and Benbasat (1990)	Customer-Oriented Interorganisational Systems	Mixed approach	Canada	Five stages: idea generation, development project, early adoption, later penetration and competitive advantage	Large
Cavaye and Cragg (1995)	Customer-Oriented Interorganisational Systems	Interview	New Zealand	Four stages: identifying e-business opportunities (initiation), designing and building the e-business (adoption), implementation and obtaining benefits from the e-business (post implementation)	Large
Chong and Bauer (2000)	E-commerce	Meta-analysis	Australia	Five stages: initiation, adoption, implementation, evaluation and integration	SME
Lin, Huang et al.(2007)	E-commerce	Interview	Australia	Three stages: planning, implementation and post implementation	SME
Vega, Chiasson et al. (2008)	E-business Systems	Qualitative approach	United Kingdom	Six stages: agenda-setting, matching, redefining, restructuring, clarifying, routinising and infusion	SME

Some of the e-business scholars (mentioned in Table 2.7) have referred to more than three stages for describing the wider e-business adoption process. It can be argued that some of these stages can be considered as a subset of the implementation stage. When this view is accepted, it is then possible to observe that the e-business adoption process is fundamentally made of three core stages: initiation, adoption and implementation.

A summary of the key findings for each the stage model based studies (shown in Table 2.7) is given in Table 2.8. It appears that: First, a set of factors affect each stage of e-business systems adoption. Second, there exist several common factors (e.g. *cost, top management support and uncertainty*) across some stages. For instance, *top management support* which is important for the *initiation* stage is also found to be important for the subsequent *adoption* and *implementation* stages.

Table 2.8: Empirical literature involving factor-based stage model e-business adoption: A summary

Studies	Type of E-business System	Research Approach	Adoption Stages		
			Initiation	Adoption Decision	Implementation
Reich and Benbasat (1990)	Customer-Oriented Interorganisational Systems	Mixed approach	Proactive stance, CEO support, high competence (IS), previous e-business experience, high level of rivalry(industry), threat of new entrants, high priority, high level of resources, full pilot test, avoidance of e-business planning	Customer involvement in e-business design, e-business design matches relationship, support for the sales force, e-business price, companies awareness of need for change	Companies awareness of need for change, support for the sales force, high quality pilot test
Cavaye and Cragg (1995)	Customer-Oriented Inter-organisational Systems	Interview	Use of frameworks Internal need Competitive pressure Technological opportunity	Application sponsor, top management support, build on existing system, e-business staff experience	Expressed user need, user participation in development, cost of system, marketing of system
Chong and Bauer (2000)	E-commerce	Meta-analysis	Uncertainty, tendency to wait and see, managerial time, funding, technical skills, organisational readiness, lack of reliable information about e-business, external pressure, critical mass, cultural differences	Top management support, cost, managerial and technology skills, system integration, financial resources communication (channel types, information source and communication amount), level of national infrastructure, government involvement	Lack of top executive support, cost

(Continued)

Table 2.8: Empirical literature involving factor-based stage model e-business adoption: A summary (Continued)

Studies	Type of E-business System	Research Approach	Adoption Stages		
			Initiation	Adoption Decision	Implementation
Lin, Huang et al.(2007)	E-commerce	Interview		Objectives of e-business adoption, user involvements	Top management commitment, user resistance management
Vega, Chiasson et al. (2008)	E-business System	Qualitative approach	Lack of business know-how, restricted financial resources, missing business knowledge, technical knowledge	Technical knowledge, lack of business know-how, restricted financial resources, missing business knowledge	Technical knowledge, lack of business know-how, restricted financial resources, missing business knowledge

2.4.3.2 E-business Adoption Studies Focusing on a Single Stage

These studies can be divided into two categories: studies relating to the adoption decision and studies concerning implementation. Regardless of the focus, these studies have identified factors which are drawn from several theoretical frameworks. These factors vary widely in nature and it is however possible to classify them into three broad groups: properties of e-business, characteristics of adoption organisations, and conditions in the business environment. A summary of the factors affecting e-business adoption is shown in Table 2.9.

Table2.9: Empirical literature involving factor-based e-business adoption process

Factor groupings	Individual Factors	Literature Sources
Properties of E-business	Relative advantage, compatibility, reliability, effectiveness, e-business value, e-business capability and complexity, cost and improve communication	(Iacovou, Benbasat et al. 1995); Chan, C. and P. Swatman (1999); (Chwelos, Benbasat et al. 2001); (Eikebrokk and Olsen 2007); (Ramsey, Ibbotson et al. 2008); (Spanos and Voudouris 2009)
Adopter Characteristics of Organisation	Perceived benefits, organisational readiness, technology support infrastructure, resource constraints, IS knowledge and attitude, top management support, critical mass, business value and rapid changes in technology, lack of technical knowledge, technology strategy, prior investment in technology, lack of trust, missing business knowledge, perceptions of technology feasibility, willingness to change to new technology, availability of consultancy, prioritisation of e-business, presence of IT skills, infrastructure, managerial time, re-engineering business processes, sales promotion, e-profitability, strategic decision aids, capital, security, perceived usefulness, firm size and IT sophistication	(Dutta and Evrard 1999); (Chwelos, Benbasat et al. 2001); (Iacovou, Benbasat et al. 1995); (Chwelos, Benbasat et al. 2001); (Mirchandani and Motwani 2001); (Lei-da Chen and Pandzik 2003); (Grandon and Pearson 2004); (Simpson and Docherty 2004); (Wymer and Regan 2005); (Levy, Powell et al. 2005); (Beckinsale M., Levy M. et al. 2006); (Pearson and Grandon 2006); (Xu, Rohatgi, et al. 2007); (Quaddus and Hofmeyer 2007); (Chuang TT., Nakatani K. et al. 2007); (Magal, Koslage et al. 2008); (Wilson, Daniel et al. 2008); (Ramsey, Ibbotson et al. 2008); (Vega, Chiasson et al. 2008); (Magal, Kosalge et al. 2009)
Conditions in the Environment	Role of government, external pressure, vendor support, lack of push from supply chain, sensitivity to competitive/customer environments, technological opportunity recognition, competitors and increased market share, increased speed of dispatch goods, customer demand, investor relationship, supplier power, buyer power, degree of rivalry, industry pressure and dependency trading partner power	(Hamill and Gregory 1997); (Mirchandani and Motwani 2001); (Mehrtens Cragg, et al. 2001); (Iacovou, Benbasat et al. 1995); (Chwelos, Benbasat et al. 2001); (Mirchandani and Motwani 2001); (Lei-da Chen and Pandzik 2003); (Grandon and Pearson 2004); (Wymer and Regan 2005); (Levy, Powell et al. 2005); (Pearson and Grandon 2006); (Beckinsale M., Levy M. et al. 2006); (Quaddus and Hofmeyer 2007); (Spanos and Voudouris 2009)

2.5 Adoption of E-business in SMEs

So far, e-business systems adoption has been discussed without considering organisational size. This section is thus concerned with e-business systems adoption among SMEs. In particular e-business systems adoption by SMEs from USA, European Union, Australia, and developed Asian countries is now reviewed.

2.5.1 E-business Adoption in USA SMEs

A rich body of e-business adoption studies exist for the USA SMEs context. A brief summary of these studies is shown in Table 2.10. The following observations can be made: First, some scholars have focused on e-business adoption of SMEs which operate within a particular industry segment. For example Lei-da Chen and Pandzik (2003) focus on the retail industry, Lefebvre, Lefebvre et al. (2005) focus on the manufacturing industry and Magal, Koslage et al. (2008) focus on the manufacturing and services industry. Others are either silent about industry type or conducted their studies not restricted to a particular industry sector. Second, survey is the leading research approach used by USA scholars. It is followed by a case study and then mixed approach. Third, most of the scholars have focused on the e-business systems adoption decision and only a few scholars have used the notion of a 'stage model' for describing the e-business systems adoption process. Fourth, e-business systems adoption for the SME context has been primarily investigated using a factor-based approach. Finally, several theoretical frameworks have been referred to by USA scholars to study e-business systems adoption; however TOE seems to be the most popularly used.

Table 2.10: E-business adoption by SMEs in USA: A summary

Source	Industry Segment	Nature of Research		Methodology	Underlying Theory	Type of E-business Research	
		Theoretical	Empirical			Factor based	Process based
Iacovou, Benbasat et al. (1995)	Not specified	✓	✓	Case study	DOI	✓	
Chwelos, Benbasat et al. (2001)	Manufacturing, service, government		✓	Survey	TOE	✓	
Mirchandani and Motwani (2001)	Not specified		✓	Case study	TAM	✓	
Lei-da Chen and Pandzik (2003)	Retail		✓	Case Study	TOE	✓	
Rao, Metts et al. (2003)	Not specified		✓	Case study	Stage Model approach by Timmers (1999)	✓	✓
Grandon and Pearson (2004)	Not specified	✓	✓	Online survey	TPB and TAM	✓	
Dholakia and Kshetri (2004)	Not specified		✓	Survey	DOI and Diffusion/ Implementation Model	✓	
Wymer and Regan (2005)	Not specified		✓	Survey	TOE	✓	

(Continued)

Table 2.10: E-business systems adoption by SMEs in USA: A summary (Continued)

Source	Industry Segment	Nature of Research		Methodology	Underlying Theory	Type of E-business Research	
		Theoretical	Empirical			Factor based	Process based
Lefebvre, Lefebvre et al. (2005)	Manufacturing		✓	Mixed approach	TOE		✓
Pearson and Grandon (2006)	Not specified		✓	Online survey	TAM	✓	
Chuang, Nakatani et al. (2007)	Not specified		✓	Survey	TOE	✓	
Magal, Koslage et al. (2008)	Manufacturing and service		✓	Survey	Four Stage Model by Daniel et al. (2002)		✓
Magal, Kosalge et al. (2009)	Not specified		✓	Survey	Research Model by Martilla and James (1977)	✓	

2.5.2 E-business Adoption in EU SMEs

Drawing on e-business literature, a summary of the studies on e-business adoption by SMEs within the EU countries is shown in Table 2.11. From this table, a number of observations are made. First, it appears that several studies have used the stage model approach to explain e-business systems adoption in SMEs. However, the number of stages varies from four to seven. For example, Daniel, Wilson et al. (2002) developed a stage model to evaluate e-commerce adoption by EU SMEs which include four stages: developers, communicators, web presence and transactors. Whereas Grant (2000) developed a staged model to study the e-commerce adoption by small businesses which includes five stages: immaturity (lack of awareness of e-commerce), on the Internet (use email), e-commerce provisional strategy decided (definite business plans for e-commerce), ready to implement (a business ready to implement e-commerce) and integrated and effective e-commerce (the fully e-commerce mature business). Building on the stage model proposed by Grant (2000), Ihlstrom and Nilsson (2003) evaluated prerequisites and attitudes of e-business adoption by Swedish SMEs. In another study, Levy and Powell (2003) suggested a staged model which includes four stages (e.g. web presence (publish information), transact (with customers), transact electronically and integration) to explore SME internet adoption in EU. Moreover, the EU Department of Trade and Industry (DTI) benchmarking study uses an e-adoption model which includes five stages: email, website, e-commerce, e-business and transformed organisations. The British Library implemented a four phases staircase model (Allcock, Webber et al. 1999), which includes: threshold, beginner, intermediate and advanced. Vega, Chiasson et al. (2008) developed an e-business systems adoption model consisting of seven stages: agenda-setting, matching, redefining, restructuring, clarifying, routinising and infusion. Out of seven, six of them were adopted from DOI theory and one adopted from Cooper and Zmud's (1999) study. This model was used to explore public program interventions for the adoption of e-business systems in EU SMEs.

Second, the survey is the most common type of the research approach used by EU e-business scholars. It is followed by a case study and then mixed approach. Finally, many scholars have focused on the notion of a 'stage model' for examining the e-business systems adoption process. Finally, several theoretical frameworks have been referred to by EU scholars to examine e-business systems adoption among SMEs; however TOE appears to be quite popular.

Table2.11: E-business systems adoption by SMEs in EU: A summary

Source	Industry Segment	Nature of Research		Methodology	Underlying Theory	Type of E-business Research	
		Theoretical	Empirical			Factor based	Process based
Hamill and Gregory (1997)	Manufacturing and service		✓	Survey	Conceptual Framework by Hamill (1997)	✓	
Webb and Sayer (1998)	10 SMEs' sectors		✓	Mixed approach	TOE		
Dutta and Evrard (1999)	Marketing and retail		✓	Survey	SMEs IT Model	✓	
Daniel, Wilson et al.(2002)	12 SMEs sectors		✓	Survey	Stage Model Approach		✓
Levy and Powell (2003)	Not specified		✓	Case study	Stages of Growth Model		✓
Ihlstrom and Nilsson (2003)	7 SMEs		✓	Case study	Action Research (AR) Cycle		✓
Brown and Lockett (2004)	19 SMEs		✓	Mixed approach	E-commerce Maturity Stages Model Grant (1999)	✓	
Simpson and Docherty (2004)	Not specified		✓	Mixed approach	TOE	✓	
Levy, Powell et al. (2005)	Manufacturing and business service		✓	Survey	Stages of Growth Model	✓	
Beckinsale, Levy et al. (2006)	50 SMEs		✓	Case study	TOE	✓	

(Continued)

Table 2.11: E-business systems adoption by SMEs in EU: A summary (Continued)

Source	Industry segment	Nature of Research		Methodology	Underlying Theory	Type of E-business Research	
		Theoretical	Empirical			Factor based	Process based
Xu, Rohatgi et al. (2007)	40 SMEs (electronic component industry)		✓	Case study	E-adoption Ladder		✓
Eikebrokk and Olsen (2007)	339 SMEs (tourism, transportation and food)		✓	Survey	DOI and TOE	✓	
Maguire, Koh et al. (2007)	230 SMEs		✓	Mixed approach	Stage Model Approach	✓	
Nasco, Toledo et al. (2008)	130 SMEs		✓	Survey	Theory of Planned Behavior (TPB)	✓	
Marasini, Ions et al. (2008)	32 SMEs (manufacturing)		✓	Case study	Improvisational Model by Orlikowski and Hofman (1997)	✓	
Vega, Chiasson et al. (2008)	Not specified		✓	Case study	DOI		✓
Wilson, Daniel et al. (2008)	678 SMEs		✓	Survey	Stage Model Approach	✓	
Ramsey, Ibbotson et al. (2008)	800 SMEs (professional service sector)		✓	Survey	TOE	✓	
Spanos and Voudouris (2009)	87 SMEs (manufacturing)		✓	Survey	Advanced Manufacturing Technology (AMT) Adoption Model	✓	
Alonso-Mendo, Fitzgerald et al. (2009)	221 SMEs		✓	Mixed approach	Stage Model Approach by Rao, et al. (2003)		✓

2.5.3 E-business Adoption in Australian SMEs

A rich body of e-business adoption studies exist for the Australian SME context. A brief summary of these studies is shown in Table 2.12. The following observations can be made. First, it appears that several studies have explained e-business adoption in SMEs from the perspective of maturity stage models, whereas, others have explained e-business adoption from a DOI perspective. For instance, Chong and Bauer (2000) developed an adoption model to examine factors affecting e-commerce adoption by SMEs. Their model include five stages which were derived from the technology diffusion literature. These stages are: initiation, adoption, implementation, evaluation and integration. Moreover, they categorised factors into two groups: internal (e.g. organisational, technological and communication) and external environmental (e.g. national and industry). Whereas, Chan and Swatman (1999) developed a conceptual model to measure e-commerce implementation by SMEs. This model was developed based on the technological maturity that a business has in their business transactions. The model consists of four stages: SMEs incorporate a static web presence, SMEs enhance a dynamic and an interactive functionality to their implementation of e-business, SMEs engage in substantial re-engineering of business processes to accommodate e-commerce initiatives and virtual business enterprises (the use of e-business is fundamental to business operations).

Second, unlike USA e-business scholars, the most common research approach used by Australian scholars is a case study. It is followed by a survey and then mixed approach. Third, most of the scholars have focused on e-business systems adoption decision and only a few scholars used the 'stage model' concept for describing the e-business systems adoption process in Australian SMEs. Finally, several theoretical frameworks have been referred to by Australian e-business scholars, including the TOE framework.

Table2.12: E-business systems adoption by SMEs in Australia: A summary

Source	Industry segment	Nature of Research		Methodology	Underlying Theory	Type of E-business Research	
		Theoretical	Empirical			Factor based	Process based
Igbaria, Equation et al.(1997)	None specified		✓	Survey	Structural Equation Model	✓	
Chan and Swatman (1999)	None specified		✓	Case study	TOE		✓
Chong and Bauer (2000)	None specified	✓	✓		DOI		✓
Kurnia and Johnston (2000)	None specified	✓	✓	Case study	Technology Adoption Model by Markus and Robey (1988)	✓	
Chau and Turner (2001)	34 SMEs		✓	Case study	Adoption Framework proposed by Venkatraman (1994)		✓
Mehrtens, Cragg et al. (2001)	7 small businesses		✓	Case study	EDI Adoption Model by Iacovou, et al. (1995)	✓	
Quaddus and Hofmeyer (2007)	None specified		✓	Mixed approach	TPB	✓	
Lin, Huang et al. (2007)	None specified		✓	Case study	Stage Framework adapted from Dailey (1998)		✓
Scupola (2009)	None specified		✓	Case study	TOE	✓	
Gunasekaran, McGaughey et al. (2009)	None specified		✓	Survey	E-procurement Adoption Framework by Gunasekaran and Ngai (2008)	✓	

2.5.4 E-business Adoption in Developed Asian SMEs

Drawing on the readings of e-business literature, a summary of the studies on e-business adoption by SMEs within the developed Asian countries is shown in Table 2.13. From this table, a number of observations are made: First, a majority of the studies have used a factor-based research approach, however little attention is given to study e-business systems adoption among SMEs using a stage model concept. Second, the dominance of the survey approach is observed. It is followed by a mixed approach. Third, SMEs in general are not ready yet to adopt more sophisticated e-business systems. Only two studies focus on EDI adoption by small businesses. Finally, several theoretical frameworks have been referred to by some scholars including TOE.

Table 2.13: E-business systems adoption by SMEs in developed Asian countries: A summary

Source	Technology Type	Sample Size	Nature of Research		Methodology	Underlying Theory	Type of Research	
			Theoretical	Empirical			Factor based	Process based
Chau and Hui (2001)	EDI	627 Smalls		✓	Mixed approach	DOI	✓	
Kuan and Chau (2001)	EDI	575 Smalls		✓	Mixed approach	TOE	✓	
Jeon, Han et al. (2006)	E-business	1200 SMEs		✓	Survey	Innovation Adoption Literature	✓	
Chong, Ooi et al. (2009)	E-business	200 SMEs		✓	Survey	TOE	✓	
Oh, Cruickshank et al. (2009)	E-business	164 SMEs		✓	Survey	TAM Model	✓	
Mohamad and Ismail (2009)	E-commerce		✓		Conceptual research	DOI and TOE		
Tan, Chong et al. (2010)	ICT	406 SMEs		✓	Survey	Innovation Adoption Literature	✓	

2.6 Adoption of E-business s in Arabian Gulf Region (including Saudi Arabia)

A few scholars have examined e-business adoption for the Saudi context. For example, Sait, Al-Tawil et al. (2004) have identified several factors which influence e-business adoption in Saudi Arabia (e.g. lack of skills, security concerns, and privacy issues and competition). In another study, Alwabel and Zairi (2005) found the most important factors which influence e-business adoption in Saudi Arabia include competition intensity, supplier/customer pressure, regulatory issues, value chain process, and top management support and commitment. Although these studies are useful, their focus is not on SME context. Further, none of these studies apply a stage model concept to examine e-business systems adoption.

2.7 Summary

This chapter has provided an insightful review of the background literature relating to e-business, SMEs, and theoretical frameworks on e-business systems adoption. The chapter indicates that very limited e-business research has so far been reported for the Saudi Arabian context. Moreover, e-business systems adoption using a stage model concept has not been adequately examined for Saudi Arabia. This research gap is further addressed in the remaining chapters of this thesis.

CHAPTER 3: RESEARCH APPROACH

3.0 Introduction

This chapter describes the research approach adopted by this study to address the research questions outlined in Section 1.1. The chapter is divided into 13 sections. Section 3.1 provides a brief overview of the philosophical traditions of research in the e-business discipline. Section 3.2 describes the nature of this study from the perspective of research tradition, stage, and purpose. The research design phases and a discussion on the online experts panel and the case study with multiple cases are provided in Section 3.3. Section 3.4 explains the selection strategy of the case organisations. Unit of analysis is then discussed in Section 3.5. The data collection phases are discussed in Section 3.6. Techniques used to analyse the collected case data are discussed in Section 3.7. Next, the approaches used for evaluating the research propositions are discussed in Section 3.8. It includes a description of the measurement scale for evaluating the influence of the factors. Research ethics are presented in Section 3.9. Validity concerns of the research findings are discussed in Section 3.10 and Section 3.11. Language and translation related issues are discussed in Section 3.12. Finally, Section 3.13 concludes the chapter.

3.1 Research in E-business

Research in the e-business discipline generally addresses the following four key issues: selection of research tradition, stages of research, purposes of research, and selection of the research method. Each issue is briefly discussed below.

3.1.1 Research Traditions

The central focus of e-business has been the complex phenomenon of human and organisational interactions with various types of Internet and related technologies when web-based information systems are developed, implemented and used. It is thus not surprising that the e-business discipline relies heavily on the research methods that are used in related disciplines (e.g. information systems sociology, management science, and psychology). These research methods have traditionally been applied in the e-business literature from the viewpoint of two broad philosophical traditions: positivist research and interpretivist research. The positivist tradition is based on “an ontology in which an objective social world is expected to exist independently of a human’s knowledge of it and to comprise regularities that can be discovered and investigated” (Orlikowski and Baroudi 1991, p.11). The phenomena and researcher (e.g. e-business adoption) being investigated are expected to be independent and the researcher remains neutral (Guba and Lincoln 1994). The positivist tradition typically uses deductive logic and is concerned with the testability of theories with the aim to determine the broad principles or laws which control the social world (Orlikowski and Baroudi 1991; Neuman 2003). A considerable portion of published e-business research is found to be positivist in nature.

In contrast, the interpretivist tradition is based on an ontology in which reality is considered subjective (Orlikowski and Baroudi 1991). According to this tradition, the study of a social phenomenon involves an understanding of the social world which people have constructed and which they reproduce through their continuing activities (Blaikie N. 1993). Thus, interpretivist researchers seek to explain a social phenomenon (e.g. e-business use) through

interpreting the meanings that people (e.g. e-business users) assign to them. According to Mingers (2003), “interpretivist researchers tend to be very critical of positivism, on the grounds that the social world is inherently different from the material world and that a human social construction cannot be quantified and captured in statistical models” (p.2) . There are many instances of the e-business research studies conducted from the perspective of the interpretivist tradition.

3.1.2 Stages of the Research Cycle

E-business researchers need to consider the position of their research within the stages of the research cycle. Research processes generally follow a cycle of three stages: theory building, theory testing and theory refinement (Neuman 2003). Theory building involves exploration of concepts and phenomena and leads to formulation of research questions. Theory testing involves those research studies that are intended to address any of the following three concerns: a) clearly formulated research questions, b) measuring constructs, and c) verifying relationships. Theory refinement, builds on the results of the previous stages to refine and improve the adequacy of initial theories. The e-business literature contains studies which report all three stages of research.

3.1.3 Purpose of Research

According to Neuman (2003), there are three main purposes of research: exploratory, descriptive and explanatory. Exploratory research aims at comprehending little understood phenomena, discovering important variables and refining initial questions or hypotheses for future research. It is undertaken to gain some initial information and understandings the subject area for further rigorous investigation at a later stage (Collis and Hussey 2009). Exploratory research is generally useful for theory building. Normally, qualitative methods such as exploratory case studies, literature analysis, and observations, are employed in exploratory research (Yin 2008). Whereas, descriptive research is used for describing and analysing, in great detail, a particular situation or organisational practice (Neuman 2003). Case studies are particularly suitable for this type of research (Yin 2008). Finally, explanatory research aims at explaining why things happen. A study is considered explanatory when the description of particular issues is already available and the researcher is attempting to find reasons for them (Neuman 2003). This type of research is useful for theory testing or refinement. Surveys, experiments and case studies are generally employed in explanatory research (Yin 2008). The e-business literature contains studies which address each of these three purposes of research.

3.1.4 Research Methods in E-business

Research methods used within the e-business literature can be grouped into two broad categories: quantitative methods or qualitative methods. The former concentrates on the objective measurement of phenomena and involve collecting and analysing numerical data (Collis and Hussey 2009). As such, these methods are popularly used for statistical testing of hypotheses (Kaplan and Duchon 1988). Surveys and experiments are widely used quantitative methods in broader IS research (Orlikowski and Baroudi 1991) and are also popular in the e-business discipline. In contrast, the latter is characterised by an inquiry process of understanding a social problem with as little disruption of the natural setting as possible (Merriam 1998). This means that researchers often visit the sites of participants and

develop a detailed understanding about the individual or place, and are highly involved in the actual experiences of the research participants (Creswell 2012). Moreover, qualitative researchers act as an instrument of data collection and focus on the ‘meaning of words’ expressed by participants (Creswell 2012). Case study is a very popular qualitative research method that is widely used in the e-business discipline.

Research in the positivist tradition typically uses quantitative methods in order to produce generalisable results (Kaplan and Duchon 1988). Qualitative methods are less frequently used by the followers of the positivist tradition (Myers 1997) due to the difficulty of producing reproducible results. They are however often used in the interpretivist research studies (Klein and Myers 1999). This, in part, is due to the difficulty of isolating a social problem from its natural setting and also because interpretivist studies often requires large amounts of qualitative data to develop an in-depth understanding of complex social phenomena.

3.2 Research Characteristics of this Study

A positivist research tradition has been adopted to guide this study because the researcher (i.e. doctoral candidate) needs to construct and evaluate the research model in order to understand how various factors exerted influences on each of the three stages of the e-business systems adoption process in SMEs. In doing so, deductive reasoning is applied to a large extent to identify the logical arguments underlying the e-business systems adoption phenomena as perceived by the research participants.

Despite the positivist nature, this study is however considered to be a theory building exercise as it seeks to develop a set of propositions to explore the existence of possible relationships between various stages of e-business systems adoption and a set of factors identified from e-business and related literature sources taking into consideration the contextual factors unique to Saudi SMEs.

In terms of purpose of research, this study can be considered exploratory in nature. This is because very little research has so far been reported for the Saudi Arabian SME context and not much information is currently available about how various factors may influence the three stages of e-business systems adoption for the Saudi SME context. Furthermore, one of the objectives of this study is to discover how certain contextual factors play a role in explaining e-business adoption for Saudi context. For example, government support programs, acknowledgeable employee attitude toward technology, and lower level employee attitude toward technology (which are specific to the Saudi context) may influence the e-business systems adoption process of SMEs in Saudi Arabia.

3.3 Research Method used in this Study

Given the positivist, theory building, and exploratory nature of this study, a qualitative research method has been chosen to address the research questions. The qualitative approach facilitates the researcher (i.e. doctoral candidate) to gain an in depth understanding of the influence of various factors affecting the e-business systems adoption process in Saudi SMEs. In particular, the researcher is required to engage with various social actors (e.g. case study participants) in order to uncover and interpret the meanings those actors assign about the influence of the factors included in the research model.

3.4 Research Design Developed for this Study

Within the spirit of the qualitative research, two specific qualitative methods were chosen: a case study with multiple cases and an online experts panel review. These are included in different phases of the adopted research design. The research design adopted by this study consists of three specific phases (Figure 3.1). Phase 1 represents a conceptual study which is concerned with developing an initial research model drawing on the literature analysis. A conceptual study was required because although little is reported about e-business systems adoption for Saudi SMEs context, a rich body of literature on e-business systems adoption in general exists in literature, which can act as a start point to build a new model for the Saudi context. A literature analysis was conducted as part of the conceptual study. The e-business literature analysis identified a total of 131 factors (a copy of the factors pool is shown in Appendix A) which could potentially affect the three stages of e-business adoption by Saudi SMEs. These factors are then passed through a filtering process (discuss later). Based on this, an initial research model and initial interview protocol (copy of the interview protocol is shown in Appendix B) are developed.

In phase 2, the initial research model is then evaluated using an online experts panel which involves eight domain experts chosen from different parts of the world (e.g. Australia, Saudi Arabia, Malaysia, EU, and USA). Burgess (2010) indicates that the involvement of five to seven experts is adequate to successfully conduct an online experts panel because it is often difficult to get a hold of a large number of experts to participate at one time. The online experts panel is generally established based on the broader principles of the traditional focus group technique. According to Gaiser (2008), a focus group includes a well organised discussion with chosen experts to gather their opinions and experiences about a certain topic area. Burgess (2010) indicates that a focus group can be used as an academic research tool which examines the attitudes, reactions, and experiences of the participating experts about a particular research topic. This technique allows interaction among participants by asking questions of each other and re-assesses their own insights. Gibbs (1997) remarks that the focus group can be utilised at any phase of a research project and can be used as a data collection technique or complement to other approaches. Phase 2 of this study is thus considered to share many similarities with focus group technique, because it involves a group discussion with experts who offered their knowledge on the topic (in this case e-business systems adoption by SMEs) at hand. The online experts panel technique has been applied in several IS research projects (e.g. Klein, Tellefsen et al. 2007 and Karanasios and Burgess 2008). According to Gaiser (2008), there are several advantages of using online experts panel: a) inexpensive to run, b) easy to access to the remote experts, c) the experts can read and modify what they had written in their response, and d) the experts can access the materials posted on the online panel at their own time.

In Phase 3, a case study with multiple cases was conducted in Saudi Arabia, in which 20 Saudi SMEs participated. The case study method was selected after carefully considering the following issues. First, one key aim of this study was to empirically evaluate the research model of the e-business systems adoption process in Saudi SMEs particularly within the manufacturing and service sectors. According to Premkumar, Ramamurthy et al. (1997), e-business systems adoption is likely to take place in a complex environment. Hence, it is critical to capture the experiences of the relevant people and the context of their actions to better understand e-business systems adoption. Case studies are particularly suitable for identifying and interpreting the context of adoption. Second, as the Saudi Arabian manufacturing and service industry began introducing e-business solutions in the past decade,

this study thus deals with a relatively contemporary event (Yin 2008). Third, as this study investigates in detail the e-business systems adoption practices in its real life settings, no control over the behaviour of the SMEs within the manufacturing and service industry was possible. A case study with multiple cases was chosen because the research model developed in this study identified three different stages in e-business systems adoption. This situation thus requires the use of a case study with a multiple cases, which enables theoretical replication (Yin 2008) representing each of these stages of e-business systems adoption. Within each of the three stages of the e-business systems adoption process, multiple instances of e-business systems adoption were sought in order to capture the variation of the influence of each factor, which thus helps to maximise the ability to produce analytically generalisable results. This process is known as literal replication (Yin 2008). Therefore, a case study with multiple cases is very much appropriate for this study. The collected case study data was later analysed using 'NVivo 9' QSR international software and used in evaluating the research propositions.

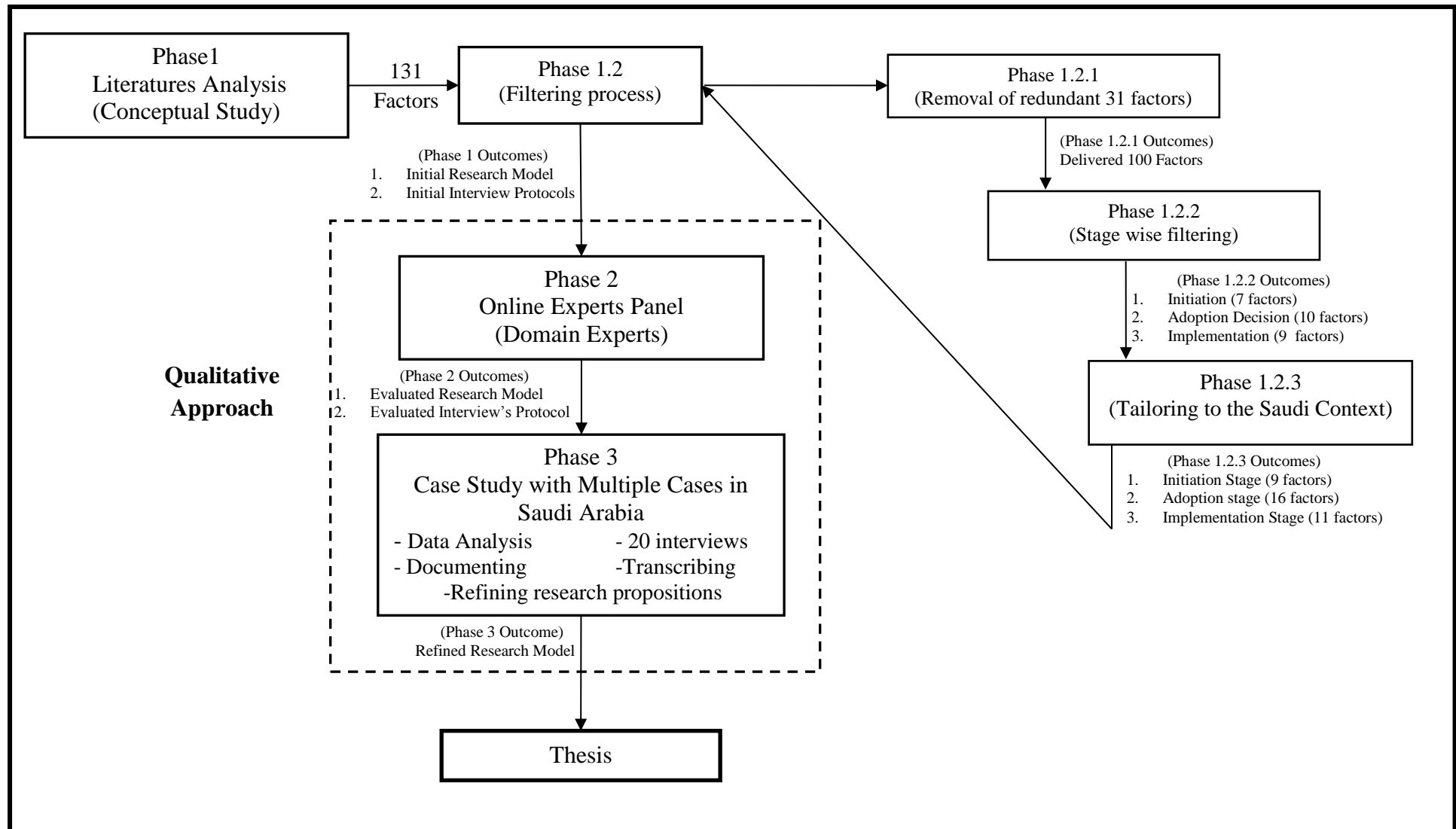


Figure 3.1 Research design

3.5 Case Organisations: Selection Strategy

The SMEs which participated in the case study with multiple cases programs were chosen using a rigorous process in order to enable the researcher to make analytical generalisations about e-business adoption phenomenon for the manufacturing and service industry of Saudi Arabia. No attempt was made to select the case organisations for claiming statistical generalisation. The process involved identifying and operationalising the target population, and carefully selecting a total of 20 SMEs from that population. Details of the selection process are discussed below and a sample copy of the consent form is shown in Appendix C.

3.5.1 Target Population

The target population includes those SMEs which had ‘intent to initiate’ e-business systems in their companies, SMEs that were in the ‘adoption decision stage’ to introduce these systems, and SMEs that had ‘already implemented’ e-business systems in their companies. Different factors affecting the e-business systems adoption process in SMEs were observed and were of interest.

3.5.2 Choice of Industry

Although this study refers to SMEs in general, it particularly focuses on two industry sectors (i.e. manufacturing and service) of Saudi SMEs. These sectors were chosen because of their substantial contribution to the national (GDP) of Saudi Arabia. According to Hertog (2010), 47% of Saudi SMEs are engaged in service businesses and another 33% are in manufacturing businesses.

3.5.3 Number of Cases

The research model for the e-business systems adoption process, developed in the conceptual study component of this study, identified factors affecting three distinct stages of the e-business systems adoption process of SMEs (discussed later). Multiple instances of the e-business systems adoption need to be studied in order to maximise variation within each stage of the e-business systems adoption process. A total of 20 SMEs was considered adequate for the purpose of this study taking into consideration the need for literal replication (Yin 2008). This strategy was chosen as it offers sufficient variance and some replication within each e-business systems adoption process, and hence helps improve the generalisability of the research findings.

3.5.4 Unit of Analysis

E-business systems adoption can be studied using three different types of unit of analysis: individual supply-chain, individual organisation, and individual e-business projects within organisations. Johnston and Gregor (2000) and Kurnia and Johnston (2000) have argued that an entire supply chain to be the correct unit for studying e-business systems adoption. This is because the actions of one member of a supply chain may affect the e-business systems adoption process of its trading partners, and the adoption process of the partners may, in turn, influence the actions of the initiating member of the chain and so forth. However, although e-business solutions operate at a supply chain level, it is hard to demonstrate that an entire supply chain has one uniform goal to adopt e-business systems. This is because individual members of a supply chain may have different motives to join an e-business network. The

majority of the e-business systems adoption scholars have thus considered an individual organisation as the unit of analysis. Hence, this study considers '*individual organisation*' as an appropriate unit of analysis.

3.6 Data Collection Techniques

There are many data collection techniques that can be used within qualitative research methods. In this study, two data collection techniques were used. In the online experts panel (Phase 2), a web posting technique was used to collect data from domain experts to evaluate the initial research model developed in this study. The details of this phase are discussed in more detail in Chapter 4.

In the case study with multiple cases (Phase 3), data are collected in three ways: a) a face-to-face interview with owners and senior level managers of the participating SMEs, b) related documents which were given to the researcher in confidence by the interviewees, and c) information posted in the company website about their background and any e-business related matters. The owners or senior level managers in any small business are the main decision makers. They are responsible for influencing SME business direction (Spencer, Buhalis et al. 2012). Thus, an interview with owners or senior managers in small business has much more significance than an interview with one person in large business. In IS research, there are several examples for conducting one interview for small business context (e.g. Karanasios and Burgess 2008).

One advantage of qualitative data collection techniques (such as interviews) is that they allow the researcher to use individual quotes to refer to specific situations to highlight not only themes, but also exceptions to themes. The use of secondary information as a data collection technique was also employed. The review of secondary data was useful in obtaining the contextual situation of participating SMEs which often helps to provide insights in better understanding the influence of various factors affecting the e-business systems adoption process in SMEs. Secondary information sources such as government statistics, SMEs websites, and other relevant information provided useful cross-checks with primary data collected (Whyte 1999). As the interviews in Phase 3 were the primary data collection approach, they are discussed in more detail in the following sections.

3.6.1 Face-to-Face Interview

The face-to-face interview represents one of the most common qualitative techniques of data collection (Ezzy 2002). Richards (2009) described the interview as: "Both the most ordinary and the most extraordinary of ways you could use to explore someone else's experience - it is as ordinary as a conversation and as amazing as a brilliant film" (p.88). Interviews involve asking questions, listening, showing enthusiasm and genuine interest, and at the same time recording the entire event. Participants are active subjects whose cooperation, responses and assistance are all essential elements that make a successful interview (Neuman 2006). The aim was to find out the main factors affecting the e-business systems adoption process based on the interviewees' experiences. From this perspective, it is important that a researcher does not lead the participant to answer how he would like them to respond (Ezzy 2002). Field interviews are valuable for micro-level investigation or face-to-face interaction (Neuman 2006), such as in this study. Face-to-face interaction in an environment that is conducive can encourage the interviewee to share intrinsic opinions, profound thoughts, and tacit knowledge (Cavana D. and Delahaye BL. 2000).

Interview Structure Type

A typical interview can have three main structures: structured, semi-structured, and unstructured interviews (Williamson 2002). The semi-structured interview approach was employed in this study. This involves commencing interaction as an unstructured interview, such as presenting the primary questions, and then focusing on managing the process by using certain probing questions to elicit more informative information. When the information appears to be drying up, the interviewer moves to a set of pre-planned questions (Cavana D. and Delahaye BL. 2000). This approach allowed the interviewee to expand on responses and allowed the researcher to investigate wherever necessary.

Conduct Face-to-Face Interview

Neuman (2006) argues that as the interview involves social-interactions, it may be affected or influenced by the context or where it takes place. To overcome this issue, Neuman (2006) suggests that the interview should take place where privacy is afforded and where the participant may not be pre-occupied (such as at their home). In this study, the interviews were carried out at a location chosen by the participants. This was typically in their office, lounge area of their lodge, or in a quiet café. Cavana and Delahaye (2000) suggested that when the interview takes place a researcher needs to be aware of two types of non-verbal behaviour. First is the non-verbal behaviour displayed by the interviewer which can impact an interview. Second, non-verbal behaviour of the interviewee which too can provide rich insights into the progress of the interview and may indicate when to probe for more information or when the researcher has raised a delicate topic. They provide some guidelines that can lead to a well-executed interview. These were followed in this study and are briefly described below:

- The pattern of the interview: this is the structure of the interview. It involves developing a rapport with the interviewee, bridging communication barriers, and encouraging the flow of information.
- Listening: involves listening to the response of the interviewee and its context. This involves concentrating on the substance to make sure that the message is understood, and also listening for what is not said. This may require further probing.
- Paraphrasing: this involves repeating to the interviewee the response in concise form.
- Probing: this involves ‘drilling down’ for responses.
- Non-verbal behaviour: this involves being aware of any non-verbal behaviour.

3.7 Analysing Collected Data

The notion and implications of the case study technique have received substantial attention, especially about drawing theories (Perren and Ram 2004). Concerning analysing case studies to develop theory, the strength of the case study theory is that the theory can be assessed with constructs that can be readily measured and theories that can be proven false. In this study, this means that the research model can be taken to another location and applied. However, there are some concerns in working with and analysing case studies to develop theory. For instance, relying on cases only may result in a narrow theory (Eisenhardt 1989). However, these weaknesses can be addressed by including a wide source of data. In this study, the data were collected from such sources as interviews, SMEs’ websites, and documents.

Indicators of factors were identified from the interviews’ transcripts and then compared with the pattern from the literature. Moreover, there were some new indicators created by the researcher for factors affecting the e-business systems adoption process for Saudi SMEs.

3.8 Application of Qualitative Analysis

Two popular approaches were applied to analysis of the case study data: content analysis and pattern matching. Content analysis is “a research approach for making replicable and valid inferences from text (or other meaningful matter) to their contexts” (Krippendorff 2004, p.12). Texts are defined as any written communication materials which are intended to be read, interpreted and understood by people other than the analysts. The use of content analysis has spread to investigation of any method of communicative material, both structured and unstructured. It is useful for practical problems at the intersection of culture, social structure, and social interaction; used to generate dependent factors in experimental design; and used to study groups as a small-scale version of society (Cohen, Manion et al. 2007). Content analysis can be performed on any written material (e.g. documents, interview transcriptions, or media products).

Yin (2008) characterised pattern matching as “the most desirable analytic strategy in case study research” (p.138). According to Yin (2008), there are two types of pattern matching: a) the “pattern in a non-equivalent dependent variables design (in which the initially predicted value must exist for each component of a pattern of the dependent variable)”, b) “the pattern in a non-equivalent independent variables design” (p.139). In contrast, for the independent variables design, one would express different expected patterns of independent variables, each based on a different and mutually (rival) theory and that the concern of the case study would be to identify which of the rival patterns has the largest overlap with the observed one.

In this study, the notion of ‘content analysis’ was applied by reviewing interview transcripts, information displayed on the companies’ websites, and documents provided by the interviewees. By applying this approach, the researcher coded the interview transcript, assigning codes derived from the existing research model. Along with the code a description of what was particular about the item was included. These were used to allow for an overview of the data analysis.

In addition, the concept of ‘the pattern in a non-equivalent independent variables design’ was applied by matching the pattern of empirical evidence (in the form of relevant ‘text/quote’ from the interview transcripts, information displayed on the companies’ websites, and information collected from the documents) with the meanings and interpretations of the indicators used for representing the research factors. When a match was found, it was included in a table to serve as a source of empirical evidence. Some examples are discussed in Chapter 6 and Chapter 7.

3.9 Interpreting Collected Data

Williamson and Bow (2002) provide a set of steps that can be used as a guide to interpret data. These steps were followed during data analysis in both phases of the study and are described as the following:

Transcribe the Data: This simply involves entering the notes or audio recordings into an electronic form, making the information more accessible and easier to analyse. This occurred as part of the process in Phase 3.

Read Through each Transcript (or Interview Summary): This is performed because it is critical for a researcher to be immersed in the data and have a deep knowledge and understanding of an interview or observation. The authors suggest that while performing this activity it is useful to take notes.

Categorise the Data: This involves categorising the data using coding. This activity assists the researcher to think about their data at a more in-depth level, to know how important a particular issue is by the amount of data in a particular category and to be able to think about the relationships between categories.

Playing with Ideas: This step can be performed at any stage and it is a useful technique for thinking about the data in different ways and forming new thought patterns and may lead to a greater understanding.

Writing Memos: A memo is simply a document used to write ideas or information that may have emerged in the course of the research and analysis.

Conceptually Organising the Categories: This involves creating categories and organising them conceptually. At this stage, the analysis does not have to be too far advanced. The authors recommend that researcher conceptually organise ideas continuously throughout the analysis.

Undertake Word Searches: This involves searching for common words or phrases. This is important because it can uncover words or phrases that the researcher may have used frequently.

Form Tentative Theories: Once completing the previous steps the researcher is at a stage where he can begin to make statements from the data.

Ask Questions and Check Hunches: before completing the analysis, researchers must go over their statements and make sure they are valid. To achieve this, a researcher needs to check through the data for supporting evidence as well as evidence to the contrary.

3.10 Challenges Encountered in this Study

The researcher faced several major problems in both Phase 2 and Phase 3. First, Phase 2 of this study required the evaluation process for the initial research model to be performed by domain experts over three weeks. A total of eight experts were involved in the Week One discussion. However, in Week Three only two experts participated in the discussion.

Second, in Phase 2, it was quite difficult for the researcher to find suitable Saudi SMEs to participate in this study due to the following reasons: a) the researcher was influenced by the fact which says the Saudi Chamber of Commerce in Saudi Arabia have directories which are available online for public access. These directories contain information about SMEs in Saudi Arabia and their contact details. Unfortunately, the researcher discovered the information in these directories to be not up-to-date. This led him to explore alternative sources. The researcher found an online commercial directory for all businesses and services in Saudi Arabia called “Daleeli” (<http://www.daleeli.com/>). This directory includes the name of companies and their contact details without any indicator of the organisations’ size. This required the researcher to call each company in order to determine whether the organisation

selection criteria for this research applied to the company or not, b) another reason is concerned with clarifying the differences between each stage of the e-business systems adoption process for the participating SMEs. This required the researcher to visit each company and find out the details of the particular e-business adoption stage of the company by conducting a short discussion with a senior manager before commencing formal interviews.

3.11 Approach Used for Evaluating Research Propositions:

3.11.1 Factors included in the Research Model: Measurement Approach

The revised research model (refer Figure 4.8) contains a set of factors; each of these factors is measured using a set of indicators (See Table 3.1 and Appendix E). Most of these indicators are derived from scholarly literature sources; however, some new indicators were created based on the interpretation of the researcher informed by the case study findings. The numbers of indicators varied among the factors. For example, two indicators were identified for measuring the availability of technical expertise. In contrast, three indicators were used to define training.

Table 3.1: Some examples of the indicators of the factors affecting each stage of the e-business systems adoption process in SMEs

Factors	Definition	No. of Indicators	Description of Indicators	Literature Sources
Availability of Technical Expertise	Drawing on Wymer and Regan (2005), this factor is defined as availability of technical knowledge and skills on e-business among company's staff	2	Availability of e-business consultant	Wymer and Regan (2005)
			Non-availability of e-business consultant	
Customer Readiness	The customers being willing and able to use e-business system (Jutla, et al. 2002)	2	Customer pressure on the company to move to e-business systems.	New indicators (created by the researcher)
			Customer willingness to perform their business's transactions via online	
Training	The amount of training provided by vendors, consultants, or educational institutions external to the company (Wilson, & Davies 2008)	3	Availability of periodical training	New indicators (created by the researcher)
			Training on how to use the e-business system	Xu, et al. (2007)
			E-business training is not relevant	New indicators (created by the researcher)
Uncertainty in Business Environment	Drawing on the views of Sung, Lu et al. (2010), the uncertainty in business environment is defined as a situation in which a company has little information about its external environment to use in achieving its organisational goals	5	Sophisticated systems owned by competitors	Sung, Lu et al. (2010)
			Global market trend toward digitalisation	
			Uncertainty in business environment is not relevant	New indicators (created by the researcher)
			No uncertainty in business environment	
			Uncertainty in decision making	

3.11.2 Measurement Scale for Factors

For SME context, it may not be possible to establish a finer level of influence of each e-business factor. Therefore, for the purpose of empirically evaluating the extent of influence of each factor on the e-business adoption stages, a measurement 3-point scale was developed. Figure 3.2 shows the factors measurement scale which includes three levels of influence. This scale can be expressed in both positive and negative directions. Thus, the following types of influence are identified.

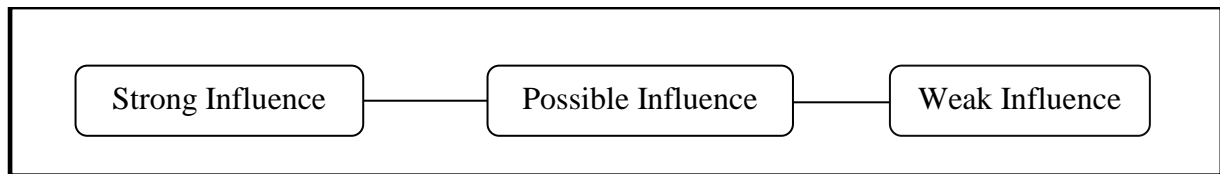


Figure 3.2 Measurement scale identifying the level of influence of a factor on the stages of e-business systems

Strong: A factor is considered to have a strong influence for its effect on an e-business stage when an overwhelming proportion of evidence collected from the participating cases are positive or negative in nature. Positive means a factor supports the initiation, adoption decision, or implementation stage of e-business systems. In contrast, negative means a factor discourages the initiation, adoption decision, or implementation stage of e-business systems.

Possible Influence: A factor is considered to have a possible influence for its effect on an e-business stage if one of the following conditions is fulfilled: a) when there are two types of evidence, then if they are almost equal in proportion, the evidence is considered to be possible, b) when there are more than two types of evidence collected from participating cases, the evidence is considered to be possible.

Weak Influence: A factor is considered to have a weak influence on an e-business stage when most of the empirical evidence collected from the relevant SMEs indicates the lack of influence (i.e. in either a positive or negative direction) of that factor on the e-business stages. In other words, when a stage is neither facilitated nor impeded as a result of the presence of factor.

3.12 Research Ethics

As the research involved interviews with several participants, it was necessary to discuss how their ethical concerns were addressed. As required by the Monash University ethics committee, ethics approval was obtained (a copy of the ethics approval is shown in Appendix C) before the actual interviews to ensure that this research was conducted in an ethical manner.

3.13 Validity of Research Findings

This section addresses how the findings obtained from the case organisations could be generalised to the entire population of the SMEs operating in the Saudi manufacturing and service industries. It is important to highlight that no attempt has been made to claim generalisability of the research findings in the statistical sense. This is because in qualitative research (such as the case study in this study), the concept of external validity (i.e. generalisability) is different from that of quantitative research (e.g. survey). In the latter case, statistical generalisation is used to support the generalisability of the research findings. In a case study, however, the notion of statistical generalisation is not applicable because each case cannot be considered as a sampling unit (Yin 2008). As such, case study-based research emphasises the use of analytical rather than statistical generalisation.

The generalisability of the research findings was addressed using two strategies. First, a total of 20 case organisations was carefully selected which are typical of the conceptual population of SMEs found in the Saudi manufacturing and service industries. Second, the principle of

analytical generalisation was applied in which the underlying arguments used in building the research propositions made no reference to any specific characteristics (e.g. management style, location of SMEs, or business strategies) which were unique to the Saudi manufacturing and service sectors.

3.14 Selection of an Appropriate Sample of Case Organisations

As this is a qualitative research, there was no emphasis on the number of case organisations to be investigated because each case was not considered as a sampling unit in the statistical sense. Rather, the objective was to choose a suitable sample of case organisations that would be typical of the entire conceptual population of organisations operating within the manufacturing and service industries. A total of 20 case organisations were carefully selected using the notions of theoretical and literal replication. This sample is representative of the entire SME population because of two reasons: a) the number of employees in the participating organisations ranged from 3 to 99 which in turn represent all organisation categories (i.e. micro, small, and medium) of the Saudi SME community, and b) these organisations were selected from main five provinces in Saudi Arabia in which most of the SMEs are located. Therefore, the results obtained from the case organisations can be extended to other SMEs operating within the manufacturing and service industries. According to Yin (2008), it is difficult to predict any number of cases; we can anticipate a range at one point of time, and after interviewing three, four, or five cases, we will not find new knowledge.

3.15 Language and translation

The official language of Saudi Arabia is Arabic. Therefore, it was required to translate the interview protocol to Arabic language. The translation was made by a reputable translation agent in Saudi Arabia and also the Arabic language is the mother language for the researcher, which ensured the validity of the translation.

At the time of the interviews, it was observed that many of the participating managers of SMEs operating in Saudi manufacturing and service sectors were expatriates who had a high level of qualification and could fluently speak English. Therefore, only a few interviews were conducted in the Arabic language especially when the interviews were conducted with the SMEs' owners who were usually Saudi citizens. These few interviews were translated later to English by the same translation agent.

3.16 Summary

This chapter described the research approach adopted in this study from an ontological perspective. It has also explained the justifications for selecting a three-phase research design. In addition, the techniques used for data collection, validity and reliability assessment, and data analysis were described. Finally, the justification for choosing the case organisations was provided. The next chapter presents the development of the research model and set propositions drawn from that model.

CHAPTER 4: RESEARCH MODEL DEVELOPMENT

4.0 Introduction

This chapter is divided into eight sections. Section 4.1 describes how a research model was developed to address the research questions. This section includes a discussion on the filtering process used for shortlisting the factors pool affecting each of the three stages of the e-business systems adoption process in SMEs. Section 4.2 is about the research model evaluation by the online experts panel. The section describes the selection process for the domain experts included in the online experts panel. Section 4.3 provides strategies for discussion in the online experts panel. Week One discussion of the online experts panel is presented in Section 4.4. Likewise, Week Two and Week Three discussion are reported in Section 4.5 and Section 4.6 respectively. The revised research model and propositions are described in Section 4.7. Finally, Section 4.8 concludes the chapter.

4.1 Development of the Research Model

This study consists of three phases which are shown in Figure 3.1. Phase 1 involves a critical review of the relevant literature on innovation adoption, SMEs, and e-business. Drawing on this review, a total of 131 factors are identified which could potentially affect three stages of e-business adoption by SMEs. As this list of factors is quite exhaustive and it is practically infeasible to operationalise a research model drawn on a huge number of factors, a filtering process is designed to shortlist those key factors which are more likely to be relevant for influencing each of the three stages of the e-business adoption process for the Saudi SME context. The filtering process is described next.

4.1.1 The Filtering Process Used for Shortlisting Factors

The filtering process (Phase 1.2) includes three sub phases (shown in Figure 3.1). Phase 1.2.1 is concerned with identifying those factors which have somewhat overlapping meaning. After carefully examining their meanings, duplicate factors are removed. This process has resulted in 100 factors (after removing the redundant 31 factors with the same meaning). Table 4.1 identifies the factors that were excluded.

Table 4.1: List of the factors with similar meanings

Factors with Similar Meaning	Factor Retained	Remarks
Top management support, organisational support, application sponsor, and CEO support	Top management support	Out of four factors only one is returned as it represents the meaning of the remaining factors
e-Business staff experience, managerial and technology skills, project management skills, technical skills, technical expertise and IT skills, technical knowledge, e-business staff experience, and high competence (IS)	High competence in IS	Out of eight factors only one is returned as it represents the meaning of the remaining factors
Cost, e-business price, funding, high level of resources, need resource or innovation, production-oriented over specification and commitment of resources, restricted financial resources	Cost	Out of seven factors only one is returned as it represents the meaning of the remaining factors
Organisational readiness, technology support infrastructure and system quality, infrastructure, build on existing system, and level of national infrastructure	Organisational readiness	Out of five factors only one is returned as it represents the meaning of the remaining factors
Recognition technology opportunity, perceived benefits, and relative advantage	Relative advantage	Out of three factors only one is returned as it represents the meaning of the remaining factors
Environmental uncertainty, and uncertainty	Uncertainty in business environment	Out of two factors one is returned as it represents the meaning of the remaining factor
Perceived ease of use, and ease of use	Ease of use	Out of two factors only one is returned as it represents the meaning of the remaining factor
Lack of push from supply chain, high level of rivalry, and external pressure	External pressure	Out of three factors one is returned as it represents the meaning of the remaining factor
Lack of business know-how, and missing business knowledge	Lack of business know-how	Out of two factors one is returned as it represents the meaning of the remaining factor.

(Continued)

Table 4.1: List of the factors with similar meanings (Continued)

Factors with Similar Meaning	Factor Retained	Remarks
Lack of reliable information about e-business, and information availability	Information availability	Out of two factors only one is returned as it represents the meaning of the remaining factor
Organisational characteristics	<i>Excluded</i>	It has general meaning which has already been included by several factors, therefore it can be excluded
Transaction risk, and operational risk, and opportunism risk	Risk	Out of three factors only one is returned as it represents the meaning of the remaining factors
Professional training, and training	Training	Out of two factors one is returned as it represents the meaning of the remaining factor.
Professionalism	<i>Excluded</i>	Professionalism means the highly professional technical employees may resent efforts to more closely monitor their activities. Thus, SMEs will not be introducing e-business technology to monitor their own employees.
Total = 31 (Removed)	Total = 12 (Retained)	

Phase 1.2.2 of the filtering process involves shortlisting those factors (for each stage of the e-business adoption process) that received support from both the stage model theories and empirical literature. As a result, seven factors (i.e. *cost*, *external pressure*, *uncertainty in business environment*, *management support*, *relative advantage*, *availability of technical expertise*, *information availability*) are considered relevant for the e-business initiation stage,¹⁰ factors (i.e. *communication*, *company's awareness of need for change/change management*, *compatibility*, *high competency in IS*, *cost*, *external pressure*, *uncertainty in business environment*, *management support*, *relative advantage*, and *organisational readiness*) are considered relevant for the adoption decision stage, and another nine factors (i.e. *companies awareness of need for change/change management*, *high competency in IS*, *cost*, *information availability*, *training*, *external pressure*, *uncertainty in business environment*, *management support*, and *relative advantage*) are considered relevant for the implementation stage.

Phase 1.2.3 involves identifying seven additional factors which address specific characteristics of Saudi SMEs and therefore tailors the factor for Saudi context. For example, such factors as *complexity* (Al-Gahtani SS. 2003), *e-business law*, (Aleid F., Rogerson S. et al. 2009) and *security concerns* (Al-hawari, Al-Yamani et al. 2008), which are consistently reported to be significant in the existing studies on e-business adoption/implementation for

the Saudi context, are included. Furthermore, three additional factors are included which focus on the unique employee characteristics of Saudi SMEs: *knowledgeable employee's attitude toward technology* (Alwabel SA. and Zairi M. 2005), *owner's attitude toward technology*, (Alwabel SA. and Zairi M. 2005), and *lower level employee's attitude toward technology* (Alwabel SA. and Zairi M. 2005). Finally, *government support programs* which are designed for SMEs is included and is believed to affect all stages of the e-business adoption process by the Saudi SME.

4.1.2 Factors Affecting the Initiation Stage of E-business Adoption

By applying Phase 1.2.2 of the filtering process, a total of seven factors are identified from both the stage model theories and empirical literature which can potentially influence the initiation stage. These factors include: *cost*, *external pressure*, *uncertainty in business environment*, *management support*, *relative advantage*, *availability of technical expertise*, and *information availability*. Moreover, by applying Phase 1.2.3, two additional factors are identified which can potentially affect the initiation stage: *knowledgeable employee's attitude toward technology* and *government support programs*. Hence, in total nine factors are considered relevant for affecting the initiation stage.

4.1.3 Factors Affecting the Adoption Decision of E-business Adoption

By applying Phase 1.2.2 of the filtering process, 10 factors are identified that may affect the adoption decision stage: *communication*, *company's awareness of need for change/change management*, *compatibility*, *high competency in IS*, *cost*, *external pressure*, *uncertainty in business environment*, *management support*, *relative advantages*, and *organisational readiness*. These factors have received support from both the stage model theories and empirical literature. Moreover, by applying Phase 1.2.3, six additional factors are identified that may also potentially affect the adoption stage: *complexity*, *knowledgeable employee's attitude toward technology*, *owner's attitude toward technology*, *e-business law*, *government support programs*, and *security concerns*. As such, a total of 16 factors are identified which may influence the adoption decision stage.

4.1.4 Factors Affecting the Implementation Stage of e-Business Adoption

By applying Phase 1.2.2 of the filtering process, nine factors are identified which may affect the implementation stage: *companies' awareness of need for change/change management*, *high competency in IS*, *cost*, *information availability*, *training*, *external pressure*, *uncertainty in the business environment*, *management support*, and *relative advantage*. In addition, by applying Phase 1.2.3, two more factors are identified which may affect the implementation stage: *lower level employee's attitude toward technology*, and *government support programs*. In total, 11 factors are found to be relevant for implementation stage. A summary of the filtering process for identifying factors affecting e-business systems adoption by SMEs is shown in Figure 3.1. At the end of Phase 1.2.3, a total of 36 factors (nine initiation stage, sixteen for adoption stage, and eleven for implementation stage) are identified. The initial research model is presented in Figure 4.1. Definitions of these factors are provided in Appendix E.

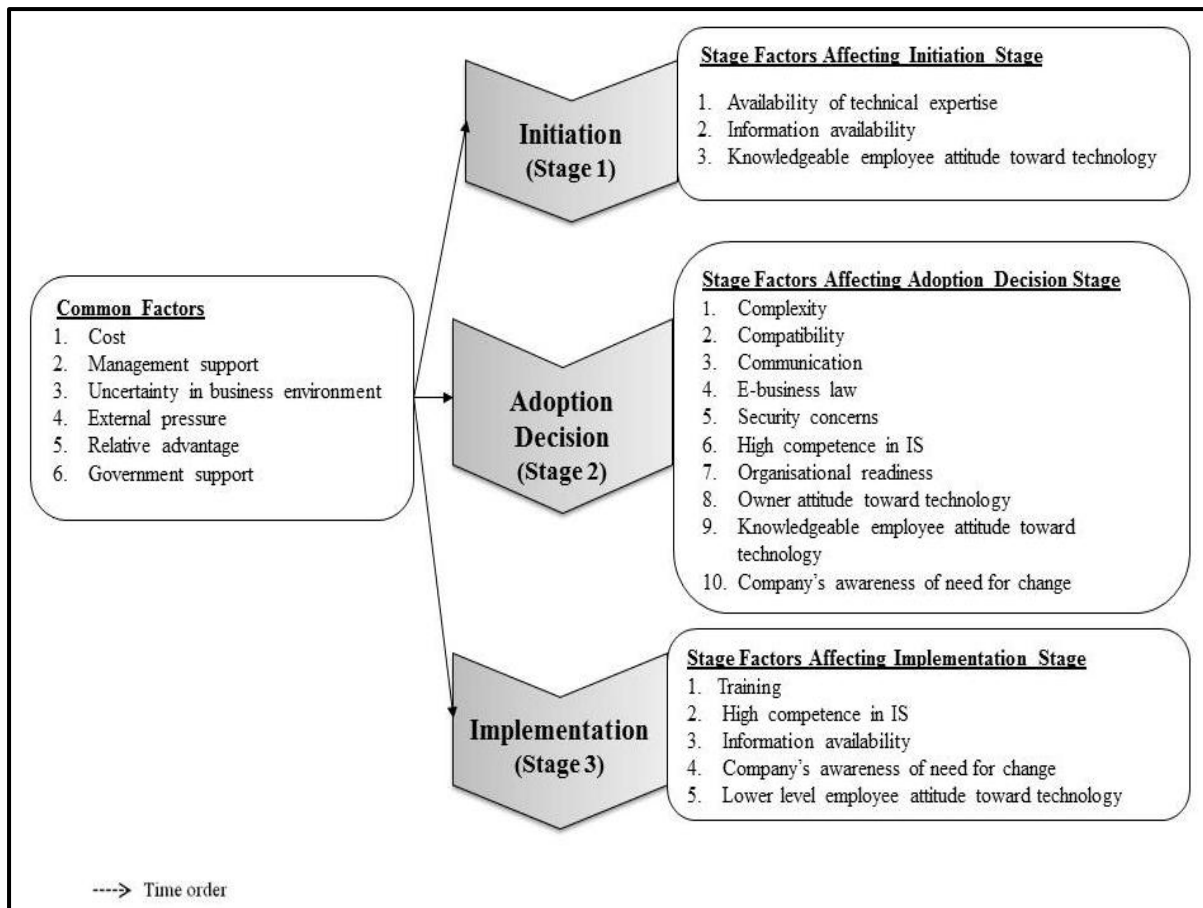


Figure 4.1 Initial research model

4.2 Research Model Evaluation by the Domain Experts in Online Panel

4.2.1 Selection Process for Domain Experts

This phase was initiated to seek valuable insights from the participating domain experts about the initial version of the research model (Figure 4.1). The domain experts were chosen based on publication records, journal articles, conference papers, book chapters, and other relevant literature, and recommendations by peers. The major areas of expertise of these domain experts included: e-business, SME, adoption, and development. A summary about the domain experts is shown in Table 4.2.

Table 4.2: Summary of areas of expertise

Expert's Code	Highest Qualification	Areas of expertise			
		SME	e-Business	Adoption	Development
1. Expert A	PhD	✓	✓		✓
2. Expert B	PhD	✓	✓	✓	
3. Expert C	PhD	✓		✓	
4. Expert D	PhD		✓	✓	✓
5. Expert E	PhD			✓	
6. Expert F	PhD	✓		✓	
7. Expert G	PhD	✓	✓	✓	
8. Expert H	PhD			✓	✓

Note: ✓ means the experts are having expertise in a particular area

A total of 22 invitation emails were sent to the domain experts to seek their willingness to participate in an online experts panel. The email included a brief description about the researcher, the research topic, and the approach that would be used. A copy of the human ethics certificate of approval and an explanatory statement about the study were attached with the invitation email. Only eight experts accepted the invitation and expressed their willingness to involve themselves with the evaluation process of the research model. This number is quite sufficient because according to Burgess (2010), five to seven experts is the optimal number to conduct an online experts panel. This is because of the difficulty to get a hold of a larger number of experts to participate at one time. The researcher then sent another email to these participating experts which included the commencement date and links to the online experts panel. The commencement date for the domain experts panel discussion was May 23, 2011 and ended on June 12, 2011 (about three weeks later). Before the commencement date, a reminder email was sent to the experts which included clear instructions and guidelines for the domain experts on how to post their comments. The discussion was based on a weekly cycle (i.e. each week included one or two new topics). One week cycle is considered adequate because longer time may result in waning the enthusiasm and interest of the participating experts (Burgess 2010). The experts posted their comments between Tuesday and Sunday as Monday was the day for the researcher to update and administer the online experts panel. Those experts who missed the previous week's discussion were allowed to post their comments on a previous week's discussion in addition to the current week's discussion. Friendly reminders were sent to the experts every Sunday to remind them about participating in the on-going discussion. As shown in Table 4.3, only two experts participated in the Week Three discussion, whereas, all eight experts participated in the Week One discussion. This indicates that experts demonstrated a high level of enthusiasm in the beginning of the experts panel evaluation and then they gradually lost enthusiasm for participating in this process. One possible explanation for this could be the long time (three weeks) needed for the evaluation process.

Table 4.3: Participation of the experts over three weeks' time

Weeks of discussion	Domain experts							
	A	B	C	D	E	F	G	H
Week One	Y	Y	Y	Y	Y	Y	Y	Y
Week Two	Y	Y	Y	Y	Y	N	N	N
Week Three	Y	Y	N	N	N	N	N	N

Note: (Y) means the experts participated, (N) means the experts did not participate

4.2.2 Online Experts Panel

An online experts panel was created by using Wordpress blog which is an open source of publishing and can be used for basic content management. The panel was hosted at <http://ebussmescale.wordpress.com/> and consisted of four web pages. The first page was the home page which included introductory information about the study. The second page was titled "Week One" and it gave an overview about the research model and its components. The third page was titled "Week Two" and provided information about factors affecting the initiation and adoption decision stages of the e-business adoption process in SMEs. Finally, the fourth page was named "Week Three" and presented information about the factors affecting the implementation stage of the e-business systems adoption process in SMEs and the common factors which influence all three stages (*initiation, adoption, and implementation*) of the e-business systems adoption process in SMEs. The participants were requested to present their comments in response to the several questions located at the end of each web page.

4.2.3 Privacy of the Participants

Participation in this online experts panel was completely anonymous. Each domain expert was assigned an identification code which enabled him/her to discuss the ideas and add comments without any indicators to his/her identity.

4.3 Strategies for Discussion in the Online Experts Panel

As mentioned in the previous section, the online experts panel consists of four web pages. The actual discussion was conducted in three weeks. Each week discussed a different topic based on the structure of the research model. The structure of the online experts panel was as follows:

- Home Page: Welcome message, an overview about the study, and general instructions.
- Week One: An overview about the initial research model and its components.
- Week Two: Factors affecting the initiation and adoption decision stages of the e-business systems adoption process in SMEs.
- Week Three: Factors affecting the implementation stage and the common factors which affect all three stages of the e-business systems adoption process in SMEs.

4.3.1 Home Page of the Online Experts Panel

In this page, the researcher welcomed the experts and provided general information about the study, the purpose of the online experts panel, and usage instructions for the discussion. Figure 4.2 shows the home page and the link to the following page which contains Week One content.

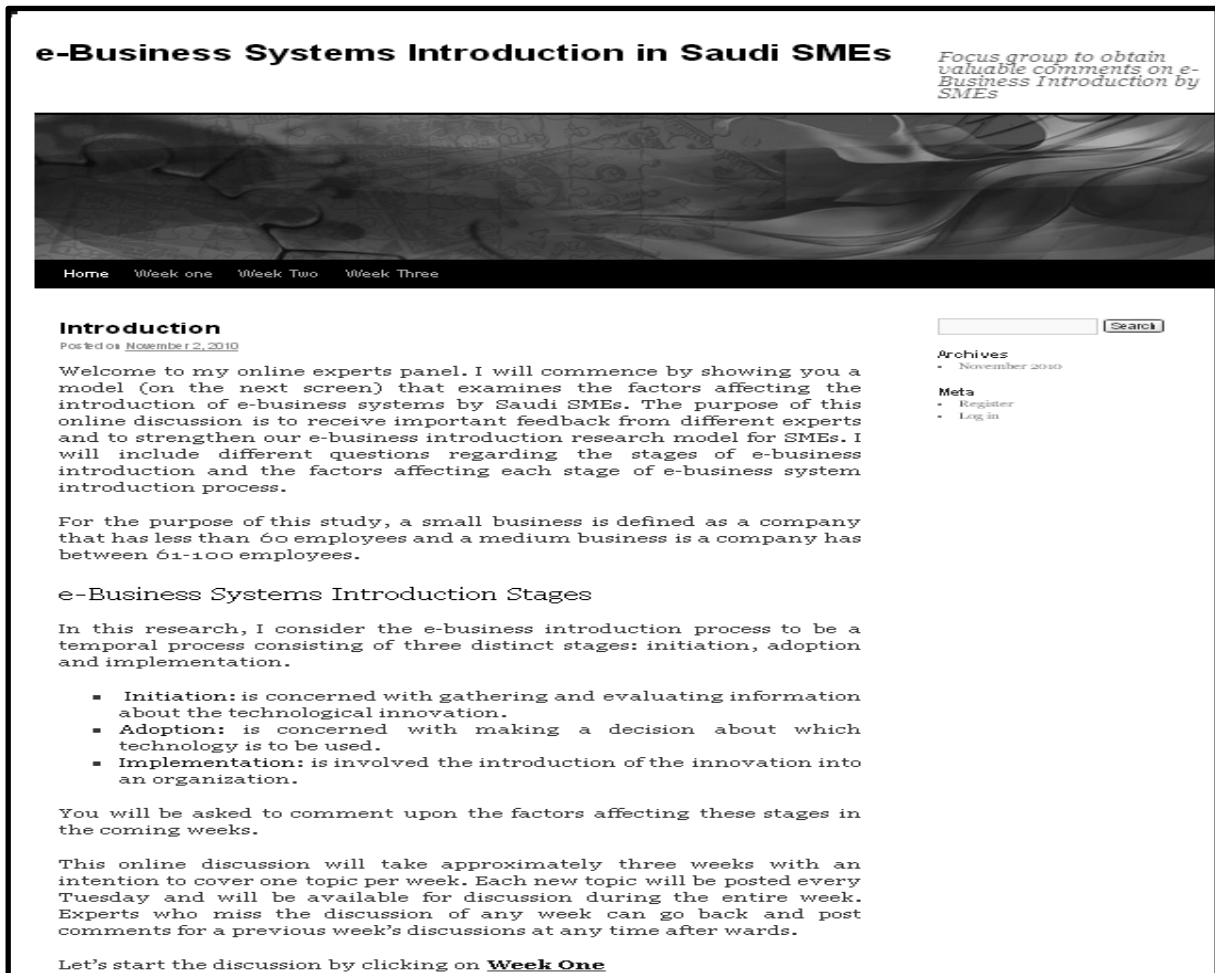


Figure 4.2 Home page content

4.3.2 Summary of the Evaluation Process for the Research Model Over Three Weeks

This section provides a summary for the suggestions which were provided by the domain experts on the research model. A total of seven factors were suggested as new factors. These factors are discussed in more detail in the following sections. Table 4.4 shows the summary of the domain experts' evaluation for the research model.

Table 4.4: A summary of the evaluation of suggestions over three weeks

Stages	Factors Status	Week One	Week Two	Week Three
Initiation	Support for existing factors	➤ Organisational readiness	➤ Knowledgeable employee attitude toward technology ➤ Complexity ➤ Compatibility	
	New factors suggested for inclusion	➤ Role of owner/CEO ➤ SME's leadership ➤ Manager readiness ➤ Owner-manager characteristics ➤ Business heterogeneity ➤ Trading partners' readiness ➤ Organisational culture	➤ IT infrastructure ➤ Trialability ➤ Observability	➤ Management attitude toward change
	Factors suggested for exclusion or merging		➤ Merge SME's leadership with Owner-manager Characteristics	
Adoption Decision	Support for existing factors	➤ Organisational readiness	➤ Knowledgeable employee attitude toward technology	
	New factors suggested for inclusion	➤ Role of owner/CEO ➤ SME's leadership ➤ E-business value ➤ Manager readiness ➤ Owner-manager characteristics ➤ Business heterogeneity ➤ Trading partners' readiness ➤ Organisational culture	➤ Customer readiness ➤ Perceived e-business value ➤ E-business trust ➤ Risk	➤ Management attitude toward change
	Factors suggested for exclusion or merging		➤ Merge SME's leadership with owner-manager characteristics ➤ Merge company's awareness of need for change and organisational readiness to be organisational readiness and awareness	

Continued

Table 4.4: A summary of the evaluation of suggestions over three weeks (Continued)

Stages	Factors Status	Week One	Week Two	Week Three
Implementation	Support for existing factors	➤ Organisational readiness		
	New factors suggested for inclusion	<ul style="list-style-type: none"> ➤ Role of owner/CEO ➤ SME's leadership ➤ Manager readiness ➤ Owner-manager characteristics ➤ Business heterogeneity ➤ Trading partners' readiness ➤ Organisational culture 		➤ Management attitude toward change
	Factors suggested for exclusion or merging		➤ Merge SME's leadership with Owner-manager characteristics	

4.3.3 Evaluation of the Research Model based on the Experts' Suggestions

This section provides an overview about the new and existing factors which were identified previously from the relevant literature sources and the views expressed by the participating domain experts. A total of 51 factors were identified which could affect all three stages of the e-business systems adoption process in SMEs. Out of 51, 17 factors were believed to affect the initiation stage and 19 factors were identified to affect the adoption decision stage of the e-business systems adoption process in SMEs. In addition, 15 factors were identified to affect the implementation stage of the e-business systems adoption process in SMEs. A summary of these 51 factors is shown in Table 4.5 and detailed discussions are provided in the next sections.

Table 4.5: A summary of the factors which are included in the revised research model

Stages	New Factors	Existing Factors	Total No. of Factors
Initiation	5	12	17
Adoption Decision	6	13	19
Implementation	4	11	15
Total	15	36	51

4.4 Week One Overview

This week started by providing an overview about e-business systems adoption in SMEs and described the research model components. The initial research model (Figure 4.1) was developed based on the literature and it consisted of three main components: common factors which affect e-business systems adoption in SMEs, stages (*initiation*, *adoption*, and *implementation*) which the adoption of e-business systems go through, and stage specific factors which affect a particular stage of the e-business systems adoption process in SMEs.

The literature indicates the existence of six common factors (i.e. *cost*, *relative advantage*, *external pressure*, *management support*, *government support programs*, and *uncertainty in business environment*) that influence all three stages of e-business systems adoption in SMEs. Moreover, three factors (i.e. *information availability*, *availability of technical expertise*, and *knowledgeable employee attitude toward technology*) are identified as factors affecting the initiation stage of e-business systems adoption in SMEs. Ten factors (i.e. *complexity*, *compatibility*, *communication*, *e-business law*, *security concerns*, *high competence in IS*, *organisational readiness*, *owner attitude toward technology*, *company's awareness of need for change*, and *knowledgeable employee attitude toward technology*) are identified as affecting the adoption decision stage. Finally, five additional factors (i.e. *training*, *high competence in IS*, *information availability*, *company's awareness of need for change*, and *lower level employee attitude toward technology*) are identified which could influence the implementation stage.

In Week One, the domain experts were asked about the adequacy of these factors to deal with e-business systems adoption in SMEs and to specify any other important factors that they believe should be included or excluded from the model. Figure 4.3 shows the content of Week One that appeared in the online experts panel.

e-Business Systems Introduction in Saudi SMEs

Focus group to obtain valuable comments on e-Business Introduction by SMEs



[Home](#) [Week one](#) [Week Two](#) [Week Three](#)

Week one

e-Business Systems Adoption Process by SMEs

The adoption literature indicates the existence of two distinct groups of stage model concepts. One group of scholars apply 'staged model' concepts from the diffusion of innovation (DOI) - i.e. a theory that seeks to explain how, why, and at what rate new technology spread through cultures via a series of identifiable 'stages'. This is a perspective to study a particular IT/IS/e-business application introduction process over a period of time within a single organization. Another group of scholars apply a staged model concept to examine the evolutionary maturity of IT/IS/e-business applications within an organization.

In this research, we are focusing on stage model concepts from the DOI perspective to study factors affecting the e-business systems introduction process in SMEs. The resultant model will contribute to an increased understanding of the factors affecting the introduction processes of e-business systems in relation to SMEs, enabling them to determine appropriate solution in accordance with their operational needs.

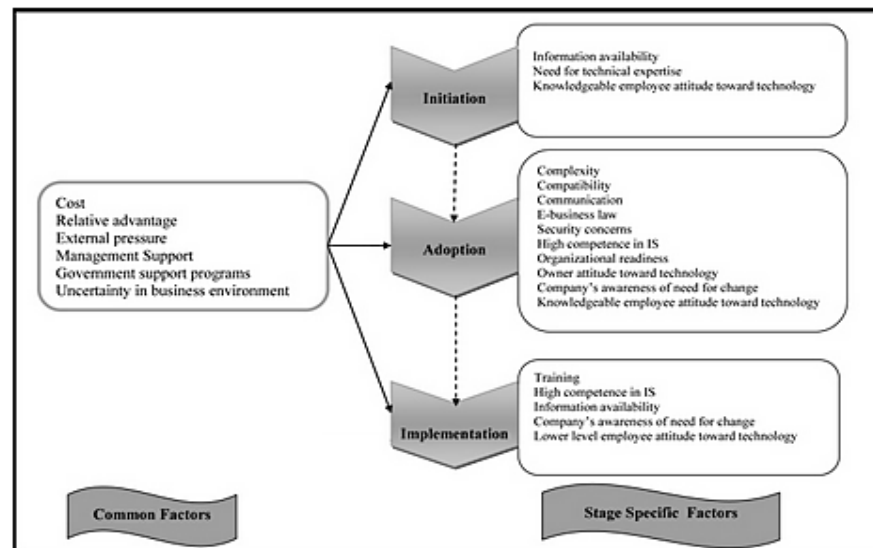


Figure 4.3 The content of Week One (Continued)



[Home](#) [Week one](#) [Week Two](#) [Week Three](#)

Describing the Research Model Components

* e-Business Systems Introduction Stages

The Technological innovation adoption literature indicates that the number of stages in explaining technological innovation introduction process varies from three to six. It is argued that SME management may find it difficult to recognize the fine distinction among all the six stages proposed by such scholars as Kwon and Zmud (1987) and Zmud and Apple (1989). This is because of their lack of expertise, knowledge, and general familiarity with e-business technology landscape and technology management practices. Therefore, it is proposed that for the SME context the technological innovation introduction process should be described in a small number of more easily identifiable stages. Based on this argument, this research proposes to conceptualize e-business introduction process among Saudi SMEs in terms of three broad stages: initiation, adoption and implementation.

- **Initiation:** is concerned with gathering and evaluating information about the technological innovation.
- **Adoption:** is concerned with making a decision about which technology is to be used.
- **Implementation:** is involved the introduction of the innovation into an organization.

* Common Factors

In the literature, these factors have been found to influence all three stages (i.e. initiation, adoption and implementation) of e-business systems introduction. For instance, *management support* affects all three stages of e-business introduction process.

* Stage Specific Factors

These factors affect one or two stages of e-business systems introduction process. For example, information availability has been reported in the literature as being a factor affecting the initiation and implementation stages of e-business systems introduction process, whereas, training have found as factor affecting implementation stage.

Figure 4.4 The content of Week One

4.4.1 Week One Discussion

This section discusses the domain experts' views and comments on the initial research model. A total of eight domain experts participated in this week's discussion. Three domain experts pointed out the importance of "*leadership in SMEs*" and suggested its inclusion as a common factor affecting e-business systems adoption in SMEs. For instance, expert A said "*owner/CEO plays a vital role on e-commerce adoption and diffusion*" whereas, expert C indicated that "*I think that leadership is likely to be the most important influence on what IT is adopted, and how it is done*".

Furthermore, expert G suggested adding a new stage called "*e-business systems success*" that represents the outcome of the research model. This expert also recommended the inclusion of two common factors (e.g. *owner-manager characteristics* and *business heterogeneities*) which he believes could affect all three stages of e-business systems adoption in SMEs. Expert G "*I can see the need for one more stage: e-business systems success*". Expert G "*I suggest that a common factor owner-manager characteristic is added to the model*". Expert G "*I suggest that you think of adding business heterogeneity as another common factor*". In addition, expert B suggested adding *organisational culture* as a common factor affecting e-business systems adoption in SMEs. In the initial research model, *organisational readiness* was identified as a factor affecting the adoption decision stage of e-business systems in SMEs. However, expert F suggested that *organisational readiness* should be an important common factor that could affect all stages. In addition, the same expert suggested adding *manager readiness* as another common factor.

Likewise, expert D and expert H suggested the addition of such factors as: *e-business value*, *financial resources*, *competitive pressure*, *trading partners' readiness* and *IT infrastructure*, without clearly explaining the stage of e-business systems to which these factors relate.

4.4.2 Researcher's Reflection on Experts' Comments on Week One

The following strategy has been applied to decide whether a factor (suggested by the experts) is included in the next version of the research model: a) a factor is included when it is in line with the existing literature, or b) there is a consistency among the domain experts about the inclusion of the factor. In contrast, a factor is not included when: a) there is an overlapping in meaning between the factor and any other existing factors, or b) the existence of disagreement among the domain experts about the factor. Generally, most of the experts' comments on the research model are accepted. Expert D suggested adding "*e-business value*" without identifying specifically whether this factor affects a particular stage or all stages of e-business systems adoption in SMEs. Therefore, the researcher decided to wait until the following weeks' discussion to see whether this factor receives confirmation or not. On the other hand, some factors are considered as sub-factors of others. For instance, "*leadership in SME*" can be considered to be a sub-factor of "*owner-manager characteristic*". Likewise, "*financial resources*" is a sub-factor of "*cost*", "*competitive pressure*" is a sub-factor of "*external pressure*", and "*IT infrastructure*" is a sub-factor of "*organisational readiness*". All these represent common factors which affect all three stages of e-business systems adoption in SMEs. Grover and Goslar (1993) have measured uncertainty in the business environment in terms of three components: *heterogeneity*, *dynamism*, and *hostility*. Hence, the suggested factor "*heterogeneity*" by expert B is rejected because it is part of the factor "*uncertainty in business environment*".

To sum up, the factors: *owner-manager characteristic*, *manager readiness*, and *organisational culture* are included as common factors affecting e-business systems adoption in SMEs. Moreover, the factor “*organisational readiness*” (which was previously identified as a factor affecting the adoption decision stage of e-business systems adoption in SMEs) has now moved to the pool of common factors. The researcher considered “*e-business systems success*” as an outcome of the research model and did not consider it as a separate stage of e-business systems adoption in SMEs and hence, decided not to add this into the research model. Figure 4.4 shows the refined research model based on the experts comments made in Week One.

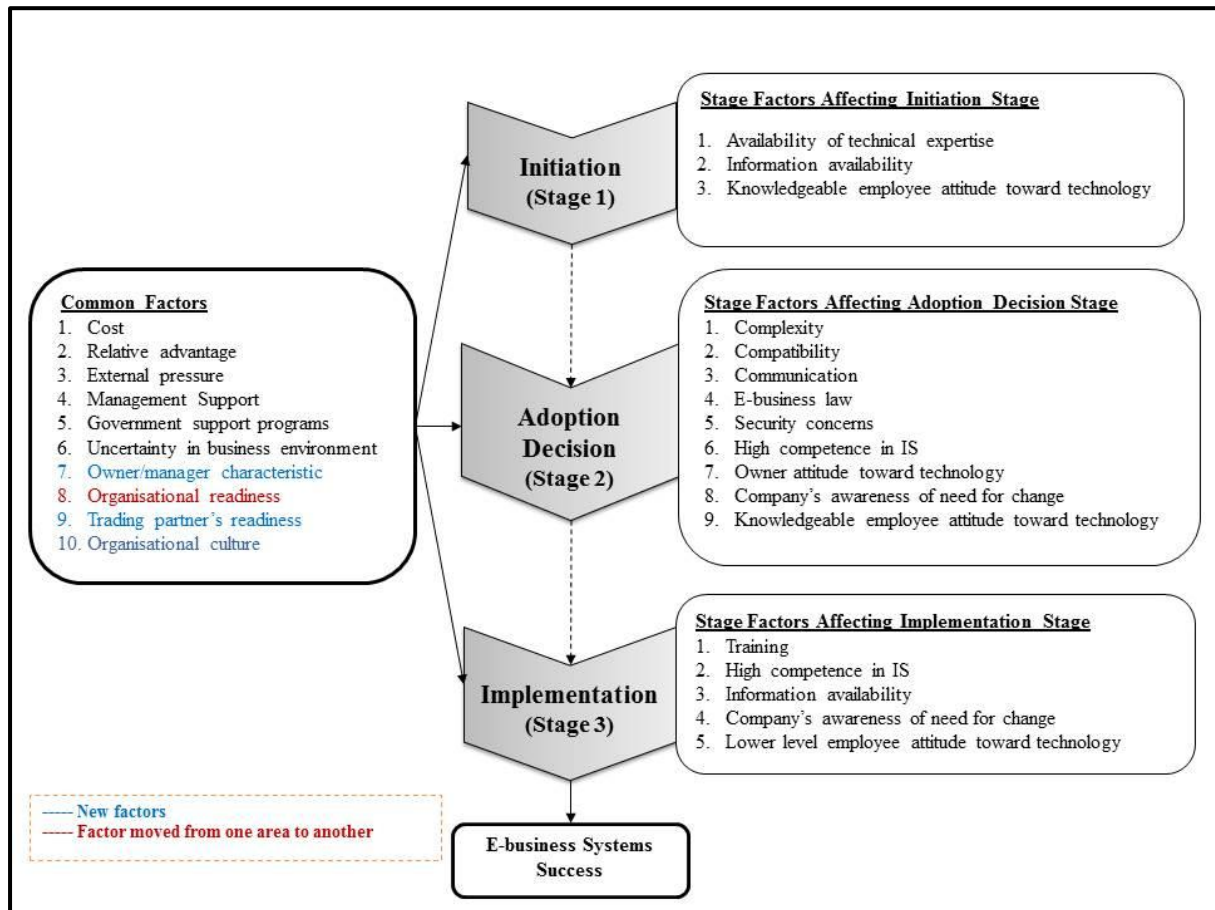


Figure4. 5 Refined research model based on week's one comments

4.5 Week Two Overview

In this week's discussion, the factors affecting both the initiation and adoption decision stages of e-business systems adoption in SMEs were presented in the online experts panel. The experts were requested to comment on the adequacy of the identified factors to influence these stages. They were also urged to identify those factors which they believed should be included/excluded from the list of the identified factors. Figure 4.5 shows how the researcher presented related information on factors affecting initiation and adoption decision stages of the e-business systems adoption in SMEs in the online experts panel.



[Home](#) [Week one](#) [Week Two](#) [Week Three](#)

Week Two

Factors Affecting the Initiation Stage of e-Business Systems Introduction Process in SMEs

Drawing on a synthesis of innovation adoption and e-business literature sources, a total of three factors (*information availability, need for technical expertise, and knowledgeable employee attitude toward technology*) are identified which could potentially affect this stage of e-business introduction by SMEs. In this section, we need to evaluate the factors *identified in the literature which have influenced the initiation stage (i.e. is the stage concerned with gathering and evaluating information about e-business systems)*.

Archives

• November 2010

Meta

• Site Admin
• Logout

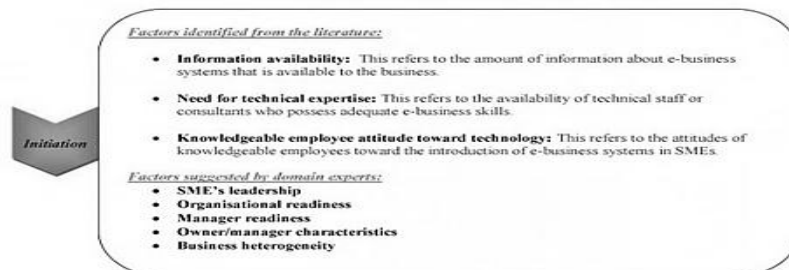


Figure 4.1: Week Two contents (Continued)

Factors Affecting the Adoption Stage of e-Business Systems Introduction Process in SMEs

It is observed that there are ten factors that affect adoption stage: *complexity, compatibility, communication, e-business law, security concerns, high competence in IS, organizational readiness, owner attitude toward technology, company's awareness of need for change, and knowledgeable employee attitude toward technology*. These factors have received support from both stage model theories and stage model empirical literature. *The focus here is to evaluate the identified factors which have influenced the adoption stage (i.e. is the concerned with making a decision about which technology is to be used) of e-business systems introduction process.*



Figure 4.5: Week Two contents

4.5.1 Week Two Discussion

Five experts participated in this week's discussion. This week's discussion covered factors affecting the initiation stage and adoption decision stage of e-business systems adoption in SMEs.

❖ Initiation Stage Discussion

Expert A emphasised *knowledgeable employees' attitude toward technology*. In addition, expert B suggested splitting the factor "*availability of technical expertise*" into two factors: "*availability of consultant*" and "*availability of technical staff*". Whereas, expert C suggested adding "*country's technological infrastructure*" as another factor influencing the initiation stage of e-business systems adoption in SMEs. According to expert C, "*it has been noticed that country's technological infrastructure has played a significant role at the initiation stage of the e-business adoption*". Moreover, expert B and D strongly recommended including: *compatibility, complexity, trialability and observability*

characteristics as factors affecting the initiation stage. According to expert D, “*I strongly suggest that compatibility, complexity, trialability and observability characteristics are included as factors in the initiation stage*”. The same expert suggested renaming the factor “*information availability*” into “*perceived characteristics information of e-business*”.

❖ Adoption Decision Stage Discussion

Expert B suggested adding a new stage called “*organisational readiness*” which should replace the initiation stage. For example, expert B “*I think organisation readiness could be expanded to include skills and be a ‘step’ on its own, replacing initiation*”. Two experts (C, E) stated that “*perceived e-business value*” should be added as a factor affecting the adoption decision stage of e-business systems adoption in SMEs. According to expert C, “*perceived value can be another factor that has been explored by several researchers such as Grandon and Pearson (2003, 2004)*”. Additionally, experts (D, E) highlighted the importance of including “*perceived risk*” and “*trust*” as factors affecting the adoption decision stage instead of supporting the identified factor “*security concerns*”. Furthermore, expert B indicated the importance of including “*customer readiness*” as a factor affecting the adoption decision stage of e-business systems adoption in SMEs. Expert D suggested merging these two factors “*organisational readiness*” and “*company’s awareness of need for change*” and stated that *organisational readiness* should include both dimensions of readiness and awareness. On the other hand, expert E suggested renaming the ‘*adoption stage*’ into ‘*adoption decision stage*’. For instance, expert E said “*You seem to be talking about the former rather than the latter, so I think the stage should be termed Adoption Decision*”.

4.5.2 Researcher’s Reflection on Experts’ Comments on Week Two

The discussion for this week covered factors affecting the initiation stage and adoption decision stage of e-business systems adoption in SMEs. The comments of the experts on the initiation stage are generally accepted. Nevertheless, as mentioned in the previous week’s discussion that *technological infrastructure* is considered to be a sub-factor of *organisational readiness*. Therefore, the researcher does not consider this suggestion in the new version of the research model. Moreover, the suggestion to split the factor “*availability of technical expertise*” into two factors “*availability of consultant*” and “*availability of technical staff*” is not considered because the researcher believes that the suggested factors are part of the identified factor (i.e. *availability of technical expertise*).

Likewise, for the adoption stage, the experts’ comments are also generally accepted. However, the suggestion to add a new stage called “*organisational readiness*” and replace it with *initiation* stage is not accepted, because it is not congruent with the DOI perspective. On the matter of “*security concerns*”, the researcher believes that this factor includes “*perceived risk*” and “*trust*” as sub-factors. Therefore, this suggestion too is not considered in the new version of the research model. In the week’s discussion, the factor “*perceived e-business value*” (which was initially indicated by expert D in Week One) has received confirmation from the experts as a factor affecting the adoption decision of e-business systems adoption in SMEs. Figure 4.6 shows the refined research model based on the Week Two discussion.

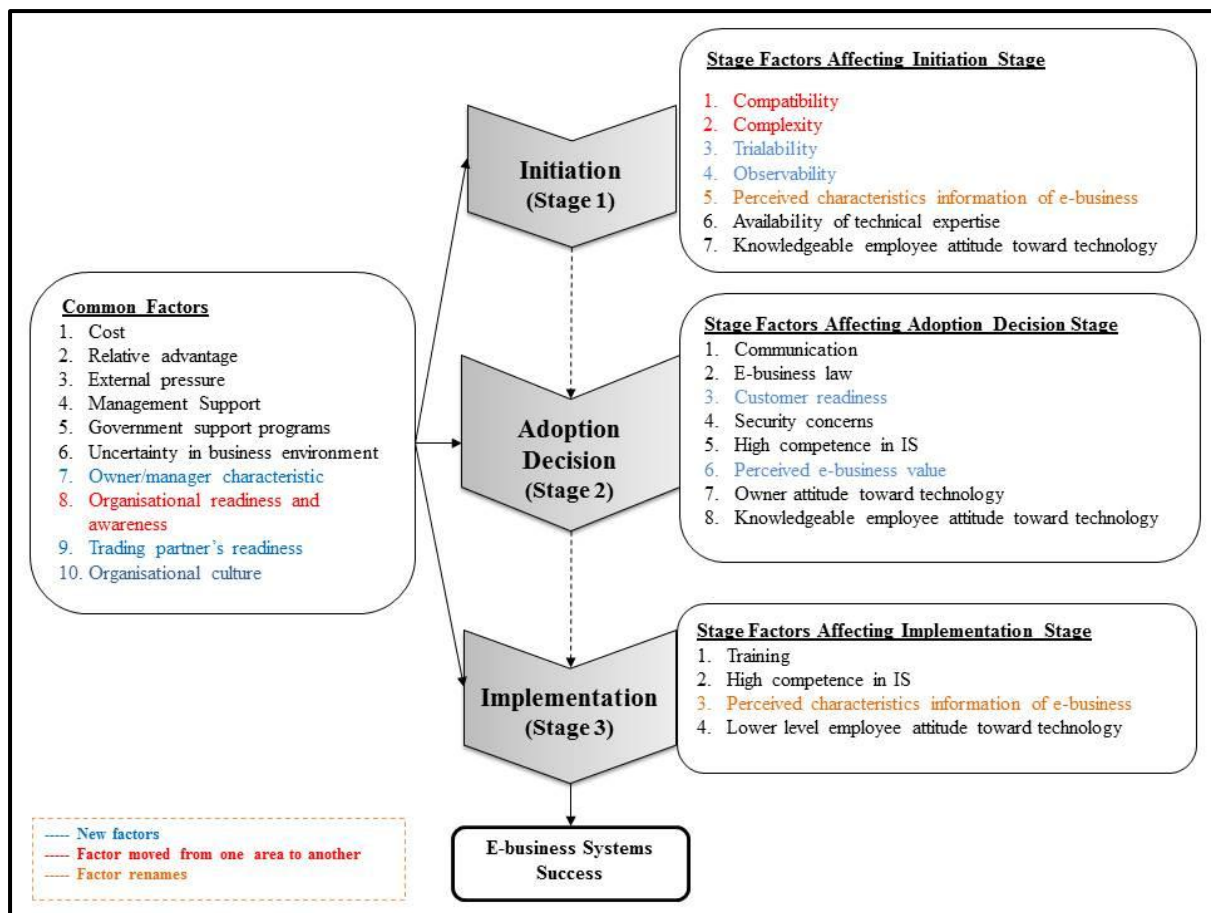


Figure 4.6 Refined research model based on Week Two's comments

4.6 Week Three Overview

In this week's discussion, only two domain experts participated. Factors affecting the implementation stage and the identified common factors from the literature and the suggested common factors by experts were presented in the online experts panel. Figure 4.7 shows the content of the Week Three discussion.

e-Business Systems Introduction in Saudi SMEs

Focus group to obtain valuable comments on e-Business Introduction by SMEs



[Home](#) [Week one](#) [Week Two](#) [Week Three](#)

Week Three

Factors Affecting Implementation Stage of e-Business Systems Introduction Process in SMEs

Four factors (training, high competence in IS, perceived characteristics information of e-business, and lower level employee attitude toward technology) are identified as factors affecting implementation stage of e-business systems introduction process in SMEs. In this week's discussion, the focus here is to evaluate the identified factors which have influenced implementation stage (i.e. it involves the introduction of the innovation into an organization) of e-business systems introduction process.

Archives

- November 2010

Meta

- Site Admin
- Logout

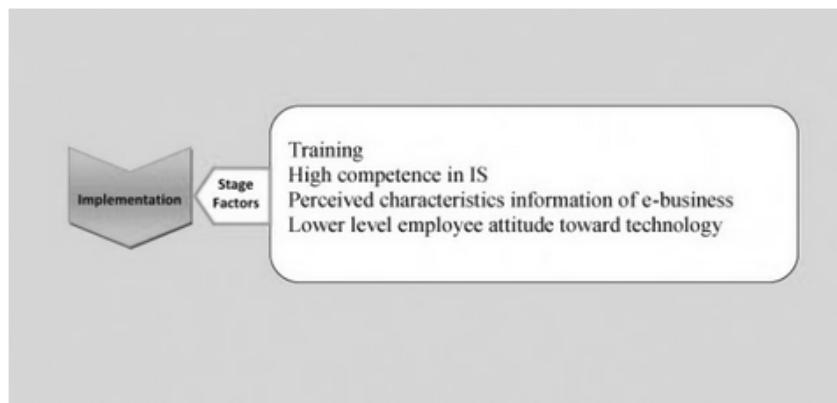


Figure 4.7 Week Three's contents (Continued)

Common Factors which affecting all three stages (*initiation, adoption and implementation*) of e-business systems introduction process in SMEs

The domain experts evaluation process and the literature indicate the existence of ten factors (i.e. *cost, relative advantage, external pressure, management support, government support programs, uncertainty in business environment, Owner/manager characteristic, organizational readiness, business heterogeneity, and trading partner's readiness*) that affecting all three stages (*initiation, adoption and implementation*) of e-business systems introduction process in SMEs. The focus here is to evaluate the identified factors which have influenced these stages of e-business systems introduction process.

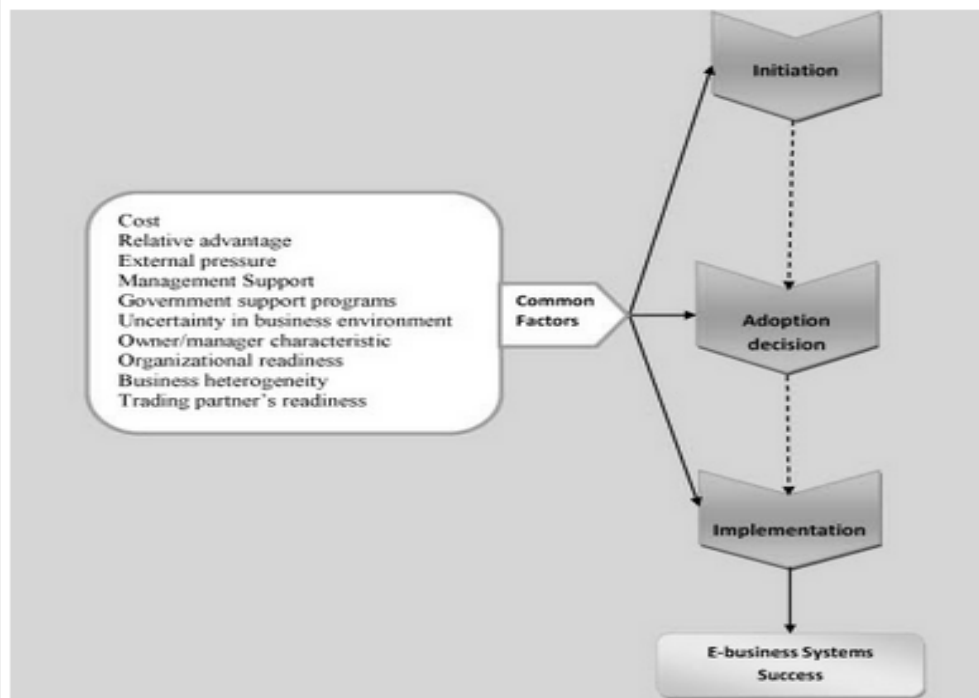


Figure 5 shows identified factors that affect all three stages of e-business systems in SMEs.

Figure 4.7: Week Three's contents

4.6.1 Week Three Discussion

As mentioned earlier, only two domain experts participated in this week's discussion. As a consequence, this has not provided a rich understanding about the changes that should be incorporated in this part of the research model. However, an interesting observation is that expert A recommended to model the implementation stage in terms of a life cycle and modelled the adoption decision stage to be the point that the adopter can leave the adoption process. According to expert A, *"In my opinion, the implementation stages can be modeled as a life cycle. Therefore, it can be modeled the decision stage of the SMEs to leave the e-business system. For the research model, the introduction of a re-configuration stage of the e-business system in order to obtain a cycle of the implementation stage in this way, the system is dynamic over time instead of a static model"*. In addition, this expert suggested making the research model dynamic instead of a static model by adding a new stage called "re-configuration" stage of the e-business systems in order to obtain a cycle of the implementation stage. Furthermore, expert B suggested adding the factors: *"know-how expertise"* and *"management attitude toward change"*. On the other hand, the same expert suggested renaming the factor *"perceived characteristics information of e-business"* into *"perceived e-business attributes"* in order to make it more congruent with DOI literature.

4.6.2 Researcher's Reflection on Experts' Comments on Week Three

With regards to expert B's comments to add the factor *"know-how expertise"*, it is suggested that this factor has already been identified from the literature by the researcher under the name *"competency in IS"* and hence is not retained in the research model. Therefore, no further action is required with regard to this comment. In addition, expert B stated that it is necessary to add *"management attitude toward change"* as a factor affecting the implementation stage of e-business systems in SMEs. As mentioned in Section 4.6.1, this factor is considered as a part of *"organisational readiness"* which was already included as a common factor affecting all three stages of e-business systems adoption in SMEs. Therefore, no further action is needed to address this comment. The suggestion by the same expert to rename the factor *"perceived characteristics information of e-business"* into *"perceived e-business attributes"* is accepted because the renamed factor is more congruent with DOI literature.

The researcher acknowledges that the notion of 'reconfiguration stage' is interesting. The researcher further recognises that SMEs are likely to revisit their e-business involvement at various stages, and such 'reconfiguration stage' would replace the 'initiation' stage in future implementations of e-business initiatives. However, this aspect, although useful, is considered beyond the scope of this study. As a result, the suggestion on 'reconfiguration stage' was not included in the model. Another reason for not including the 'reconfiguration stage' is the researcher's belief that many of the factors relevant for the initiation stage would also apply to the 'reconfiguration stage' and that there exists an overlapping of meanings between the 'initiation stage' and the 'reconfiguration stage'.

4.7 Revised Research Model and Propositions

Drawing on the factors shortlisted through Phase 1.2 (discussed in Section 4.1.1) and evaluation by the online experts panel (discussed in Section 4.2), a revised research model is proposed in Figure 4.8. Drawing on the research model and the background literature analysis, a total of 29 propositions are derived. A brief justification in support of developing these propositions is provided next.

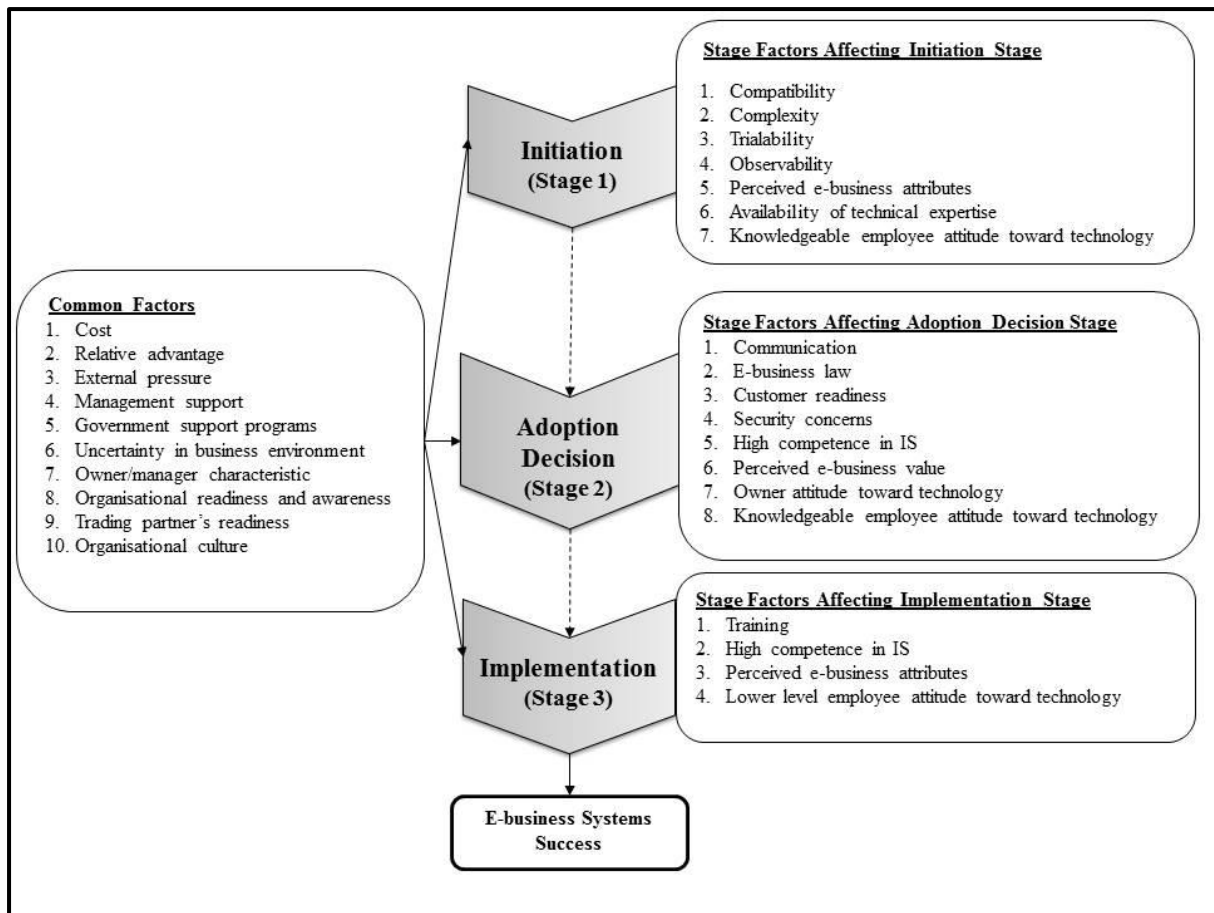


Figure 4.8 Revised research model based on the online experts panel evaluations

Propositions on the Factors Affecting the Initiation Stage of E-business Adoption

A total of seven propositions (i.e. P1 to P7) are suggested for the initiation stage of the e-business systems adoption process in SMEs. Table 4.6 shows the literature sources which were consulted to derive these propositions.

Factor 1: Compatibility

Rogers (2003) reported that an innovation is more likely to be compatible when it is consistent with the existing technology infrastructure, culture, goals, values, and preferred work practices of a company. Moreover, Balocco, Perego et al. (2010) argued that an e-business system is more likely to be initiated when it is compatible with a company's business model and IT background of employees working within a firm. Incompatibilities surrounding these issues inhibit initiating the e-business systems by SMEs. Therefore, for this study, it is suggested that compatibility should have a positive influence on the initiation stage of e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is suggested:

P1: Compatibility of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs.

Factor 2: Complexity

According to Cooper and Zmud (1990), organisations planning to initiate complex technological innovations should require adequate operational resources and technical competencies. These resources contain suitable IT infrastructure, availability of technical skills, and mechanism of training, which facilitate the installation and maintenance of e-business systems. Moreover, Agarwal and Prasad (2007) argued that systems that are perceived to be easier to use and less complex have a greater possibility of being initiated by potential adopter companies. Therefore, for this study, it is suggested that a low level of complexity should have a positive influence on the initiation stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is suggested:

P2: Low level of complexity of e-business systems positively influences the initiation stage of e-business adoption process by Saudi SMEs.

Factor 3: Trialability

According to Rogers (2003), trialability can be defined as “the degree to which an innovation may be experimented with on a limited basis” (p.258). Moreover, new ideas that can be tested are adopted faster than innovations that are not trialable (Rogers 2003). Weiss and Dale (1998) reported that trialability becomes a significant factor for a technological innovation since it provides a means for adopters to decrease their uncertainties regarding unfamiliar technologies or products. Therefore, for this study, it is suggested that trialability should have a positive influence on the initiation stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is developed:

P3: Trialability of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs.

Factor 4: Observability

According to Rogers (2003), observability of an innovation is a key factor in early adoption of innovation. Furthermore, Mansfield (1968) reported that the diffusion of a technological innovation is influenced by the reduction of the primary uncertainty. According to Alam, Khatibi et al.(2008), observability is found to have a positive and significant influence on e-business systems diffusion. Thus, for this study, it is suggested that observability should have a positive influence on the initiation stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is derived:

P4: Observability of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs.

Factor 5: Perceived e-Business Attributes

Obtainability of information about a technological innovation assists an organisation's management to be aware of the innovation and helps reduce the uncertainty about such an innovation (Zmud and Apple 1989). Furthermore, Wilson, Daniel et al. (2008) suggested that the availability and reliability of information about an e-business system facilitates the decision to initiate e-business systems in SMEs. Therefore, for this study, it is suggested that perceived e-business attributes should have a positive influence on the initiation stage of e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is formulated:

P5: Perceived e-business attributes of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs.

Factor 6: Availability of Technical Expertise

Availability of specialised technical expertise provides reliable technology support and continuous refinement of the organisation's technological needs (Pudjianto and Hangjung 2009). Organisations are more likely to initiate e-business systems when technical expertise is available (Wymer and Regan 2005). According to Abu Abid, Rahim et al. (2011), SMEs whose employees have the necessary technical knowledge and technical skills are more likely to initiate e-business systems. It is therefore suggested that availability of technical expertise should have a positive influence on the initiation stage of e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is suggested:

P6: Availability of technical expertise of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs.

Factor 7: Knowledgeable Employees Attitude toward Technology

The knowledgeable employees' perception toward new technological innovation plays a significant role in the adoption of IT. Furthermore, their innovativeness and favourable attitude toward novel technology influences positively the adoption of IT in organisations (Abdul Hameed M. and Counsell S. 2012). According to Rogers (2003), the creation of attitude toward an innovation happens before a decision to adopt has been made. Favourable attitudes of knowledgeable employees contribute to all stages of the e-business systems adoption process. In the initiation stage, knowledgeable employees support developing awareness among organisational staff, in the adoption-decision stage they are responsible for assigning essential resources and in the implementation stage they can generate an environment for a flat integration into the organisational setting (Abdul Hameed and Counsell 2012). Mehrtens, Cragg et al. (2001) found a direct connection between knowledgeable employees' positive attitude toward e-business systems adoption and success of the adoption process. Therefore, for this study, it is suggested that knowledgeable employee attitude toward technology should have a positive influence on the initiation stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is derived:

P7: Knowledgeable employees' attitude toward technology of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs.

Table 4.2: Research propositions for initiation stage

Propositions Description		Relevant Literature Sources
P1	Compatibility of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Rogers (2003); Balocco, Perego et al. (2010)
P2	Low level of complexity of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Agarwal and Prasad (2007)
P3	Trialability of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Weiss and Dale (1998); Rogers (2003)
P4	Observability of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Rogers (2003); Hsu, Lu et al. (2007)
P5	Perceived e-business attributes positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Zmud and Apple (1989); Wilson, Daniel et al. (2008)
P6	Availability of technical expertise positively influences the initiation stage of e-business adoption process by Saudi SMEs	Wymer and Regan (2005); Pudjianto and Hangjung (2009); Abu Abid, Rahim et al. (2011)
P7	Knowledgeable employees attitude toward technology positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Mehrtens, Cragg et al. (2001); Rogers (2003); Abdul Hameed and Counsell (2012)

Propositions on the Factors Affecting the Adoption Decision Stage of E-business

A total of eight propositions (i.e. P8 to P15) are suggested for the adoption decision stage of the e-business systems adoption process in SMEs. Table 4.7 includes the literature sources which were consulted to derive these propositions.

Factor 8: Communication

A technological innovation initiation is mainly an information-processing action which provides a communication activity to create awareness about a technological innovation by potential customers (Frambach and Schillewaert 2002). Wilson and Davies (2008) suggested that communication indirectly influences potential adopters' propensity to adopt e-business systems in SMEs. It is therefore suggested that communication should have a positive influence on the adoption decision stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is formulated:

P8: Communication positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs.

Factor 9: E-Business Law

Fitzgerald, et al.(2007) indicated that the presence of legal regulations for online transactions would support e-business systems diffusion. Furthermore, Iddris (2012) alerted the policy makers to speed up the process of passing of an e-business legislation bill which encompasses e-signature laws and e-contracting, other laws protecting commercial parties, and Internet security, that can make wider adoption of e-business systems by SMEs. It is therefore suggested that e-business law should have a positive influence on the adoption decision stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is suggested:

P9: E-business law positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs.

Factor 10: Customer Readiness

E-business systems cannot be accepted if consumers are not ready. Ho and Ko (2008) referred to customer readiness as a condition in which a customer is prepared and likely to try a new technology service. Jutla, Bodorik et al. (2002) argued that when customers are willing to use e-business systems, this would influence positively the adoption decision of e-business systems by SMEs. Therefore, for this study, it is suggested that customer readiness should have a positive influence on the adoption decision stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is developed:

P10: Customer readiness positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs.

Factor 11: Security Concerns

The anxiety of losing trade secrets will generate reluctance for firms to adopt a technological innovation (Killikanya and Chantranontwong 2000). According to Abu Abid, Rahim et al.(2011), one of the major barriers to e-business systems diffusion in SMEs is management concerns about e-business security. To initiate e-business systems, information safety is essential for the company to have integrity of the complete system (Alam S., Khatibi A. et al. 2008). A study conducted by Pearson and Grandon (2006) showed that many customers are not enthusiastic to embrace e-business systems due to their concerns over security matters and lack of confidence in the present set-up e-business systems. However, they observed that high level of security concerns has a negatively influenced adoption decision of e-business systems. Therefore, for this study, it is suggested that low level of security concerns should have a positive influence on the adoption decision stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is suggested:

P11: Low level of security concerns positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs.

Factor 12: High Competence in IS

High competence in IS should be a major factor in determining the appropriate role of the IS function in a firm and the feasibility of proposed business strategies that attempt to leverage IT for strategic purposes (Teo and King 1997). Companies with more distinctive competence in IS should be more likely to leverage IS systems for competitive advantage than companies with less distinctive competence in IS (Hu, Yang et al. 2012). According to Yeh, Lee et al. (2012), competence in IS should play a significant role in the successful integration between e-business systems functions and companies' management during the adoption process. Therefore, for this study, it is suggested that high competence in IS should have a positive influence on the adoption decision stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is developed:

P12: High competence in IS positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs.

Factor 13: Perceived E-business Value

In general, when decision makers perceive and experience overall organisational benefits of e-business systems, they are more likely to support successful e-business adoption in organisations (Lin 2008). Furthermore, Tallon (2007) has found a positive link between IT adoption and perceiving e-business value. Therefore, it is suggested that perceived e-business value should have a positive influence on the adoption decision stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is formulated:

P13: Perceived e-business value positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs.

Factor 14: Owner's Attitude toward Technology

According to Rogers' (2003) model of an individual's innovation-adoption process, formation of a favourable or unfavourable attitude toward an innovation takes place before a decision to adopt is made. In the case of SMEs, the chief decision maker is usually the owner. Hence, the owner's perception of the adoption of e-business systems is a key importance (Chuang TT., Nakatani K. et al. 2007). A degree of uncertainty happens as adoption of e-business systems is risky, and each owner will observe the degree of uncertainty or risk associated with e-business systems differently. If the owner observes the advantages of e-business systems adoption are more important than the risks, then the company is more likely to adopt e-business systems. Therefore, it is suggested that owner's attitude toward technology should have a positive influence on the adoption decision stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is suggested:

P14: Owner's attitude toward technology positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs.

Factor 15: Knowledgeable Employees Attitude toward Technology

The knowledgeable employees' perceptions of new technological innovations play a significant role in the adoption of IT. Furthermore, their innovativeness and favourable attitude toward novel technology positively influences the adoption of IT in organisations (Abdul Hameed M. and Counsell S. 2012). According to Rogers (2003), the creation of attitude toward an innovation happens before a decision to adopt has been made. Favourable attitudes of knowledgeable employees contribute to all stages of the technological innovation adoption process. In the initiation stage, knowledgeable employees support developing awareness among the organisational staff, in the adoption decision stage they are responsible for assigning essential resources and in the implementation stage they can generate an environment for a flat integration into the organisational setting (Abdul Hameed and Counsell 2012). Mehrtens, Cragg et al. (2001) found a direct connection between knowledgeable employees' positive attitude toward e-business systems adoption and success of the adoption process. Therefore, for this study, it is suggested that knowledgeable employees' attitude toward technology should have a positive influence on the adoption decision stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is derived:

P15: Knowledgeable employees' attitude toward technology of e-business systems positively influences the adoption decision stage of the e-business adoption process by Saudi SMEs.

Table 4.3: Research propositions for adoption decision stage

Propositions Description		Relevant Literature Sources
P8	Communication positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs	Frambach and Schillewaert (2002); Wilson and Davies (2008)
P9	e-Business law positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs	Fitzgerald, et al. (2007); Iddris (2012)
P10	Customer readiness positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs	Jutla, Bodorik et al. (2002); Ho and Ko (2008)
P11	Low level of security concerns positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs	Pearson and Grandon (2006); Alam, Khatibi et al. (2008); Abu Abid, Rahim et al.(2011)
P12	High competence in IS positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs	Teo and King (1997); Yeh, Lee et al. (2012); Yeh, Lee et al. (2012)
P13	Perceived e-business value positively influences the adoption decision stage of e-business systems adoption process by Saudi SMEs	Tallon (2007); (Lin 2008)
P14	Owner's attitude toward technology positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs	Rogers' (2003); Chuang, Nakatani et al. (2007)
P15	Knowledgeable employees attitude toward technology positively influences the adoption decision stage of the e-business systems adoption process by Saudi SMEs	Mehrtens, Cragg et al. (2001); Rogers (2003); Abdul Hameed and Counsell (2012)

Propositions on the Factors Affecting the Implementation Stage of E-business Systems

A total of four propositions (i.e. P16 to P19) were formulated for the implementation stage of the e-business systems adoption process in SMEs. Table 4.8 includes the literature sources which were consulted to derive these propositions.

Factor 16: Training

McGowan and Madey (1998) proposed that the successful implementation of a complex innovation needs to be accompanied by a continuous learning process. Organisational learning factors, such as technical expertise, level of technological knowledge, and training availability, significantly influence innovation adoption. Devins, Johnson et al. (2004) argued that learning the practical knowledge required to practice a complex innovation is challenging for innovation adopters. Consequently, the level of training that a company's employees undertake in Enterprise Resource Planning (ERP) systems is positively related to adoption success. Therefore, training e-business systems may be necessary for recognising successful e-business systems adoption. It is therefore suggested that training should have a positive influence on the implementation stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is derived:

P16: Training of e-business systems positively influences the adoption decision stage of the e-business adoption process by Saudi SMEs.

Factor 17: High Competence in IS

High competence in IS should be a key factor in determining the appropriate role of the IS function in a firm and the feasibility of proposed business strategies that endeavour to leverage IT for strategic drives (Teo and King 1997). Companies with more distinctive competence in IS should be more likely to leverage IS systems for competitive advantage than are companies with less distinctive competence in IS (Hu, Yang et al. 2012). According to Yeh, Lee et al. (2012), competence in IS should play a significant role in the successful integration between e-business systems functions and companies' management during the implementation process. Thus, it is suggested that high competence in IS should have a positive influence on the implementation stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is formulated:

P17: High competence in IS positively influences the implementation stage of the e-business systems adoption process by Saudi SMEs.

Factor 18: Perceived e-Business Attributes

Obtainability of information about a technological innovation assists an organisation's management to be aware of the innovation and reduces the uncertainty about such innovation (Zmud and Apple 1989). Furthermore, Wilson, Daniel et al. (2008) stated that the availability and reliability of information about e-business system facilitates the decision to implement the e-business systems in SMEs. Therefore, it is suggested that perceived e-business attributes should have a positive influence on the implementation stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is suggested:

P18: Perceived e-business attributes of e-business systems positively influences the implementation stage of the e-business adoption process by Saudi SMEs.

Factor 19: Lower Level Employee's Attitude toward Technology

According to Davis, Bagozzi et al (1989), individual attitudes toward a behaviour are determined by individual affective beliefs about behavioural consequences. Furthermore, employee's attitude is expected to influence e-business systems implementation by SMEs (Ihlstrom and Nilsson 2003). Hence, it is suggested that lower level employee's attitude toward technology should have a positive influence on the implementation stage of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is offered:

P19: Lower level employee's attitude toward technology positively influences the implementation stage of the e-business systems adoption process by Saudi SME

Table 4.4: Research propositions for implementation stage

Propositions Description		Relevant Literature Sources
P16	Training positively influences the implementation stage of the e-business systems adoption process by Saudi SMEs	McGowan and Madey (1998); Devins, Johnson et al. (2004)
P17	High competence in IS positively influences the implementation stage of the e-business systems adoption process by Saudi SMEs	Teo and King (1997); Hu, Yang et al. 2(2012); Yeh, Lee et al. (2012)
P18	Perceived e-business attributes positively influences the implementation stage of the e-business systems adoption process by Saudi SMEs	Zmud and Apple (1989); Wilson, Daniel et al. (2008)
P19	Lower level employee's attitude toward technology positively influences the implementation stage of the e-business adoption process by Saudi SMEs	Davis, Bagozzi et al (1989); Ihlstrom and Nilsson (2003)

Propositions on the Common Factors Affecting the E-business Systems Adoption

A total of 10 propositions (i.e. P20 to P29) were suggested for the common factors which affect all three stages (i.e. *initiation*, *adoption decision*, and *implementation*) of the e-business systems adoption process in SMEs. Table 4.9 includes the literature sources which were consulted to derive these propositions.

Factor 20: Cost

In their study, Wymer and Regan (2005) found out of five different adoption groups, the only consistent factor that came out significant across all groups was the cost (i.e. cost to setup and maintain) of e-business systems. Moreover, Riemenschneider and McKinney (2002) found low e-business systems cost to be a motivator for e-business implementation. Furthermore, Beheshti and Salehi-Sangari (2007) argued that the cost of having and maintaining an e-business system has the highest implementation concern to SME managers. Therefore, for this study, it is suggested that low e-business systems cost should have a positive influence on all three stages of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is formulated:

P20: Low e-business systems cost positively influences all three stages of the e-business systems adoption process by Saudi SMEs.

Factor 21: Relative advantage

Relative advantage of an innovation is found to be a crucial variable in practically all studies related to innovation adoption (Tornatzky and Fleischer 1990). Rogers (2003) stressed that “It does not matter so much if an innovation has a great deal of objective advantage. What does matter is whether an individual perceives the innovation as advantageous” (p. 260). The current argument comprises relative advantage of e-business systems as one explanatory factor for e-business systems adoption. It is therefore suggested that relative advantage of e-business systems should have a positive influence on all three stages of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is suggested:

P21: Relative advantage positively influences all three stages of the e-business systems adoption process by Saudi SMEs.

Factor 22: External Pressure

According to Iacovou, Benbasat et al. (1995), the existence of two main sources of external pressure to adopt e-business systems are: pressure imposed by competitors, and trading partners. SMEs are further motivated to adopt e-business systems in order to preserve their position in relation to competitors. In addition, imposition from trading partners was found to be one of the key critical factors for e-business systems adoption by SMEs (Gunasekaran, McGaughey et al. 2009). Therefore, for this study, it is suggested that external pressure should have a positive influence on all three stages of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is derived:

P22: External pressure positively influences all three stages of the e-business systems adoption process by Saudi SMEs.

Factor 23: Management Support

Top management can stimulate change by reinforcing values and communicating through an articulated vision for the company (Thong 1999). Jeyaraj, Rottman et al. (2006) found management support to be one of the key factors of organisational adoption of IS innovations. Several studies found management support to be essential for creating a supportive environment for the adoption of new technologies (e.g. Simpson and Docherty 2004). In the context of SMEs, the adoption decision of e-business systems is more likely to be taken by one of the top management team. As such, it is suggested that management support should have a positive influence on all three stages of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is developed:

P23: Management support positively influences all three stages of the e-business systems adoption process by Saudi SMEs

Factor 24: Government Support Programs

The IT adoption literature emphasises the role of government support in the adoption of e-business systems (Scupola 2002). Most participating companies in a study of Gengatharen, Standing et al. (2005) agreed that government support could play a great role to increase the adoption of e-business systems among SMEs. Furthermore, the government can contribute to the adoption of e-business systems through training and information campaigns and government support programs. These programs have to be wisely targeted with the purpose of having a positive influence (Scupola 2002). Therefore, for this study, it is suggested that government support programs should have a positive influence on all three stages of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is formulated:

P24: Government support programs positively influence all three stages of the e-business systems adoption process by Saudi SMEs.

Factor 25: Uncertainty in Business Environment

According to Helo (2004), management attention is required in an unclear business environment to ensure that business direction is associated with outside changes. Furthermore, uncertainty in the business environment is one of the key factors that influence the adoption of e-business systems (Huang 2006). Since e-business systems appear to be more significant in today's continuously changing technological environment, it is suggested that uncertainty in the business environment should have a positive influence on all three stages of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is offered:

P25: Uncertainty in the business environment positively influences all three stages of the e-business systems adoption process by Saudi SMEs.

Factor 26: Owner-Manager Characteristics

According to Taylor and Murphy (2004), many factors have been considered as promoting commercial success between SMEs, most of which link to the internal rather than external circumstances of the company. Primary among these is owner-manager characteristics which include their motivation, experience and management skills. The IT literature has indicated that a range of consequences are expected, depending on owner-manager characteristics and their attitude toward e-business systems adoption by SMEs (e.g. Ihlstrom and Nilsson 2003; Oliveira and Martins 2010). Therefore, it is suggested that owner-manager characteristics should have a positive influence on all three stages of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is suggested:

P26: Owner-manager characteristics positively influences all three stages of the e-business systems adoption process by Saudi SMEs.

Factor 27: Organisational Readiness and Awareness

Literature on technology diffusion explicitly agrees that awareness about an innovation and its paybacks and availability of human, technological and business resources of a firm is an important factor that may affect the adoption or rejection of the innovation (Hartman, Sifonis et al. 2000). Furthermore, Gilaninia, Mousavian et al. (2012) in their study about the role of organisational readiness for the acceptance of e-business systems found that organisational readiness and awareness has positively influenced the adoption of e-business systems in SMEs. It is thus suggested that organisational readiness and awareness should have a positive influence on all three stages of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is formulated:

P27: Organisational readiness and awareness positively influences all three stages of the e-business systems adoption process by Saudi SMEs.

Factor 28: Trading Partners' Readiness

According to Barua, Konana et al. (2004) partner readiness can be defined as the degree to which trading partners have the systems ready to conduct transactions on the Internet platform. Exchanging information and service on-line requires all trading partners to set up compatible electronic systems (Premkumar G., Ramamurthy K. et al. 1997). Consequently, Zhu, Kraemer et al. (2003) indicated that a company's use of e-business systems may be affected by the readiness of partners in the trading community. Therefore, for this study, it is suggested that trading partners' readiness should have a positive influence on all three stages of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is developed:

P28: Trading partners' readiness positively influences all three stages of the e-business systems adoption process by Saudi SMEs.

Factor 29: Organisational Culture

An organisation's culture can either accelerate or obstruct innovation adoption (Rogers 2003). Furthermore, Škerlavaj, Štemberger et al. (2007) stated that one characteristic common in several IT adoption models is the view that organisational culture is essential to any change initiative. Organisational culture has been reported to have a significant influence on the adoption process of e-business systems in SMEs (e.g. Dholakia and Kshetri 2004; Alam 2009). Therefore, for this study, it is suggested that organisational culture should have a positive influence on all three stages of the e-business systems adoption process for the context of Saudi SMEs. Hence, the following proposition is suggested:

P29: Organisational culture positively influences all three stages of the e-business systems adoption process by Saudi SMEs.

Table 4.5: Research propositions for the common factors

Propositions Description		Relevant Literature Sources
P20	Low e-business systems cost positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Riemenschneider and McKinney (2002);
P21	Relative advantage positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Tornatzky and Fleischer (1990); Rogers (2003)
P22	External pressure positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Iacovou et al. (1995) ; Gunasekaran, McGaughey et al. (2009)
P23	Management support positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Thong (1999); Jeyaraj, Rottman et al. (2006)
P24	Government support programs positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Simpson and Docherty (2004); Vega et al. (2008)
P25	Uncertainty in the business environment positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Helo (2004); Huang (2006)
P26	Owner-manager characteristics positively influence all three stages of the e-business systems adoption process by Saudi SMEs	Ihlstrom and Nilsson, (2003); Taylor and Murphy (2004); Oliveira and Martins (2010)
P27	Organisational readiness and awareness positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Hartman, Sifonis et al. (2000); Gilaninia, Mousavian et al. (2012)
P28	Trading partners' readiness positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Zhu, Kraemer et al. (2003); Barua, Konana et al. (2004)
P29	Organisational culture positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Rogers(2003); Škerlavaj, Štemberger et al. (2007)

4. 8 Summary

This chapter provided a detailed description about the development of the research model to address the research questions. Next, the chapter described a process for shortlisted the factors which were eventually included in the research model. An evaluation of the model by an online panel of experts was then discussed. Drawing on the feedback of the experts, a revised research model was developed and a set of propositions were derived. The next chapter provides a description of the SMEs which took part in this study.

CHAPTER 5: DESCRIPTION OF CASE ORGANISATIONS

5.0 Introduction

This chapter consists of three sections. Section 5.1 provides a brief overview of the SME sector in Saudi Arabia. Section 5.2 provides a brief description of each of those Saudi SMEs which took part in this study. Section 5.3 concludes the chapter.

5.1 Brief Description of Saudi SMEs

SMEs represent 96% of total businesses in Saudi Arabia (Council of Saudi Chambers 2010). They have thus an important role in creating job opportunities for the workforces in Saudi Arabia. Furthermore, about 95% of commercial registrations in Saudi Arabia are SMEs, and 71% of all industrial establishments are also SMEs (Shaikh 2009). In Saudi Arabia, in total there are more than 700,000 active SMEs. About 47% of these SMEs take part in commercial and hotel services, 27% in manufacturing, 12% in industry, 6% in social services and 8% in other sectors (Shaikh 2009). However, SMEs contribute to 28% of total national economic activity in Saudi Arabia (Hertog 2010).

Several reports (e.g. Hertog 2010) indicate that Saudi SMEs are characterised by the presence of a diverse workforce. In general, the cheap labor force employed from such countries as Pakistan, India, Sudan, and Yemen serve in the lower level operational role. The management layer consists of two groups of distinct individuals. One group is Saudi citizens who serve as owners and retain the absolute authority for recruitment and strategic business decisions. However, day-to-day operations are managed by expatriate educated managers who often have very good management and technical skills (Hertog 2010).

Like many other nations, SMEs in Saudi Arabia suffer from lack of financial, technological, and management skills. To address these constraints, in the Eighth Development Plan (2005 - 2009), the Saudi government has designed two specific programs: Management Assistance Program (MAP) and Financial Assistance Program (FAP). MAP is delivered through SME development centres which are located at chambers of commerce in the 13 provinces. These centres are intended to provide free consulting and advisory services in such fields as marketing for start-up, investment opportunities and feasibility studies. They are mainly initiated to help entrepreneurs start their business in the right way, and training programs in a particular topic to improve the competitiveness of SMEs. In addition, the SME development centres offer awards for best to performance SMEs in selected sectors, hold periodical entrepreneur meetings to discuss SME issues, discover appropriate solutions to them, and hold seminars, lectures, and workshops that help increase awareness about the significant role of SMEs in the economy, and other related issues. These centres even provide information to assist start-ups and SMEs to adopt innovative technological ideas and give an opportunity for their implementation (Council of Saudi Chambers 2010).

In contrast, financial assistance to Saudi SMEs is administrated via the Kafala program. This program represents cooperation between the Ministry of Finance and Saudi banks. This program targets the promotion of financing to SMEs within Saudi Arabia. The notion of this program is that, the banks provide funds to an owner of a SME up to SR 2 million (AUD 533,000), and concurrently, the Saudi Industrial Development Fund (SIDF-Kafala) program provides a guarantee to the bank, covering up to 80% of the funding amount (SIDF 2010).

The program is designed to deliver much needed funds to SMEs in order to increase the number of SMEs, expand the activities of existing SMEs to upgrade efficiency and operation by adopting new technologies and strategies (SIDF 2010). This distinctively interesting landscape of manpower and government supported SME programs are quite unique to the Saudi SMEs' context as opposed to many Western nations.

5.2 A Review of Case Organisations

A total of 20 organisations including 10 gas and petrochemical manufacturing companies, and 10 service (hotel and retail) companies participated in this study. The business and organisational characteristics of participating SMEs from both sectors are discussed in the following sections. The similarities and differences among both sectors are highlighted.



Source: http://www.saudiembassy.net/about/country-information/map_of_provinces.aspx (2012)

Figure 5.1 Locations of participating SMEs for both sectors

5.2.1 Manufacturing SMEs

Ten SMEs from manufacturing sector participated in this study. All these SMEs are located in the main provinces of Saudi Arabia (i.e. Makkah, Riyadh, and Eastern Province) (Figure 5.1). Seven participating SMEs revealed their annual sales. The annual sales for these companies ranged from SAR 0.4 million (AUD 106.6 million) up to SAR 100 million (AUD 26.6 million). However, another three SMEs (i.e. MAN1, MAN4, and MAN6) hesitated to reveal the annual sales of their companies. The number of employees for these SMEs also varied. Based on the definition of SMEs presented in Section 2.2.1, four companies were categorised as medium size companies because the number of employees was between 60 to 99 employees. Another four companies were considered to be small size company due to the number of employees range from 10 to 59 employees. Finally, two companies were identified as micro sized due to having less than 10 employees.

It was observed that most of the participating SMEs from the manufacturing sector mainly invested in laboratories' equipment and materials, chemistry consulting companies, chemical analytical instruments, and Geographic Information System (GIS) services. Three SMEs from this sector were in the market for more than 19 years. Four SMEs were in operation for less than five years. Finally, three SMEs were in business for roughly 10 years. Only one SME was found to be in the adoption decision stage of the e-business systems adoption process. Moreover, six SMEs from the manufacturing sector were in the implementation stage. In contrast, three SMEs from the manufacturing sector were in the initiation stage of the e-business systems adoption process.

The type of e-business commonly used by participating SMEs from this sector was B2C. For example, five SMEs either will be using or had already used B2C e-business systems. Only one SME had already used the B2E e-business type and four SMEs either will be using or had already used B2B the e-business type. Table 5.1 summarises the business and organisational characteristics of participating SMEs from the manufacturing sector.

Brief Description of each Participating SMEs from the Manufacturing Sector

During the data collection period, the researcher was resident in Abha which is the capital city of the Asir region. In addition, it is the researcher's home city. This required traveling to many others provinces inside the Kingdom of Saudi Arabia for the purpose of collecting data for this study. The following sections provide detailed information about each company of the participating SMEs in this study.

MAN 1: This case organisation represents a medium size manufacturing company. It is situated in the Eastern province of Saudi Arabia. The researcher travelled to this company's location via airplane. The company has been in operation for 37 years and has 90 employees. Moreover, this company is working in the field of independent laboratories and materials testing. An interview was conducted with the quality manager of this company who has a bachelor degree in protection engineering and he has been working in the company for three years. This interview took place at the company premises and lasted for 30 minutes. The interview ran smoothly but sometimes it was interrupted by the company staff who needed the manager's attention to deal with certain matters. The manager indicated the existence of three IT staff in the company. This company was in the initiation stage of the e-business system adoption process. Therefore, they were planning to adopt a B2C e-business system. It

was utilised to make all company activities online, and exchange products and services with suppliers and customers.

MAN 2: It is a micro size (which has eight employees) manufacturing business. It is located in the Eastern province of Saudi Arabia. This company has been in business for two years. This company provides chemical consultancy for companies which are working in the gas, oil and petrochemical industries. Likewise, it provides feasibility studies for new chemical companies, consultancy for environmental studies, importing of chemical-related technologies and chemical products. In addition, this company provides recruitment services in the chemical industry. The annual sales for this company are about SAR 400,000 (AUD 0.1 million). An interview was undertaken with the owner of this company who has a bachelor degree in chemistry. In addition, this interview took place at the company's site and it took around 35 minutes. The owner indicated the company has only one IT employee and it was in the initiation stage of the e-business system adoption process. Therefore, the intention was to adopt a B2C e-business solution which helped customers to purchase and view the company's products online.

MAN 3: This organisation was a small sized company and is situated in Riyadh province of Saudi Arabia. This company has been in operation for 20 years and has 40 employees. It was considered a leading supplier of analytical instruments. The annual sales are about SAR 20 million (AUD 5.3 million). An interview was conducted with the project manager who has a bachelor degree in science. This manager has been with the company for four years. The interview took place at the company's location and it took around 40 minutes. The manager indicated the existence of three IT employees and that the company was in the initiation stage of the e-business system adoption process. Therefore, they planned to adopt a B2C e-business system which helped to move to online trading instead of the traditional way of trading.

MAN 4: This is a medium sized manufacturing company which is situated in the Eastern Province of Saudi Arabia. It has been in operation for nine years and has 90 employees. The company provides geological and environmental research, and imports laboratory equipment. In addition, it provides GIS services for universities, hospitals and several governmental ministries. An interview was undertaken with the GIS project manager of this company who has a bachelor degree in information systems. In addition, this interview took place at the company's premises and it took around 30 minutes. The manager indicated the company has three IT employees and it was in the adoption decision stage of the e-business system adoption process. Thus, they decided to adopt a B2B e-business solution which helps to perform all business functions related to e-business such as sales and inventory.

Table 5.1: A summary of the characteristics of participating manufacturing SMEs

Cases	Location	Nature of Business	Annual Sales (Million/SAR)	No. of Employees	Years of Operation	E-business stage	Type of e- business	Size of Business
MAN 1	Eastern Province	Independent testing laboratories material content company	Not Provided	90	37	Initiation	Internet based system (B2C)	Medium
MAN2	Eastern Province	Chemistry consulting company	0.4	8	2	Initiation	Internet based system (B2C)	Micro
MAN 3	Riyadh	A leading supplier of analytical instruments	20	40	20	Initiation	Internet based system (B2C)	Small
MAN4	Eastern Province	Geological and environmental research, and import laboratory equipment	Not Provided	90	9	Adoption Decision	Intranet based system (B2B)	Medium
MAN 5	Makkah	Supply and installation of laboratory equipment	9	15	3	Implementation	Intranet based system (B2E)	Small
MAN 6	Makkah	Sales and services of laboratory and analytical equipment	Not Provided	7	1	Implementation	Internet-based system (B2B)	Micro
MAN 7	Makkah	The company mainly works in chemical analysis instruments	80	65	10	Implementation	Internet-based system (B2B)	Medium
MAN 8	Makkah	Services company in chemical analysis, and laboratory testing in wide range of services	1	50	2	Implementation	Internet-based system (B2B)	Small
MAN 9	Riyadh	Service and equipment provider for laboratories which serve petrochemical companies, and universities.	50	40	25	Implementation	Internet-based system (B2C)	Small
MAN 10	Riyadh	Analytical instrumentation trading company and service analytical instrument for laboratory use.	100	70	10	Implementation	Internet-based system (B2C)	Medium

* MAN: participating SMEs from manufacturing sector, 1 AUD = 3.7743 SAR

MAN 5: This company was a small sized organisation. It is located in the Makkah Province of Saudi Arabia. This company has been in operation for three years and has 15 employees. It was mainly importing and installing the chemical laboratory equipment. The annual sales were about SAR nine million (AUD 2.4 million). An interview was conducted with the sales manager who has a bachelor degree in telecommunication engineering. This manager has been associated with this company for three years. The interview took place at the company's site and it took around 45 minutes. The manager indicated that the company had no IT employees as they are dealing with an external software company which provides technical solutions. The company was in the implementation stage of the e-business system adoption process. They implemented a B2E e-business system which is used to follow up the requests of customers, and to see the running of this enquiry within the company, so that this request can become an official order from the customer, and to show the customer, the progress of his order moment-by-moment.

MAN 6: It was a micro size manufacturing company and is located in the Makkah Province of Saudi Arabia. This company has been in business for only one year and has seven employees. It provides sales and services of chemical laboratory and analytical equipment. An interview was undertaken with the service manager of this company who has a master degree in chemistry. In addition, this interview took place at the company's premises and it took around 33 minutes. The manager indicated the company has one IT employee and it was in the implementation stage of the e-business system adoption process. They had implemented a B2B e-business solution which assisted the company to exchange products and services with their customers.

MAN 7: This company was a medium sized manufacturing company with 65 employees. It was located in the Makkah Province of Saudi Arabia. This company joined the market in 2002. This company mainly works with chemical analysis instruments and also imports medical equipment from several international companies. The annual sale for this company is about SAR 80 million (AUD 21.3 million). An interview was conducted with the director of the company in the Western region of Saudi Arabia who has a bachelor degree in chemistry. In addition, this interview took place at the company's premises and it took around 25 minutes. The director indicated the company has three IT employees and it was in the implementation stage of the e-business system adoption process. They had implemented a B2B e-business solution. This solution is called NTFS system which helps customers to lodge price orders, maintain enquiries, and place online orders for specific equipment or services.

MAN 8: It was a small sized manufacturing company which is located in Makkah Province of Saudi Arabia. This company has been in business for two years and has 50 employees. It provides chemical analysis, and laboratory testing in a wide range of products. The annual sales for this company are about SAR one million (AUD 0.26 million). An interview was undertaken with the business development specialist of the company who has a master degree in project management. In addition, this interview took place at the company's site and it took around 40 minutes. The manager indicated the company has two IT employees and it was in the implementation stage of the e-business system adoption process. Thus, they had implemented a B2B e-business solution which enables them to perform several business functions online, such as anything related to sampling, accounting, and client interaction with the company.

MAN 9: This company was a small sized manufacturing company. It is situated in the Riyadh Province of Saudi Arabia. This company has been in operation for 25 years and it has 40 employees. This company is investing in laboratory equipment. The annual sales for this company are about SAR 50 million (AUD 13.3 million). An interview was undertaken with the project manager of the company who has a bachelor degree in electronic engineering. In addition, this interview took place at the company's location and it took around 35 minutes. The manager indicated the company has two IT employees and it was in the implementation stage of the e-business system adoption process. Thus, they implemented a B2C e-business solution. This solution is called the SAGE system, and is available online, which helps all of the company's employees to access their 'desk' from anywhere in the globe and prepare a quotation, follow up sales enquiries, assign work to any employee, and define tasks.

MAN 10: This company was a medium sized manufacturing company and has 70 employees. It was situated in the Riyadh Province of Saudi Arabia. This company has been in operation for 10 years. This company was primarily investing in analytical instrumentation trading with a lot of manufacturers to sell, supply, and service analytical instrument for laboratory use. The annual sales for this company are about SAR 100 million (AUD 26.6 million). An interview was conducted with the sales manager of the company who has a master degree in chemistry. In addition, this interview took place at the company's location and it took around 35 minutes. The manager indicated the company has four IT employees and it was in the implementation stage of the e-business system adoption process. Thus, they implemented a B2C e-business solution which enables them to perform several business functions online such as purchasing and sales.

5.2.2 Service SMEs

Ten SMEs from the service sector also participated in this study. Out of 10 SMEs, only two were located in the Riyadh Province and the remaining SMEs were located in Asir Province (Figure 5.1). Seven participating SMEs revealed their annual sales. The annual sales for these companies range from SAR 0.45 million (AUD 1.2 million) up to 30 (AUD 8 million). While another three SMEs (i.e. SER12, SER13, and SER16) did not reveal the annual sales of their companies.

The number of employees for these SMEs also varied. Based on the definition of SMEs (presented in Section 2.2.1), four companies were categorised as medium sized companies because the number of employees was between 60 to 99 employees. Another four companies are considered a small size company because their number of employees ranged from 10 to 59. Finally, two companies were identified as micro sized as they had less than 10 employees. The nature of business for participating SMEs from this sector varies. These companies provide plumbing services, media, and hospitality services.

Three SMEs from this sector have been in the market for more than 19 years. Four SMEs have been in operation between 12 to 15 years. In contrast, three SMEs have been in business for less than seven years. Only one SME was found to be in the adoption decision stage of the e-business systems adoption process. Four SMEs from the service sector were in the implementation stage. In contrast, five SMEs were in the initiation stage of the e-business systems adoption process.

The type of e-business commonly used by participating SMEs from this sector was B2C. For example, seven SMEs either will be using or have already used a B2C e-business system.

Two SMEs have already used the B2E e-business type and one SME either will be using or has already used the B2B e-business type. Table 5.2 summarises the business and organisational characteristics of participating SMEs from the service sector.

Brief Description of each Participating SMEs from the Service Sector

SER11: This company was a micro sized service company and is situated in the Riyadh Province of Saudi Arabia. This company has been in operation for seven years and it had seven employees. This company was mainly providing training and consultancy in human resources and organisation performance. The annual sales for this company are about SAR 6 million (AUD 1.6 million). An interview was conducted with the owner of the company who has a bachelor degree in electrical engineering. In addition, this interview took place at the company's premises and it took around 40 minutes. The owner indicated the company has one IT employee. In addition, it was in the initiation stage of the e-business system adoption process. Thus, they were planning to adopt a B2C e-business solution which will provide information for the company's customers about their services, and enable the customers to perform online booking for the appropriate course that they were willing to undertake and make an online payment via credit card. In addition, they are planning to adopt a Customer Relationship Management (CRM) system which will be integrated with the e-business system.

SER12: It was a medium sized service company. This company was located in the Asir Province of Saudi Arabia. This company has been in the market for 15 years and has 85 employees. This company was providing services which related to the advertising industry, such as advertising boards. An interview was undertaken with the deputy director of the company who just has a secondary school certificate. The director has been associated with this company since 2008. In addition, this interview took place at the company's site and it took around 30 minutes. The director indicated the company has three IT employees and it was in the initiation stage of the e-business system adoption process. They were planning to adopt a B2B e-business system which will help the company's customers to buy the company's products online.

SER13: This company was a small sized service company with 10 employees. It was located in the Asir Province of Saudi Arabia. The company has been operating for 20 years and selling medical equipment. An interview was conducted with the sales manager of the company who has a bachelor degree in pharmacy and has been associated with the company since 2001. Furthermore, this interview took place at the company's premises and it took around 38 minutes. The manager indicated that the company has no IT staff, but they are planning to open a new IT department. In addition, it was in the initiation stage of the e-business system adoption process. They were planning to adopt a B2C e-business application which will enable customers to buy company products online.

Table 5.2: A summary of the characteristics of participating service SMEs

Cases	Location	Nature of Business	Annual Sales (Million/SAR)	No. of Employees	Years of Operation	E-business stage	Type of e- business	Size of Business
SER 11	Riyadh	Training and consultancy	6	7	7	Initiation	Internet based system (B2C)	Micro
SER 12	Asir	media services	Not Provided	85	15	Initiation	Intranet based system (B2B)	Medium
SER 13	Asir	Selling medical equipment	Not Provided	10	20	Initiation	Internet based system (B2C)	Small
SER 14	Asir	Providing media services	450,000	11	4	Initiation	Internet based system (B2C)	Small
SER 15	Asir	Selling American car parts	2 millions	4	2	Initiation	Internet based system (B2C)	Micro
SER 16	ASir	Providing hospitality services	Not Provided	88	15	Adoption Decision	Internet based system (B2C)	Medium
SER 17	Asir	Providing hospitality services	5	83	12	Implementatio n	Internet based system (B2C)	Medium
SER 18	Riyadh	Importing plumbing equipment and selling them in Saudi market	30	49	50	Implementatio n	Intranet base system (B2E)	Small
SER 19	Asir	Importing American cars to sell them in Saudi market	15	30	20	Implementatio n	Internet based system (B2E)	Small
SER 20	Asir	Providing hospitality services	6 millions	80	12	Implementatio n	Internet based system (B2C)	Medium

* SER: participating SMEs from service sector, 1 AUD = 3.7743 SAR

SER14: It was a small sized service company. This company was situated in the Asir Province of Saudi Arabia. This company has been in operation for four years and has 11 employees. This company was providing media services. The annual sales for the company was about SAR 0.45 million (AUD 0.12 million). An interview was conducted with the deputy director of the company who just has a secondary school certificate. The director has been associated with this company since 2009. Moreover, this interview took place at the company's premises and it took around 38 minutes. The director indicated the company has three IT employees and it was in the initiation stage of the e-business system adoption process. They were planning to adopt a B2C e-business system which will help the company's customers to buy and create online orders for the company's products.

SER15: This company was a micro sized service company. It was situated in the Asir Province of Saudi Arabia. This company has been in operation for two years and has four employees. The nature of this company was selling American car parts. The annual sales for this company are SAR 2 million (AUD 0.53 million). An interview was conducted with the general manager of the company who has a high school certificate and joined the company in 2009. Furthermore, this interview took place at the company's location and it took around 30 minutes. The manager indicated the existence of one IT staff. In addition, it was in the initiation stage of the e-business system adoption process. They were planning to adopt a B2C e-business system which will enable customers to buy and order company products online.

SER16: This company was a medium sized service company with 88 employees. It was located in the Asir Province of Saudi Arabia and has been in the market for 15 years. The company belonged to the hospitality industry. An interview was conducted with the IT manager of the company who has a master degree in computer science and has been associated with the company since 2009. Furthermore, this interview took place at the company's premises and it took around 35 minutes. The manager indicated the existence of six IT staff. In addition, it was in the adoption decision stage of the e-business system adoption process. Thus, they decided to adopt a B2C e-business system which will enable exchange of services and information with the customers online.

SER17: It was a medium sized service company which was situated in the Asir Province of Saudi Arabia. This company has been in operation for 12 years and has 83 employees. It provides hotel services. The annual sales for the company are SAR five million (AUD 1.3 million). An interview was conducted with the general manager of the company who has a bachelor in Islamic studies and has been in the company for seven years. Furthermore, this interview took place at the company's premises and it took around 30 minutes. The manager indicated the presence of one IT staff. In addition, it was in the implementation stage of the e-business system adoption process. Thus, they implemented a B2C e-business application which included online booking, and online payment systems.

SER18: This was a small size service company and was located in the Riyadh Province of Saudi Arabia. This company has been in existence for 50 years and it had 49 employees. It was importing plumbing equipment from overseas and selling it in the Saudi market. The annual sales for the company are SAR 30 million (AUD 8 million). An interview was conducted with the general manager of the company who has a bachelor in commerce and has been associated with the company for 18 years. Furthermore, this interview took place at the company's location and it took around 37 minutes. The manager indicated the presence of one IT staff. In addition, it was in the implementation stage of the e-business system adoption

process. They implemented a B2E e-business application which helped to link all branches of the company with the main office online that helps all employees to exchange information with each other.

SER19: It was a small sized service company which was situated in the Asir Province of Saudi Arabia. This company has been in the market for 20 years and has 30 employees. It was an agency for cars, from Jeep, and Chrysler in Saudi Arabia. The annual sales for the company are SAR 15 million (AUD 4 million). An interview was conducted with the sales manager of the company who has a secondary school certificate and who joined the company 20 years ago. Furthermore, this interview took place at the company's premises and it took around 35 minutes. The manager indicated the existence of two IT staff. In addition, it was in the implementation stage of the e-business system adoption process. They implemented a B2E e-business system. This system was called 'Craig' which enables the company's employees to explore what type of car is available in the market, the car's location, and performs a booking for the car.

SER20: This was a medium sized service company with 80 employees. It was located in the Asir Province of Saudi Arabia and has been in operation for 12 years. It was providing a hotel services. The annual sales for the company were SAR 6 million (AUD 1.6 million). An interview was conducted with the marketing manager of the company who has a bachelor degree in arts and has been associated with the company for 10 years. Additionally, this interview took place at the company's building and it took around 38 minutes. The manager indicated the existence of three IT staff. In addition, it was in the implementation stage of the e-business system adoption process. Thus, they implemented a B2C e-business system which provides several services such as a booking system which includes online payment system.

5.3 Summary

This chapter has provided a brief description of participating 20 SMEs operating in the manufacturing and service sectors of Saudi Arabia. The next chapter, based on a case study approach, describes the empirical findings on how various factors had influenced each of the three stages of the e-business systems adoption process of these SMEs.

CHAPTER 6: CASE STUDY FINDINGS-Part1

6.0 Introduction

This chapter presents the case study findings regarding the influence of a range of factors on three stages of the e-business systems adoption process among the participating Saudi SMEs. The chapter consists of three sections. Section 6.1 provides a brief overview of the e-business adoption stages. Section 6.2 presents the empirical findings regarding the influence of seven factors that affect initiation stage of e-business systems adoption process in those SMEs. In Section 6.3, the findings of the influence of the eight factors which affect the adoption decision stage are offered. Section 6.4 presents the findings of the influence of four factors which affect the implementation stage of the e-business systems adoption process in Saudi SMEs. Finally, a high level summary of the chapter is provided in Section 6.5.

6.1 E-business Adoption Stages

The e-business systems adoption process is conceptualised in terms of three distinct stages (*initiation*, *adoption decision*, and *implementation*) which are shown in the revised research model in Figure 4.8. The model includes two types of factors, *common factors* (which affect all these three stages) and *stage factors* (which affect each individual stage). The remaining sections of this chapter describe the influence of the stage factors based on the case data analysis.

6.2 Initiation Stage

Drawing on the views expressed by Rogers (2003), for this study the initiation stage is defined as the stage which is concerned with gathering and evaluating information by SMEs about an e-business system. From the case study analysis, a total of eight SMEs were considered to be in the initiation stage of the e-business systems adoption process. These include three manufacturing SMEs (i.e. MAN1, MAN2, and MAN3) and five service SMEs (i.e. SER11, SER12, SER13, SER14, and SER15). According to the research model (Figure 4.8), a total of seven factors are expected to influence the initiation stage of the e-business system adoption process of these SMEs. In the following sections, a discussion of the empirical evidence of each of the factors shown in Figure 6.1 is provided.

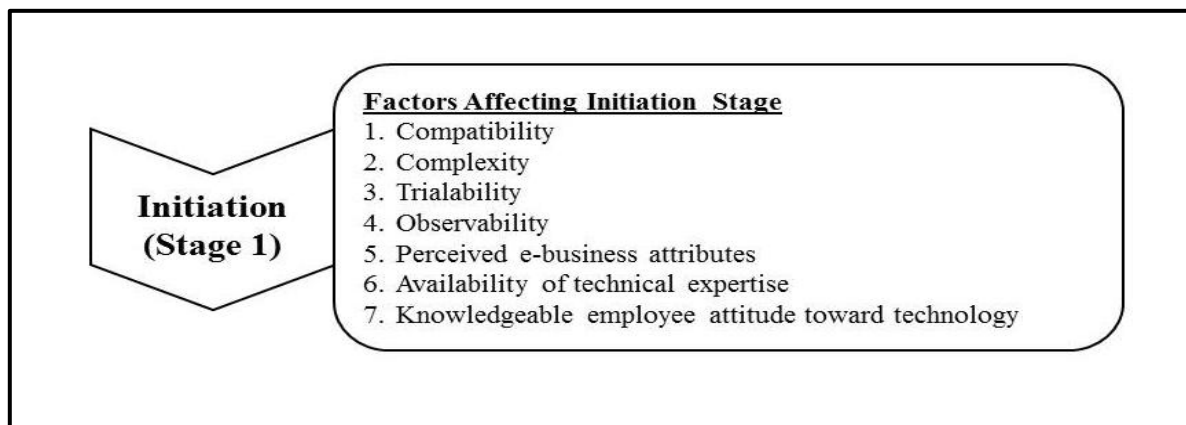


Figure 6. 1: Factors affecting initiation stage

Factor1: Compatibility

Drawing on the views expressed by Rogers (2003) and Balocco, Perego et al. (2010), compatibility is defined as the consistency between the existing technology infrastructure, culture, goals, values, preferred work practices, company's business model, and IT background of employees working within a firm with the e-business system that a company is implementing. It is operationalised in terms of five indicators which were reported in Section 3.11 (and in Appendix E) and are reproduced to help interpret the case study findings: a) compatibility of e-business with company's goals (I1), b) compatibility of e-business with company's values (I2), compatibility of e-business with company's preferred work practice (I3), compatibility of e-business with company's business model (I4), and compatibility of e-business with employees' IT background (I5). Out of those eight SMEs which were at the e-business initiation stage, six (i.e. MAN2, MAN1, SER12, SER11, MAN3, and SER15) regarded compatibility to have a strong positive influence, and the remaining two SMEs (i.e. SER13 and SER14) considered compatibility to have no relevance to the initiation of e-business systems. Thus, no SMEs indicated a negative influence of compatibility on e-business systems initiation for these SMEs. Figure 6.2 summarises the influence of the compatibility on the initiation stage of e-business systems adoption.

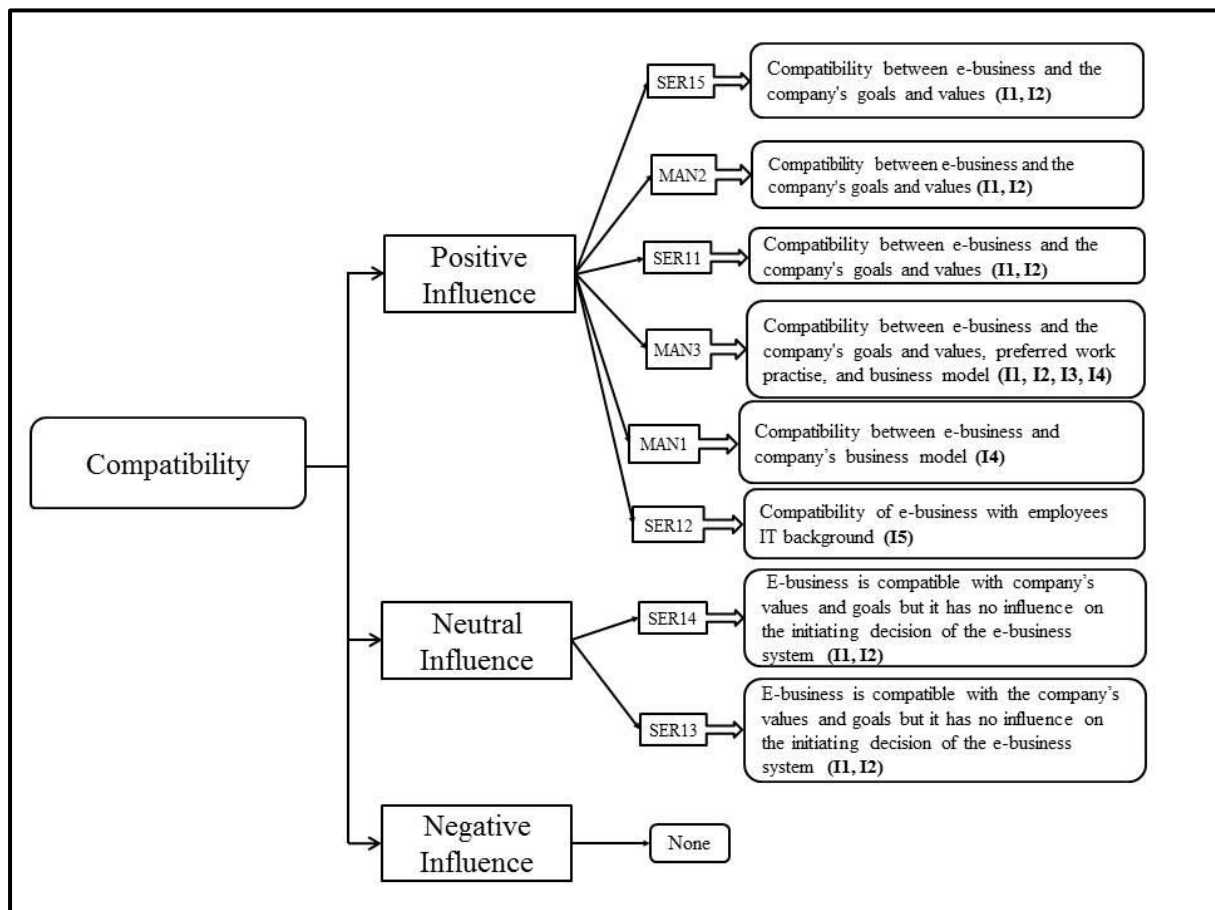


Figure 6.2: Influence of compatibility on the initiation stage

Those six SMEs which reported a positive influence of compatibility indicated that such indicators as the compatibility between their companies goals with e-business (I1) and the compatibility between the companies value with e-business (I2) positively contributed to the initiation of e-business systems in these SMEs. For example, the owner of MAN2 remarked *“I think these systems are consistent with the goals and values of our company. Therefore, it was the reason that we thought of initiating these systems in our company”*. This sentiment was also shared by the owner of SER11 who added *“There is no doubt that e-business systems are compatible with our values and goals. So, this factor has somewhat influenced our decision to initiate e-business systems, but it is not the principal factor”*. Similar views were expressed by the managers of SER12, MAN3 and SER15.

In contrast, those two SMEs which considered that the compatibility of e-business systems has no influence on their decision to initiate e-business systems, acknowledged that their e-business systems are compatible with their companies' goals (I1) and values (I2) but such compatibility had no influence on their decision. According to the manager of SER13 *“It should be compatible with our values and goals. I think the compatibility of e-business systems with the company's values and goals has no influence on the initiating decision of e-business system”*. Similar views were expressed by the manager of SER14 who stated *“I believe there is no conflict between e-business systems and our business values and goals. However, we do not think that this compatibility of e-business systems with the company goals and values has any influence on our selection of e-business systems”*. No empirical evidence was found to suggest negative influence of compatibility on the participating SMEs' decision to initiate e-business systems in their companies.

A review of the case study evidence further suggests that those eight SMEs which were at the initiation stage of e-business demonstrated a different number of indicators to reflect the influence of compatibility on their initiation of e-business systems. It is observed that such indicators as 'the compatibility of e-business systems with companies' preferred work practice (I3)', 'business model (I4)', and 'employee IT background (I5)' were less frequently cited. Whereas, 'the compatibility between the e-business systems companies' goals (I1)' and 'the compatibility between the e-business systems companies' values (I2)' were leading indicators to reflect the influence of compatibility on the initiation decision of e-business systems by most of the participating SMEs. Despite such compatibility, only six SMEs however believed that this factor has positively influenced their initiation of such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that compatibility has 'strong positive influence' on the SMEs' initiation of e-business systems. A rich discussion of these observations in terms of industry sector and comparison with the views expressed in the existing literature is provided in Chapter 8. Figure 6.3 presents the frequency of the compatibility indicators cited by the participating Saudi SMEs.

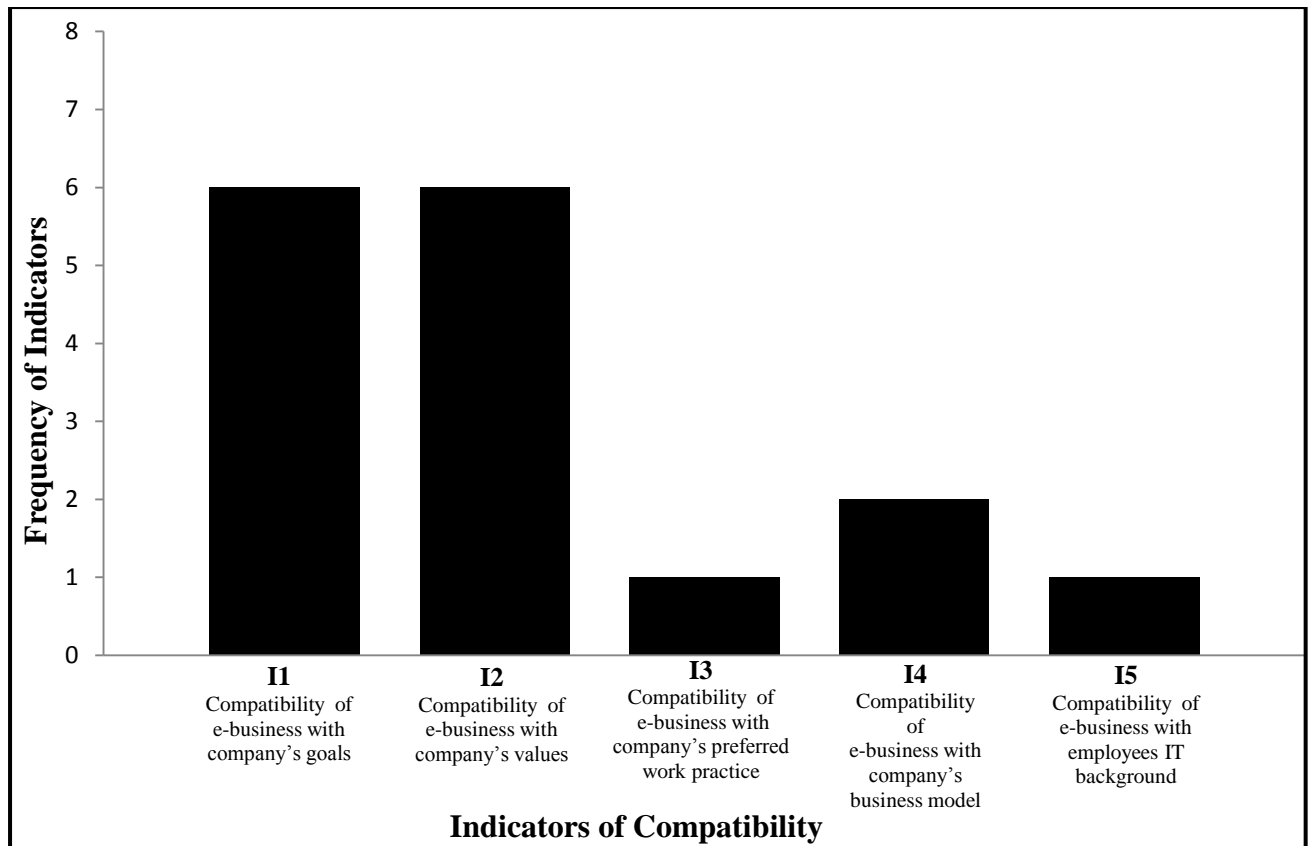


Figure 6.3: Indicators of compatibility presented by the participating SMEs

Factor2: Complexity

Complexity refers to “the degree to which an innovation is perceived as relatively difficult to understand and use” (Rogers 2003, p. 257). It is operationalised in terms of four indicators which are reported in Section 3.11 (and in Appendix E) and are reproduced to help interpret the case study findings: a) perceived low level of e-business complexity (I1), b) ease of using e-business (I2), c) no idea about e-business complexity (I3), and d) notice the presence of complexity (I4). Out of eight participating SMEs which considered complexity to have an influence on their initiation of e-business systems in their companies, five (i.e. MAN2, MAN3, MAN1, SER13, and SER11) considered complexity to have a positive influence on the initiation of e-business systems, and the remaining three (i.e. SER12, SER14, and SER15) regarded complexity to have no influence on the initiation of the e-business systems. None indicated a negative influence of complexity on the initiation stage of e-business system adoption process. Figure 6.4 summarises the influence of complexity on the initiation stage of the e-business systems adoption process in Saudi SMEs.

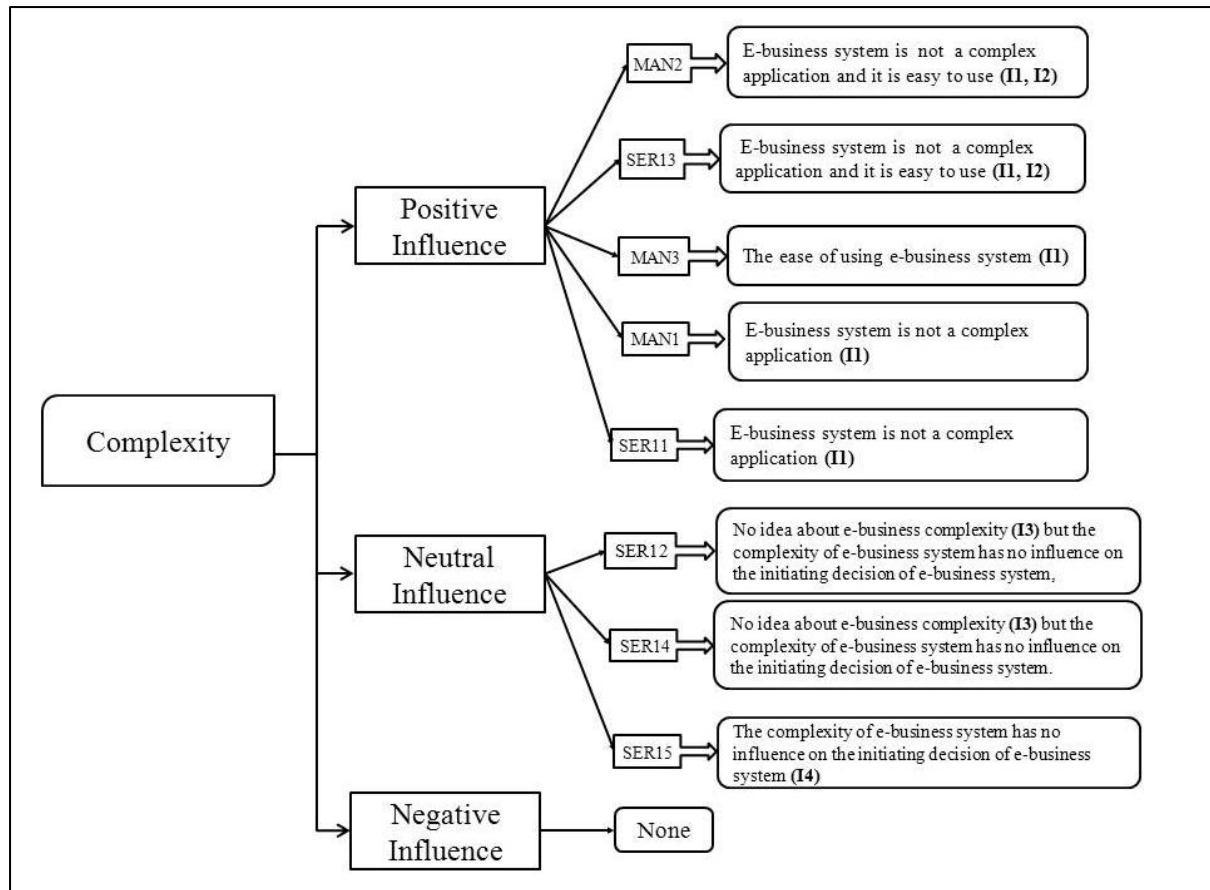


Figure 6.4: Influence of complexity on the initiation stage

Those five SMEs which reported a positive influence of complexity indicated that such indicator as ‘the perceived low level of e-business complexity (I1)’ has contributed to their initiation of e-business systems. For instance, the manager of MAN3 remarked “*I think e-business systems are not a complicated application. I notice that these systems have become popular and are commonly used by companies worldwide; therefore if these systems are complicated, they won’t be adopted by these companies. I believe this factor is a driver to initiate an e-business system in our company but it is not essential*”. This sentiment was also shared by the manager of MAN1 who states “*I believe an e-business system is not complex and because of that, this encouraged my company’s management to initiate it*”. Likewise, the owners and managers of MAN2, SER13, and SER11 expressed similar views.

Out of these five SMEs, two specified that such indicators as low level of e-business complexity (I1) and the ease of use these systems (I2) have contributed to the initiation of e-business systems in their companies. For example, the owner of MAN2 remarked “*I believe an e-business system is not a complicated application, and the easiness of its use was a driver to initiate it in the company*”. This view was also shared by the manager of SER13 who added “*I believe such system is not complicated and it is easy to use. So, we go further to initiate e-business systems*”.

In contrast, out of three SMEs who acknowledged that complexity has no influence on the initiation of e-business systems, two SMEs (i.e. SER12, and SER14) indicated that they have no idea about the complexity of e-business systems (I3) and complexity has no influence on their initiation of such systems. For example, the manager of SER12 stated “*we have no idea about the complexity of the e-business system and we are not keen to know. Therefore, this*

factor has no influence in the decision of initiating e-business systems". The manager of SER14 added "As users, we have nothing to do with the complexity of an e-business system. Therefore this never influences the decision of initiating e-business systems in the company". Only one (i.e. SER15) demonstrated its awareness of the complexity of e-business systems (I4) but this had no influence on their decision to initiate an e-business system. For example, the manager of SER15 remarked "I think the only one who notices the complexity of e-business system is programmers. So, this has not influenced our initiation of this system in the company". Finally, no empirical evidence was found to suggest a negative influence of complexity on participating SME's to initiate e-business system in their companies.

A review of the case study findings further suggest that those eight SMEs which are at the initiation stage of e-business, demonstrated a different number of indicators to reflect the influence of complexity on the initiation of e-business system. It is observed that most of the participating SMEs considered that the e-business system was not complicated (I1), while very few SMEs indicated that they experienced the complexity of such systems (I2). In addition, most of the e-business systems which are available in the market have friendly interfaces which perhaps prompted two participating SMEs to indicate that they had no idea about the complexity of e-business systems (I3) and they found such systems easy to use (I2). The case findings suggest that five participating SMEs acknowledged that the low level of e-business systems' complexity had positively influenced their initiation of such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that complexity has 'possible influence' on the SMEs to initiate e-business systems. A rich discussion of these observations in terms of industry sector and comparison with existing literature is provided in Chapter 8. Figure 6.5 presents the frequency of the complexity indicators cited by the participating SMEs.

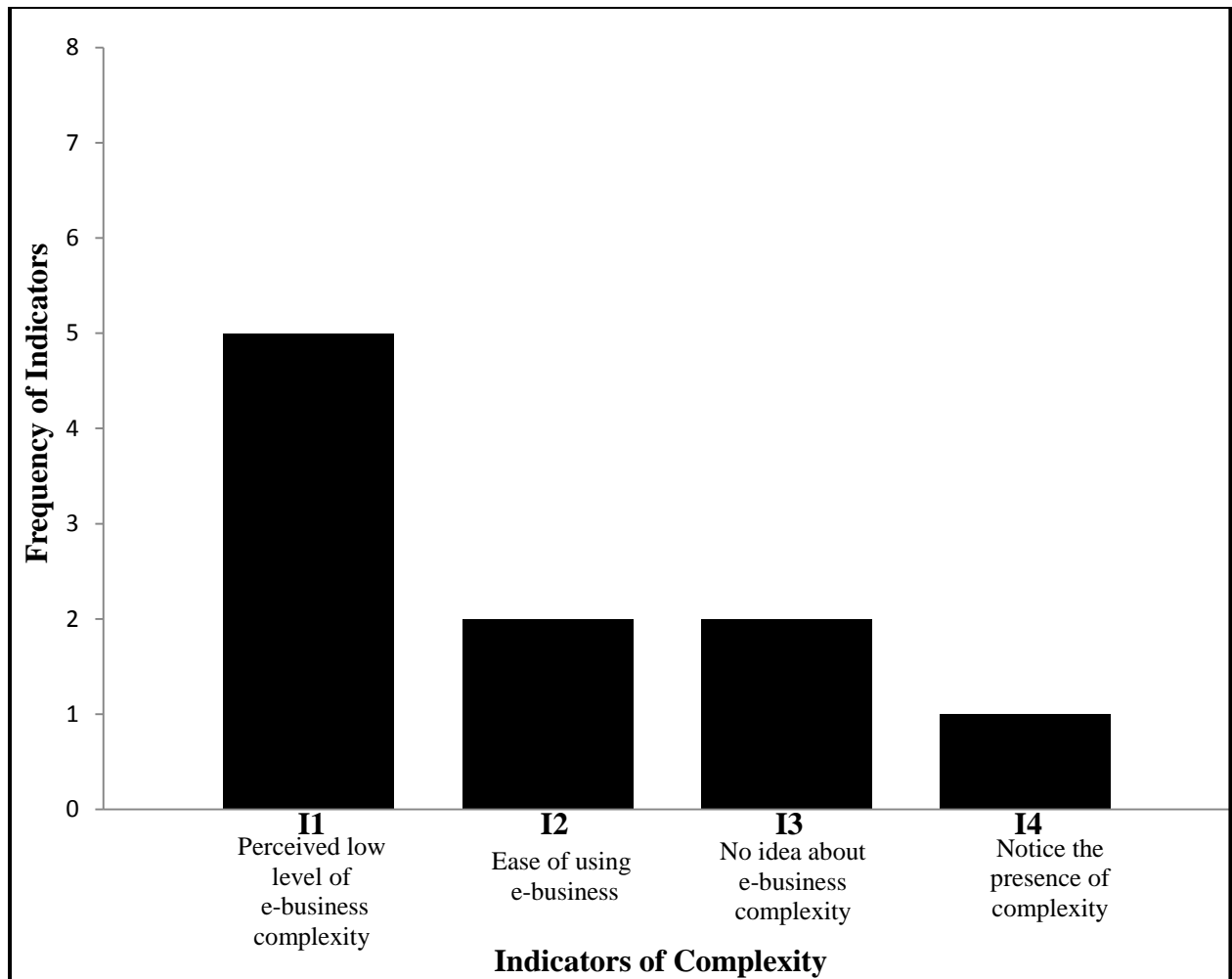


Figure 6.5: Indicators of complexity presented by participating SMEs

Factor3: Trialability

According to Rogers (2003), the trialability can be defined as “the degree to which an innovation may be experimented with on a limited basis” (p.258). It is operationalised in terms of six indicators which were reported in Section 3.11 (and in Appendix E). These are reproduced to help interpret the case study findings: a) to know special features of e-business (I1), b) well-known application (I2), c) to know/try e-business in general (I3), d) to explore advantages of e-business (I4), e) other companies’ use of e-business (I5), and f) trialability is not relevant (I6). Out of eight participating SMEs which considered trialability to have an influence on the initiation of e-business systems in their companies, three (i.e. MAN2, SER15, and SER13) considered trialability to have a positive influence on their initiation of e-business systems, and the remaining five SMEs (i.e. MAN3, MAN1, SER12, SER11, and SER14) regarded trialability to have no influence on the initiation of e-business systems in their companies. Thus no SMEs were found to indicate a negative influence of trialability. Figure 6.6 summarises the influence of trialability on the initiation stage of e-business systems adoption.

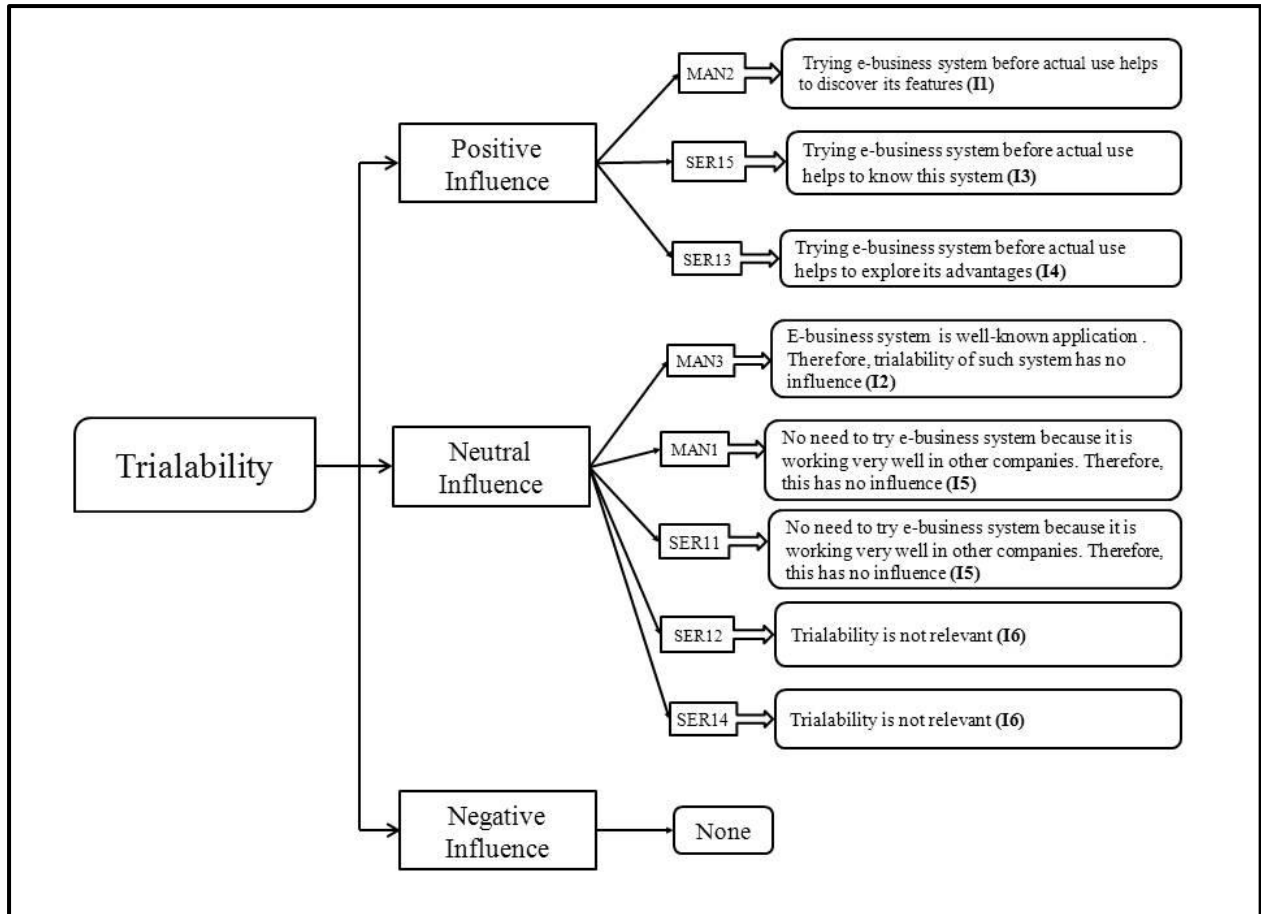


Figure 6.6: Influence of trialability on the initiation stage

Out of these three SMEs, one (i.e. MAN2) indicated that the need to try e-business systems to explore its features before actual use (I1) has contributed to its initiation of these systems. For example, the owner of MAN2 remarked “*It allows us to know the special features of this system before actually using it. Therefore this factor encouraged us to think of using e-business systems*”. Another company (i.e. SER15) indicated that the need to try e-business systems (I3) before actual use has contributed to the initiation of e-business systems in the company. For instance, the manager of SER15 stated “*I think when we try this system before taking a decision; this helps to know more about it. So, this factor has a positive influence on our decision*”. The last company (i.e. SER13) suggested that trying e-business systems before actual use (I4) assisted the company to explore e-business features before real implementation which contributed to the initiation of these systems in the company. For example, the manager of SER13 remarked “*Trialability of e-business has somewhat positive influence on the decision to initiate an e-business system in our company but it is not the main one, because it helps to explore the advantages of this system before actual use*”.

In contrast, out of five SMEs (which considered trialability of e-business systems having no relevance to the initiation of e-business systems), two SMEs acknowledged that e-business is working nicely in many other companies (I5) which did not require trying these systems before actual use and the trialability has no influence on their initiation of such systems. For instance, the manager of MAN1 remarked “*This system is commonly used by many other companies and it is working very well, so we do not need to try it. Therefore, this has no influence on our decision to use an e-business system*”. The sentiment was also shared by the owner of SER11 who added “*This factor has no influence on our decision to initiate e-*

business systems in the company, because we have seen e-business systems working very well in several other companies". Another two SMEs (i.e. SER12 and SER14) demonstrated that they never thought about trying e-business systems before real use and this has no influence on the initiation of e-business systems in their companies. For instance, the manager of SER12 stated *"There is no influence of this factor on our decision to initiate e-business systems, because we never think about it"*. Similar view was expressed by the manager of SER14 who added *"We did not think about this at all, therefore the trialability of e-business systems has no influence on the decision to initiate this system in the company"*. Finally, one company (i.e. MAN3) acknowledged that the e-business system is a well-known application (I2). According to the manager of MAN3 *"I think we do not need to try an e-business system because it is a well-known application. Also, we knew about these systems through the international companies which we are dealing with. I think this factor has no influence on our decision to initiate e-business systems"*. No empirical evidence was found to indicate the presence of a negative influence of trialability on the initiation stage of e-business systems.

A review of the case study findings further suggests that those eight SMEs which are at the initiation stage of the e-business system adoption process, demonstrated a different number of indicators to reflect the influence of trialability on the initiation of e-business systems. It is observed that such indicators as e-business systems use by other companies (I5) and trialability is not relevant (I6) were leading indicators of the existence of trialability on the initiation of e-business systems by half of the participating SMEs. Whereas, knowing special features of e-business system (I1), well-known application (I2), trying e-business system in general (I3), and to explore advantages of e-business systems (I4) were less frequently cited indicators to represent the influence of trialability on the e-business systems initiation stage. The empirical evidence suggests that all participating SMEs acknowledged the existence of a number of indicators to represent trialability, but only three believe that this factor has positively influenced their initiation of e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that trialability has 'possible influence' on the initiation of e-business systems. A rich discussion of these observations in terms of industry sector and comparison with existing literature is provided in Chapter 8. Figure 6.7 presents the frequency of the trialability indicators cited by participating SMEs.

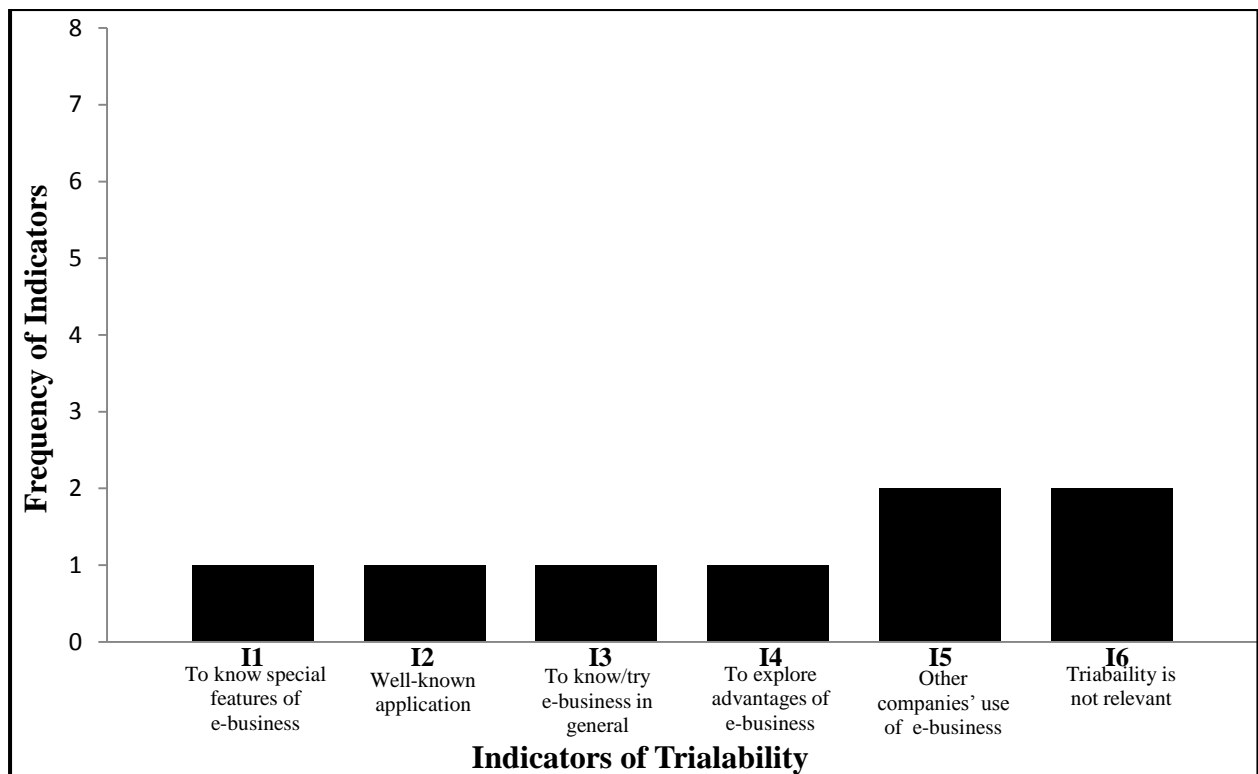


Figure 6.7: Indicators of trialability demonstrated by participating SMEs

Factor4: Observability

Drawing on the ideas of Kendall, Tung et al. (2001) and Rogers (2003), observability is described as “the degree to which the results of the innovation are visible to others” as well as an ability to see beneficial results of using e-business by other businesses (p. 258). It is operationalised in term of two indicators which were reported in Section 3.11 (and in Appendix E) and are reproduced to shed light on the case study findings: a) observed how other companies gain benefits from e-business (I1), and b) impact of e-business systems is visible for company’s management (I2). All eight participating SMEs considered observability to have a positive influence on the initiation of e-business systems by these SMEs. None indicated either a weak or negative influence of observability. Figure 6.8 summarises the influence of observability on the initiation stage of e-business systems adoption.

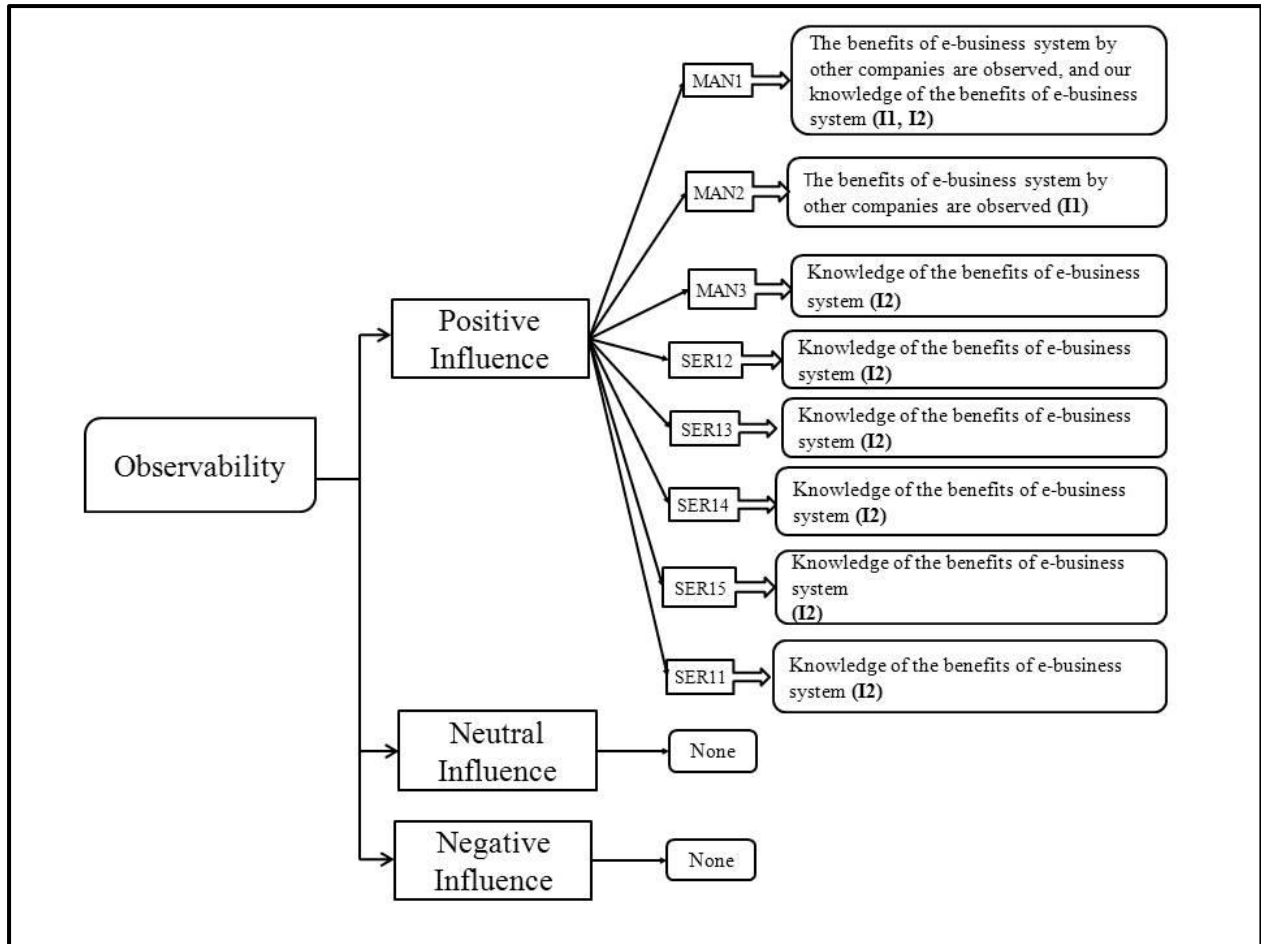


Figure 6.8: Influence of observability on the initiation stage

Out of these eight SMEs, two SMEs (i.e. MAN2 and MAN1) indicated that their awareness of the benefits of e-business systems gained by others (I1) has contributed to the initiation of these systems in the companies. For instance, the owner of MAN2 remarked “*the companies before us that used e-business systems benefited a lot from these systems, and those companies became competitors at the international level. So we, in our company, are following the same course, in order to become an international competitor, not just at the local level, so yes this has a great influence*”. This thought was also shared by the manager of MAN1 who added “*we see e-business advantages in some companies which already used these systems, and also the managers in my company have attended a demonstration about e-business systems which enabled my company’s management to be aware about the advantages of e-business systems*”.

The remaining six SMEs (i.e. MAN3, SER12, SER13, SER14, SER15, and SER11) acknowledged that the impact of e-business systems is visible to the companies’ management (I2) and contributed to their initiation of e-business systems. For instance, the manager of MAN3 remarked “*We know exactly what we need from e-business systems and we know the benefit of using these systems in our company. Therefore I think yes, this factor is a significant influence on our decision to initiate e-business systems*”. The similar sentiments were also shared by the owner of SER11 who added “*I used to work in Aramco and I recognised the importance of e-business systems and its benefit for the company. So, the visibility of advantages of e-business systems is a motivating factor for our company to initiate e-business systems*”. Similar views were expressed by the managers of SER12,

SER13, SER14, and SER15. No empirical evidence was found to indicate either weak or negative influence of observability on the participating SMEs' initiation of e-business systems in their companies.

A review of the case study findings further suggest that those eight SMEs which are at the initiation stage of e-business adoption process demonstrated a different number of indicators to highlight the influence of observability on the initiation of e-business systems. It is observed that such indicator as the impact of e-business systems is visible for company's management (I2) was the leading indicator of observability expressed by the majority of the participating SMEs. Whereas, observed how other companies gain benefits from e-business (I1) was a less frequently cited indicator of observability influence on the e-business systems initiation stage. The empirical evidence suggests that all the participating SMEs acknowledged that the visibility of the impact of e-business systems to their management has positively influenced the initiation of such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that observability has 'strong positive influence' on the initiation of e-business systems. A rich discussion of these observations in terms of industry sector and comparison with the views expressed in the existing literature is provided in Chapter 8. Figure 6.9 presents the frequency of the observability's indicators cited by the participating SMEs.

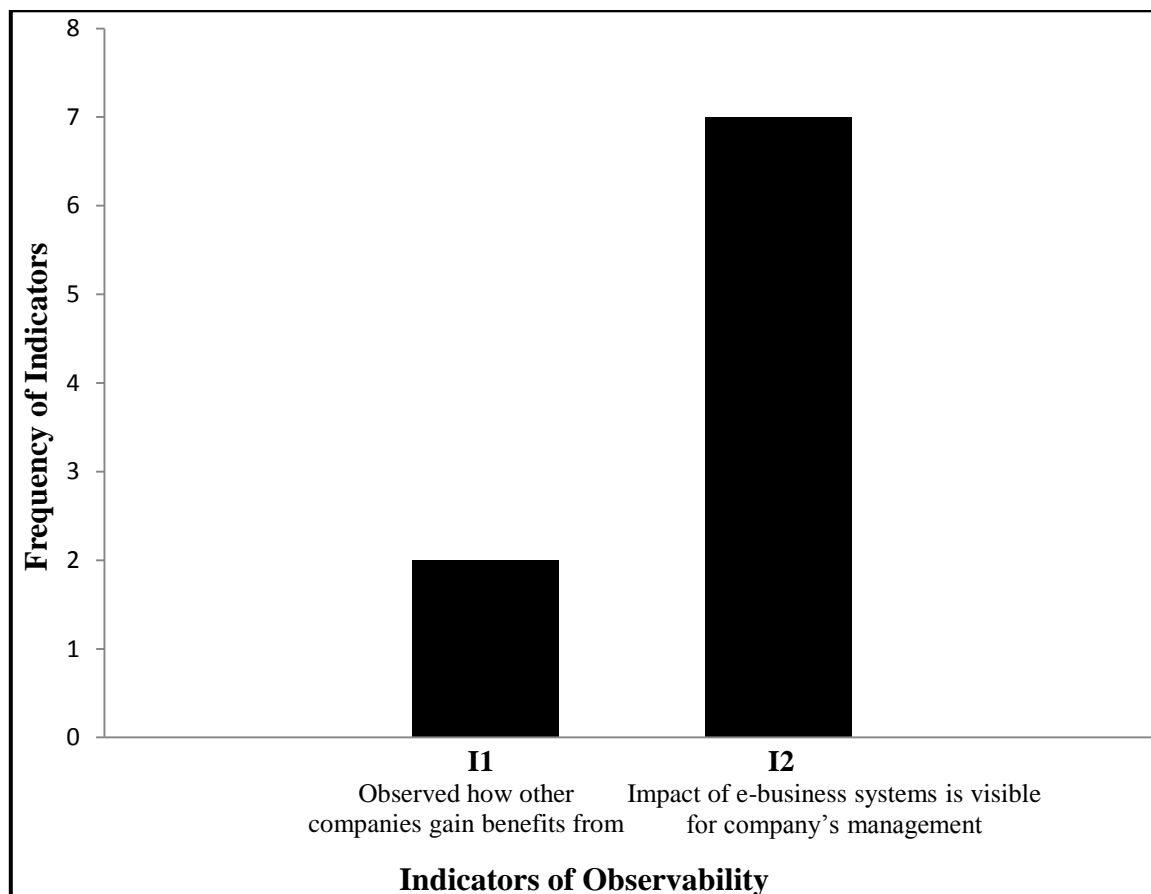


Figure 6.9: Indicators of observability presented by participating SMEs

Factor5: Perceived E-business Attributes

Drawing on the view of Wilson and Davies (2008), perceived e-business attributes is defined as the availability of information about an e-business system. It is operationalised in terms of three indicators which were reported in Section 3.11 (and in Appendix E) and are reproduced to help interpret the case study findings: a) information sources about e-business (I1), b) information sources reliability about e-business (I2), and c) information about the efficiency of e-business systems is very poor (I3). Out of eight participating SMEs which considered ‘perceived e-business attributes’ has influenced their initiation of e-business systems, seven (MAN2, MAN3, MAN1, SER12, SER13, SER14, and SER15) considered this factor to have a positive influence on the initiation of e-business systems. None were found to indicate that the perceived e-business attributes has no relevance to the initiation of e-business systems, and only one (i.e. SER11) regarded perceived e-business attributes to have a negative influence on its initiation of e-business systems in the company. Figure 6.10 summarises the influence of the perceived e-business attributes on the initiation stage of e-business systems adoption.

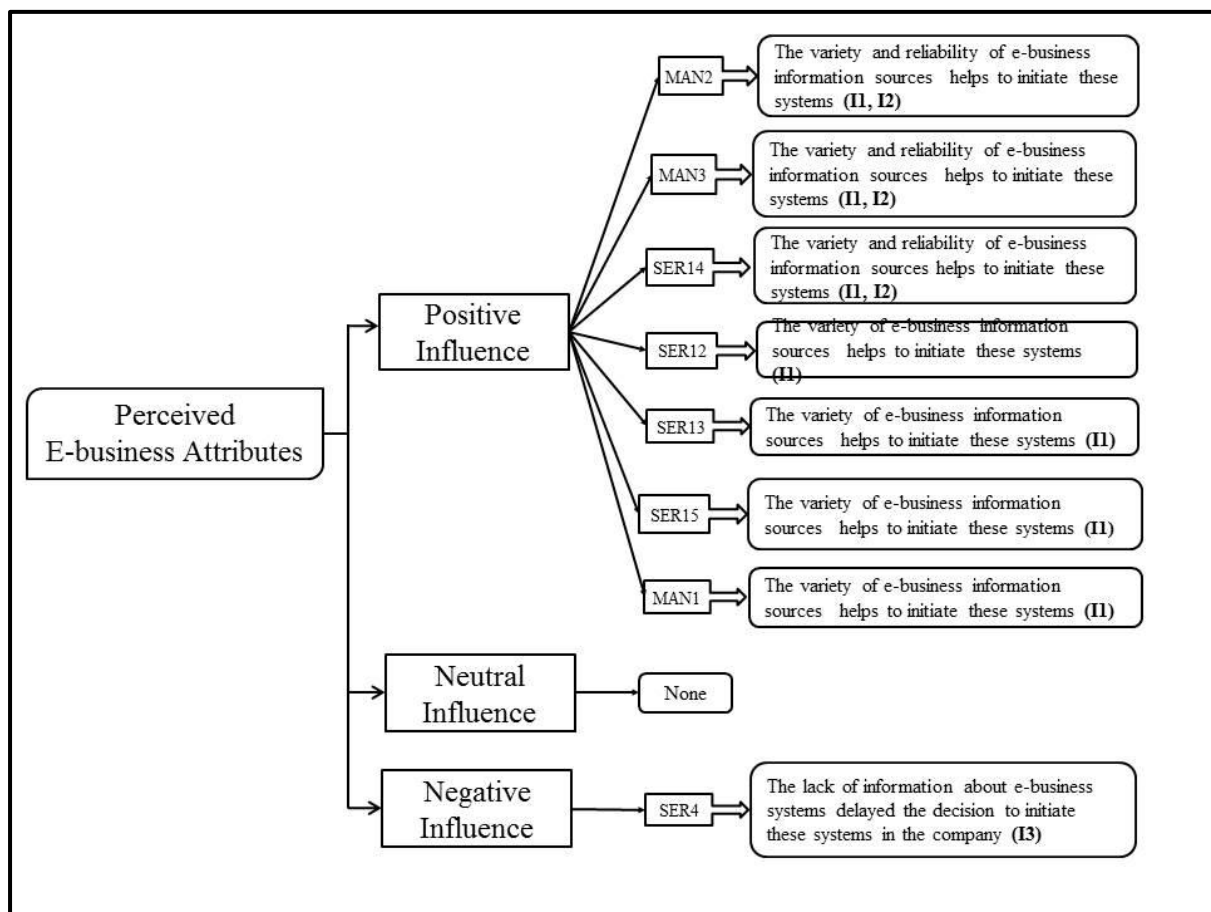


Figure 6. 10: Influence of the perceived e-business attributes on the initiation stage

Out of those seven SMEs which considered this factor to have a positive influence, three (i.e. MAN2, MAN3, and SER14) indicated the variety of information sources about e-business systems and the reliability of these sources have facilitated the initiation of e-business systems in the companies. For example, the owner of MAN2 remarked “*there are many information sources regarding the adequacy of e-business systems. The sources that we benefited from in getting to know more about these systems are workshop, internet websites,*

and the software companies of these systems. Regarding their reliability, the source we trusted most was viewing these e-business systems at work in the field in many companies around us. In fact, these systems proved their effectiveness and benefit to these companies, so we found that what the e-business system providers were saying was consistent with what we saw in the field. So this factor encouraged us to use e-business systems in our company". This sentiment was also shared by the manager of MAN3 who added *"the main source of information about e-business is that I have seen several e-business systems which have already been used in several companies and I have noticed to what extent these systems make the users happy and satisfied which reflect the efficiency of these systems. In addition, I have visited several websites of e-business providers which offer a lot of demonstrations and tutorials about their e-business applications, which help us to gain rich information about the efficiency of these systems. In addition, we have seen these systems at work in other companies, so we trust using these systems in our company. So I believe this factor has a positive influence on our decision to initiate e-business systems"*. Similar views were expressed by the manager of SER14.

All these participating SMEs (which indicated perceived e-business attributes to have a positive influence on the initiation of e-business systems) declared the influence of information sources about e-business systems on the initiation of e-business systems in their companies. For example, the manager of MAN1 indicated *"we received information about e-business systems from several sources such as a demonstration session, and software vendors' websites which facilitate our decision to initiate an e-business system in the company"*. Similar views were expressed by the rest of the participating SMEs. In contrast, there was only one SME which considered that the perceived e-business attributes had a negative influence on the initiation of these systems by the company. For instance the owner of SER11 remarked *"the information about the efficiency of e-business systems is very poor whether in society in general or our company specifically, which delayed the decision to adopt this system before this time"*. No empirical evidence was found to indicate a weak influence of perceived e-business attributes on the participating SMEs' initiation of e-business system in their companies.

A review of the case study findings further suggests that those eight SMEs which are at the initiation stage of e-business demonstrated a varying number of indicators for perceived e-business attributes on the initiation of e-business systems. It is observed that the information sources about e-business (I1) was the leading indicator to reflect the influence of perceived e-business attributes on the initiation of e-business systems by most participating SMEs. Whereas, information sources reliability about e-business (I2) and information about the efficiency of e-business systems is very poor (I3) were less cited indicators for the presence of the e-business attributes influence on the e-business systems initiation stage. The empirical evidence suggests that seven participating SMEs acknowledged that this factor had positively influenced their initiation of e-business systems. Only one SME indicated the presence of a negative influence of this factor. Therefore, using the measurement scale (Section 3.11.2), it is suggested that perceived e-business attributes has a 'positive influence' on the SMEs' initiation of e-business systems. A rich discussion of these observations is provided in Chapter 8. Figure 6.11 presents the frequency of the perceived e-business attributes indicators cited by the participating SMEs.

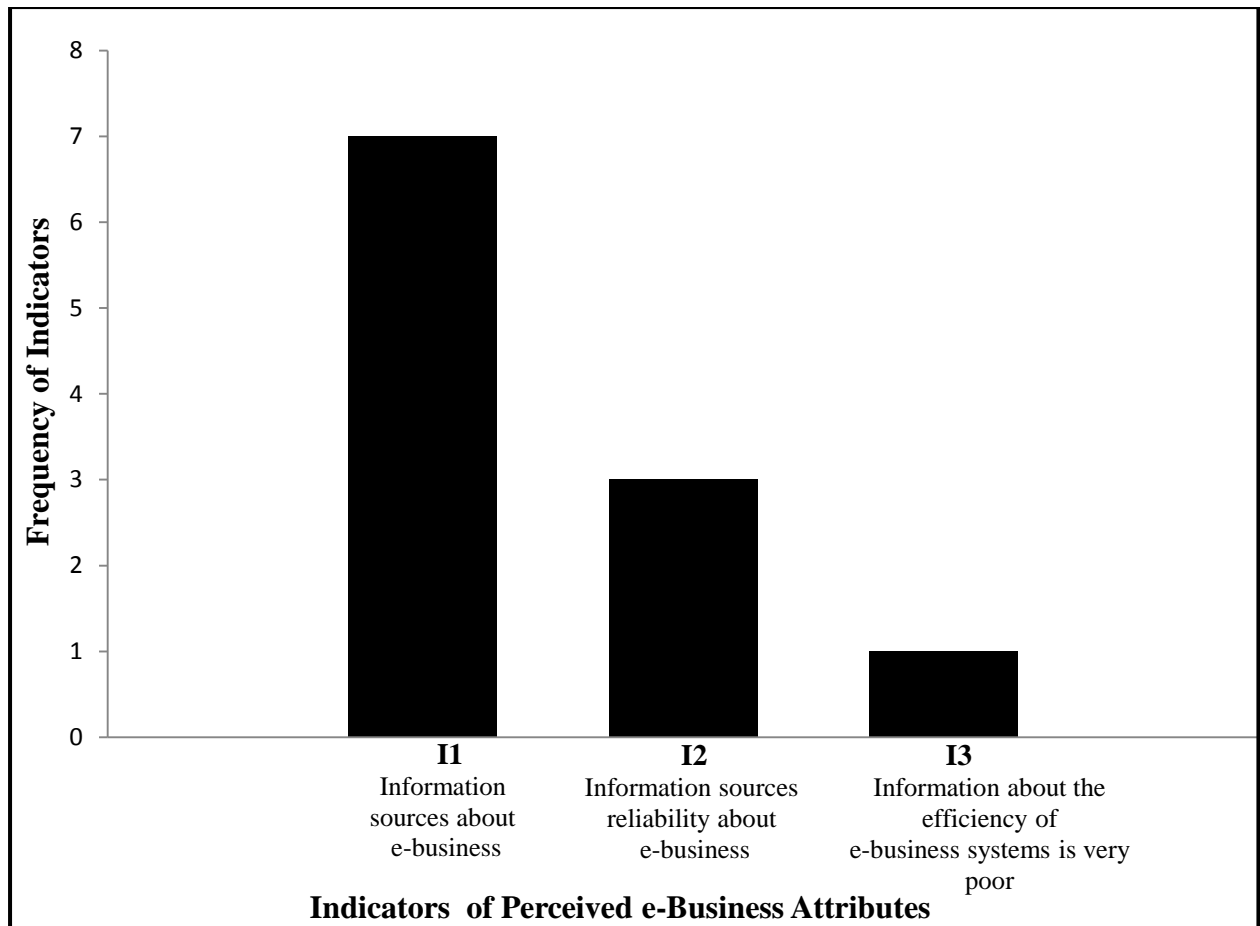


Figure 6.11: Indicators of perceived e-business attributes demonstrated by participating SMEs

Factor 6: Availability of Technical Expertise

Drawing on the idea of Wymer and Regan (2005), availability of technical expertise is defined as availability of technical knowledge and skills about e-business among company staff. It was operationalised in terms of two indicators which were reported in Section 3.11 (and in Appendix E) and are reproduced to help interpret the case study findings: a) availability/ non availability of e-business consultant (I1), and b) availability/ non availability of IT staff trained in e-business (I2). Out of eight participating SMEs which considered the ‘availability of technical expertise’ has influenced the initiation of e-business systems in their companies, five (i.e. MAN2, MAN1, SER12, SER13, and SER14) considered availability of technical expertise to have a positive influence on the initiation of e-business systems, three (i.e. MAN3 SER15, and SER11) regarded availability of technical expertise to have no relevance to the initiation of e-business systems, and none were found to indicate a negative influence of availability of technical expertise. Figure 6.12 summarises the influence of the availability of technical expertise on the initiation stage of e-business systems adoption.

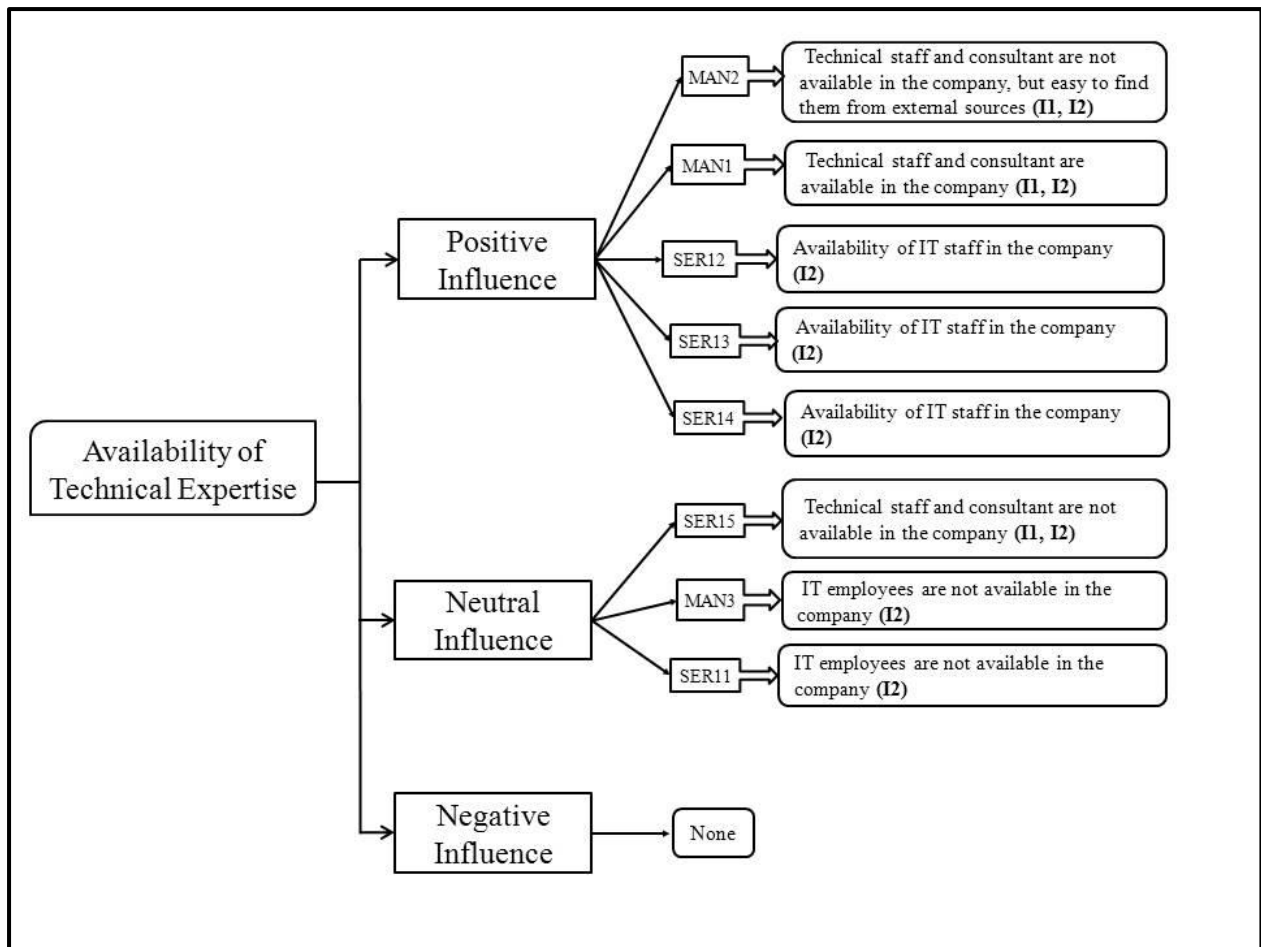


Figure 6.12: Influence of the availability of technical expertise on the initiation stage

Out of these five SMEs, two indicated that the availability of e-business consultant (I1) and IT staff trained in e-business (I2) have contributed to their initiation of these systems. For instance, the owner of MAN2 remarked “*in our company we rely on technical staff and consultants from outside the company. So the ease of finding these was a factor encouraging us to make the decision to use these systems*”. This idea was also shared by the manager of MAN1 who added “*skilled technical staff and consultants show us the best type of e-business systems which suit the company, and help to solve system faults. Therefore, the availability of these staff encourages us to initiate an e-business system in the company*”. Whereas, the remaining SMEs indicated that availability of IT staff trained in e-business (I2) has influenced the initiation of e-business systems in their companies. For example, the manager of SER13 remarked “*young IT skilled employees played a great role to move toward an e-business system in the company*”. In addition, the manager of SER14 added “*me and two other skilled employees watch the market to see what are the new technologies in the market and how can we adopt these systems in the company. So, this has much influence on initiating e-business systems in the company*”. A similar view was expressed by the manager of SER12.

In contrast, all of the three SMEs (i.e. MAN3, SER15, and SER11) which considered that the availability of technical expertise has no influence on the initiation of e-business systems acknowledged that they do not have e-business technical staff or consultants. However, not having technical staff or consultants did not influence the initiation of e-business systems in their companies. According to the owner of SER11 “*Not one of my company’s employees has e-business technical skills. So, this factor has no influence on our decision to initiate e-*

business systems in the company”. The same view was also shared by the manager of SER15 who added “*we do not have any technical staff or consultant with e-business skills. The owner of the company noticed that our competitors shift toward using e-business and he decided to go as well. So, this factor has no influence*”. The remaining SME (i.e. MAN3) indicated the lack of influence of this factor on the company’s initiation of e-business systems. For instance, the manager of MAN3 remarked “*this factor has no influence on our decision to initiate e-business systems in our company*”. No empirical evidence was found to suggest a negative influence of the need for technical expertise on the participating SMEs’ decision to initiate an e-business system in their companies.

A review of the case study findings further suggests that those eight SMEs which are at the initiation stage of e-business demonstrated a different number of indicators to highlight the influence of the availability of technical expertise on their initiation of e-business systems. It is observed that availability/non availability of IT staff trained in e-business (I2) was the leading indicator of the existence of availability of technical expertise on the initiation of e-business systems by most of the participating SMEs. While, availability/ non availability of e-business consultant (I1) was a less cited indicator for the presence of need of technical expertise influence on the e-business systems initiation stage. The empirical evidence suggests that five participating SMEs believe that this factor has positively influenced the initiation of such systems in their companies. Therefore, using the measurement scale (Section 3.11.2), it is suggested that availability of technical expertise has ‘possible influence’ on the SMEs’ initiation of e-business systems. A rich discussion of these observations is provided in Chapter 8. Figure 6.13 presents the frequency of the availability of technical expertise indicators cited by the participating SMEs.

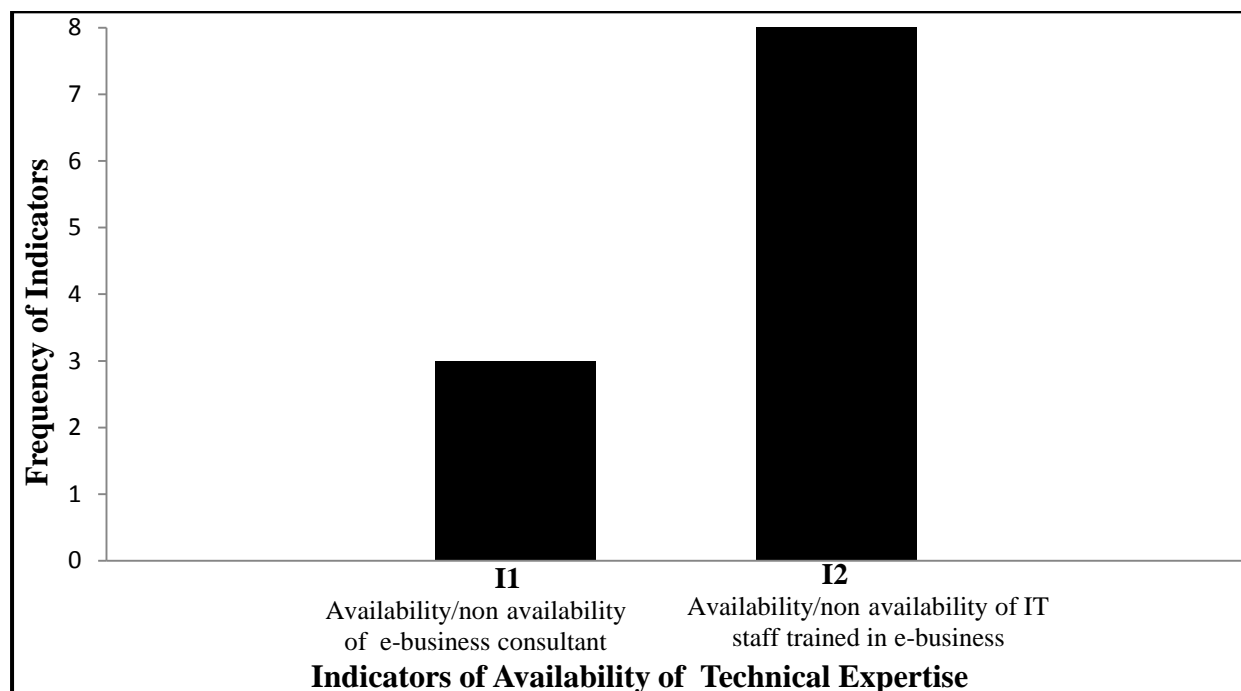


Figure 6.13: Indicators of availability of technical expertise demonstrated by participating SMEs

Factor7: Knowledgeable Employees' Attitude toward E-business

Drawing on the view of Hertog (2010), knowledgeable employees' attitude toward e-business is defined as the beliefs, dispositions and views of the employees who have a general knowledge of business and appreciate the importance of e-business systems. It is operationalised in terms of three indicators which were reported in Section 3.11 (and in Appendix E) and are reproduced to help interpret case study findings: a) awareness of e-business importance (I1), b) employees' awareness/attitude toward e-business is not relevant (I2), and c) employees with ability to convince the top management about e-business in the company (I3). Out of eight participating SMEs which are in the initiation stage of e-business systems, three (i.e. MAN2, MAN1, and SER13) considered knowledgeable employees' attitude toward e-business to have a positive influence on their initiation of e-business systems, another three (i.e. MAN3, SER15, and SER11) regarded knowledgeable employees' attitude toward e-business to have no relevance on the initiation of e-business systems. The remaining two SMEs (i.e. SER12 and SER14) did not answer the question about the influence of this factor on the initiation of these systems. None of the participating SMEs indicated a negative influence of this factor on the initiation of e-business systems. Figure 6.14 summarises the influence of the knowledgeable employees' attitude toward e-business on the initiation stage of e-business system adoption.

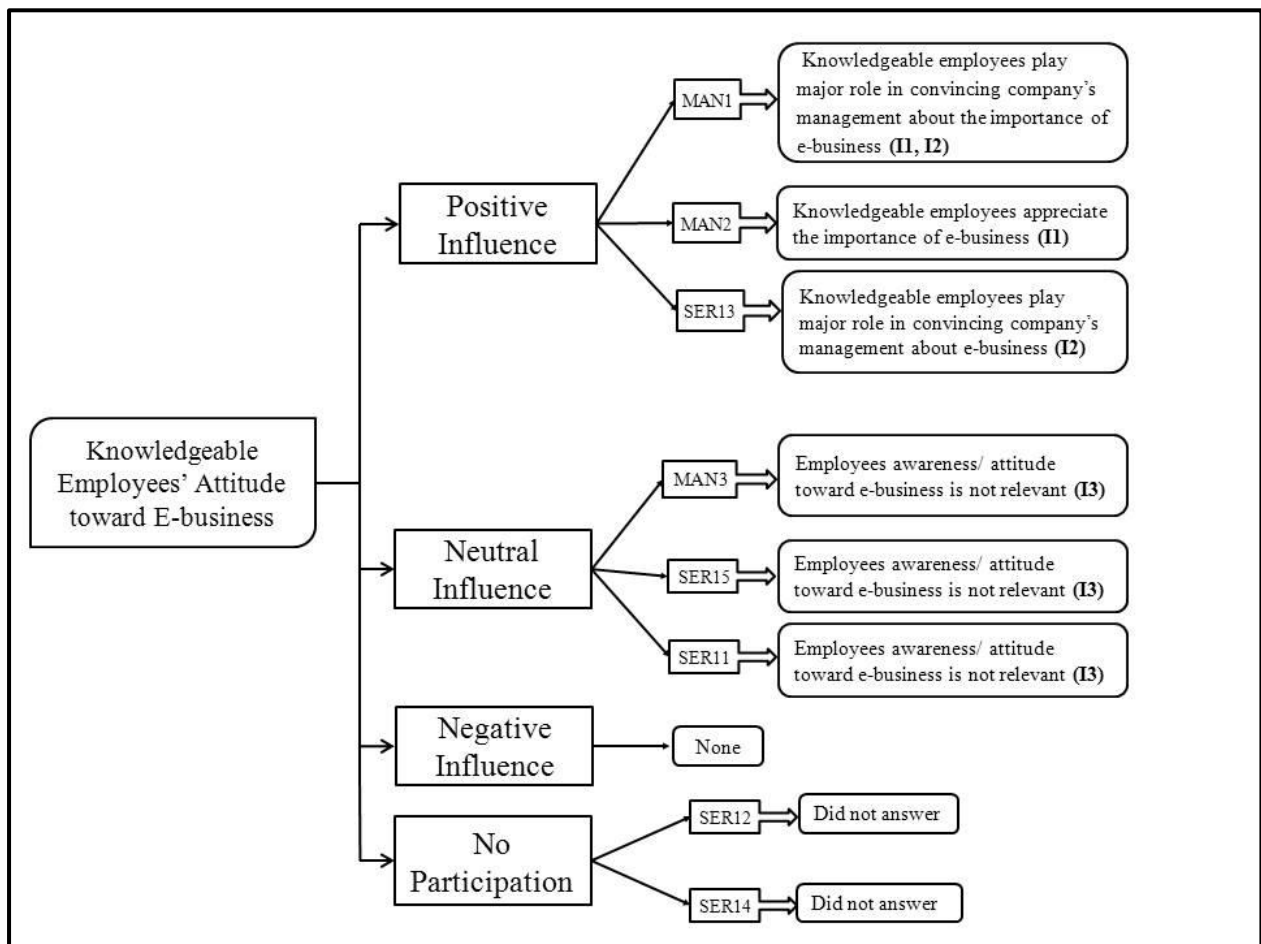


Figure 6.14: Influence of the knowledgeable employees' attitude toward e-business on the initiation stage

Out of the three SMEs which considered this factor to have a positive influence on the initiation of e-business systems, one (i.e. MAN1) acknowledged that the awareness of knowledgeable employees about the importance of e-business (I1) and their ability to convince the management of the company (I2) has contributed to their initiation of these systems. For example, the manager of MAN1 commented *“knowledgeable employees have the ability to convince the top management in our company about e-business and tell them about the advantages of e-business systems which are gained by companies which used e-business”*. Another one (i.e. MAN2) demonstrated that the knowledgeable employees’ awareness about the importance of e-business systems has influenced the initiation of e-business systems in the company. For instance, the owner of MAN2 remarked *“There is no doubt that experienced employees with appreciation of the importance of e-business systems played a great role in encouraging us to use these systems”*. In contrast, the manager of SER13 indicated the presence of influence of the indicator as the ability of knowledgeable employees to convince top management about e-business on the initiation of e-business systems. For example, *“knowledgeable employees have the main role to convince the owner of the company about using e-business systems. Most of these employees are from the younger generation. So, this factor has a major influence on the adoption of e-business systems in our company”*.

In contrast, those three SMEs which considered this factor has no influence on their initiation of e-business systems indicated that the idea of using e-business systems in their companies was suggested by the owners only, without any contribution from the knowledgeable employees. For example, the manager of MAN3 remarked *“in our company the decision of using e-business systems has been made by the owner without any participation of the knowledgeable employees in our company”*. This sentiment was also shared by the owner of SER11 who added *“they have no influence at all, and I am the one who decided to adopt an e-business system in the company”*. A similar view was expressed by the manager of SER15. No empirical evidence was found to indicate a negative influence of this factor on the participating SMEs’ initiation of e-business systems in their companies.

A review of the case study evidence further suggests that those six participating SMEs demonstrated a different number of indicators to highlight the influence of knowledgeable employees’ attitude toward e-business on their initiation of e-business systems. It is observed that such indicators as the awareness of e-business importance (I1) and the existence of employees with ability to convince the top management about e-business (I2) were more frequently cited indicators of knowledgeable employees’ attitude toward e-business. While, the employees awareness and attitude toward e-business system is not relevant (I3) was cited by three SMEs. The empirical evidence suggests that three SMEs believe that knowledgeable employees attitude toward e-business system has positively influenced the initiation of such systems in the companies. Therefore, using the measurement scale (Section 3.11.2), it is suggested that this factor has ‘possible influence’ on the SMEs’ initiation of e-business systems. A rich discussion of these observations in terms of industry sector and a comparison with the views reported in the existing literature is provided in Chapter 8. Figure 6.15 presents the frequency of the knowledgeable employees’ attitude toward e-business systems indicators cited by the participating SMEs.

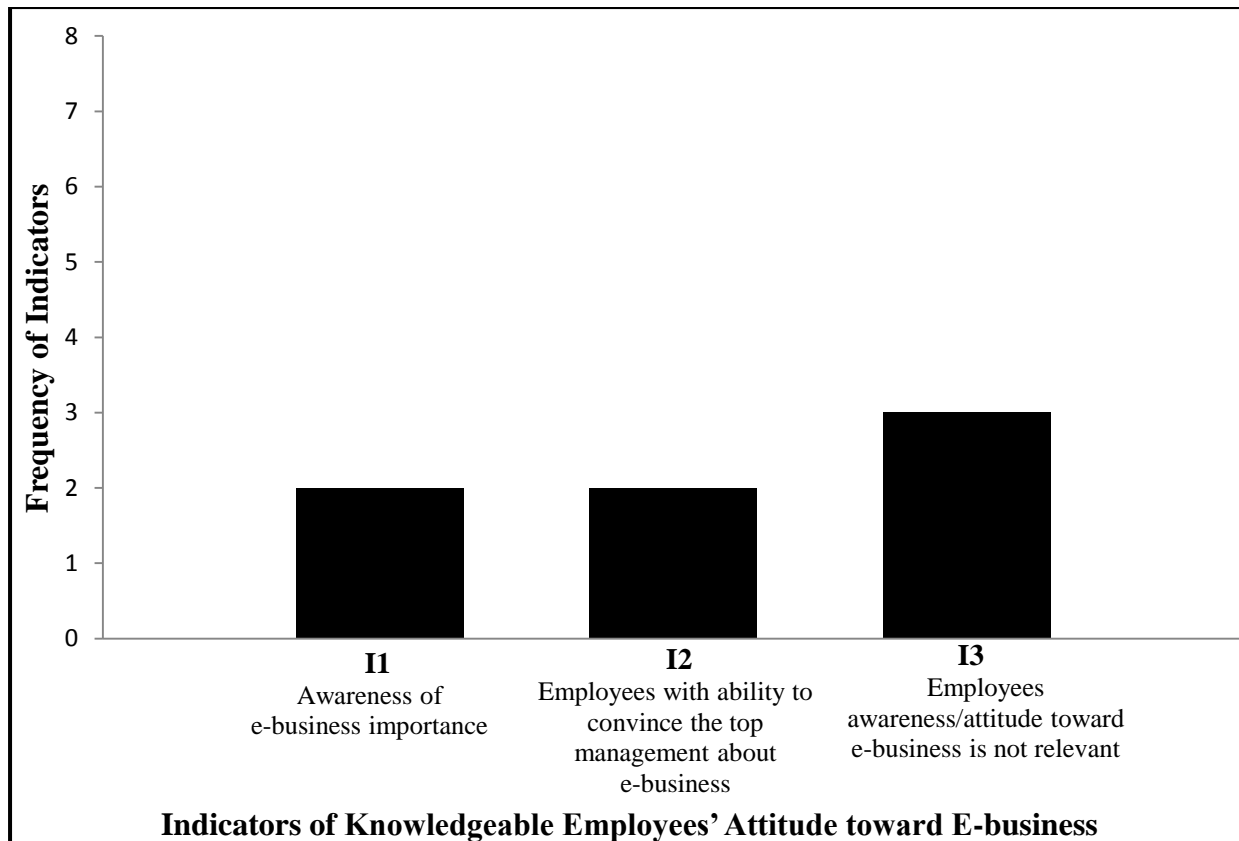


Figure 6.15: Indicators of knowledgeable employees' attitude toward e-business demonstrated by participating SMEs

6.2.1 Summary (Stage 1: Initiation)

By analysing the case study findings from the participating SMEs about the factors affecting the initiation stage of the e-business systems adoption process in SMEs, it can be suggested that: a) a total of three factors (i.e. *compatibility*, *observability*, and *perceived e-business attributes*) have strong positive influence on the SMEs' initiation of e-business systems, b) four factors (i.e. *complexity*, *trialability*, *availability of technical expertise*, and *knowledgeable employee attitude toward e-business*) have possible influence on the initiation of e-business systems. The implications of these findings are discussed in Chapter 8.

6.3 Adoption Decision Stage

Drawing on the views of Rogers (2003), the adoption decision stage is defined as a stage which is concerned with making a decision about which technology is to be used. Two SMEs (the low number of participating SMEs in this stage does compromise the results) (i.e. MAN4 and SER16) were identified to be in the adoption decision stage of the e-business systems adoption process. According to the research model (Figure 4.8), a total of eight factors (i.e. *communication*, *e-business law*, *customer readiness*, *security concerns*, *high competence in IS*, *perceived e-business value*, *owner attitude toward technology*, and *knowledgeable employee attitude toward technology*) were suggested to have an influence on the adoption decision stage of the e-business systems adoption process in SMEs. In the following sections, a discussion of the case study findings on each factor shown in Figure 6.16 is provided.

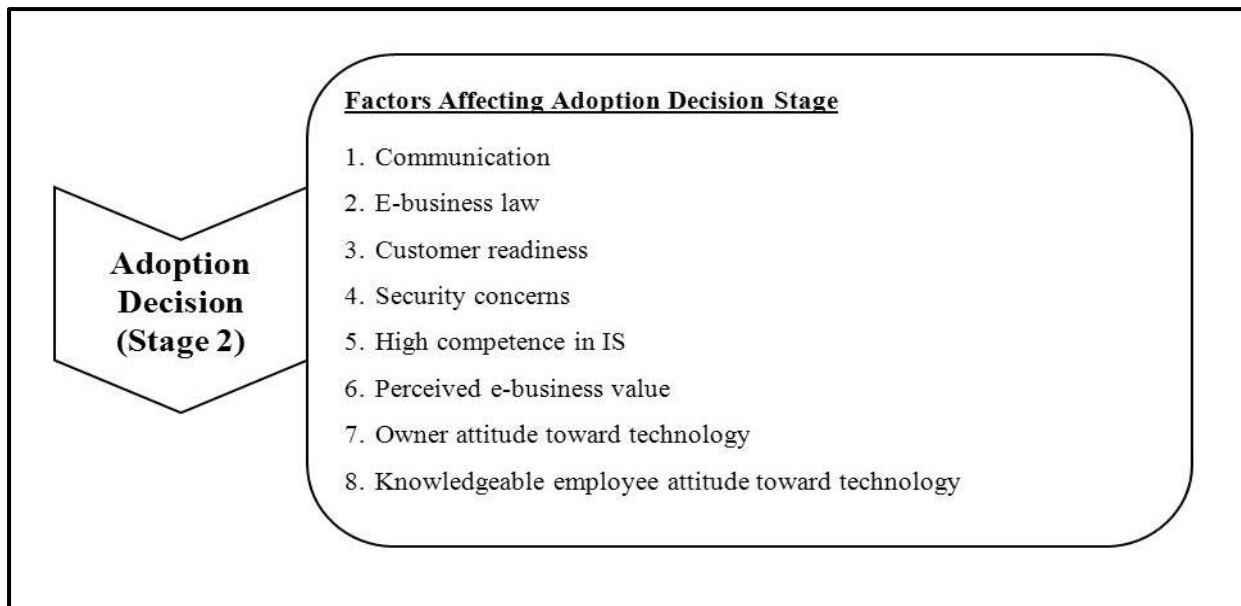


Figure 6.16: Factors affecting adoption decision stage

Factor1: Communication

Drawing on the views expressed by Ling (2001), communication is defined as “the use of information technology to enhance communications and transactions with all of an organisation stakeholders such as suppliers, customers, government policy makers, financial bodies, employees, and the public at large”. It is operationalised in terms of three indicators which were reported in Section 3.11 (and Appendix E) and are reproduced to help interpret the case study findings: a) ease of communication (I1), b) communication channel (I2), and c) communication amount (I3). Out of two participating SMEs which considered communication to have influenced their decision to adopt e-business systems in their companies, one company (i.e. SER16) considered communication to have a positive influence on its decision to adopt e-business systems. Another company (i.e. MAN5) regarded communication to have no relevance to their decision. Finally, no SMEs indicated a negative influence of communication. Figure 6.17 summarises the influence of communication on the adoption decision stage of the e-business systems adoption process in SMEs.

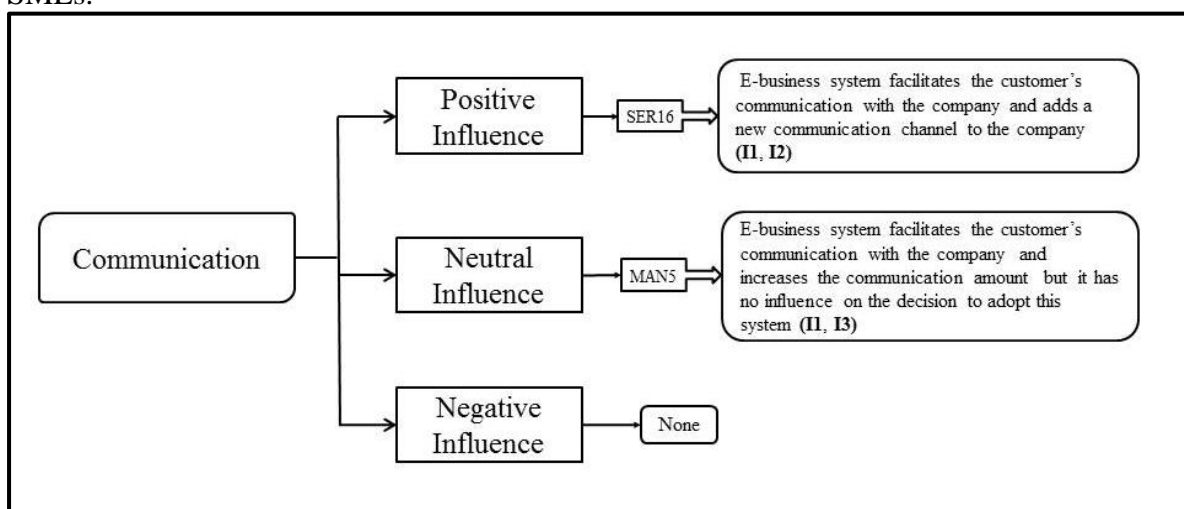


Figure 6.17: Influence of the communication on the adoption decision stage

A review of responses from these two SMEs suggested that the customer's communication with the company (I1) and add new communication channels (I2) were the popular indicators which positively contributed to this SME's decision to adopt e-business systems. For example, the manager of SER16 remarked "*E-business system is one of our recent new services that will facilitate the customer's communication with the company and add a new communication channel to the company. Therefore, this factor enhances the adoption decision of e-business systems in the company*". In contrast, the SME (i.e. MAN5) considered that communication had no influence on its decision to adopt e-business systems and acknowledged that the e-business system made the communication with the company much easier (I1) and increased the communication amount with the company (I3), but this had no influence on their decision to adopt e-business systems. According to the manager of MAN5 "*We know e-business system will increase the communication amount with our company and it will help our customers to communicate with us easily, but this factor has no influence on the decision to adopt this system in the company. We decided to adopt e-business systems based on our need to manage and control the company*". No empirical evidence was found to suggest a negative influence of communication on the participating SMEs' decision to adopt e-business systems in their companies.

A review of case study findings further suggests those two SMEs which are at the adoption decision stage of the e-business system adoption process demonstrated an equal number of indicators for the existence of communication on their decision to adopt an e-business system. It is observed that ease of communication (I1) was the main indicator to reflect the influence of communication on the adoption decision stage of e-business systems by the participating SMEs. Whereas, communication channel (I2) and communication amount (I3) were less frequently cited indicators for the presence of communication on the e-business systems adoption decision stage. The empirical evidence suggests that the participating SMEs agreed that adoption of e-business systems makes communication with the company much easier but despite such agreement only one SME (i.e. SER14) believed that this factor had positively influenced their decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it seems that communication has 'possible influence' on the SMEs' decision to adopt e-business systems. A discussion of these observations is provided in Chapter 8. Figure 6.18 presents the frequency of the communication indicators cited by the participating SMEs.

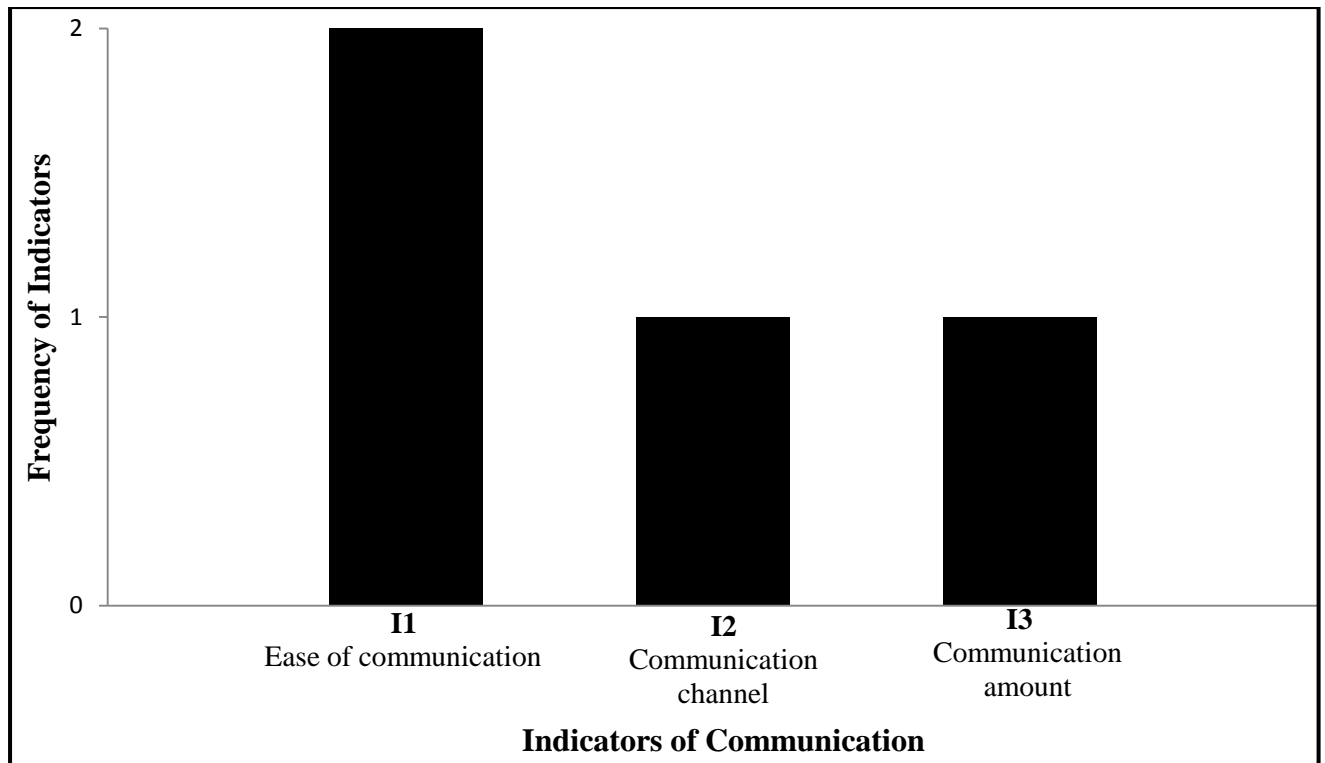


Figure 6. 18: Indicators of communication demonstrated by participating SMEs

Factor2: E-business Law

Drawing on the views expressed by Rao, Metts et al.(2003), e-business law is defined as the government policies and regulations which facilitate doing business online. It is operationalised in terms of two indicators reported in Section 3.11(and Appendix E) with are reproduced to help interpret case study findings: a) the absence of government support (I1), and b) lack of awareness of e-business law (I2). Out of two SMEs which were considered, e-business law has influenced their decision to adopt e-business systems in their companies. Both companies (i.e. SER16 and MAN5) considered e-business law to have a weak influence on their decision to adopt e-business systems. None were found to indicate either a positive or negative influence of e-business law on their decision to adopt e-business systems. Figure 6.19 summarises the influence of e-business law on the adoption decision stage of the e-business systems adoption process.

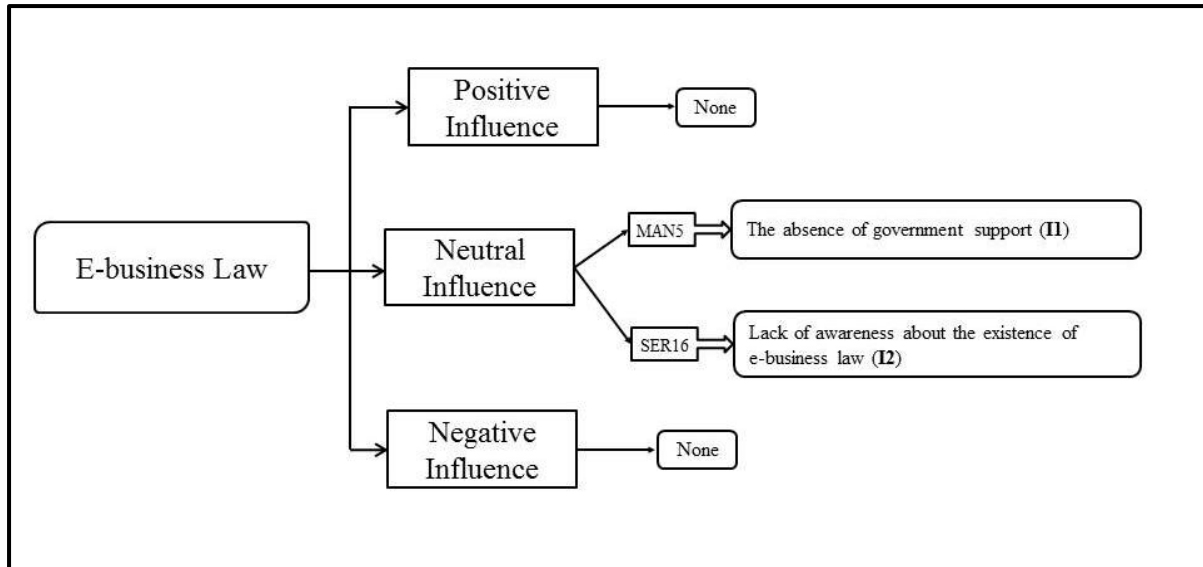


Figure 6.19: Influence of e-business law on the adoption decision stage

Those two SMEs which responded to this factor, acknowledged the absence of government support (I1) and lack of awareness about the existence of e-business law (I2), but these had no influence on their decision to adopt e-business systems. According to the manager of MAN5 “Unfortunately, we did not receive any kind of support from the government. So we do not know whether there is an e-business law in Saudi Arabia or not. This factor has no influence on the company's decision to adopt e-business systems”. In addition, the manager of SER16 remarked “We did not hear anything about such regulations. This law has no influence on our decision to adopt e-business system”. No empirical evidence was found to suggest a positive or negative influence of e-business law on the participating SMEs’ decision to adopt e-business systems in their companies.

A review of the case study findings further suggests those two SMEs which are at the adoption decision stage of the e-business system adoption process demonstrated an equal number of indicators for the existence of e-business law on their decision to adopt an e-business system. It is observed that the absence of government support (I1) was cited once by one participating SME and another indicator (i.e. lack of awareness about the existence of e-business law) was also cited once by the other SME (i.e. SER16). The empirical evidence suggests that both participating SMEs indicated the absence of government support and lack of awareness of the existence of any type of regulations for e-business. In addition, these SMEs believed that this factor had no positive or negative influence on their decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it appears that e-business law has ‘weak influence’ on the SMEs’ decision to adopt an e-business system. A rich discussion of these observations in terms of industry sector and comparison with existing literature is provided in Chapter 8. Figure 6.20 presents the frequency of the e-business law indicators cited by the participating SMEs.



Figure 6.20: Indicators of e-business law demonstrated by participating SMEs

Factor3: Customer Readiness

Drawing on the views expressed by Jutla, et al. (2002), customer readiness is defined as the customers being willing and able to use e-business system. It is operationalised in terms of two indicators which were reported in Section 3.11 (and Appendix E) and are reproduced to help interpret the case study findings: a) customers' pressure on the company to use e-business systems (I1), and b) customers' willingness to perform their business's transactions online (I2). Out of two participating SMEs (i.e. SER16 and MAN5) which considered customer readiness to have influenced their decision to adopt e-business systems in their companies, both acknowledged customer readiness to have a positive influence on their decision to adopt e-business system. None were found to indicate a weak or negative influence of customer readiness on their decision to adopt e-business systems. Figure 6.21 summarises the influence of customer readiness on the adoption decision stage of the e-business systems adoption process in SMEs.

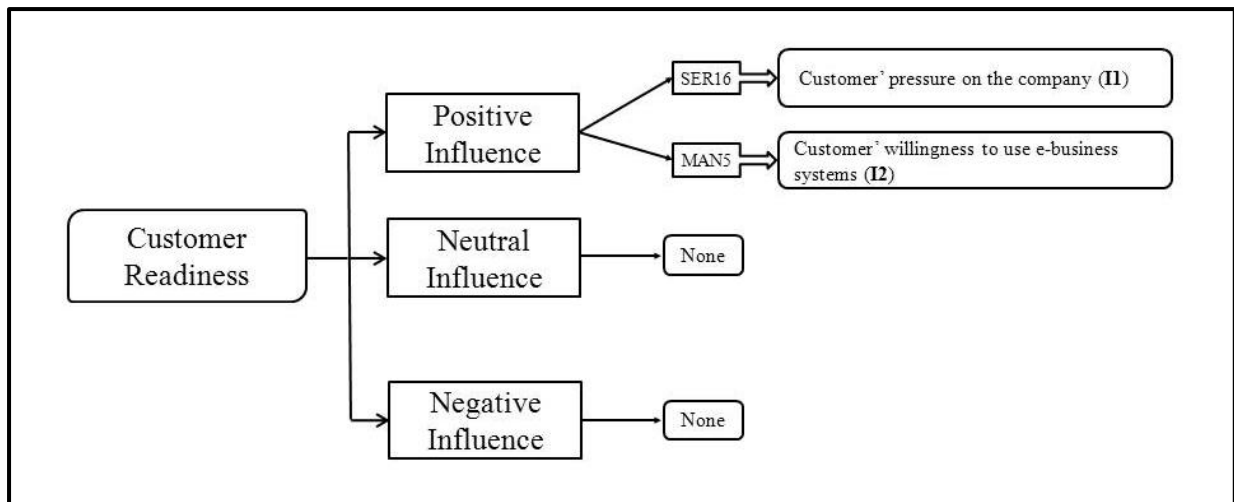


Figure 6.21: Influence of customer readiness on the adoption decision stage

Those two SMEs which considered that the customer readiness had a positive influence on their decision to adopt e-business systems acknowledged that the customers' put a pressure on the company to move to e-business systems (I1) and they were willing to perform their business's transactions online (I2). According to the manager of MAN5 who stated *"In our company, we follow closely the suggestions and ideas of our customers regarding the development of the company's work. Therefore, the customers have pushed the decision of our company in the use of e-business systems"*. Additionally, the manager of SER16 remarked *"The customer's desire to do their booking and payment online. Thus, we decided to adopt e-business systems in the company"*. No empirical evidence was found to suggest either a weak or negative influence of customer readiness on the participating SMEs' decision to adopt e-business systems in their companies.

A review of the case study findings further suggests those two SMEs which are at the adoption decision stage of the e-business system adoption process demonstrated an equal number of indicators for the existence of customer readiness on their decision to adopt an e-business system. It is observed that customers' pressure on the company to use e-business systems (I1) was cited once by one participating SME and another indicator (i.e. customers' willingness to perform their business's transactions online. (I2) for the existence of customer readiness influence on the e-business systems adoption decision stage was also cited once by the other SME. The empirical evidence suggests that all two of the participating SMEs indicated the presence of pressure from the customers on the companies' management to adopt e-business systems. In addition, all participating SMEs believe that this factor has a positive influence on their decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it seems that customer readiness has 'strong positive influence' on the SMEs' decision to adopt e-business system. A discussion of these observations is provided in Chapter 8. Figure 6.22 presents the frequency of the customer readiness indicators cited by the participating SMEs.

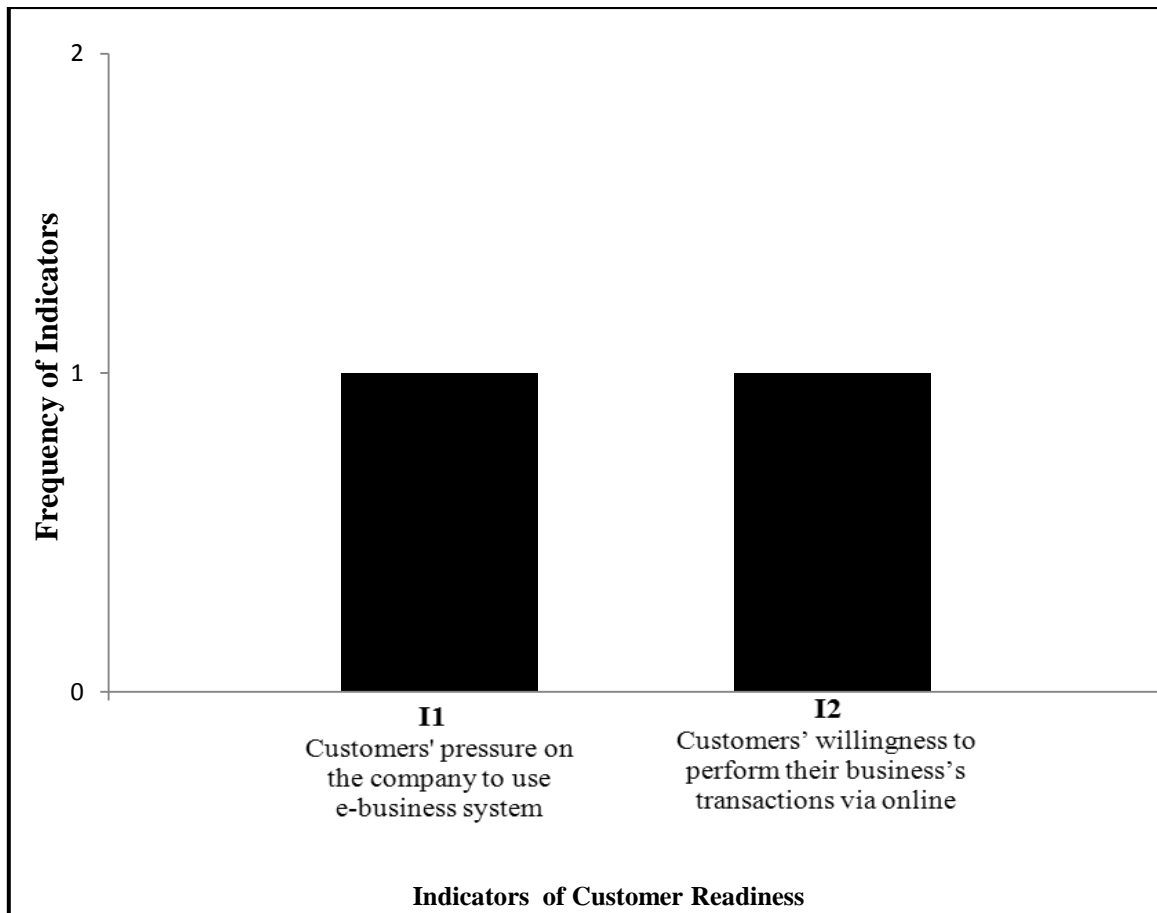


Figure 6.22: Indicators of customer readiness demonstrated by participating SMEs

Factor4: Security Concerns

Drawing on the view of Dholakia and Kshetri (2004), security concerns are defined as the concern about transmission of financial data such as credit card and financial related account numbers and information. It is operationalised in terms of four indicators which were reported in Section 3.1 (and Appendix E) and are reproduced to assist interpretation of the case study findings: a) selection of most reliable online payment provider (I1), b) powerful security systems (I2), c) perceived risk (I3), and d) presence of trust in e-business (I4). Out of two participating SMEs which considered that security concerns have influenced their decision to adopt e-business systems in their companies, both companies (i.e. SER16 and MAN5) considered security concerns to have a positive influence on their decision to adopt e-business systems. None were found to indicate either a weak or negative influence of security concerns on their decision to adopt e-business systems. Figure 6.23 summarises the influence of security concerns on the adoption decision stage of the e-business systems adoption process.

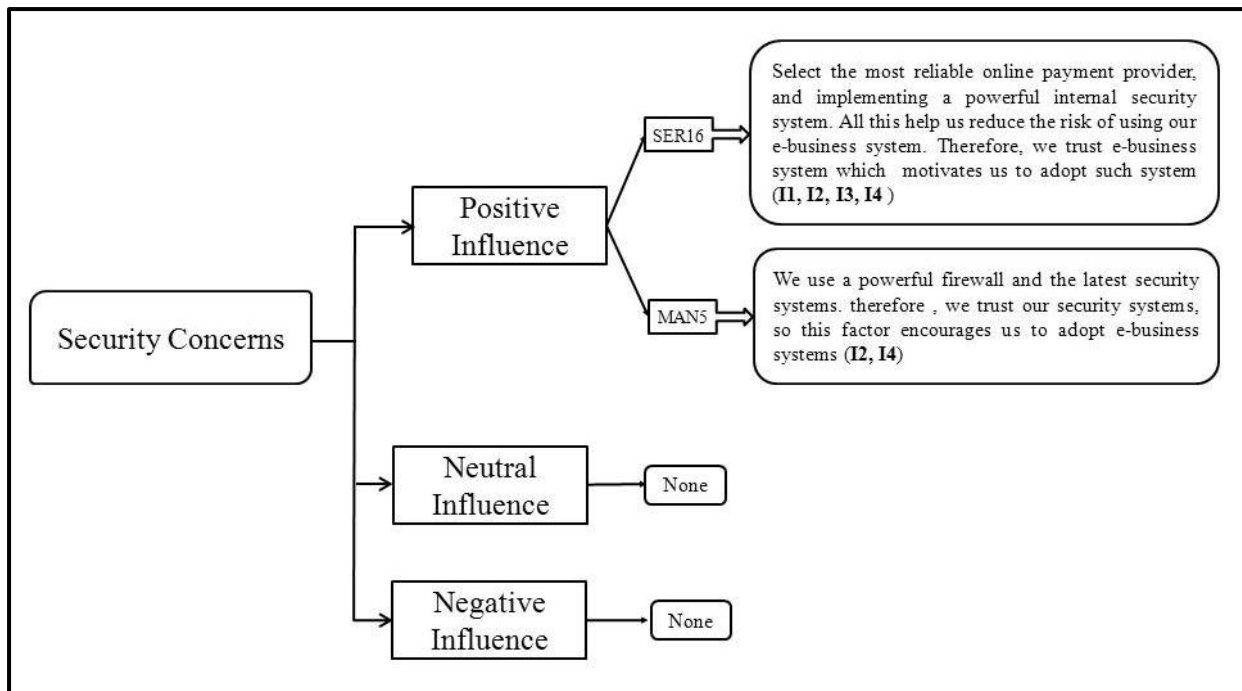


Figure 6. 23: Influence of security concerns on the adoption decision stage

Those two SMEs which considered that the security concerns have positive influence on their decision to adopt e-business systems, acknowledged that the presence of a powerful online payment method provider (I1) and security systems (I2) in the company reduced the risk of using e-business systems (I3) and increased trust (I4) in e-business systems. The manager of MAN5 stated “*The possibility of our database being hacked is a real problem. So we use a powerful firewall and the latest security systems which help to trust our security systems, so this factor encourages us to adopt e-business systems*”. Additionally, the manager of SER16 remarked “*We select the most reliable online payment provider, and implement a powerful internal security system such as a firewall, and security software and hardware. All this helps us reduce the risk of using our e-business system. Therefore, we trust e-business systems which motivate us to adopt such a system*”. No empirical evidence was found to suggest either a weak or negative influence of security concerns on the participating SMEs’ decision to adopt e-business systems in their companies.

A review of the case study findings further suggests those two SMEs which are at the adoption decision stage of the e-business system adoption process demonstrated a different number of indicators for the existence of security concerns on their decision to adopt an e-business system. It is observed that powerful security systems in the company (I2) and presence of trust in e-business systems (I4) were the leading indicators for the existence of security concern on the adoption decision of the e-business systems adoption process, whereas, selection of most reliable online payment provider (I1) and perceived risk (I3) were less frequently cited indicators. The empirical evidence suggests that all the participating SMEs indicated the presence of trust in e-business systems which motivated them to adopt an e-business system. In addition, all participating SMEs believe that this factor has a positive influence on their decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it seems that security concerns has ‘strong positive influence’ on the SMEs’ decision to adopt e-business systems. These observations are discussed in Chapter 8. Figure 6.24 presents the frequency of the security concerns indicators cited by the participating SMEs.

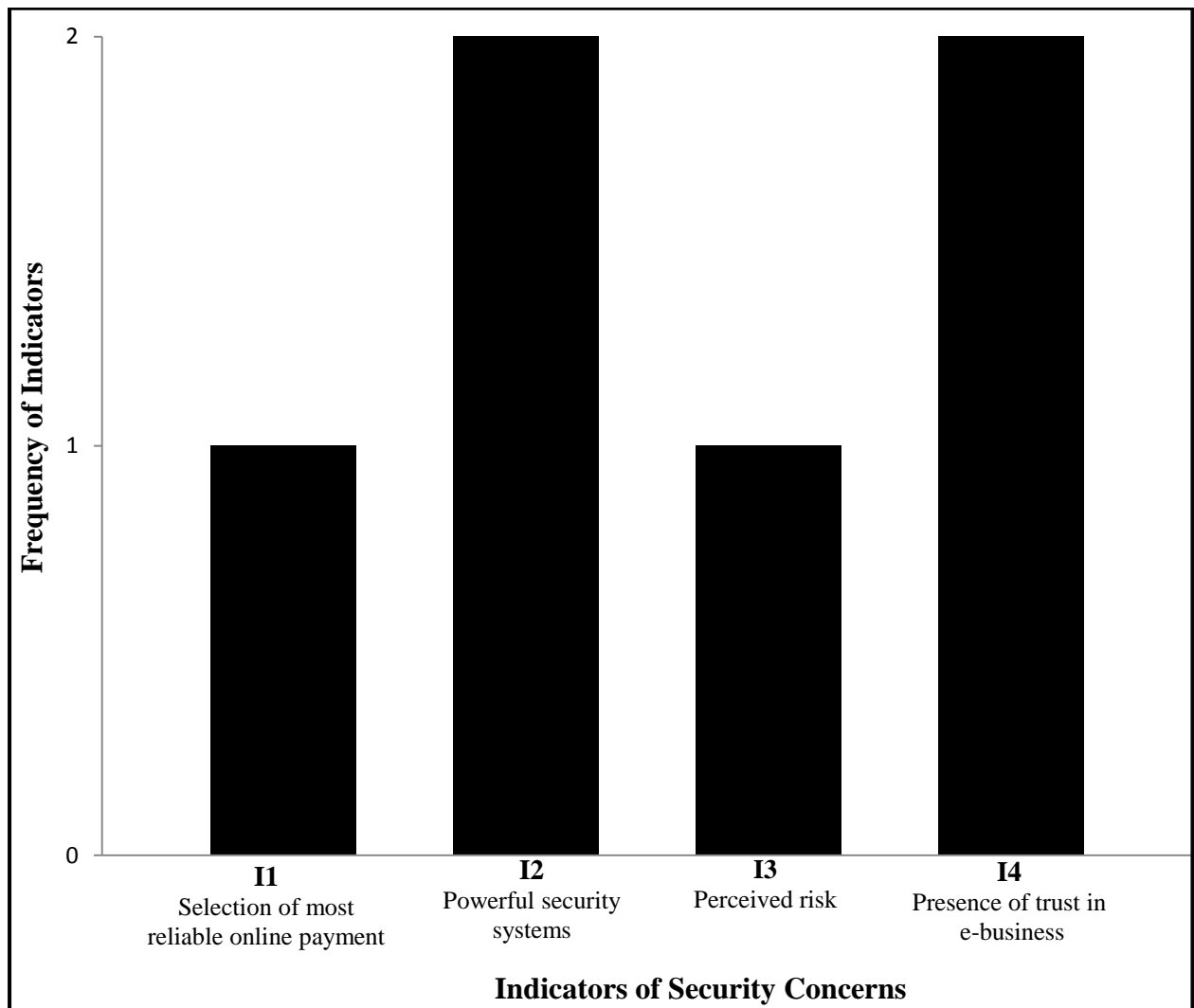


Figure 6.24: Indicators of security concerns demonstrated by participating SMEs

Factor5: High Competence in IS

Drawing on the view of Ramsey and Ibbotson (2008), high competence in IS is defined as staff skills and development of the learning process to improve proficiency and capability levels in IS to accommodate e-business. It is operationalised in terms of three indicators which were reported in Section 3.11 (and Appendix E) and are reproduced to assist interpretation of the case study findings: a) presence of education framework (I1), b) employees' experience (I2), and c) employees' e-business skills (I3). Out of two participating SMEs which considered that high competence in IS has influenced their decision to adopt e-business systems in their companies, one company (i.e. SER16) regarded high competence in IS to have a positive influence on their decision to adopt an e-business system, another one (i.e. MAN5) viewed 'high competence in IS' to have no relevance on their decision, and none were found to indicate a negative influence of high competence in IS. Figure 6.25 summarises the influence of high competence in IS on the adoption decision stage of the e-business systems adoption process.

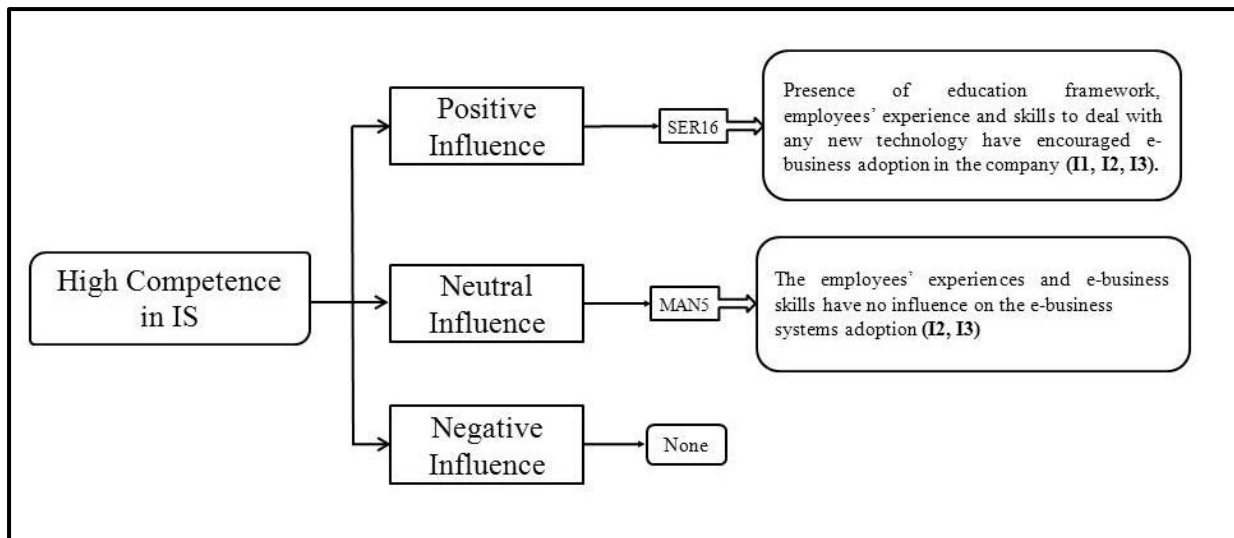


Figure 6.25: Influence of the high competence in IS on the adoption decision stage

Such indicators as the presence of education framework in the company (I1), the employees' experience (I2), and the employees' e-business skills (I3) were found to have positively contributed to this SME's decision to adopt e-business systems. For example, the manager of SER16 remarked *"We developed an education framework to encourage a continuous learning process in our company which resulted in all staff in the company having experience and skills to deal with any new technology. Therefore, this helps to accelerate the adoption of e-business systems in the company"*. In contrast, this SME which considered that the high competence in IS has no influence on their decision to adopt e-business systems acknowledged that the employees in their company have experience and IS skills, but this had no influence on their decision to adopt an e-business system. According to the manager of MAN5 *"Our employees have experience and e-business skills but this had no influence on the e-business systems adoption. The adoption decision of e-business system has been made by the top management. Therefore, the employees have no choice to influence this decision"*. No empirical evidence was found to suggest a negative influence of high competence in IS on the participating SMEs' decision to adopt e-business systems in their companies.

A review of the case study findings further suggests those two SMEs which are at the adoption decision stage of the e-business system adoption process demonstrated a different number of indicators for the existence of high competence in IS on their decision to adopt an e-business system. It is observed that employees' experience (I2) and employees' e-business skills (I3) were leading indicators for the existence of high competence in IS on the adoption decision of the e-business system adoption process by the participating SMEs, while, presence of educational framework (I1) was a less frequently cited indicator. The empirical evidence suggests that all the participating SMEs acknowledged the presence of employees' experience and e-business skills but despite such acknowledgment only one company believed that this factor has positively influenced their decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it seems that high competence in IS has 'possible influence' on the SMEs' decision to adopt e-business systems. A discussion of these observations is provided in Chapter 8. Figure 6.26 presents the frequency of the high competence in IS indicators cited by the participating SMEs.

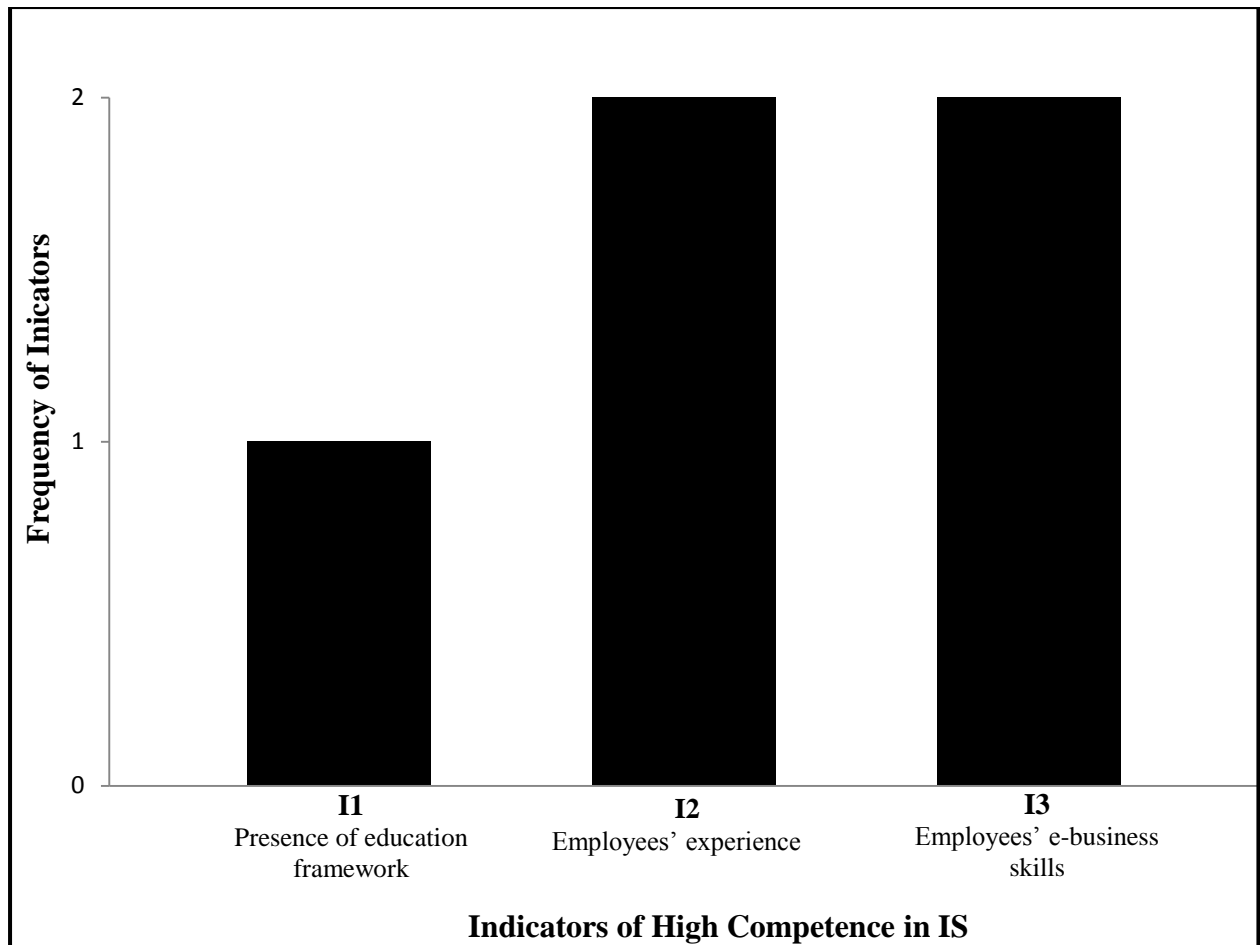


Figure 6.26: Indicators of high competence in IS demonstrated by participating SMEs

Factor 6: Perceived E-business Value

Drawing on the views expressed by Amit and Zott (2001), e-business value defines as “the worth accrued to the economic players of the value system (i.e. mostly business firms)” (p.499). This factor is operationalised in terms of six indicators which were reported in Section 3.11 (and Appendix E) and are reproduced to help interpret the case study findings: a) awareness of e-business value (I1), b) customer’s satisfaction (I2), c) increase sales volumes (I3), d) easiness of the transactions (I4), e) minimising the communication gap (I5), and broader product variety (I6). Two participating SMEs (i.e. SER16 and MAN5) which considered that perceived e-business value has influenced their decision to adopt e-business systems in their companies considered perceived e-business value to have a positive influence on their decision to adopt e-business systems. None were found to indicate a weak or negative influence of perceived e-business value on their decision to adopt e-business systems. Figure 6.27 summarises the influence of the perceived e-business value on the adoption decision stage of the e-business systems adoption process.

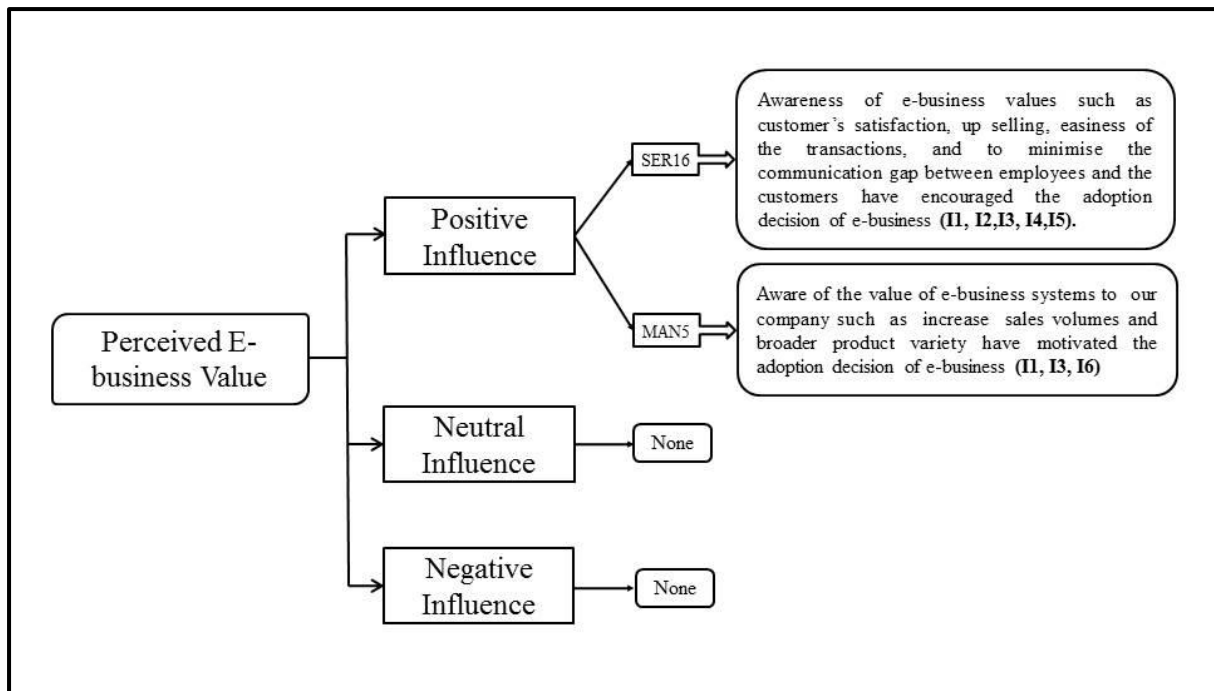


Figure 6.27: Influence of the perceived e-business value on the adoption decision stage

Those SMEs which considered that the perceived e-business value has a positive influence on their decision to adopt e-business systems indicated their awareness about the value of e-business systems (I1). These values are: Customer's satisfaction (I2), increase sales volumes (I3), ease of transactions (I4), minimising the communication gap (I5), and broader product variety (I6). For instance, the manager of SER16 stated "*E-business systems are worldwide in use and we also have awareness to implement this kind of technology for customer's satisfaction, up selling, ease of the transactions, and to minimise the communication gap between our employees and the customers. So all of these values of e-business systems encouraged us to adopt it*". In addition, the manager of MAN5 remarked "*The main reason to adopt e-business systems in our company is the need for these systems, and we are aware of the value of e-business systems to our company such as increased sales volumes and broader product variety. So, this is a very important factor which encouraged us to adopt e-business systems*". No empirical evidence was found to suggest either a neutral or negative influence of perceived e-business value on the participating SMEs' decision to adopt e-business systems in their companies.

A review of the case study evidence further suggests those two SMEs which are at the adoption decision stage of the e-business system adoption process demonstrated a varying number of indicators for the existence of perceived e-business value on their decision to adopt an e-business system. It is observed that awareness of e-business value (I1) and increase sales volumes (I3) were leading indicators of the existence of perceived e-business value influence on the adoption decision of e-business systems by those SMEs. Whereas, customer's satisfaction (I2), ease of transactions (I4), minimising the communication gap (I5), and broader product variety (I6) were less frequently cited indicators for the presence of perceived e-business value influence on the e-business systems adoption decision stage. The empirical evidence suggests that all the participating SMEs indicated the presence of awareness about the value of e-business systems which motivated them to adopt e-business systems. In addition, all participating SMEs believed that this factor had a positive influence

on their decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it is likely that perceived e-business value has ‘strong positive influence’ on the SMEs’ decision to adopt e-business system. These observations are discussed in Chapter 8. Figure 6.28 presents the frequency of the perceived e-business value indicators cited by the participating SMEs.

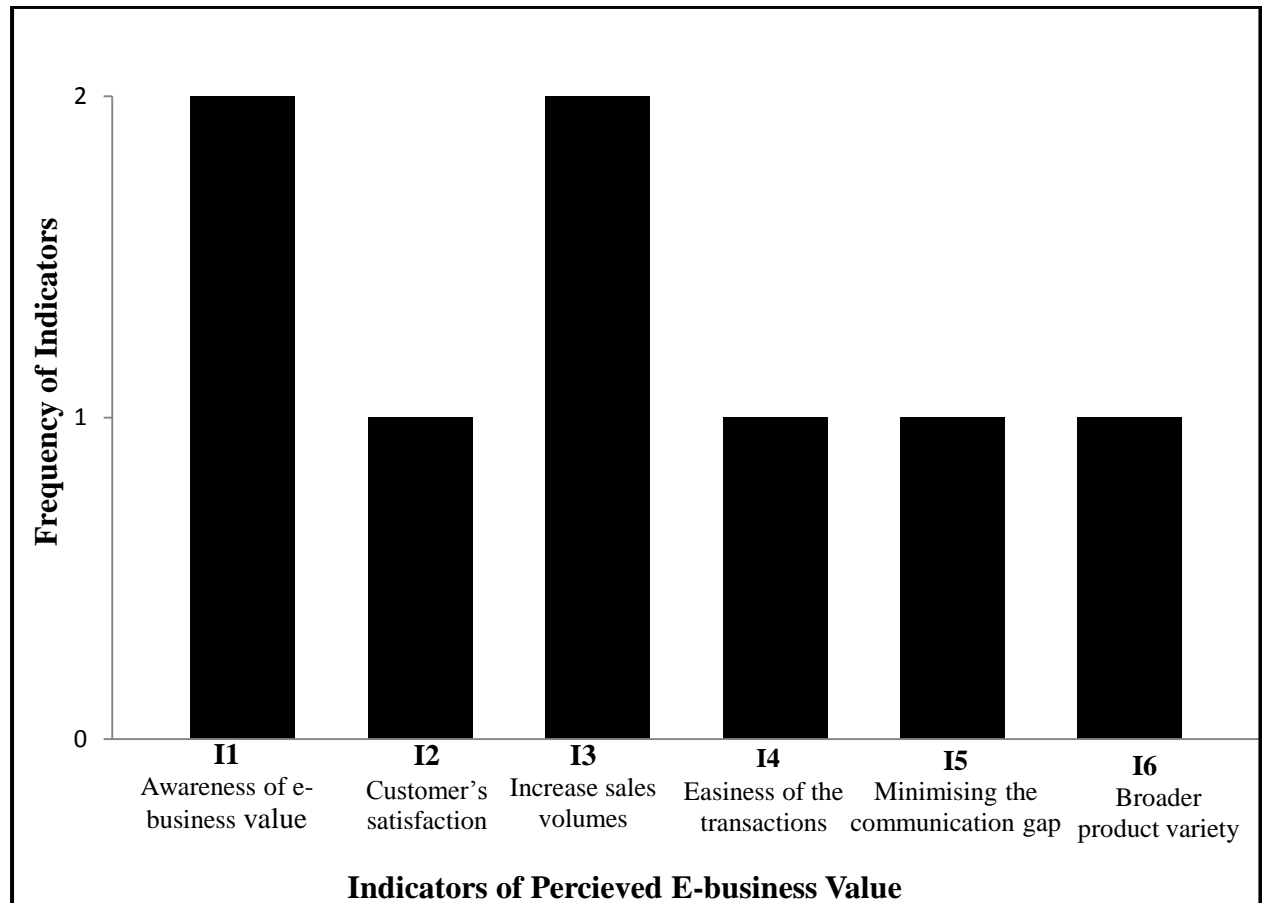


Figure 6.28: Indicators of perceived e-business value demonstrated by participating SMEs

Factor 7: Owner Attitude toward Technology

Drawing on the views of Parker and Castleman (2007), the owner attitude toward technology refers to the behaviours and perceptions of a company’s owner toward a new technological innovation whether these behaviours and attitudes are positive or negative. It is operationalised in terms of three indicators that were reported in Section 3.11 (and Appendix E) and are reproduced to help interpret the case study findings: a) owner awareness about e-business (I1), b) owner knowledge of IT and e-business (I2), and c) owner’s experience (I3). Two participating SMEs (i.e. SER16 and MAN5) which considered the owner attitude toward technology has influenced their decision to adopt e-business systems in their companies regarded owner attitude toward technology to have a positive influence on their decision to adopt an e-business system. None were found to indicate either a neutral or negative influence of owner attitude toward technology on their decision to adopt e-business systems. Figure 6.29 summarises the influence of the owner attitude toward technology on the initiation stage of e-business systems adoption process.

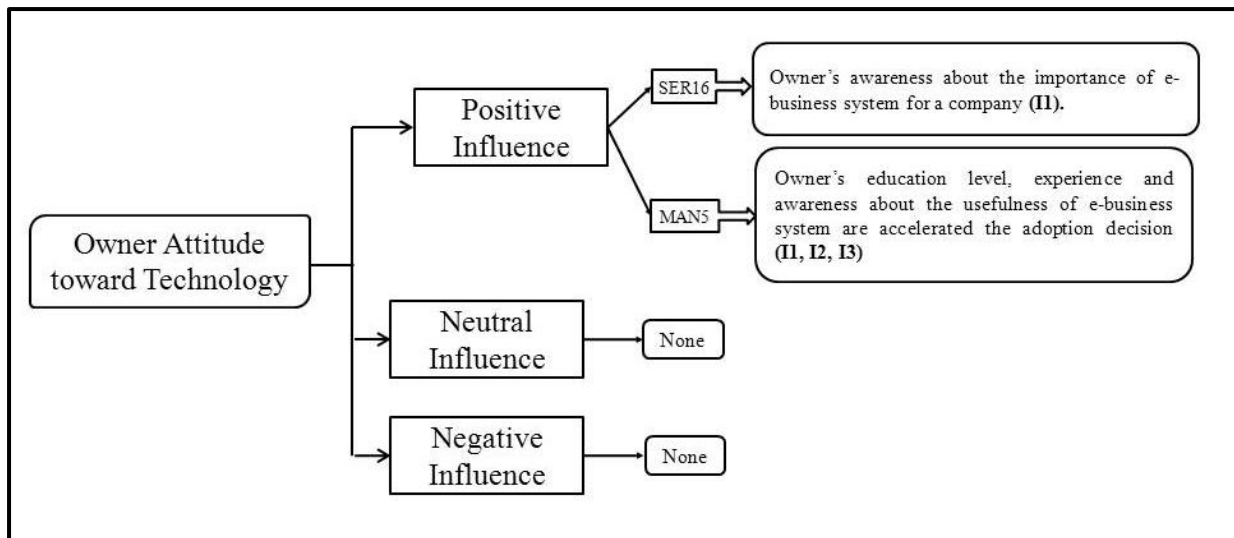


Figure 6.29: Influence of owner attitude toward technology on the adoption decision stage

Those two SMEs which considered that the owner attitude toward technology has positive influence on their decision to adopt e-business systems indicated their awareness of the usefulness of e-business systems (I1). Moreover, they indicated that the high education level (I2) and experience (I3) of the owner assisted acceleration of the e-business adoption decision. For example, the manager of SER16 remarked “*The attitude of the company’s owner is 100% positive and he is aware of the usefulness of an e-business system*”. In addition, the manager of MAN5 added “*The owner of the company has a master degree in Information Technology and he has experience in software development. Therefore, he is aware to what extent an e-business system is useful for the company. The owner is the main driver behind the adoption of e-business systems*”. No empirical evidence was found to suggest a neutral or negative influence of owner attitude toward technology on the participating SMEs’ decision to adopt e-business systems in their companies.

A review of the empirical evidence suggested those two SMEs which are at the adoption decision stage of the e-business systems adoption process demonstrated a different number of indicators for the existence of owner attitude toward technology on their decision to adopt an e-business system. It is observed that owner’s awareness about e-business systems (I1) was the leading indicator of the existence of owner attitude toward technology influence on the adoption decision of e-business systems by participating SMEs. Whereas, the owner’s knowledge of IT and e-business (I2) and owner’s experience (I3) were less frequently cited indicators for the presence of owner attitude toward technology influence on the e-business systems adoption decision stage. The empirical evidence suggests that all the participating SMEs indicated the presence of owner’s awareness about the importance of e-business systems which motivated the adoption of e-business by the companies. In addition, all participating SMEs believed that this factor had a positive influence on their decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it appears that owner attitude toward technology has ‘strong positive influence’ on the SMEs’ decision to adopt an e-business system. A discussion of these observations is provided in Chapter 8. Figure 6.30 presents the frequency of the owner attitude toward technology indicators cited by the participating SMEs.

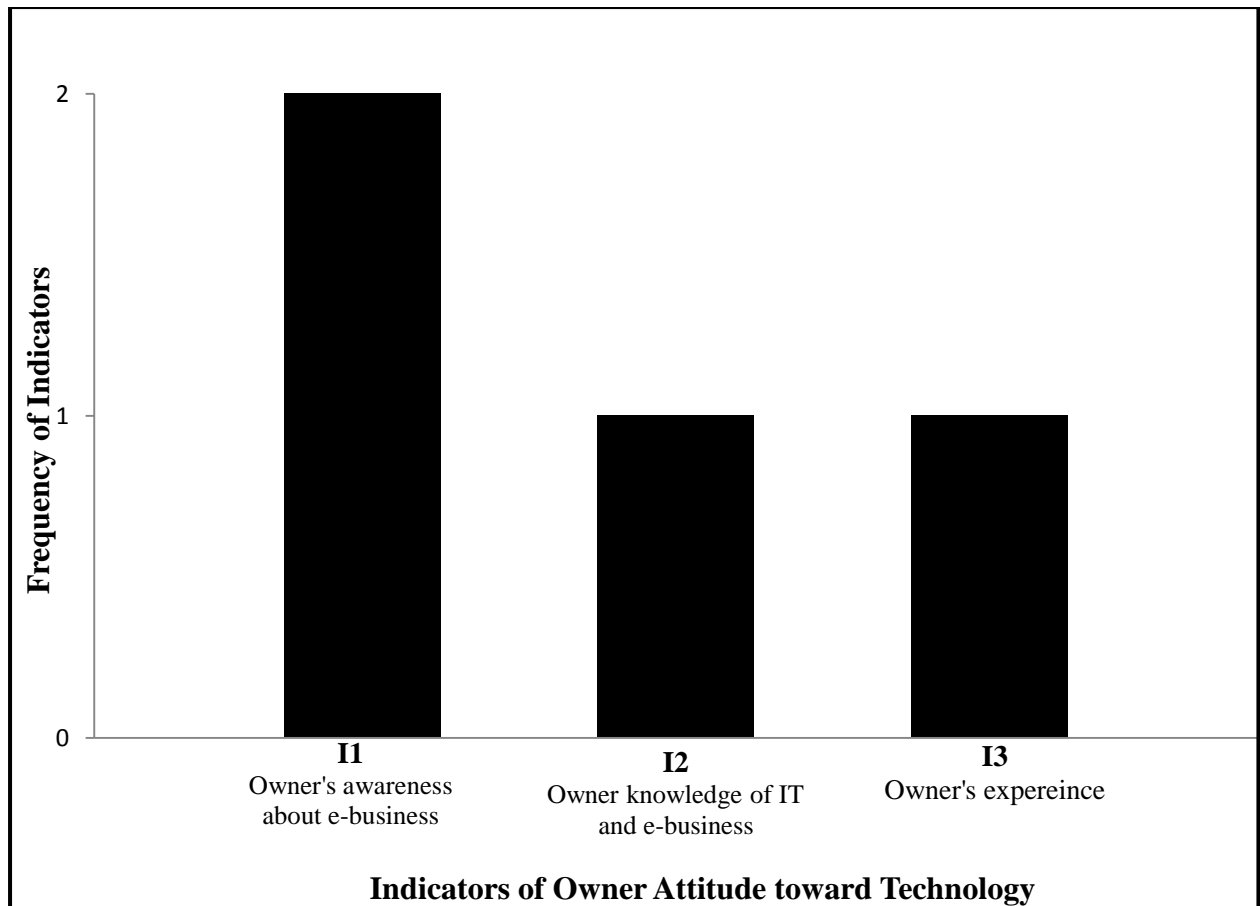


Figure 6.30: Indicators of owner attitude toward technology demonstrated by participating SMEs

Factor 8: Knowledgeable Employee Attitude toward Technology

Drawing on the view of Hertog (2010), knowledgeable employees' attitude toward e-business is defined as the perceptions of the employees who have a general knowledge of business and appreciate the importance of e-business systems. It is operationalised in terms of three indicators which were reported in Section 3.11 (and Appendix E) and are reproduced to help interpret the case study findings: a) awareness of e-business importance (I1), b) employees with ability to convince the top management about e-business in the company (I2) and c) awareness of e-business benefits for the company (I3). Two participating SMEs (i.e. SER16 and MAN5) considered that the knowledgeable employee attitude toward technology had influenced positively their decision to adopt e-business systems in their companies. None were found to indicate either a neutral or negative influence of knowledgeable employee attitude toward technology on their decision to adopt e-business systems. Figure 6.31 summarises the influence of knowledgeable employee attitude toward technology on the adoption decision stage of the e-business systems adoption process.

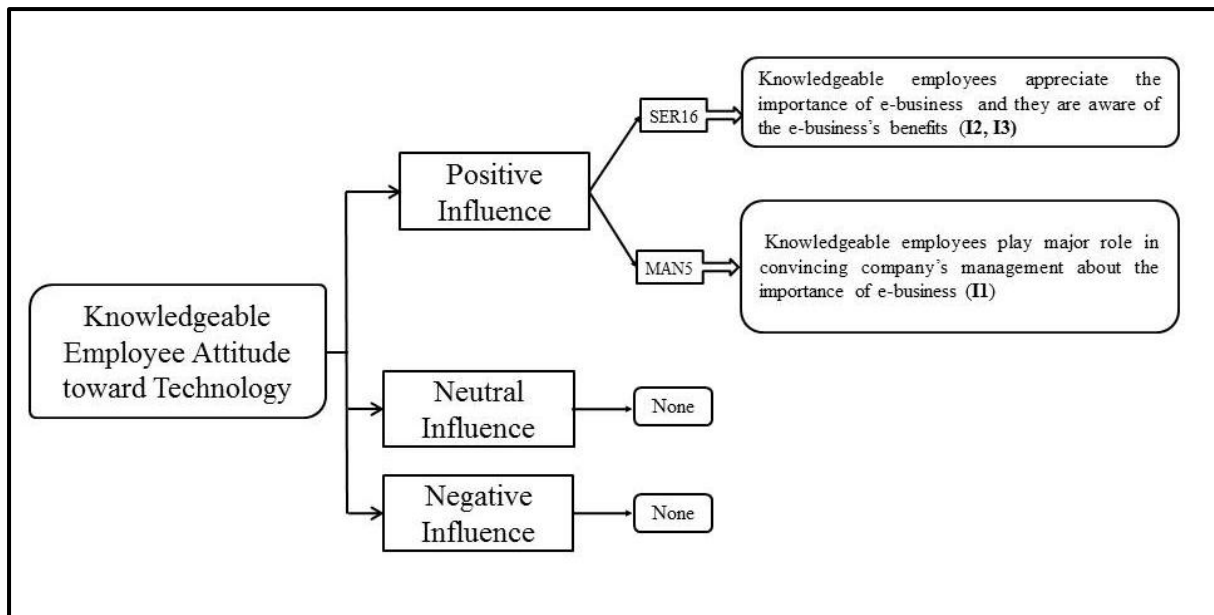


Figure 6.31: Influence of knowledgeable employee attitude toward technology on the adoption decision stage

Those two SMEs which considered that the knowledgeable employee attitude toward technology had a positive influence on their decision to adopt e-business systems indicated their awareness about the importance (I1) and benefits (I3) of e-business systems. Moreover, they indicated that the existence of employees with the ability to convince the top management about adopting e-business systems in the company contributed to accelerated e-business adoption decisions. The manager of SER16 remarked “*Our employees are well trained, educated, and they understand to what extent e-business technology is important. That is why their attitude is very positive. So, their attitude toward e-business systems encouraged the process of adopting an e-business system*”. Furthermore, the manager of MAN5 added “*The knowledgeable managers in the company have a vital role in convincing the owner of the benefits of adopting e-business systems*”. No empirical evidence was found to suggest a neutral or negative influence of knowledgeable employee attitude toward technology on the participating SMEs’ decision to adopt e-business systems in their companies.

A review of the case study evidence further suggested that those two SMEs which are at the adoption decision stage of the e-business system adoption process demonstrated a slightly different number of indicators for the existence of knowledgeable employee attitude toward technology on their decision to adopt an e-business system. It is observed that all three indicators for the presence of knowledgeable employee attitudes toward technology influence on the adoption decision of the e-business systems adoption process were cited only once by the participating SMEs. The empirical evidence suggests that all the participating SMEs indicated the importance of e-business systems, its benefits, and the presence of knowledgeable employees with the ability to convince the top management of the company about e-business, facilitated the adoption decision of e-business by the company. In addition, all participating SMEs believed that this factor had a positive influence on their decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it seems that knowledgeable employee attitudes toward technology had a ‘strong positive influence’ on the SMEs’ decision to adopt e-business system. A discussion of these observations is provided in

Chapter 8. Figure 6.32 presents the frequency of the knowledgeable employee attitude toward technology indicators cited by the participating SMEs.

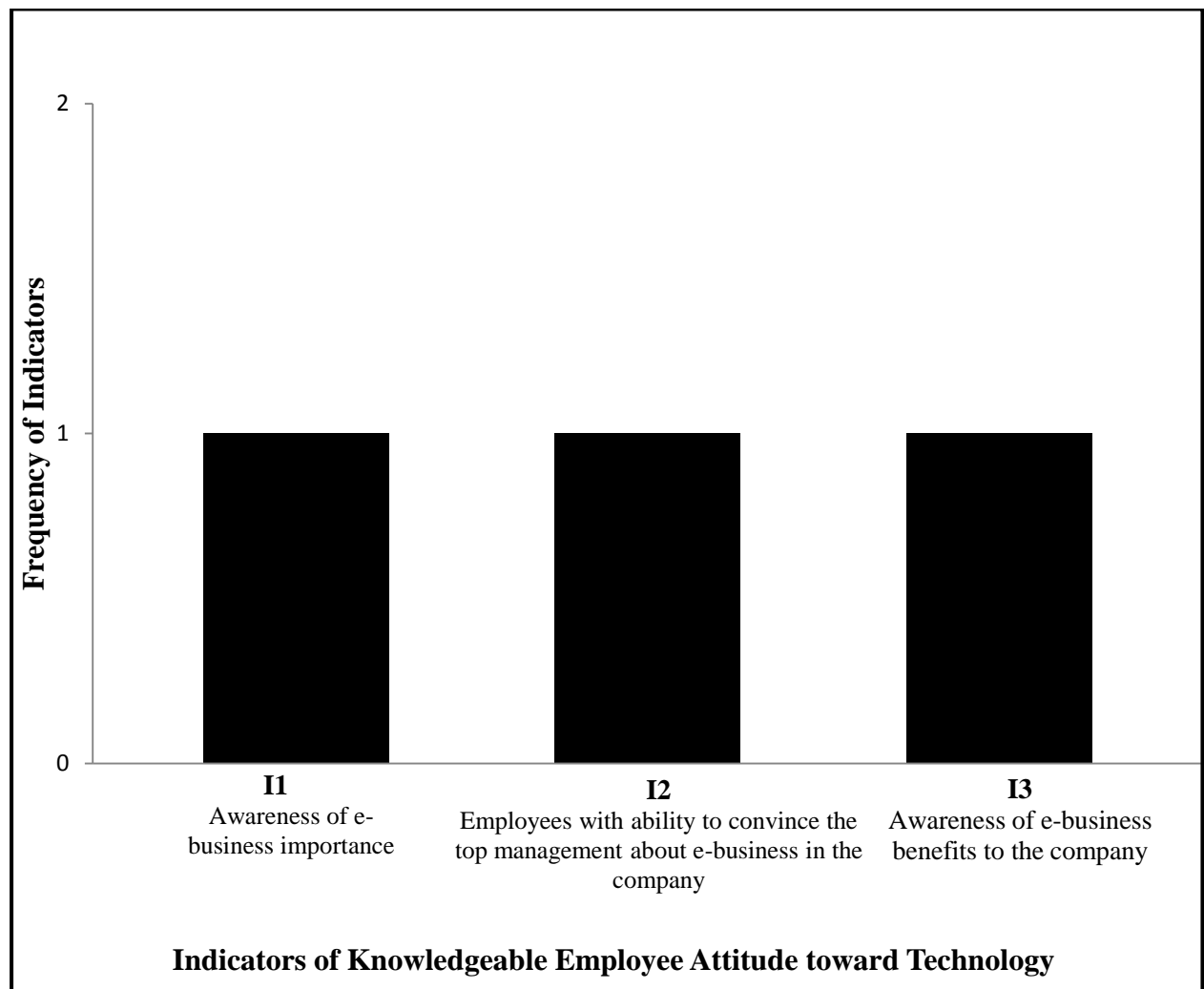


Figure 6.32: Indicators of knowledgeable employee attitude toward technology demonstrated by participating SMEs

6.3.1 Summary (Stage2: Adoption Decision)

In summary, drawing on the discussion about the influence of the factors affecting the adoption decision stage of the e-business systems adoption process, the following observations are made: a) a total of five factors (i.e. *customer readiness*, *security concerns*, *perceived e-business value*, *owner attitude toward technology*, and *knowledgeable employee attitude toward e-business*) have strong positive influence on the SMEs' adoption decision of e-business systems, b) only one factor (i.e. *communication*) has possible influence on the adoption decision of e-business systems, and c) two factors (i.e. *e-business law* and *high competence in IS*) have a weak influence on the SMEs' decision to adopt e-business systems. The implications of these observations in terms of industry sector and comparison with existing literature are discussed in Chapter 8.

6.4 Implementation Stage

The implementation stage involves the use of an innovation in an organisation (Rogers 2003). A total of 10 SMEs are in the implementation stage of the e-business systems adoption process. These include six manufacturing SMEs (i.e. MAN5, MAN6, MAN7, MAN8, MAN9, and MAN10) and four service SMEs (i.e. SER17, SER18, SER19, and SER20). According to the research model (Figure 4.8), a total of four factors (i.e. *Training, high competence in IS, perceived e-business attributes, and lower level employee attitude toward technology*) were suggested to influence the implementation stage of the e-business system adoption process in SMEs. In the following sections, a discussion of the case study findings for each factor is shown in Figure 6.33.

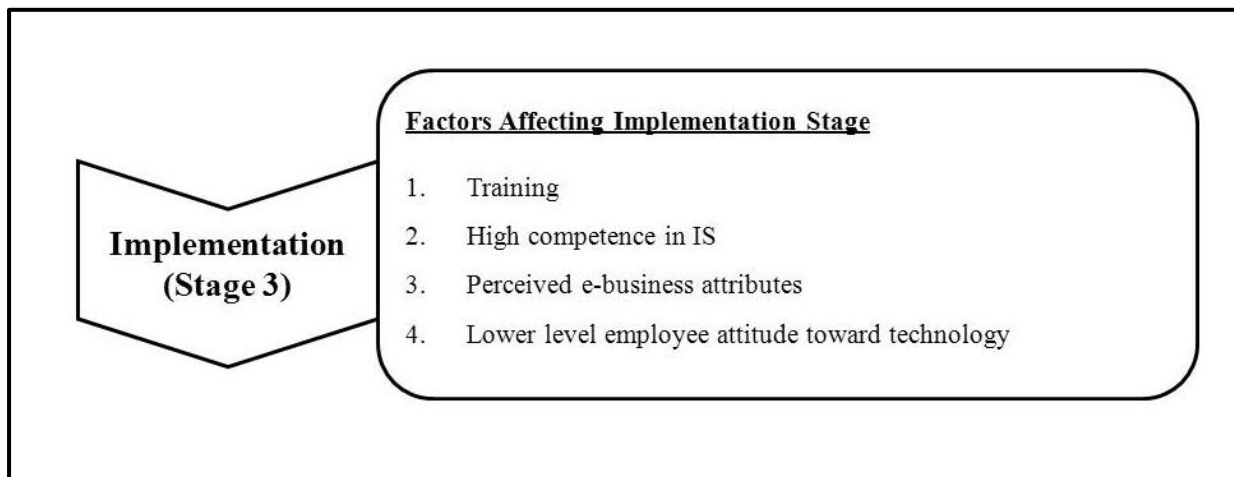


Figure 6. 33: Factors affecting implementation stage

Factor1: Training

Drawing on the view of Wilson and Davies (2008), training is defined as the amount of exercise and preparation provided by vendors, consultants, or external educational institutions to the company. It is operationalised in terms of three indicators which were reported in Section 3.11 (and Appendix E) and are reproduced to help interpret the case study findings: a) availability of periodical training (I1), training on how to use the e-business system (I2), and c) e-business training is not relevant (I3). Out of 10 participating SMEs which considered training to have influenced their implementation of e-business systems in their companies, six (i.e. MAN9, MAN7, MAN8, SER17, SER18, and SER20) indicated training to have a positive influence on the implementation of e-business systems, four (i.e. MAN6, MAN10, MAN5, and SER19) regarded training to have no relevance on e-business systems implementation, and none were found to indicate a negative influence of training. Figure 6.34 summarises the influence of training on the implementation stage of the e-business systems adoption process.

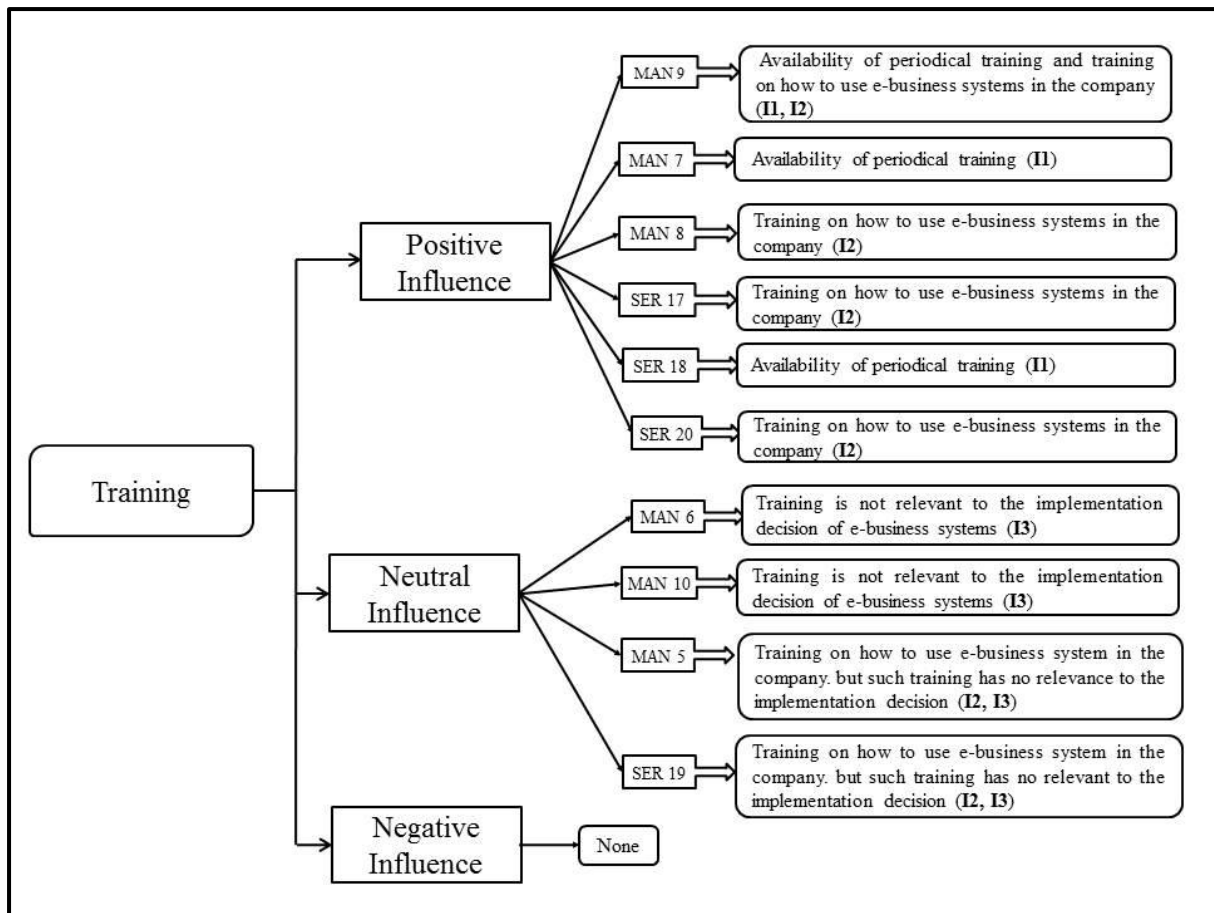


Figure 6.34: Influence of training on the implementation stage

Out of these six SMEs, the availability of periodical training in the company (I1) and special training on how to use the e-business systems (I2) were found to have positively contributed to the implementation of e-business systems in these SMEs. For instance, the manager of MAN9 remarked “We have regular training courses for employees every year. Also, we conducted special training on how to use the e-business system for the employees in the sales and finance departments. The training is necessary to implement the e-business systems, so I think we have no choice to do so. I believe this factor helped to take a decision to implement e-business systems within the company, but it is not the main reason”. This sentiment was also shared by the owner of SER17 who added “It was introduced by the software vendors for the employees who are using this system and trained them on how to use such a system. Therefore, such training motivated us and facilitated the implementation of the e-business system”. Similar views were expressed by the managers of MAN7, MAN8, SER18, and SER20. In contrast, those four SMEs which considered that training has no influence on their implementation of e-business systems acknowledged the availability of training on how to use e-business systems in their companies, but such availability of training has no influence on e-business systems implementation. According to the manager MAN5, “The company’s employees attended intensive training courses in how to use these systems. As for the influence of this training on the decision of the company to implement these systems, I do not think so, because the use of the system is necessary and the training of the employees in its use is also necessary”. Similar views were expressed by the manager of SER19 who remarked “The company’s employees have attended an intensive training course about this system. But the implementation of this system was made by the head management and the implementation decision is not relevant to availability of training in the company”. Similar

views were expressed by the managers of MAN6 and MAN10. No empirical evidence was found to suggest a negative influence of training on the implementation of e-business systems in participating SMEs.

A review of the case study evidence further suggests those 10 SMEs which are at the implementation stage of the e-business system adoption process demonstrated a different number of indicators for the existence of training on their decision to implement an e-business system. It is observed that the training on how to use e-business systems (I2) was the leading indicator of the existence of training influence on the implementation stage of e-business systems by most participating SMEs. Whereas, the availability of periodical training (I1) and e-business training is not relevant (I3) were less frequently cited indicators for the presence of the training influence on the e-business systems implementation stage. The empirical evidence suggests that most of the participating SMEs acknowledged the presence of training on how to use e-business systems but despite such acknowledgment, six believed this factor had positively influenced their decision to implement such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that training has ‘possible influence’ on the implementation of e-business systems in participating SMEs. A rich discussion of these observations is provided in Chapter 8. Figure 6.35 presents the frequency of the training indicators cited by the participating SMEs.

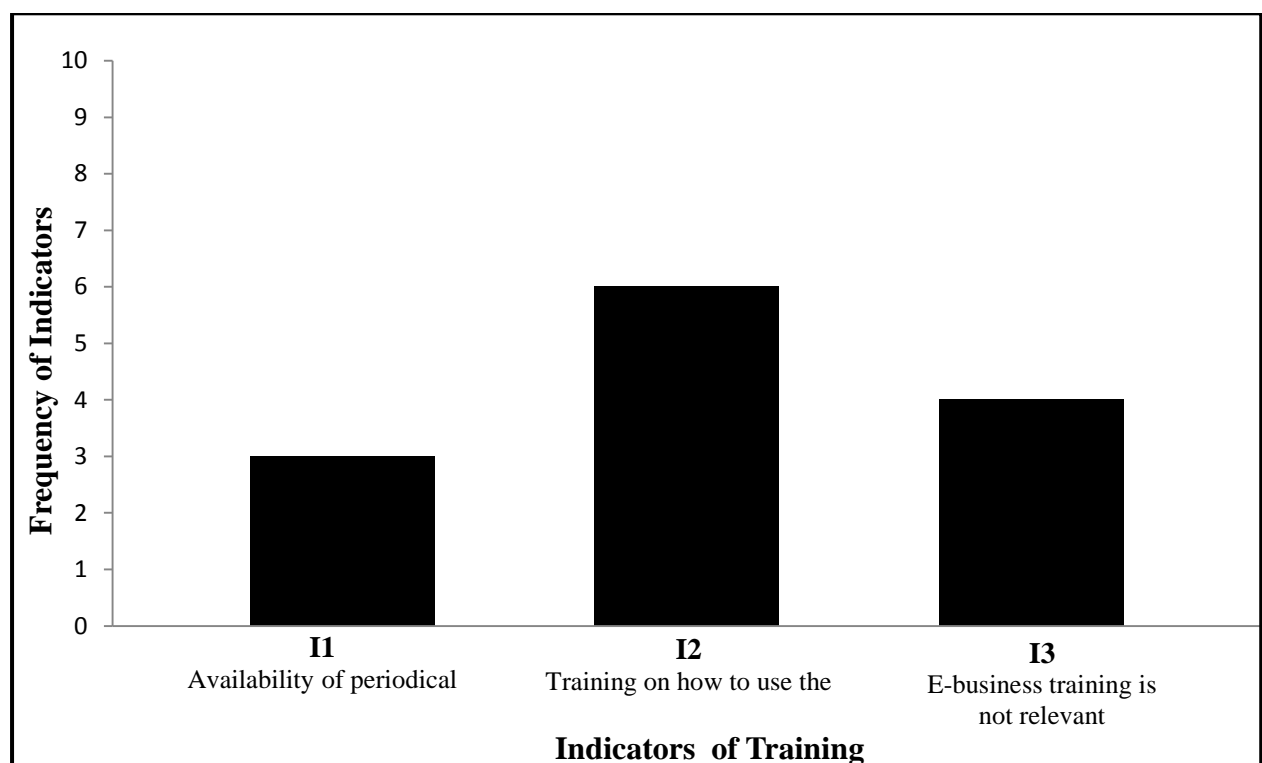


Figure 6.35: Indicators of training demonstrated by participating SMEs

Factor 2: High Competence in IS

Drawing on the view of Ramsey and Ibbotson (2008), high competence in IS is defined as staff skills and development of the learning process to improve capability levels in IS to accommodate e-business. It is operationalised in terms of four indicators which were reported in Section 3.11 (and Appendix E) and are reproduced to shed insights from the case study findings: a) employee's qualification (I1), b) employees' experience and expertise (I2), c) employees' with technical skills (I3), and d) high competence in IS is not relevant (I4). Out of 10 participating SMEs which considered high competence in IS had influenced the implementation of e-business systems in their companies, eight (i.e. MAN9, MAN7, SER17, SER18, SER20, MAN6, MAN10, and MAN5) considered high competence in IS to have a positive influence, two (i.e. MAN8 and SER19) regarded high competence in IS to have no relevance on their implementation, and none were found to indicate a negative influence of high competence in IS. Figure 6.36 summarises the influence of high competence in IS on the implementation stage of the e-business systems adoption process.

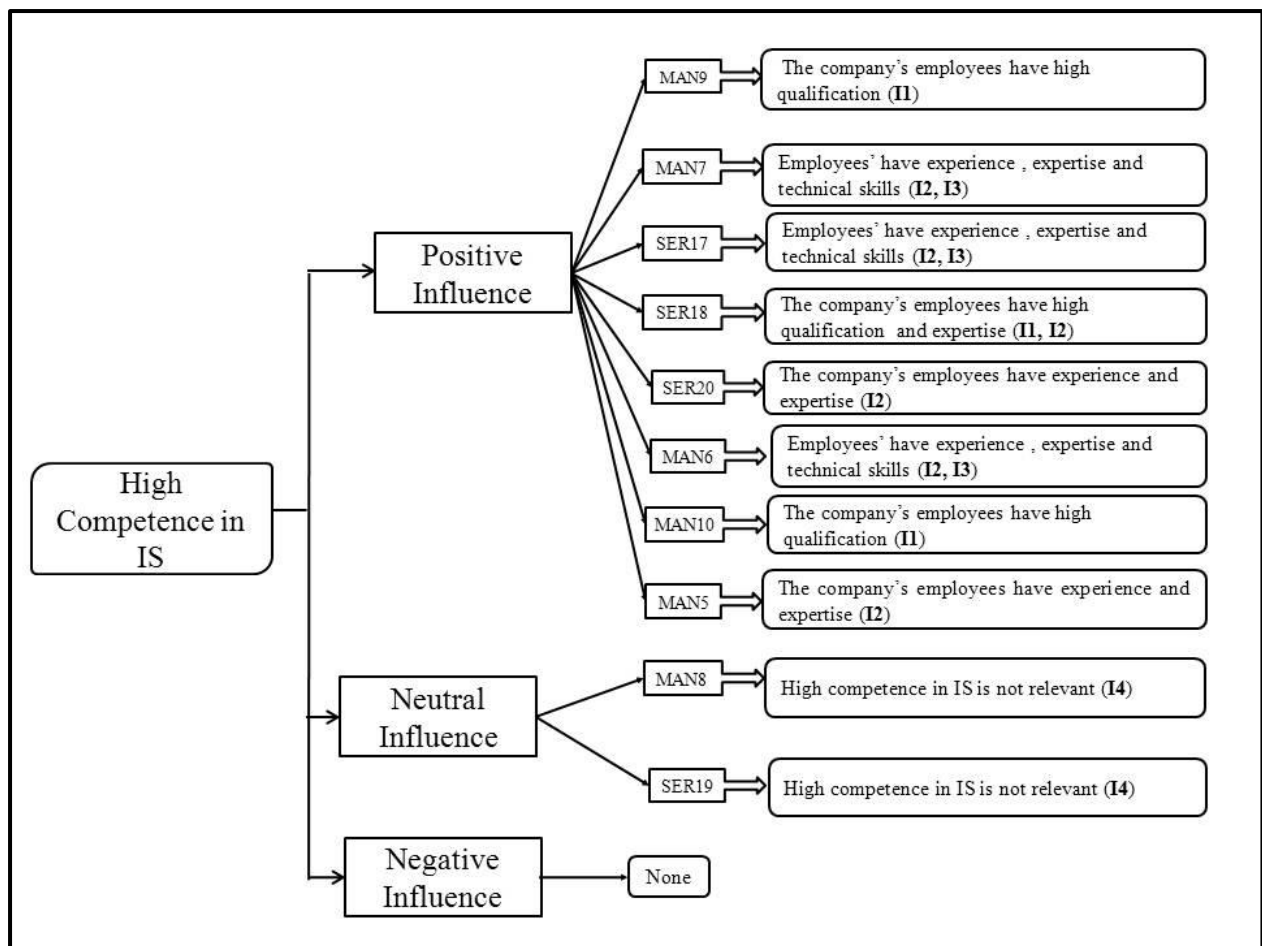


Figure 6.36: Influence of high competence in IS on the implementation stage

Out of these eight SMEs, the employees' experience and expertise (I2) and their education level (I1) were found to have positively contributed to these SMEs' decision to implement these systems in their companies. For instance, the manager of MAN10 stated "All of the staff in the company had a high qualification which made the implementation of e-business systems in the company much easier, because it is easy to train them and they actively participated in this. So, yes, this supports the implementation process of e-business in the

company”. This view was also shared by the manager of SER18 who added “*We are keen to employ people with high qualifications and also we provide several training courses which impacted their expertise. So, all this helps the company to implement an e-business system*”. Similar views were expressed by the managers of MAN9, MAN7, SER17, SER20, MAN6, and MAN5.

In contrast, those two SMEs which considered that the high competence in IS has no influence on their implementation of e-business systems indicated that the competency in IS had no influence on implementation of e-business systems in their companies. According to the manager of SER19 “*All employees using e-business systems in the beginning have no idea and after training, they become familiar with how to use such a system. So, I think the employees have gained the expertise in this system after using it*”. Similar views were expressed by the manager of MAN8 who indicated “*This factor has no influence at all on the decision to implement e-business systems in the company*”. No empirical evidence was found to suggest a negative influence of high competence in IS on the participating SMEs’ decision to implement e-business systems in their companies.

A review of the case study evidence further suggests that those 10 SMEs which are at the implementation stage of e-business system adoption process demonstrated a different number of indicators for the existence of high competence in IS on their decision to implement an e-business system. It was observed that employees’ experience and expertise (I2) was a more frequently cited indicator for the presence of high competence in IS influence on the e-business systems implementation stage. Whereas, employees’ qualification (I1), employees’ with technical skills (I3), and high competence in IS is not relevant (I4) were less cited indicators for the existence of high competence in IS influence on the implementation stage of the e-business systems adoption process. The empirical evidence suggests that most of the participating SMEs agreed the presence of employees’ experience and expertise assisted the implementation of e-business systems by their companies. Out of 10 SMEs, eight believed this factor had positively influenced their decision to implement such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that high competence in IS has ‘strong positive influence’ on the implementation of e-business systems in the participating SMEs. A rich discussion of these observations is provided in Chapter 8. Figure 6.37 presents the frequency of the high competence in IS indicators cited by the participating SMEs.

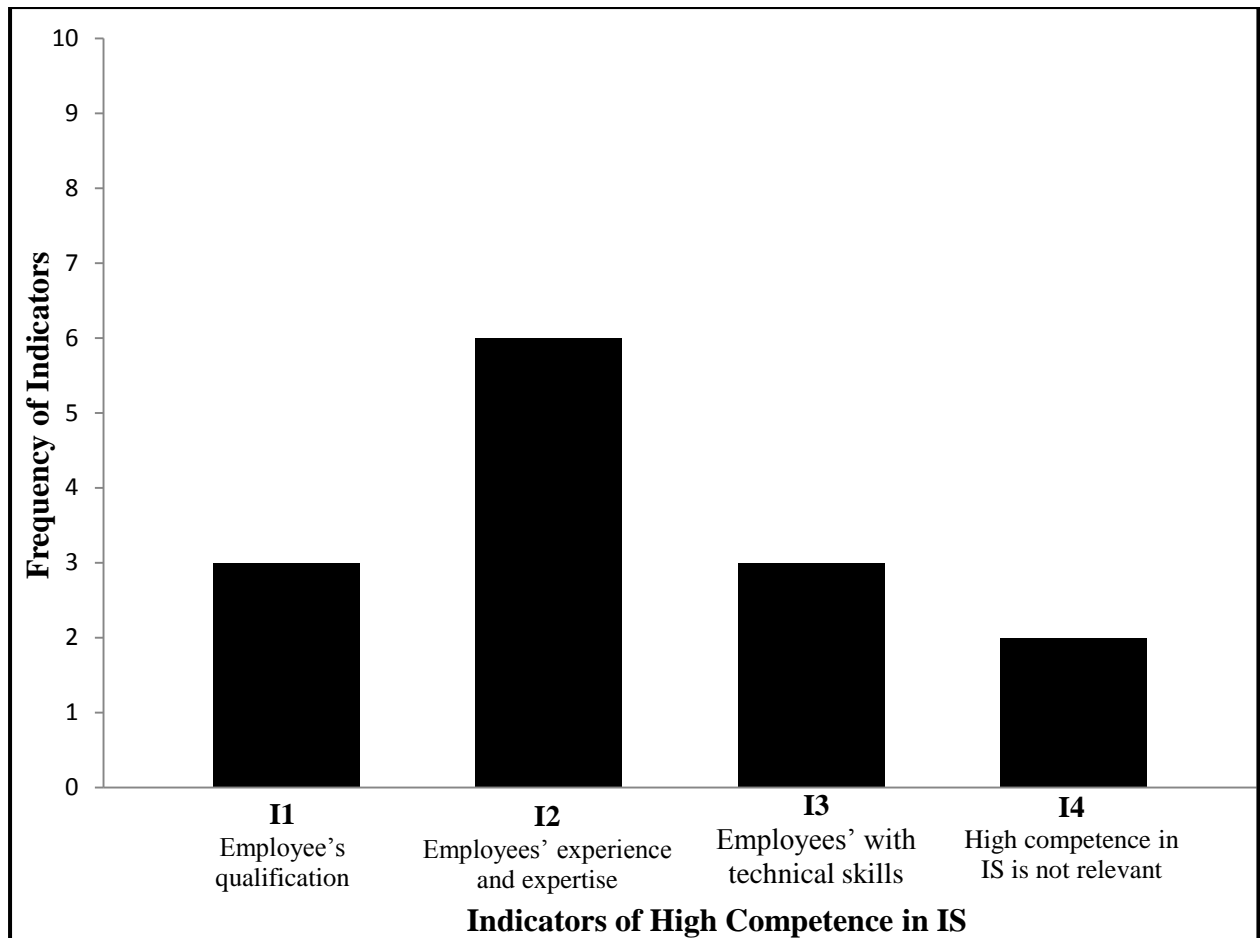


Figure 6.37: Indicators of high competence in IS demonstrated by participating SMEs

Factor 3: Perceived E-business Attributes

This factor is defined as the availability and reliability of information sources about e-business systems (Wilson and Davies 2008). It is operationalised in terms of four indicators which were reported in Section 3.11 (and appendix E) and are reproduced to assist interpretation of the case study findings: a) information sources about e-business (I1), b) information sources reliability about e-business (I2), c) information about the efficiency of e-business systems is very poor and not reliable (I3), and d) perceived e-business attributes is not relevant (I4). Out of 10 participating SMEs which considered that perceived e-business attributes has influenced their implementation of e-business systems in their companies, seven (i.e. MAN9, MAN5, MAN6, MAN7, MAN8, SER19, and SER20) considered perceived e-business attributes to have a positive influence on the implementation of e-business systems, three (i.e. MAN10, SER17, and SER18) regarded perceived e-business attributes to have no relevance to the e-business systems implementation. None were found to indicate a negative influence of perceived e-business attributes. Figure 6.38 summarises the influence of perceived e-business attributes on the implementation stage of the e-business systems adoption process.

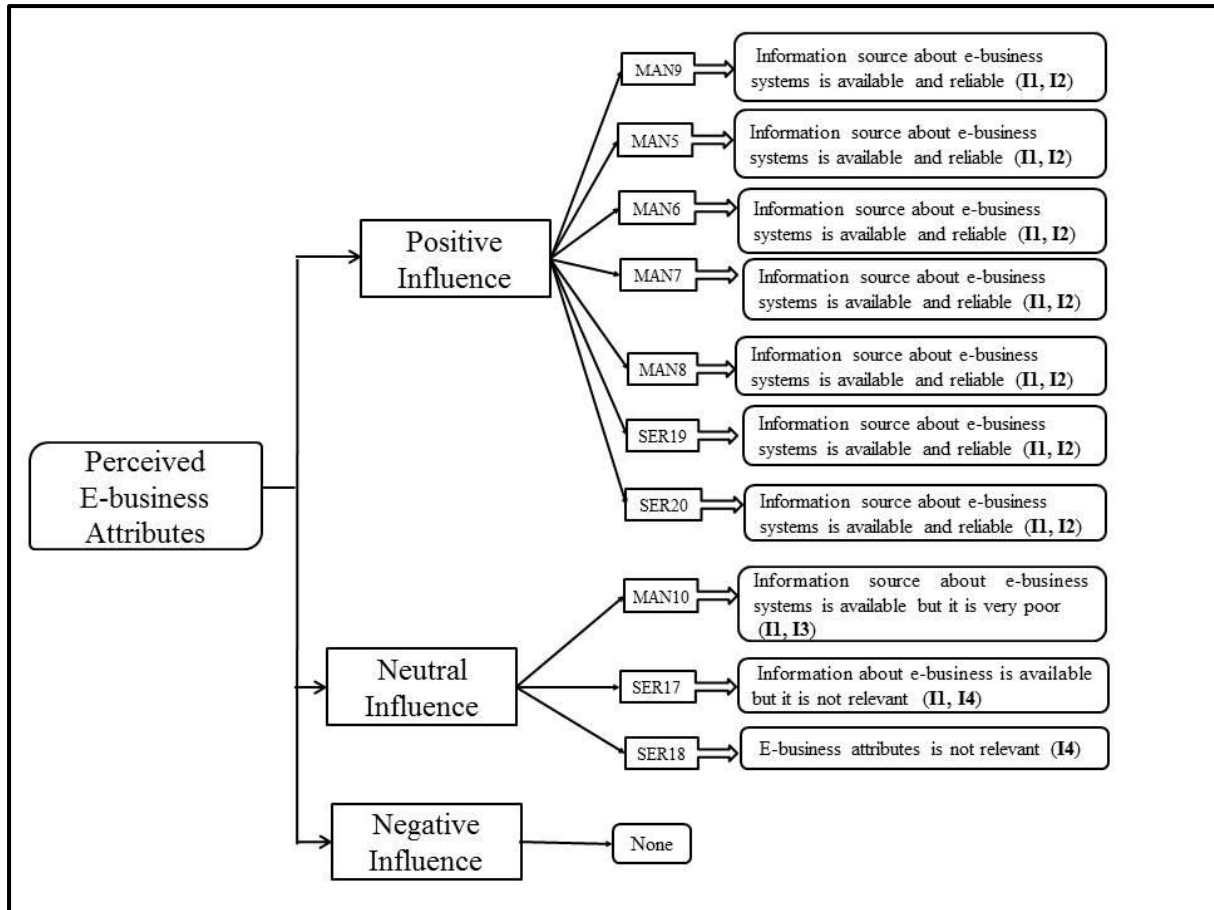


Figure 6.38: Influence of the perceived e-business attributes on the implementation stage

Out of these seven SMEs, the availability (I1) and reliability (I2) of information sources about the adequacy of e-business systems were found to have positively contributed to these SMEs' implementation of these systems in their companies. For instance, the manager of MAN5 stated *"Actually, the only source of information about the adequacy of the existing e-business systems was from the company which developed the system, so in the light of that we decided to use this system based on the recommendations given to us by that company"*. Moreover, we trust this company, because they explained the system before use, and whilst using it we found it to be excellent. Therefore, we would affirm that this is an important factor in our company's decision to use e-business systems". This view was also shared by the manager of MAN9 who added *"Before the implementation of the system, the system vendor came to the company and provided a presentation and demonstration about the system. The implementation decision was made based on this. So, yes, this factor has motivated the implementation of the e-business system. We trust the source of the information about the e-business system"*. Similar views were expressed by the managers of MAN6, MAN7, MAN8, SER19 and SER20.

In contrast, those three SMEs which considered that the perceived e-business attributes had no influence on their decision to implement e-business systems indicated that the perceived e-business attributes has no influence on their implementation of e-business systems in their companies. According to the owner of SER17 *"I think e-business is a well-known application. So we are aware to what extent e-business systems are adequate but the implementation of an e-business system was not influenced by this. We see e-business systems are doing very well with other companies"*. Likewise, the manager of MAN10 and SER18

shared similar views. No empirical evidence was found to suggest a negative influence of perceived e-business attributes on the participating SMEs' decision to implement e-business systems in their companies.

A review of the case study findings further suggests that those 10 SMEs which are at the implementation stage of the e-business system adoption process demonstrated almost an equal number of indicators for the existence of perceived e-business attributes on their decision to implement an e-business system. It is observed that information sources' reliability about e-business (I1) and information sources about e-business (I2) were leading indicators of the presence of perceived e-business attributes influence on the implementation stage of the e-business systems adoption process. Whereas, information about the efficiency of e-business systems is very poor and not reliable (I3) and perceived e-business attributes is not relevant (I4) were less frequently cited indicators for the existence of perceived e-business attributes influence on the e-business systems implementation stage. The empirical evidence suggests that most of the participating SMEs agreed about the availability of information sources about e-business systems. Seven participating SMEs believed this factor has positively influenced their implementation of such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that perceived e-business attributes has 'possible influence' on e-business systems implementation. A rich discussion of these observations is provided in Chapter 8. Figure 6.39 presents the frequency of the perceived e-business attributes indicators cited by the participating SMEs.

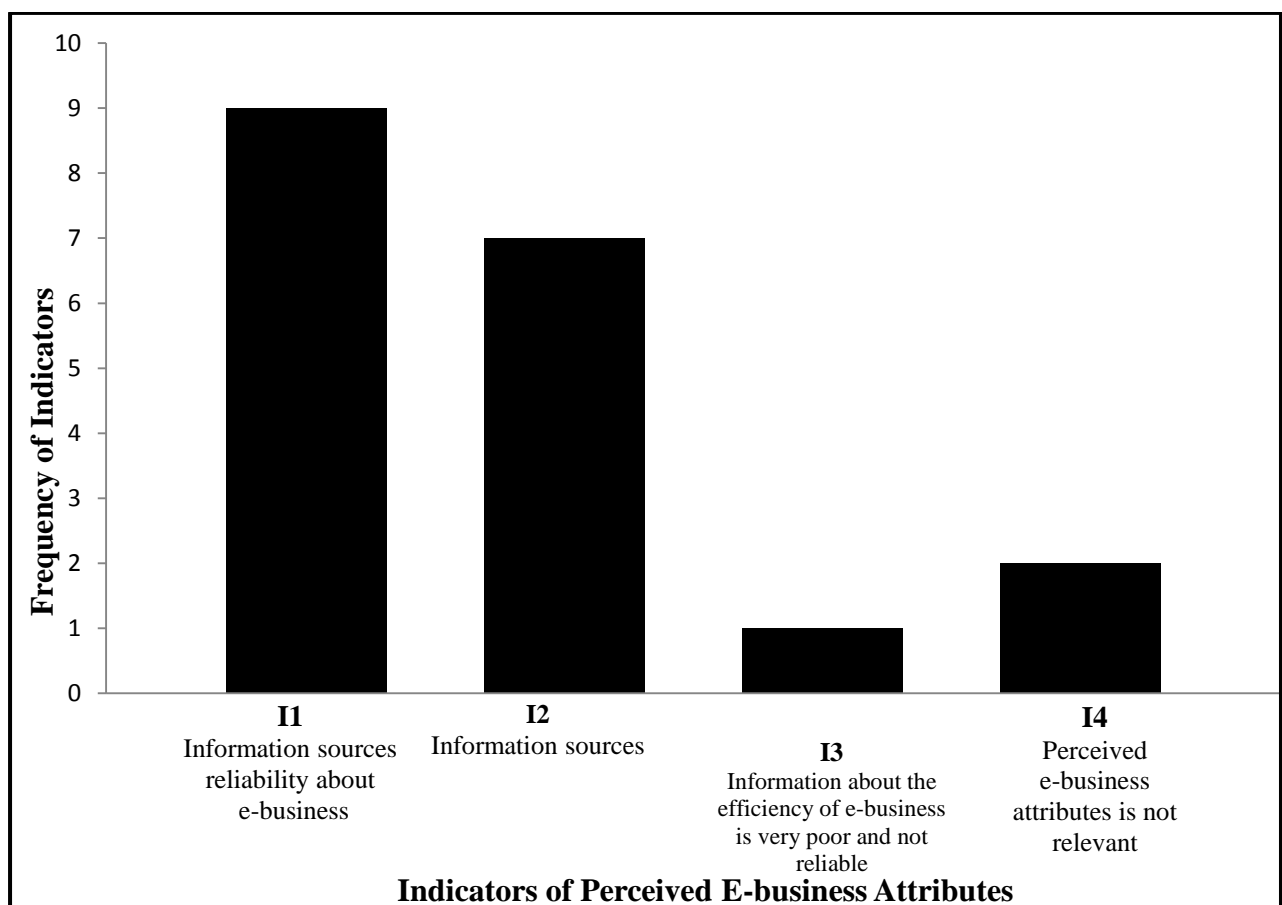


Figure 6.39: Indicators of perceived e-business attributes demonstrated by participating SMEs

Factor 4: Lower Level Employees Attitude toward Technology

Drawing on the view of Hertog (2010), lower level employees' attitude toward e-business is defined as the perceptions of the employees who have less strategic knowledge of business, are involved in routine activities, and have limited appreciation for the importance of e-business systems. It is operationalised in terms of two indicators and were reported in Section 3.11 (and Appendix E) and are reproduced to help interpret the case study findings: a) absence of low qualified employees in the company (I1), and b) lower level employee's attitude toward technology is not relevant to the company's decision to implement e-business (I2). All participating SMEs in the evaluation of the influence of this factor on the implementation stage indicated that lower level employees' attitude toward technology has no relevance to their implementation of e-business systems. None indicated either a positive or negative influence of lower level employees' attitude toward technology on the implementation stage. Figure 6.40 summarises the influence of lower level employees' attitude toward technology on the implementation stage of the e-business systems adoption process.

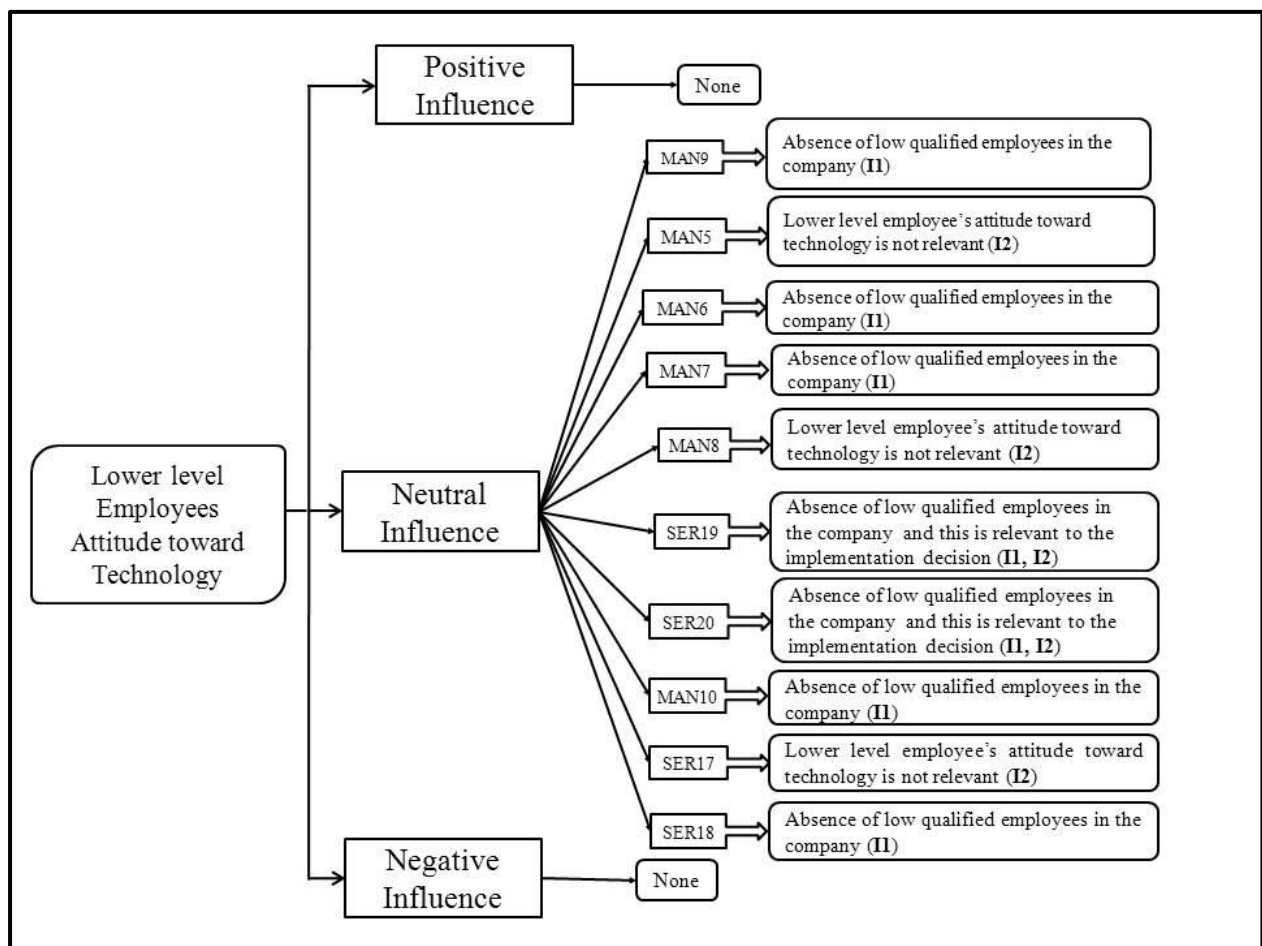


Figure 6. 40: Influence of the lower level employees' attitude toward technology on the implementation stage

These 10 SMEs acknowledged that most of their employees are highly qualified. According to the manager of MAN9 *“99% of the employees in the company have at least a bachelor degree. Therefore, the less qualified employees have no influence on the implementation of an e-business system”*. Likewise, the manager of MAN10 added *“all employees who use the e-business system are highly qualified”*. Similar views were expressed by the owner of SER17 and the managers of MAN5, MAN6, MAN7, MAN8, SER19, SER 20, and SER18. No empirical evidence was found to suggest a positive or negative influence of lower level employees’ attitude toward technology on the participating SMEs’ implementation of e-business systems in their companies.

A review of the case study evidence further suggests that those 10 SMEs which are at the implementation stage of the e-business system adoption process demonstrated a different number of indicators to reflect the influence of lower level employees’ attitude toward technology on the implementation of e-business systems. It is observed that the absence of low qualified employees in the company (I1) was the leading indicator of the presence of lower level employees’ attitude toward technology influence on the implementation stage of the e-business systems adoption process. Whereas, lower level employees’ attitude toward technology is not relevant (I2) was cited by half of the participating SMEs. The case study finding suggests that most of the participating SMEs agreed that the absence of lower level employees’ influence their implementation of e-business systems in the companies. All participating SMEs believed this factor had neutrally influenced e-business systems implementation of such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that lower level employees’ attitude toward technology has ‘weak influence’ on the implementation stage of the e-business systems adoption process in Saudi SMEs. A rich discussion of these observations is provided in Chapter 8. Figure 6.41 presents the frequency of the lower level employees’ attitude toward technology indicators cited by the participating SMEs.

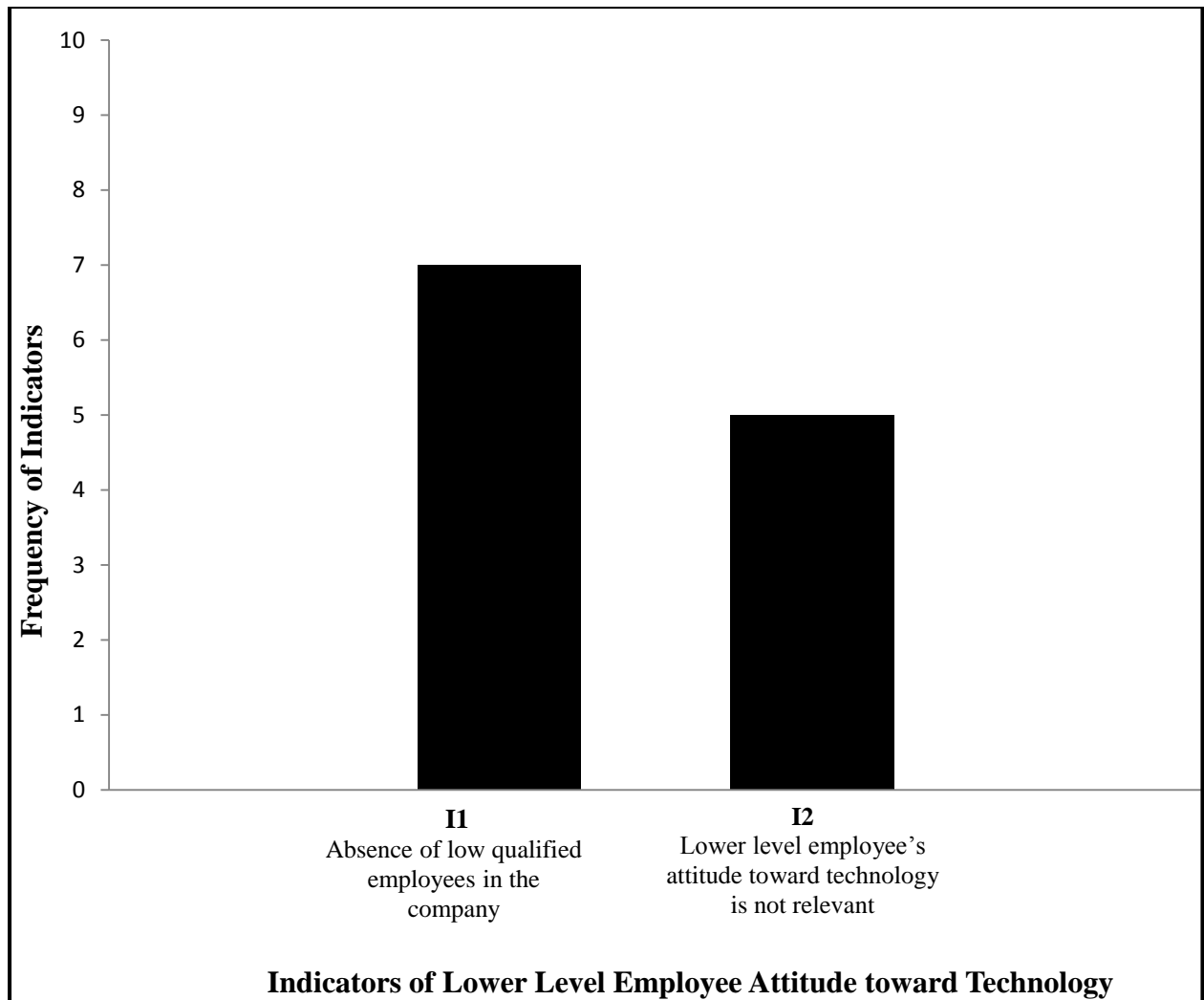


Figure 6.41: Indicators of lower level employees' attitude toward technology demonstrated by participating SMEs

6.4.1 Summary (Stage 3: Implementation)

In summary, drawing on the discussion about the influence of the factors affecting the implementation stage of the e-business systems adoption process, the following observations are made: a) only one factor (i.e. *high competence in IS*) had a strong positive influence on the implementation of e-business systems, b) two factors (i.e. *training* and *perceived e-business attributes*) had possible influence on the e-business systems implementation, and c) only one (i.e. *lower level employees' attitude toward technology*) had a weak influence on the implementation stage of the e-business systems adoption process in SMEs.

6.5 Summary

This chapter has presented case study findings from the participating SMEs about the factors affecting the three stages (*initiation*, *adoption decision*, and *implementation*) of the e-business systems adoption process in 20 Saudi SMEs. A strong positive influence is observed for a total of nine factors. For example, *observability* influenced the *initiation* stage whereas, *customer readiness*, *security concerns*, *perceived e-business value*, *owner attitude toward technology*, and *knowledgeable employee attitude toward e-business* influenced the *adoption*

decision stage of the e-business systems adoption process in SMEs. *High competence in IS* influenced the *implementation* stage of the e-business systems adoption process. This is summarised in Table 6.1.

Table 6.1: Summary of factors that influence the e-business systems adoption process

Stages	Strong Influence	Possible influence	Weak Influence	Total
Initiation	3	4	0	7
Adoption Decision*	5	1	2	8
Implementation	1	2	1	4

(*) Only two Saudi SMEs were interviewed in this stage, therefore the findings are ‘suggested’ findings

In addition, possible influence is observed for seven factors. Out of these, four (i.e. *complexity*, *trialability*, *availability of technical expertise*, and *knowledgeable employee attitude toward e-business*) possibly influenced the *initiation* stage, one (i.e. *communication*) had mixed influence on the *adoption decision* stage, and two (i.e. *training*, and *perceived e-business attributes*) possibly influenced the *implementation* stage of e-business systems adoption. Finally, the case study findings offer weak influence for three factors: two (i.e. *e-business law* and *high competence in IS*) influenced the *adoption decision* stage and another one (i.e. *lower level employees’ attitude toward technology*) influenced the *implementation stage* of the e-business adoption process in SMEs. In contrast, no single factor is found to indicate a weak influence on the initiation stage. These observations are discussed in Chapter 8. The next chapter presents the case study findings regarding the influence of the common factors affecting all three stages of the e-business systems adoption process in Saudi SMEs.

CHAPTER 7: CASE STUDY FINDINGS-Part2

6.0 Introduction

The research model guiding the data collection process from the participating case organisations was presented in Chapter 3 and Chapter 6. The model consists of three distinct adoption stages (*initiation, adoption decision, and implementation*) and two types of factors: common factors (which affect all three stages) and stage factors (which affect each individual stage). In Chapter 6, the case study findings regarding the individual factors affecting each of the three stages (*initiation, adoption decision, and implementation*) were presented. This chapter describes the case study findings related to how the common factors affected all three stages of the e-business systems adoption process in SMEs.

7.1 Common Factors Affecting the Stages of E-business Systems Adoption

The following sections discuss the influence of the common factors (i.e. *cost, relative advantage, external pressure, management support, government's support programs, uncertainty in business environment, owner-manager characteristics, organisational readiness and awareness, trading partners' readiness, and organisational culture*) on all three stages of the e-business systems adoption process for the participating SMEs. These factors are shown in Figure 7.1. The description of these factors also includes a discussion of the indicators reflecting the influence of these factors.

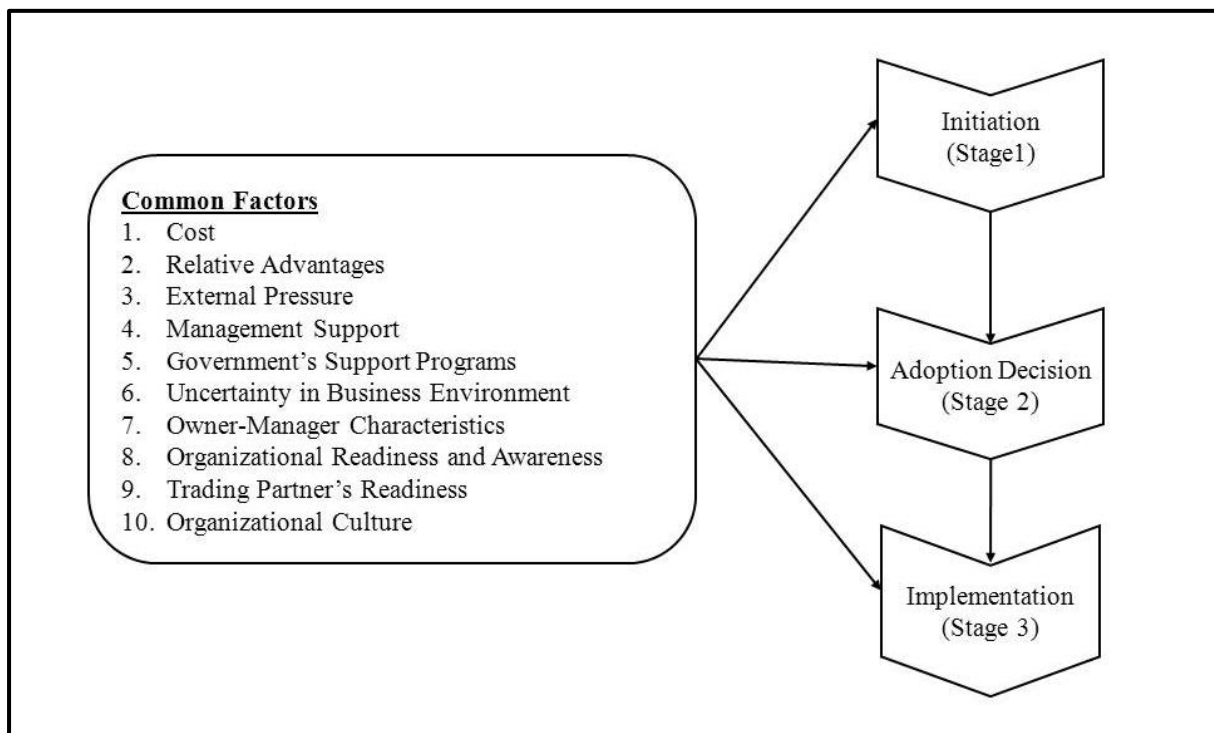


Figure 7.1: Common factors affecting all three stages of the e-business systems adoption

7.1.2 Common Factors Affecting Initiation Stage

Factor1: Cost

Drawing on the views of Wymer and Regan (2005), ‘cost’ is defined as the expenses by SMEs to setup and maintain an e-business system. It is operationalised in terms of three indicators which were reported in Section 3.11 (and Appendix E) and are reproduced to help interpret the case study findings: a) e-business is not expensive (I1), b) cost is not relevant (I2), and c) cost is a barrier to implement e-business systems (I3). Out of eight participating SMEs which considered the cost of e-business systems had influenced their initiation of e-business systems, four (i.e. MAN1, MAN2, MAN3, and SER11) regarded cost to have a strong positive influence on e-business systems initiation and three (i.e. SER12, SER13, and SER15) indicated cost to have no relevance on the initiation of e-business systems. The remaining SMEs (i.e. SER14) indicated the presence of a negative influence on their initiation of e-business systems. Figure 7.2 summarises the influence of cost on the initiation stage of e-business systems for participating SMEs.

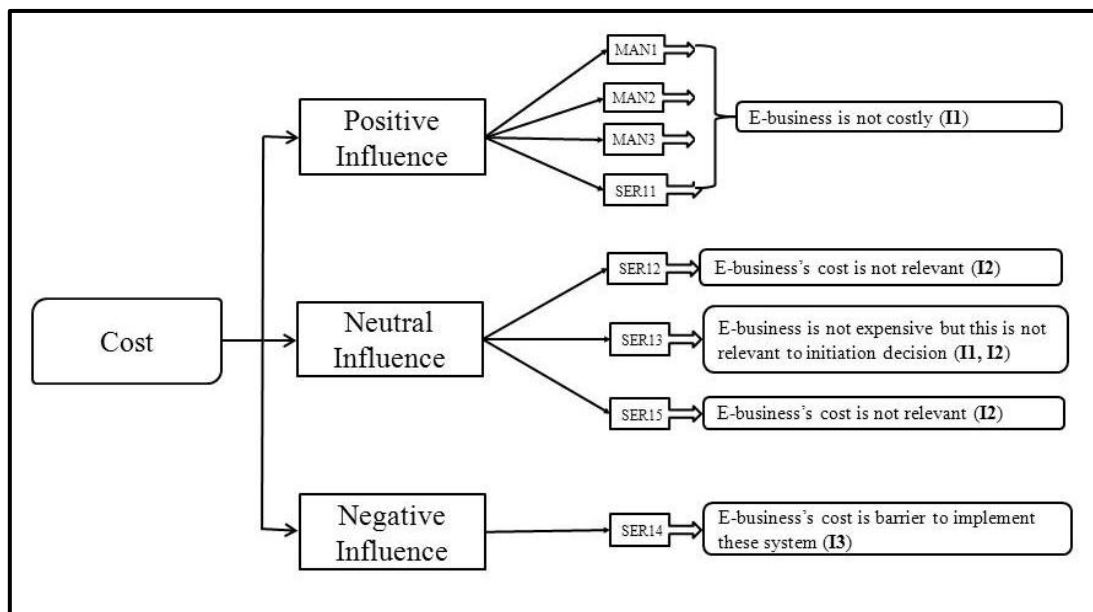


Figure 7.2: Influence of cost on the initiation stage

Out of those four SMEs (which reported a strong positive influence of cost), the lower price of e-business systems (I1) positively contributed to their initiation of these systems. For instance, the manager of MAN2 remarked “*I think we should focus on the advantages of using e-business systems in our company rather than focus on the cost. Lower cost of e-business systems could be the major factor which motivated us to initiate these systems*”. This sentiment was also shared by the owner of SER11 who added “*E-business systems cost is a motivating factor for our company to initiate e-business systems. That is because it is not expensive*”. Likewise, the owner and manager of MAN2 and MAN3 expressed similar views.

In contrast, those three SMEs which considered cost to have no influence on their initiation of e-business systems, acknowledged that the e-business system is not expensive but this had no influence on their decision to initiate e-business systems. According to the manager of SER12 “*We do not care about how much the e-business system cost, because we believe its benefits are more than actual cost. So, this factor has no influence*”. This view was also shared by the

manager of SER15 who added “*We never think about the cost of e-business, because we believe that the e-business system has more benefits than the actual cost. Therefore, the cost of the e-business system has not influenced our decision to initiate these systems*”. Likewise, the manager of SER13 conveyed a similar view. Lastly, the participating SME indicated that the cost of e-business systems was the main reason behind the lateness of the decision to initiate e-business systems by the company (I3). According to the manager of that company “*E-business system cost is the main reason for the delay of initiating the e-business system in the company before this time*”.

A review of the case study findings further suggests that those eight SMEs demonstrated an almost equal number of indicators to support the influence of cost on e-business systems initiation. It is observed that the reasonable cost of e-business systems (I1) and the absence of the influence of e-business systems cost on the e-business systems initiation (I2) were leading indicators of the cost. Whereas, cost is a barrier to initiate e-business (I3) was a less frequently cited indicator for the cost. The case study findings suggest that all the participating SMEs acknowledged that e-business systems are inexpensive but despite such recognition, only four believe that this factor has positively influenced their initiation such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that cost has ‘possible influence’ on the e-business systems initiation by Saudi SMEs. A rich discussion of these observations is discussed in Chapter 8. Figure 7.3 presents the frequency of the e-business cost indicators cited by the participating SMEs.

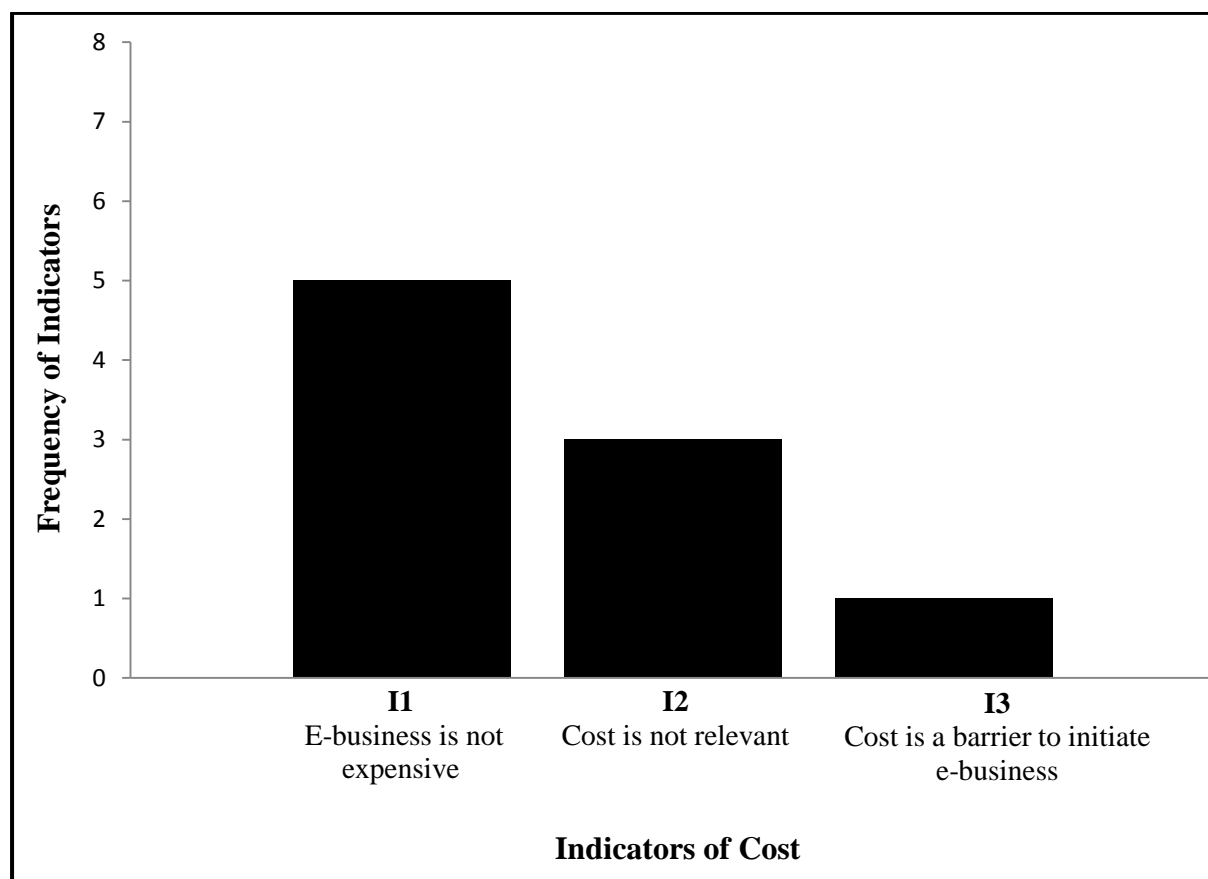


Figure 7.3: Indicators of cost demonstrated by the participating SMEs

Factor 2: Relative Advantage

Based on the idea of Kendall, et al. (2001), ‘relative advantage’ is defined as the benefit perceived by SMEs in adopting e-business systems to conduct business. It is operationalised in terms of six indicators which reported in Appendix E: a) development of the company(I1), b) company’s growth absolutely with market trend (I2), c) improve the presence of the company between its competitors (I3), d) improve a company’s image (I4), e) customer satisfaction (I5), and f) perceived e-business benefits (I6). Eight participating SMEs considered relative advantage of e-business systems to have influenced the initiation of e-business systems. All these SMEs regarded relative advantage to have a strong positive influence on the initiation of e-business systems. No SMEs indicated a weak and negative influence of relative advantage. Figure 7.4 summarises the influence of relative advantage on the initiation stage of e-business systems in SMEs.

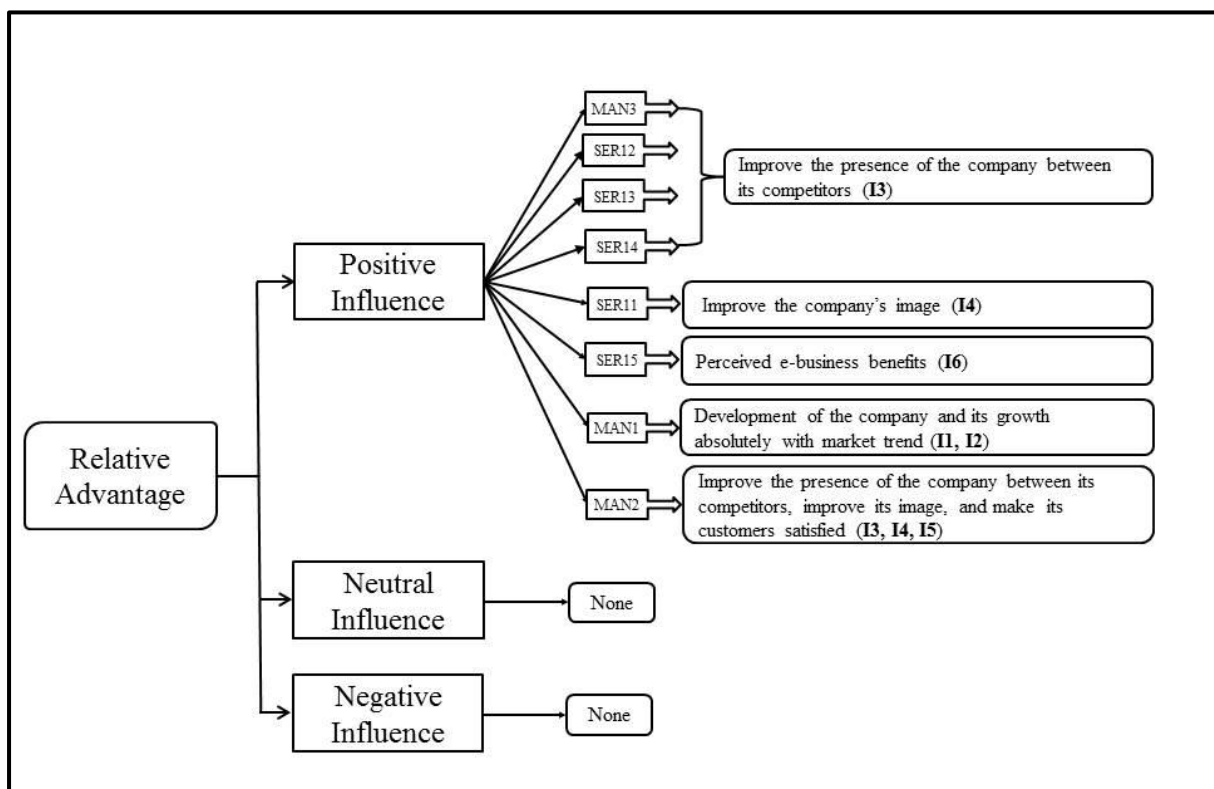


Figure 7.4: Influence of the relative advantage on the initiation stage

Out of the eight SMEs, four (i.e. MAN3, SER12, SER13, and SER14) indicated enthusiasm to emphasise their presence in competition with other companies (I3) by initiating e-business systems. For instance, the manager of MAN3 remarked “*We need to be in the top of the competition with our rivals, so we decided to initiate e-business systems*”. This view was also shared by the manager of SER13 who added “*Our position in the market forces us to be up to date by using new technology and compete with other companies. To do so, we decided to initiate an e-business system in the company*”. Likewise, the managers of SER12 and SER14 expressed similar views.

One SME (i.e. MAN2) indicated that e-business systems assisted it to improve its presence against its competitors (I3), improve its image (I4), and made its customers satisfied (I5). These indicators positively contributed to e-business systems initiation by this SME. For example, the manager of MAN2 remarked “*I believe that the use of e-business systems in our*

company will improve the level of our company in relation to our competitors, improve the image of the company, and make the customers feel that our company has an advantage, which will make them prefer dealing with our company. So this factor encouraged us to initiate these systems in the company”.

Another SME (i.e. MAN1) identified two indicators: the concern about the development of the company (I1) and its growth with market trend (I2). These indicators represent how relative advantage had positively contributed to this SME’s initiation. The manager of this SME (i.e. MAN1) remarked *“We have considered all the aspects of performing e-business systems. We have analysed the aspects of what the major contributions are if we go to e-business. Also, e-business provides development to the company, and makes the company grow in line with market trends because of competition. Therefore, it is always better to initiate e-business systems”.* On the other hand, the manager of SER15 specified that perceived e-business benefit (I6) was the fundamental driver to initiate e-business systems. According to this manager: *“Because of the benefits of using e-business systems, we initiate e-business systems in our company”.*

A review of the case study findings suggests that the eight SMEs demonstrated a different number of indicators to the presence of the influence of relative advantage on their initiation of e-business systems. It is observed that improvement of the presence of a company against its competitors (I3) was the leading indicator of the influence of relative advantage on the initiation stage of e-business systems by the participating SMEs. Whereas, the development of a company (I1), company’s growth absolutely with market trend (I2), improves a company’s image (I4), customer satisfaction (I5), and perceived e-business benefits (I6) were less frequently cited indicators for relative advantage. The empirical evidence further suggested that all participating SMEs believed that this factor had a positive influence on the initiation of e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that relative advantage has ‘strong positive influence’ on the initiation of e-business systems. These observations are further discussed in Chapter 8. Figure 7.5 presents the frequency of the relative advantage indicators cited by the participating SMEs.

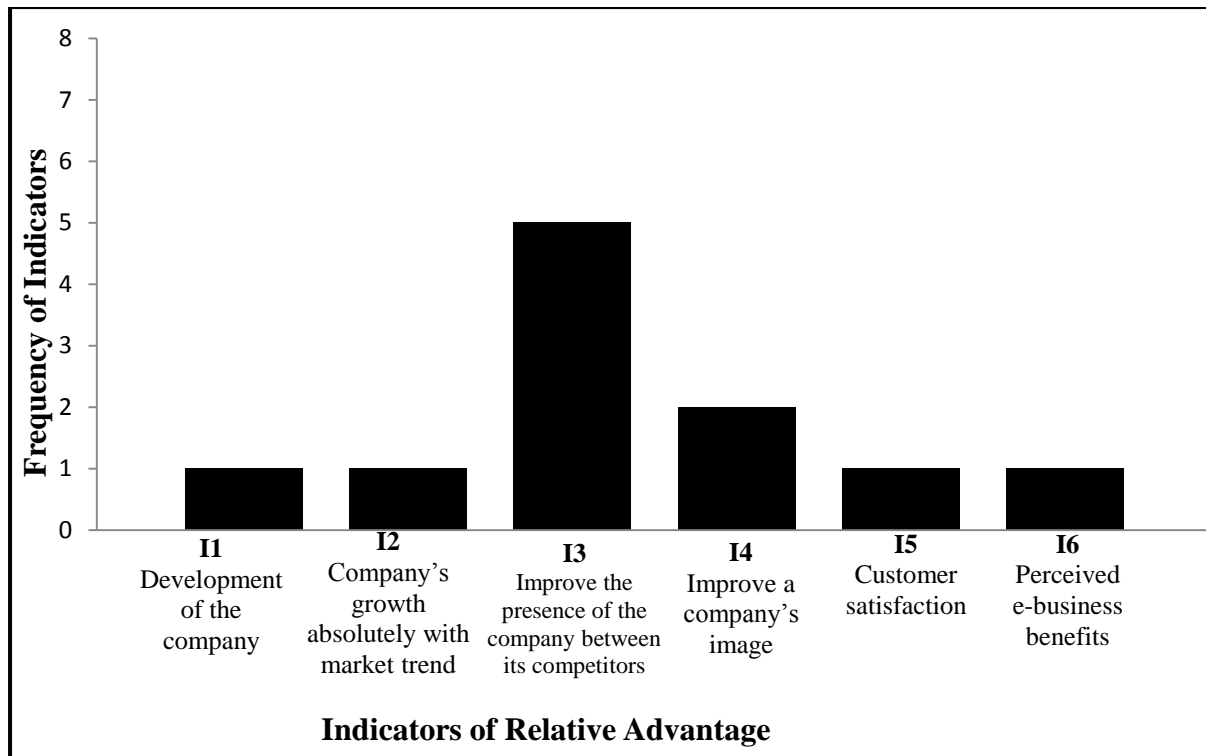


Figure 7.5: Indicators of the relative advantage of e-business systems demonstrated by participating SMEs

Factor 3: External Pressure

Drawing on the view of Pearson and Grandon (2006), external pressure is defined as direct or indirect coercive force exerted by competitors, social referents, other firms, the government, and the industry to adopt an e-business system. It is operationalised in terms of three indicators: (which are reproduced from Section 3.11 and Appendix E to better interpret empirical observations): a) competitors' pressure (I1), b) supplier pressure (I2), and c) external pressure is not relevant (I3). Out of eight participating SMEs which considered external pressure to have influenced their initiation of e-business systems, seven (i.e. MAN1, MAN2, MAN3, SER12, SER13, SER14, and SER15) considered it to have a strong positive influence, one (i.e. SER11) regarded external pressure to have no relevance, and none indicated a negative influence of external pressure. Figure 7.6 summarises the influence of external pressure on the initiation stage of e-business systems for the Saudi SMEs.

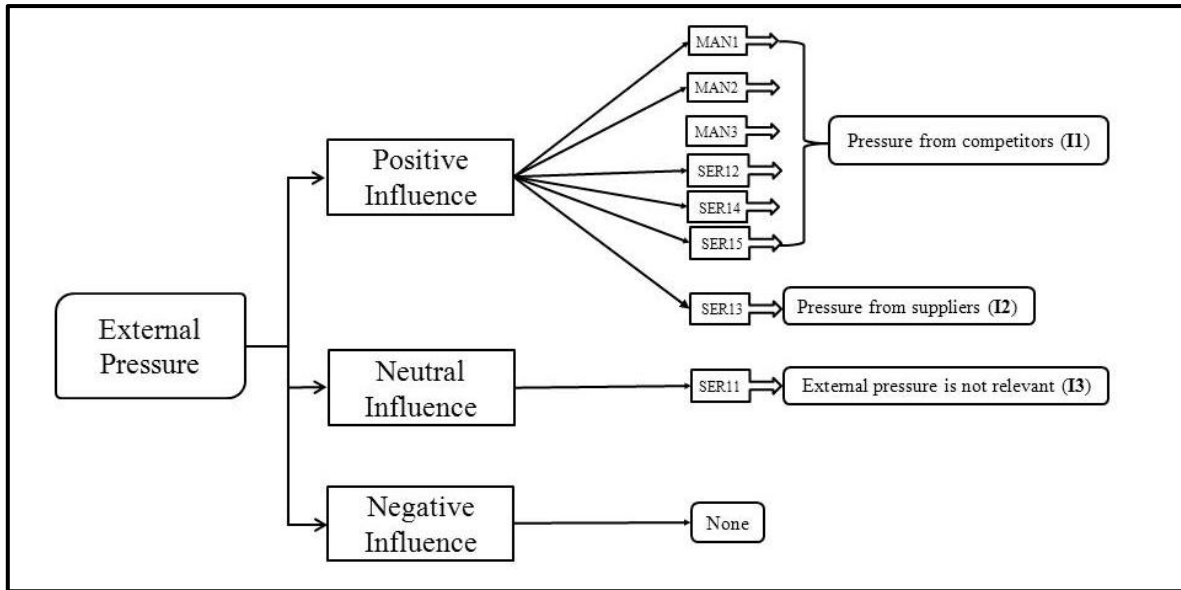


Figure 7.6: Influence of external pressure on the initiation stage

Most of the SMEs indicated that the pressure from companies' competitors (I1) positively contributed to these SMEs' initiation of e-business systems. For instance, the manager of MAN1 remarked *"Definitely, because we have to face competitors. If we want to maintain our position in the market, we have to be very congruous. In that case, we have to be the best in order to survive. Therefore, it is necessary to initiate e-business systems in the company"*. This sentiment was also shared by the owner of MAN2 who added *"Without doubt, we wish to establish our presence in the market; therefore we need to be better than our competitors. But actually, our desire to be better is what has made us consider initiating e-business systems"*. Likewise, the manager and owner of MAN3, SER12, SER14, and SER15 expressed similar views. One SME (i.e. SER13) indicated that the pressure emerging from suppliers (I2) positively contributed to its initiation of e-business systems. The manager of this SME remarked *"It has somewhat influenced us but the main thing is that we want to be the best. Also, I would like to indicate that some pressure was received from our international suppliers to initiate e-business system"*. In contrast, only one SME (i.e. SER11) considered external pressure to have no influence on the initiation of e-business systems. According to the owner of SER11 *"The decision to initiate e-business systems in our company is made based on our need. Therefore this factor has no influence on our decision"*. No SMEs indicated a negative influence of external pressure on their initiation of e-business systems in their companies.

A review of the case study evidence suggests that these eight SMEs demonstrated an equal number of indicators for the existence of external pressure on their decision to adopt an e-business system. However competitors' pressure (I1) was the leading indicator of the influence of external pressure on the initiation stage of e-business systems. Whereas, the suppliers' pressure (I2) and external pressure is not relevant to the adoption decision of e-business systems (I3) were less frequently cited indicators of the presence of external pressure influence on the initiation stage of the e-business systems adoption process. The case study findings suggest that most of the participating SMEs agreed that they experienced external pressure on their companies, particularly from their competitors. Despite such agreement, seven participating SMEs believed that this factor had positively influenced the initiation of e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is

suggested that external pressure had ‘strong positive influence’ on the initiation stage of e-business systems. A rich discussion of these observations is provided in Chapter 8. Figure 7.7 presents the frequency of the external pressure indicators cited by the participating SMEs.

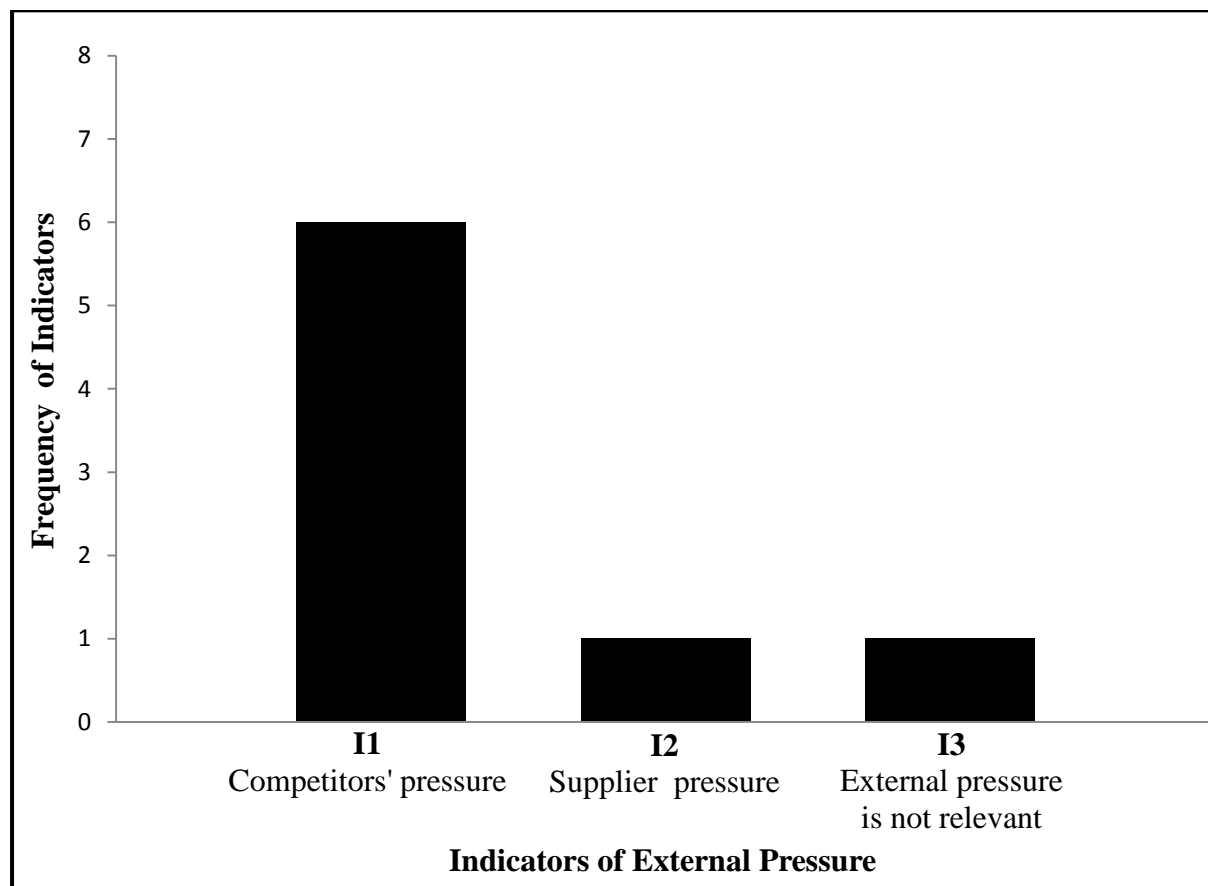


Figure 7.7: Indicators of external pressure demonstrated by participating SMEs

Factor 4: Management Support

Based on the ideas expressed by Wilson, Daniel et al. (2008), ‘management support’ is defined as the perceived level of encouragement and participation of the SME top management. It is operationalised in terms of three indicators (which were reproduced from Section 3.11 and Appendix E to help explain the case study findings): a) awareness of e-business systems advantage (I1), b) senior management willing to develop the company (I2), and c) availability of technical background for top management (I3). In total, eight SMEs considered the influence of management support on their initiation of e-business systems. All these SMEs considered management support to have a strong positive influence on the initiation of e-business systems. None indicated either a weak or negative influence of management support. Figure 7.8 summarises the influence of management support on the initiation stage of e-business systems for the SMEs.

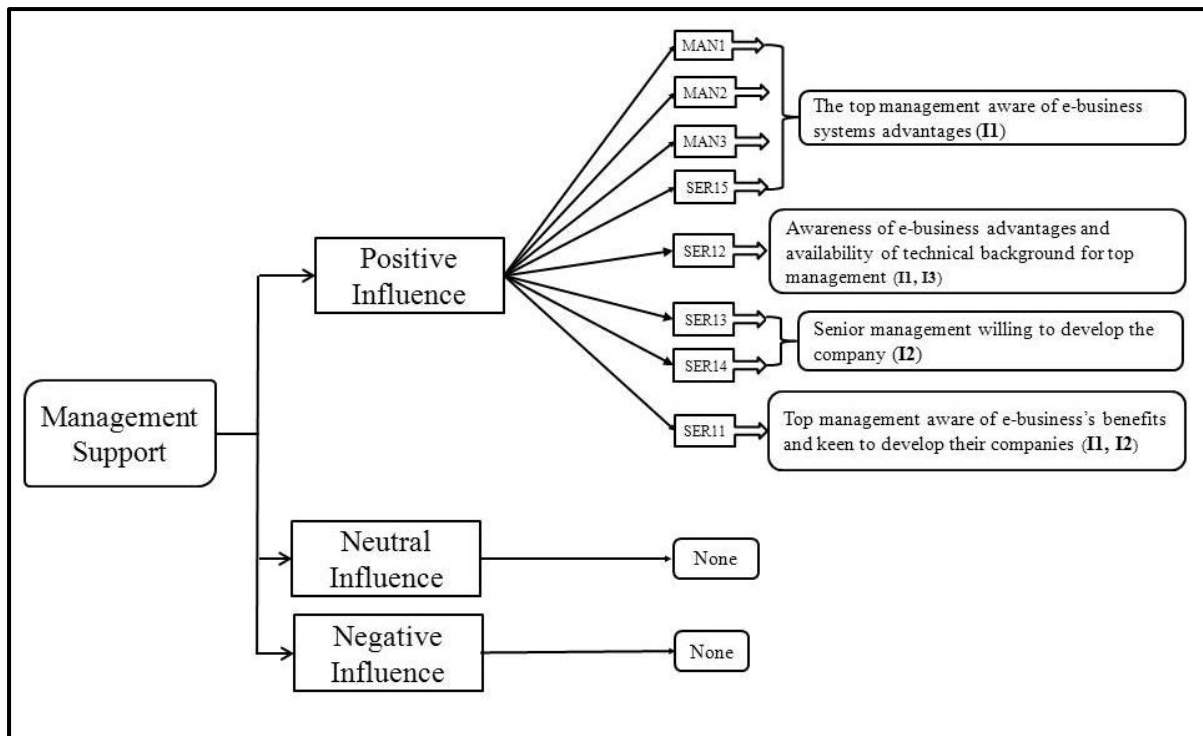


Figure 7. 8: Influence of management support on the initiation stage

Out of these SMEs, four (i.e. MAN1, MAN2, MAN3, and SER15) indicated that top management awareness about e-business systems advantage (I1) positively contributed to their initiation of these systems. The owner of MAN2 remarked “*I am the owner of the company, and I understand the advantage of e-business systems. Therefore, I decided to initiate e-business systems in the company*”. This sentiment was also shared by the manager of MAN1 who added “*The support from top management is always very important. But in the case of initiating e-business systems in our company, it is necessary to provide them all of the details of the advantage of e-business systems. If we (as managers) provide them a clear picture of the advantage of e-business systems, definitely they will support this innovation*”. Likewise, the owner and manager of MAN3 and SER15 expressed similar views. Furthermore, one SME (i.e. SER12) indicated that the awareness of e-business systems advantages by company’s management (I1) and availability of technical background for the top management (I3) positively contributed to these SMEs’ initiation of e-business systems. The manager of SER12 remarked “*The owner is the main supporter to use e-business system in the company because of his awareness about the importance of e-business systems for the company and his technical background*”. In addition, the manager of SER13 and SER14 indicated that senior management willing to develop the company (I2) positively influenced the initiation of e-business systems in their companies. For instance, the manager of SER13 highlighted “*The idea of using e-business systems in the company was suggested by the owner's son who was willing to develop the business. So this is the main driver for the initiation decision of e-business systems in the company*”. Likewise, the manager of SER14 expressed similar views. No SMEs reported either a weak or negative influence of management support on their initiation of e-business systems.

A review of the case study evidence suggests that those eight SMEs demonstrated a different number of indicators to highlight the existence of management support on their initiation of e-business systems. Awareness of e-business systems advantages (I1) was the leading indicator of management support. Whereas, the senior management of the companies

willingness to develop the company (I2) and the top management IT background (I3) were found to be less frequently cited indicators of management support on the e-business systems adoption process. All participating SMEs believed that this factor had positively influenced their initiation of such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that management support of e-business systems has ‘strong positive influence’ on the SMEs’ initiation of e-business systems. These observations are discussed in Chapter 8. Figure 7.9 presents the frequency of the management support indicators cited by the participating SMEs.

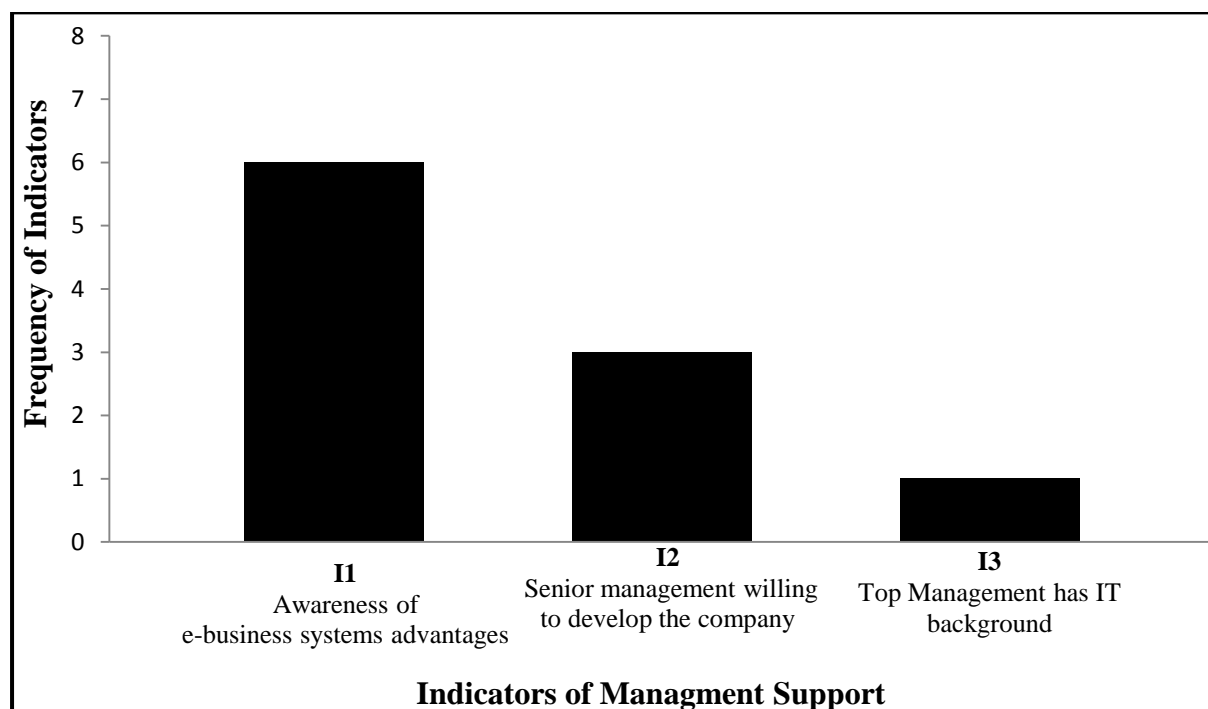


Figure 7.9: Indicators of the management support demonstrated by participating SMEs

Factor 5: Government Support Programs

According to Simpson and Docherty (2004), ‘government support programs’ are initiated to encourage SMEs to seek advice and stimulate demand for advice and support. It is operationalised in terms of four indicators (which are reproduced from Section 3.11 and Appendix E to help explain the case study findings): a) financial support (I1), b) hard to access the government support programs (I2), c) no idea about government support programs (I3), and d) government support program is not relevant (I4). A total of eight participating SMEs considered that the government support programs had influenced their initiation of e-business systems. Out of these, one (i.e. MAN2) regarded government support programs to have a strong positive influence on its e-business initiation, six (i.e. MAN3, SER11, SER12, SER13, SER14, and SER15) considered government support programs to have no relevance to their initiation of e-business systems. No SMEs indicated a negative influence of government support programs. Only one SME (i.e. MAN1) did not comment on this factor. Figure 7.10 summarises the influence of the government support programs on the initiation stage of e-business systems for these SMEs.

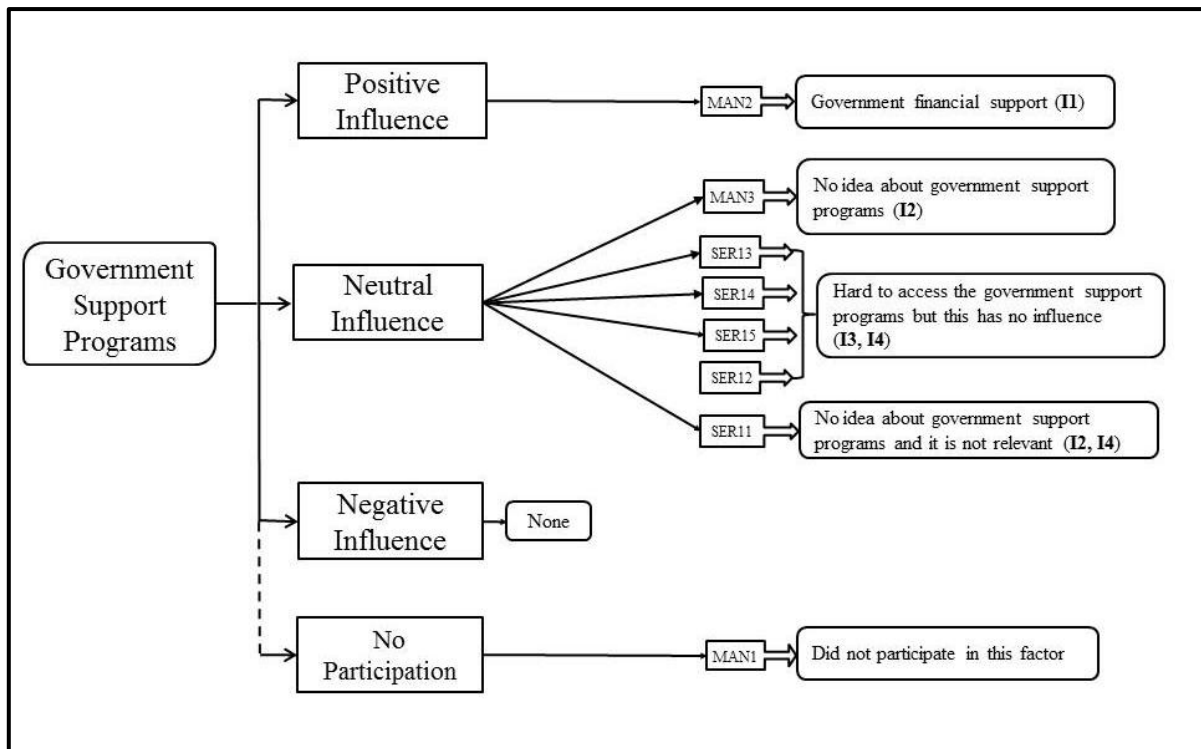


Figure 7.10: Influence of the government support programs on the initiation stage

The owner of MAN2 (who indicated that the availability of government support programs (I1) positively contributed to its initiation of e-business systems) indicated that “We are in the process of applying on the ‘Kafala program’ in order to receive financial support, a portion of which we will use to purchase an e-business system for our company. So I think that government assistance has encouraged us to initiate the e-business system”. In contrast, out of the six SMEs which considered that government support programs have no influence on the initiation of e-business systems, four indicated that it was hard to access the government support programs (I3) and such supporting programs have no relevance to the e-business systems initiation (I4). For instance, the manager of SER12 remarked “We did not receive any support from the government, because it is really hard to meet their requirements to get such support. Therefore this has no influence”. Likewise, the manager and owner of SER13, SER14, and SER15 expressed similar views. In addition, the manager of MAN3 indicated that he has no idea about government support programs (I2), therefore, this was not relevant to the company’s initiation of e-business systems. No SMEs indicated a negative influence of government support programs on the initiation of e-business systems.

A review of the case study evidence suggests that these seven SMEs demonstrated a different number of indicators for the existence of government support programs. Hard to access the government support programs (I3) and the government support programs is not relevant (I4) were the leading indicators of the existence of government support programs. Whereas, the financial support (I1) and no idea about government support programs (I2) were the less frequently cited indicators. Only one participating SME believed that this factor had positively influenced its initiation of such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that government support programs have ‘weak influence’ on the SMEs initiation of e-business systems. A rich discussion of these observations is provided in Chapter 8. Figure 7.11 presents the frequency of the government support programs indicators cited by the participating SMEs.

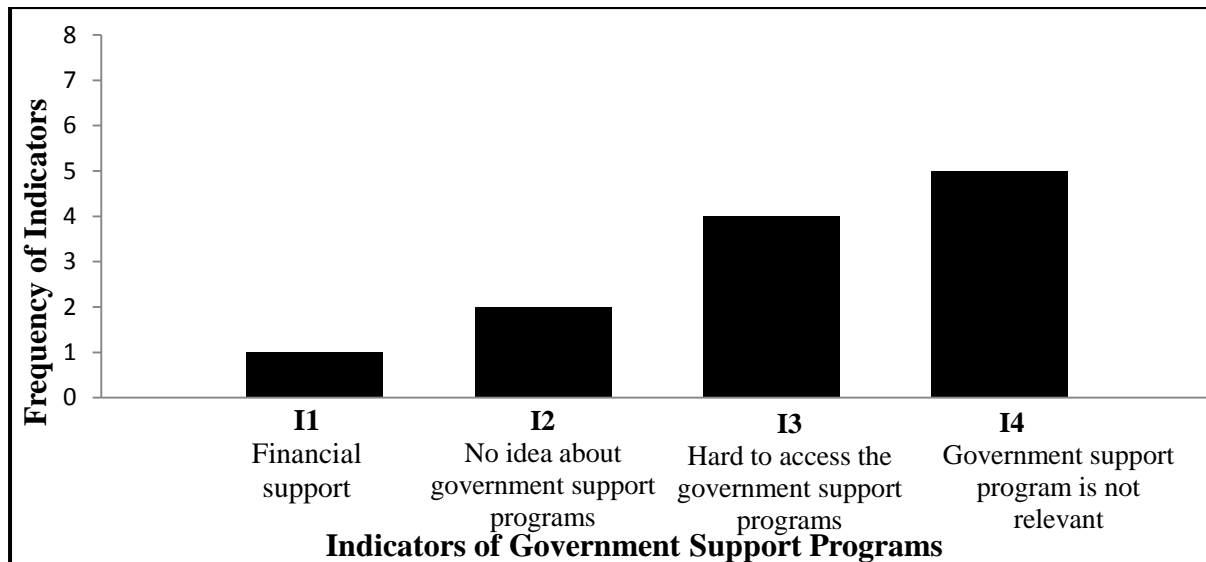


Figure 7.11: Indicators of the government support programs demonstrated by participating SMEs

Factor 6: Uncertainty in Business Environment

Drawing on the views of Sung, Lu et al. (2010), ‘uncertainty in business environment’ can be defined as a situation in which a company has little information about its external environment to use in achieving its organisational goals. It is operationalised in terms of four indicators (which are reproduced from Section 3.11 and Appendix E to better interpret the case study findings): a) sophisticated systems owned by competitors (I1), b) global market trend toward digitalisation (I2), c) uncertainty in the business environment is not relevant (I3), d) no uncertainty in business environment (I4), and e) uncertainty in decision making (I5). A total of eight participating SMEs considered that uncertainty in the business environment had influenced their initiation of e-business systems. Out of these, one (i.e. MAN1) regarded uncertainty in the business environment to have a strong positive influence, seven (i.e. MAN2, MAN3, SER11, SER12, SER13, SER14, and SER15) considered uncertainty in business environment to have no relevance to their initiation of e-business systems. No SMEs indicated a negative influence of uncertainty in the business environment on e-business systems initiation. Figure 7.12 summarises the influence of the uncertainty in the business environment on the initiation stage of e-business systems for these SMEs.

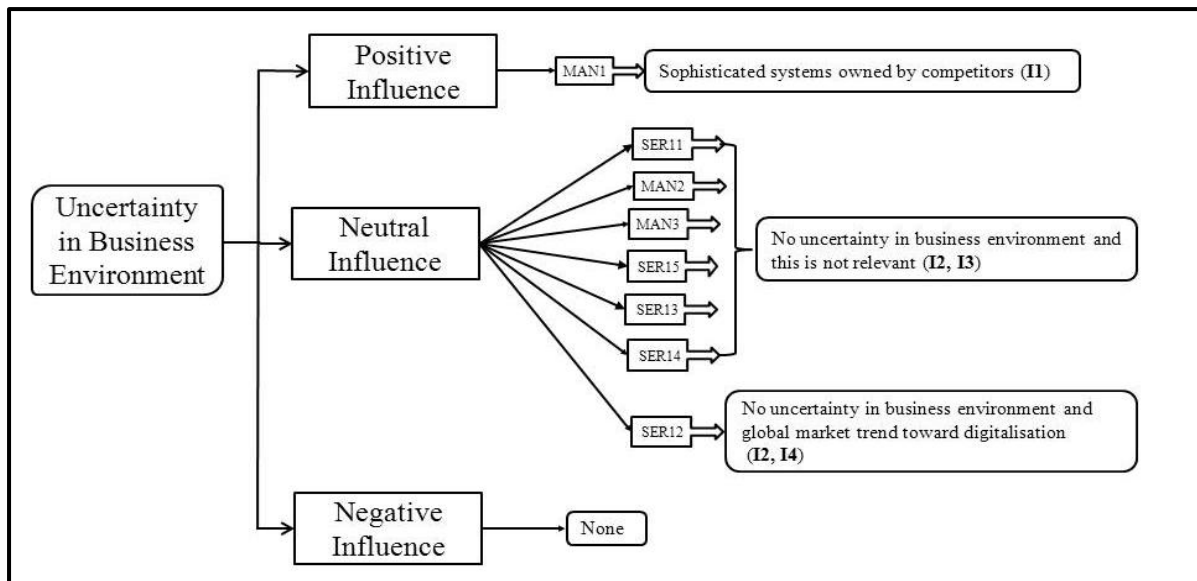


Figure 7.12: Influence of the uncertainty in the business environment on the initiation stage

The manager of MAN1 (which indicated that the sophisticated systems owned by competitors (I1) positively contributed to its initiation of these systems) remarked *“It will be one of the factors that influence e-business systems adoption. Currently, there are lots of companies which have much more sophisticated systems and we do not know more information about these systems. If we want to survive in the market we have to beat them. We have to be the best. In that case, we should have good systems and equipment which encourage us to initiate e-business systems”*. In contrast, seven SMEs (which considered the uncertainty in the business environment has no influence on their initiation of e-business systems) indicated that there is no uncertainty in their business environment (I2) and such uncertainty is not relevant to their initiation of e-business systems (I3). For example, the owner of MAN2 remarked *“Actually, there is no uncertainty in the work environment of our company. The vision is clear, and we are proceeding with development according to clear and well-laid plans. So I do not believe that this factor had any role in the initiation of e-business systems”*. Likewise, the owners and managers of MAN3, SER11, SER12, SER13, SER14, and SER15 expressed similar views.

A review of the case study evidence suggests that these eight SMEs demonstrated a nearly equal number of indicators for the existence of uncertainty in the business environment on their e-business systems initiations. Absence of uncertainty in the business environment (I2) and uncertainty in the business environment is not relevant (I3) were the leading indicators of the existence of uncertainty in the business environment. Whereas, sophisticated systems owned by competitors (I1) and global market trend toward digitalisation (I4) were less frequently cited indicators. Only one participating SME believed that this factor has positively influenced its initiation of such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that uncertainty in the business environment has a ‘weak influence’ on the e-business systems initiation. These observations are discussed in Chapter 8. Figure 7.13 presents the frequency of the uncertainty in the business environment indicators cited by the participating SMEs.

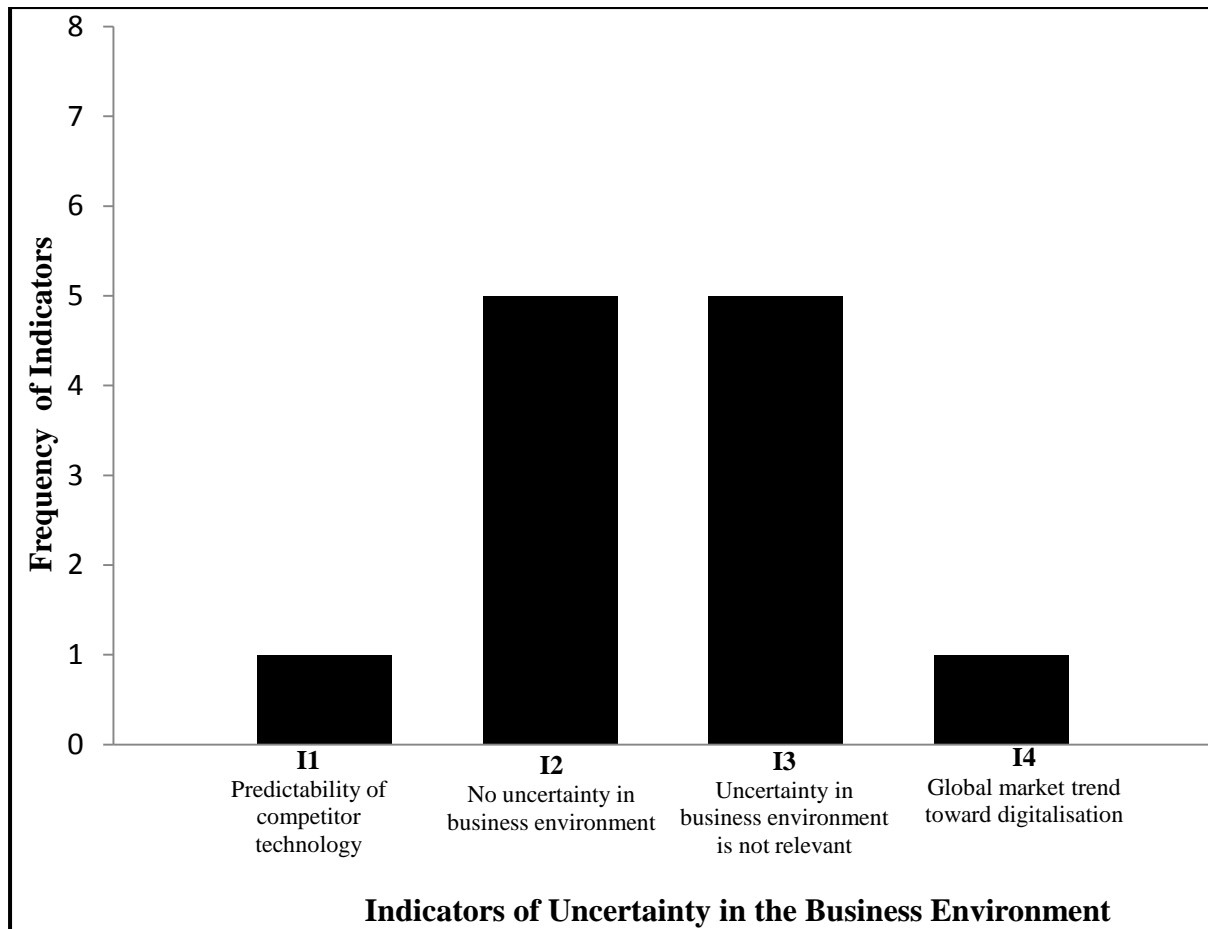


Figure 7.13: Indicators of the uncertainty in business environment demonstrated by participating SMEs

Factor 7: Owner-Manager Characteristics

According to Mukhtar (2002), owner-manager characteristics is defined in terms of the owner-manager's leadership style, experience, education level, the degree of delegation within the organisation, and the importance of personal objectives in the decision making process. It is operationalised in terms of three indicators (which are reproduced from Section 3.11 and Appendix E to help explain the case study findings): a) leadership style (I1), b) owner-manager's education level (I2), and c) owner-manager characteristic is not relevant (I3). A total of eight participating SMEs considered that an owner-manager characteristic has influenced their initiation of e-business systems. Out of these, six (i.e. MAN1, MAN2, MAN3, SER11, SER12, and SER13) considered owner-manager characteristics to have a strong positive influence on e-business initiation, two (i.e. SER14 and SER15) regarded owner-manager characteristics to have no relevance on their initiation, and none indicated a negative influence of owner-manager characteristics. Figure 7.14 summarises the influence of the owner-manager characteristics on the initiation stage of e-business systems for these SMEs.

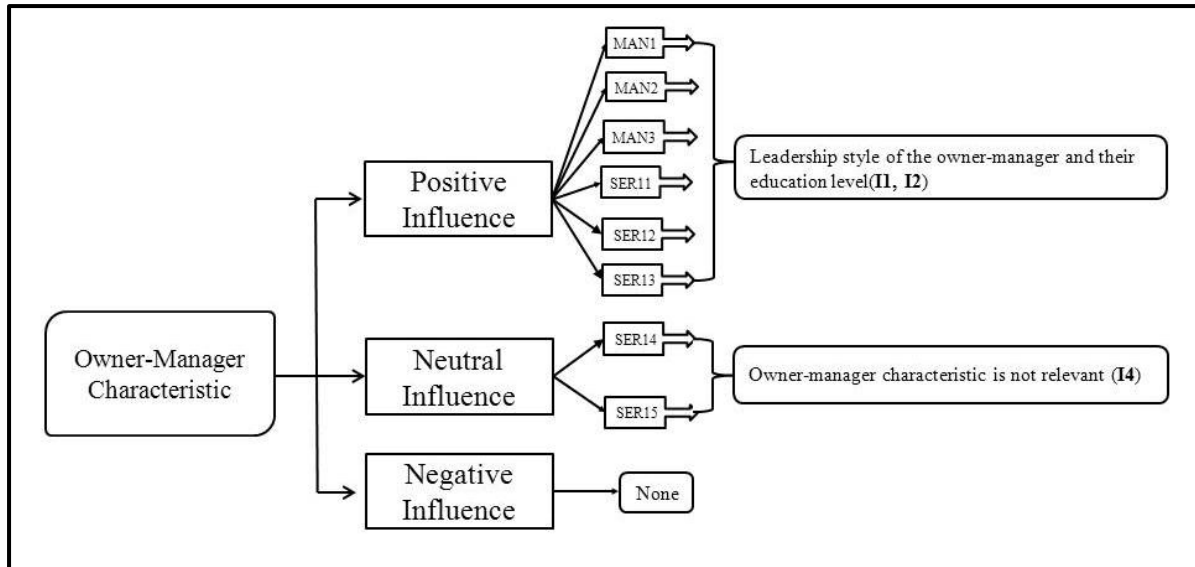


Figure 7.14: Influence of the owner-manager characteristics on the initiation stage

All six SMEs indicated that the leadership style of the owners and managers (I1) and their education level (I2) positively contributed to their initiation of e-business systems. For instance, the manager of MAN1 remarked “*The owner has a Master’s Degree from the USA. Therefore, they recognise the importance of initiating e-business systems in our company*”. This sentiment was also shared by the manager of SER13 who added “*The actual manager of the company is the owner’s son who works hard to move toward the digital economy. He employed some young employees with high tech backgrounds which helps to initiate e-business technologies in the company. On the other hand, the owner has a bachelor degree in pharmacy and also his son has a master degree in business management*”. Likewise, the manager and owner of MAN2, MAN3, SER11, and SER12 expressed similar views.

In contrast, the remaining two SMEs indicated that owner-manager characteristics are not relevant (I4). According to the manager of SER14 “*The owner has a secondary school certificate and the decision of initiating e-business system in the company has been made based on our need. Consequently, I think this has no influence on the decision of initiating e-business systems in the company*”. Similar views were expressed by the manager of SER15. No SMEs indicated a negative influence of owner-manager characteristics on e-business systems initiation.

A review of the case study evidence suggests that these eight SMEs demonstrated slightly different numbers of indicators for the presence of owner-manager characteristics. Leadership style of the owner-manager (I1) and the owner-manager education level (I2) were the leading indicators of the existence of owner-manager characteristics. Whereas, the owner-manager characteristic is not relevant (I3) was the less frequently cited indicator. The case study finding suggests that most of the participating SMEs agreed that this factor has positively influenced their initiation of such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that owner-manager characteristics has a ‘strong positive influence’ on the e-business systems initiation. These observations are discussed in Chapter 8. Figure 7.15 presents the frequency of the owner-manager characteristics indicators cited by the participating SMEs.

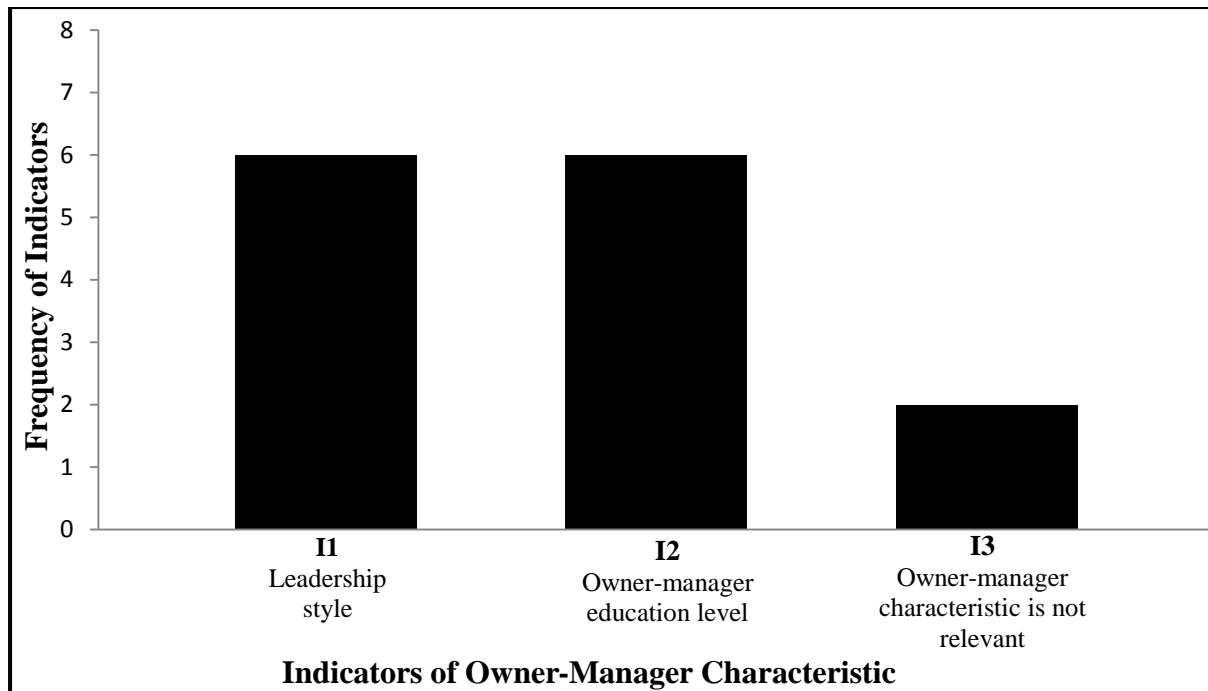


Figure 7.15: Indicators of the owner-manager characteristics demonstrated by participating SMEs

Factor 8: Organisational Readiness and Awareness

Based on the views expressed by Iacovou, Benbasat et al. (1995), organisational readiness and awareness is defined as availability of the financial and technological resources to adopt e-business systems in the organisation and the existence of an awareness of e-business importance. It is operationalised in terms of three indicators: a) company's financial readiness (I1), b) company's technological readiness (I2), c) organisational readiness and awareness is not relevant (I3). A total of eight participating SMEs considered that organisational readiness and awareness had influenced their initiation of e-business systems. Out of these, four (i.e. MAN1, MAN2, SER12, and SER15) regarded it to have a strong positive influence, and three (i.e. MAN3, SER11, and SER13) considered organisational readiness and awareness to have no relevance to their initiation. Only one SME (i.e. SER14) indicated a negative influence of this factor. Figure 7.16 summarises the influence of the organisational readiness and awareness on the initiation stage of e-business systems in SMEs for the participating SMEs.

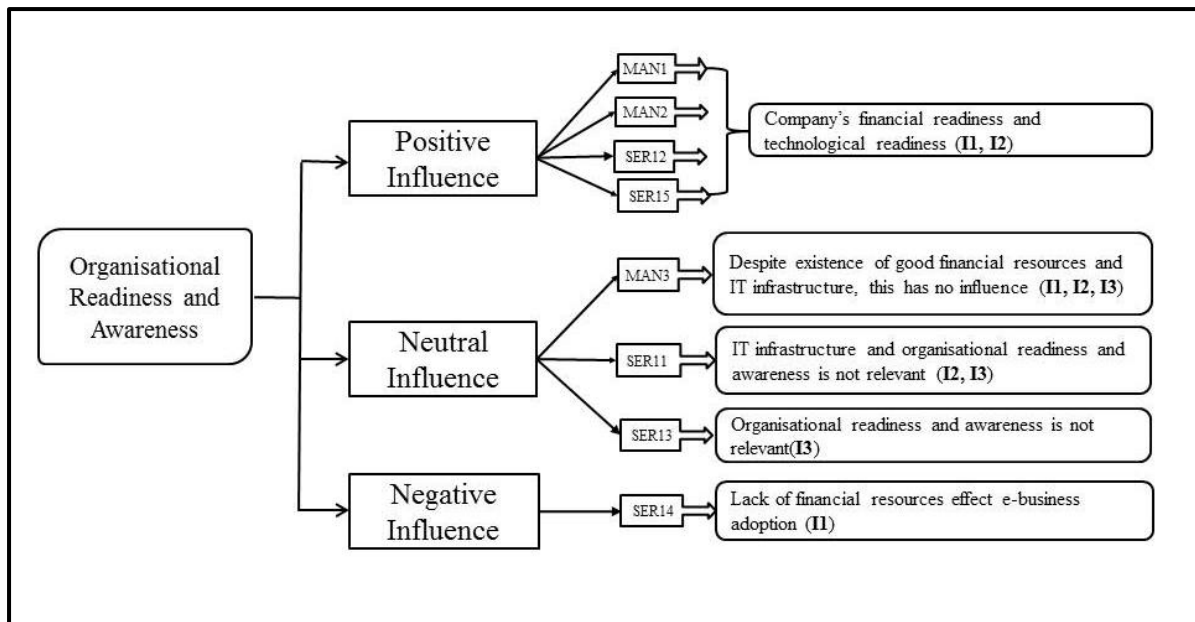


Figure 7.16: Influence of organisational readiness and awareness on the initiation stage

Four SMEs indicated that the company's financial readiness (I1) and company's technological readiness (I2) positively contributed to e-business initiation. For instance, the manager of MAN1 remarked *"The financial readiness of our company is one of the most important factors which helps us to develop our company all the time. Also, the owner of the company has developed a modern technological infrastructure which helps us to initiate any type of system"*. This sentiment was also shared by the manager of SER12 who added *"We have no problem with financial resources and we have a very good technological infrastructure. Therefore, this has positively influenced the initiation decision of e-business system in the company"*. Likewise, the manager and owner of MAN2 and SER15 expressed similar views.

In contrast, three SMEs (which considered that organisational readiness and awareness had no influence on their initiation of e-business systems) indicated that organisational readiness and awareness is not relevant (I3). According to the manager of MAN3 *"The financial situation of our company is very good. In addition, we are able to set up all required technological equipment at any time and at any stage. But, this factor has no influence on our company's decision to initiate e-business systems"*. Similar views were expressed by the owner and manager of SER11 and SER13. Only one SME (i.e. SER14) considered the organisational readiness and awareness has negatively influenced their initiation of e-business systems. The manager of the company indicated that the main barrier to initiate e-business systems was lack of financial resources. This manager remarked *"We delayed the decision to use an e-business system in the company because we lack financial resources. Therefore, this is the main barrier for our company to initiate e-business systems"*.

A review of the case study evidence suggests that these eight SMEs demonstrated a different number of indicators for the presence of organisational readiness and awareness. Company's financial readiness (I1) and company's technological readiness (I2) were the leading indicators to reflect the influence of organisational readiness and awareness on the initiation stage of the e-business systems adoption process. Whereas, the organisational readiness and awareness is not relevant (I3) was the less frequently cited indicator. The case study finding suggests that four of the participating SMEs agreed that this factor had positively influenced

their initiation of such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that organisational readiness and awareness has ‘possible influence’ on e-business systems initiation by participating SMEs. These observations are elaborated in Chapter 8. Figure 7.17 presents the frequency of the organisational readiness and awareness indicators cited by the participating SMEs.

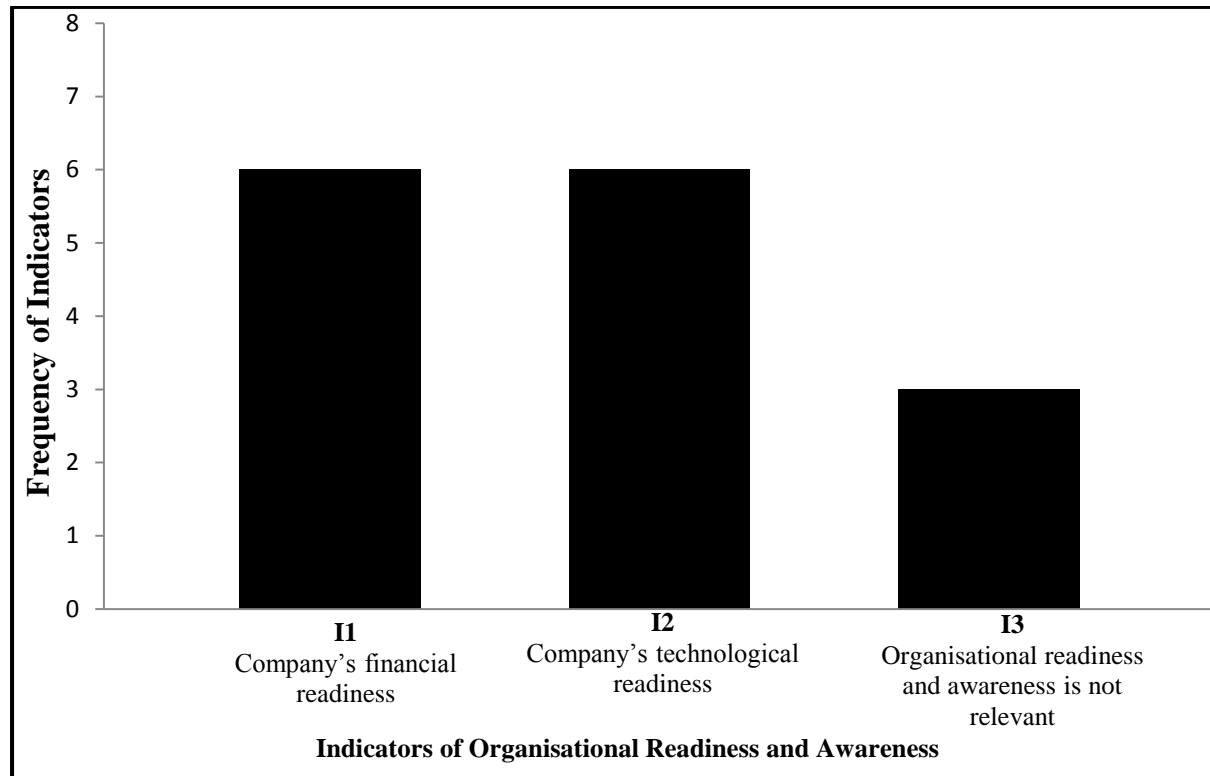


Figure 7.17: Indicators of organisational readiness and awareness demonstrated by participating SMEs

Factor 9: Trading Partners' Readiness

Drawing on the views of Oliveira and Martins (2010), ‘trading partners’ readiness’ is defined as the ability and willingness of a trading partner to adopt an e-business system. It is operationalised in terms of three indicators: a) trading partner willingness to adopt e-business (I1), b) ability to use e-business by trading partner (I2) and c) trading partner readiness is not relevant (I3). A total of eight participating SMEs considered that trading partners’ readiness has influenced their initiation of e-business systems. Out of these, one (i.e. SER12) regarded it to have a strong positive influence, five (i.e. MAN1, SER11, SER13, SER14, and SER15) considered it to have no relevance. No SMEs indicated a negative influence of trading partners’ readiness. The remaining two SMEs (i.e. MAN2 and MAN3) did not comment on this factor. Figure 7.18 summarises the influence of the trading partners’ readiness on the initiation stage of e-business systems in SMEs for the participating SMEs.

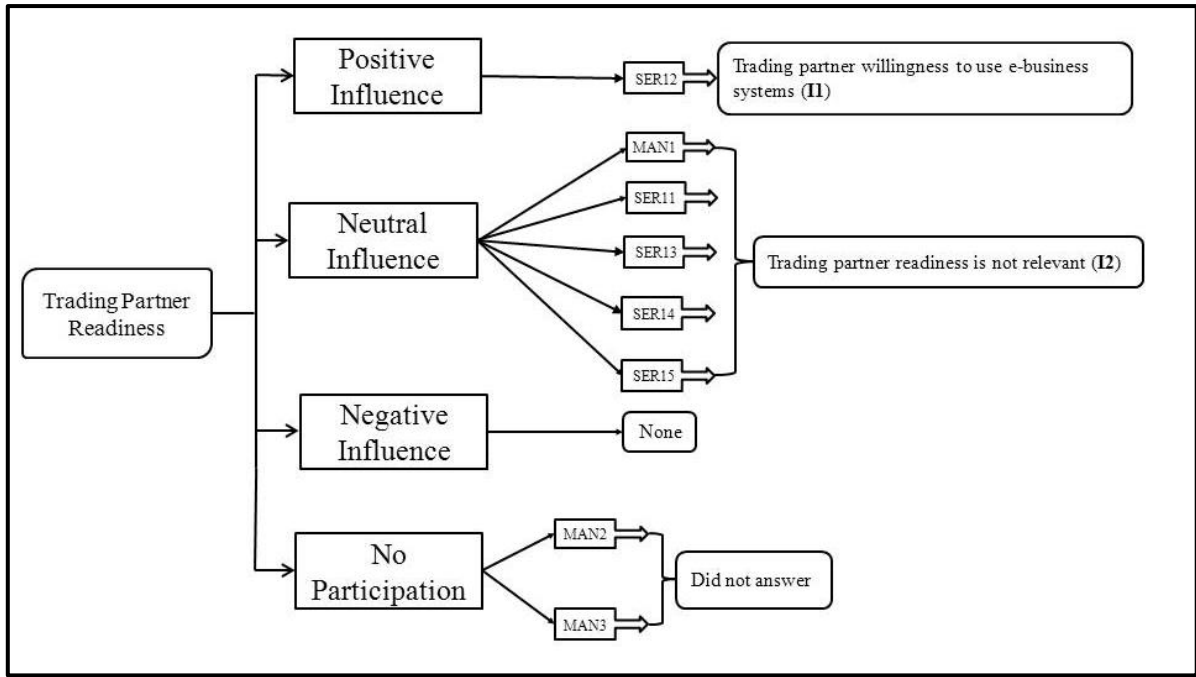


Figure 7.18: Influence of trading partners' readiness on the initiation stage

The manager of SER12 (which indicated that the trading partner willingness to use e-business systems (I1) positively contributed to its initiation of these systems) remarked “*The partner of our company was willing to use e-business systems, which motivated the management of our company to initiate such systems*”. In contrast, five SMEs (which considered the trading partners' readiness had no influence on their initiation of e-business systems) indicated that trading partners' readiness is not relevant (I2). According to the manager of SER13 “*We have no trading partner. Therefore, this has no relevance to our decision to initiate e-business systems*”. Similar views were expressed by the owner and manager of MAN1, SER11, SER14, and SER15. No SMEs indicated a negative influence of trading partners' readiness on the participating SMEs' initiation of e-business systems.

A review of the case study evidence suggests that these six SMEs demonstrated an equal number of indicators for the presence of trading partners' readiness. ‘Trading partners' readiness is not relevant (I2)’ was the leading indicator to reflect that there was no influence of this factor on the companies' initiation of e-business systems, whereas, ‘trading partner willingness to adopt e-business (I1)’ was the less frequently cited indicator. The case study finding suggests that only one of the participating SMEs agreed that this factor has positively influenced its initiation of such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that trading partners' readiness has a ‘weak influence’ on the e-business systems initiation. A rich discussion of these observations is provided in Chapter 8. Figure 7.19 presents the frequency of the trading partners' readiness indicators cited by the participating SMEs.

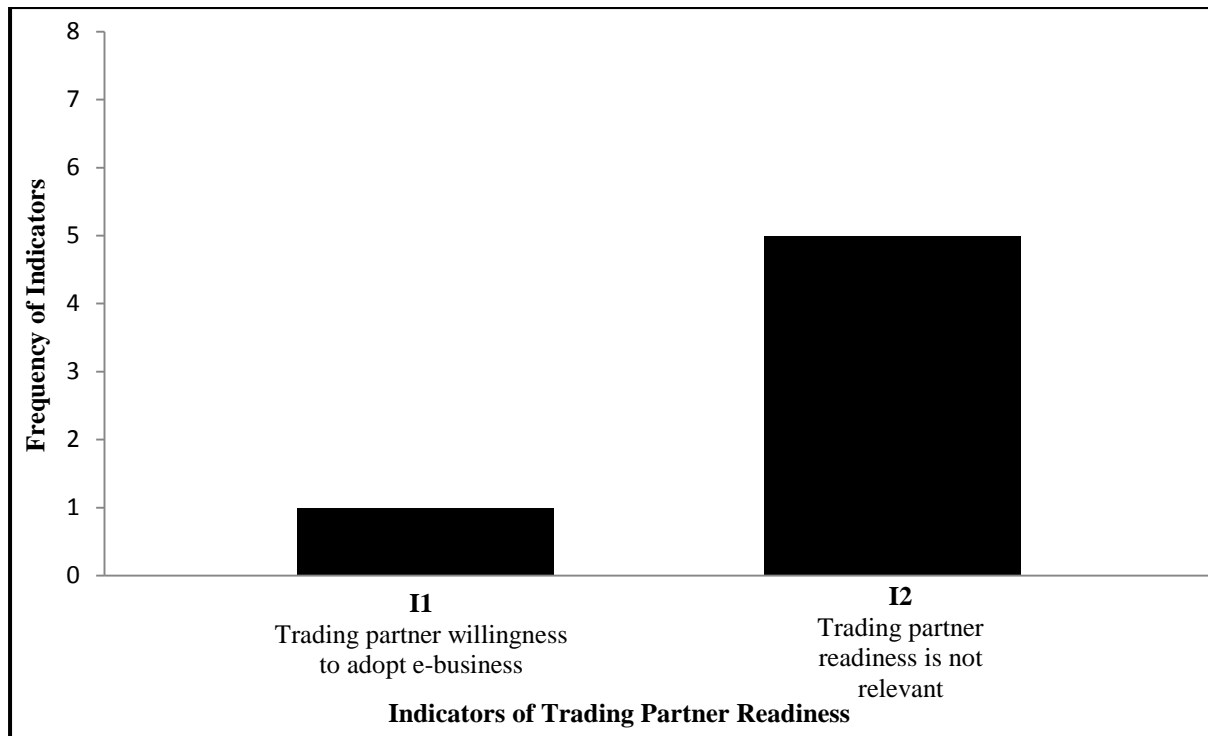


Figure 7.19: Indicators of the trading partners' readiness demonstrated by participating SMEs

Factor 10: Organisational Culture

According to Barney (1986), 'organisational culture' is defined as "a complex set of values, beliefs, assumptions, and symbols that define the way in which a firm conducts its business" (p. 659). It is operationalised in terms of three indicators: a) emphasise growth through developing new ideas (I1), b) employees' loyalty for a company (I2), and achieve company's goals (I3). A total of eight participating SMEs considered that organisational culture has positively influenced their initiation of e-business systems. No SME indicated either a weak or negative influence of organisational culture on e-business systems initiation. Figure 7.20 summarises the influence of the organisational culture on the initiation stage of e-business systems in SMEs.

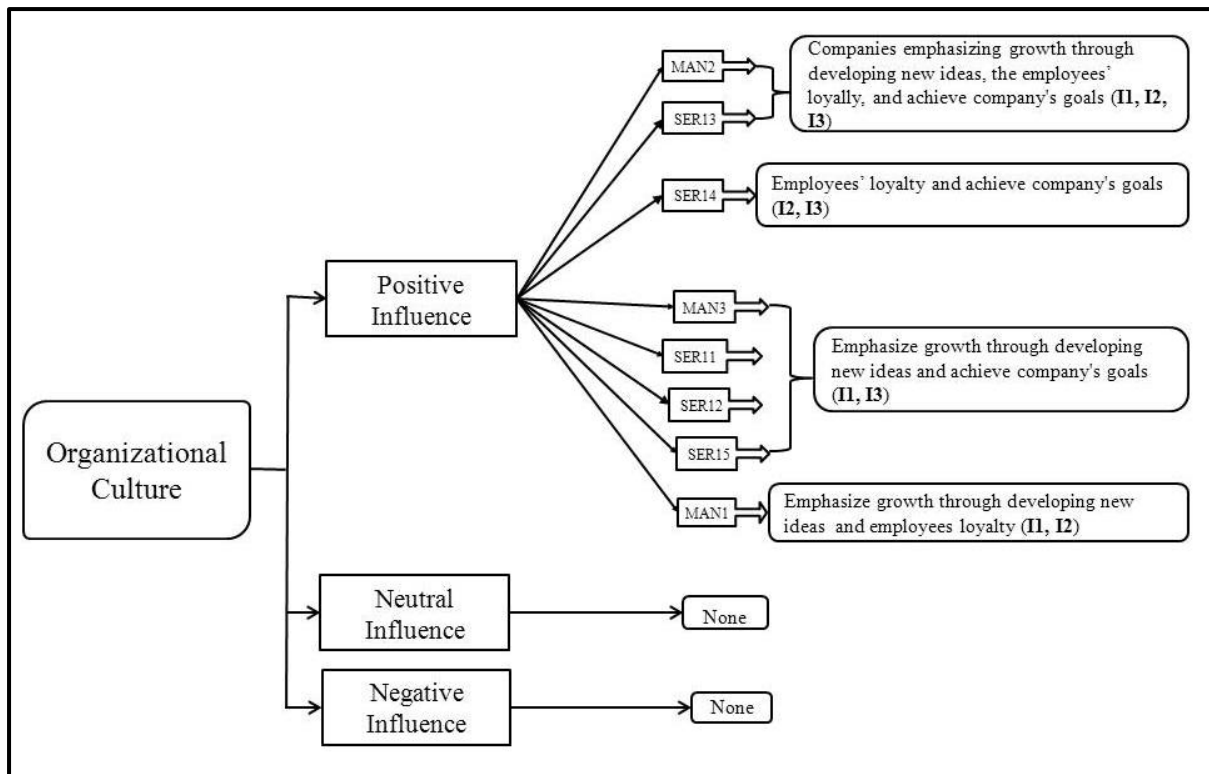


Figure 7.20: Influence of the organisational culture on the initiation stage

Out of these SMEs, two (i.e. MAN2 and SER13) indicated ‘the companies emphasising growth through developing new ideas (I1)’, ‘the employees’ loyalty (I2)’, and ‘achieving company's goals (I3)’ positively contributed to these SMEs’ initiation of these systems. For instance, the owner of MAN2 remarked “*We are the only company in the field of chemical consultancy, so we are keen to offer a variety of services and products which will enable us to fully control the market, so that our customers will not think of working with other competing companies in the Gulf region. So this was a big influence in our initiation decision of e-business systems. In addition, I find that those working with me in the company are keen to develop the company and following the movements in the market and informing me of them immediately and this is reflected in the company’s success. Moreover, in our company we have goals, some of them immediate, and others not so immediate, which must be achieved on a yearly basis. Also, we have long-term goals. So the work in our company runs according to our defined goals. Certainly, among our goals is the development of our company’s work, which includes the use of e-business systems*”. Likewise, the manager of SER13 expressed similar views. Another four SMEs (i.e. MAN3, SER11, SER12, and SER15) indicated that emphasise growth through developing new ideas (I1) and achieving the company's goals (I3) also positively contributed to e-business systems initiation. For example, the manager of SER15 indicated “*I believe our decision to initiate e-business systems in the company is the optimal example to answer this question. Using an e-business system in the company is part of our awareness about the importance of generating new products and services. On the other hand, we have a list of goals that should be achieved within a specific period of time and e-business system initiating is one of our future goals that should be achieved*”. Similar views were expressed by the owner and managers of MAN3, SER11, and SER12. The remaining two SMEs (i.e. MAN1 and SER14) mentioned different reasons for their initiation of e-business systems. For example, the manager of MAN1 indicated the company emphasises the growth through developing new ideas (I1) and employee’s loyalty for a company (I2) were the main motivations to initiate e-business systems. This manager

remarked “We are a testing company. Therefore, all the time we need to do testing. So, we send the testing report which has to be accurate to our customers. So, for that we have to buy sophisticated advanced equipment. Yes, we have to initiate e-business systems for the company. In addition, the environment in our company is coherent and they are very helpful”. Whereas, the manager of SER14 indicated that employee’s loyalty for a company (I2) and ‘achieve company’s goals (I3)’ were the key reasons behind their decision to initiate e-business systems by saying “We have a long term plan and goals. So we are working to achieve these goals. In addition, an e-business system is one of our goals that needs to be achieved soon. Also, we attend most exhibitions that relate to the advertising industry. So, initiating e-business systems in the company is the result of this process. On the other hand, I am one of the managers in this company and I am keen to develop this company, which will reflect on my development”. No SME indicated either a weak or negative influence of organisational culture.

A review of the case study findings suggests that these eight SMEs demonstrated an almost equal number of indicators for the existence of organisational culture. The emphasise growth through developing new ideas (I1) and achieving company’s goals (I2) were the leading indicators of the presence of organisational culture; whereas, the employees’ loyalty for a company was the less frequently cited indicator. All participating SMEs believed that this factor had positively influenced their initiation of such systems. Therefore, using measurement scale (Section 3.11.2), it is suggested that organisational culture has ‘strong positive influence’ on e-business systems initiation. A rich discussion of these observations is provided in Chapter 8. Figure 7.21 presents the frequency of the organisational culture indicators cited by the participating SMEs.

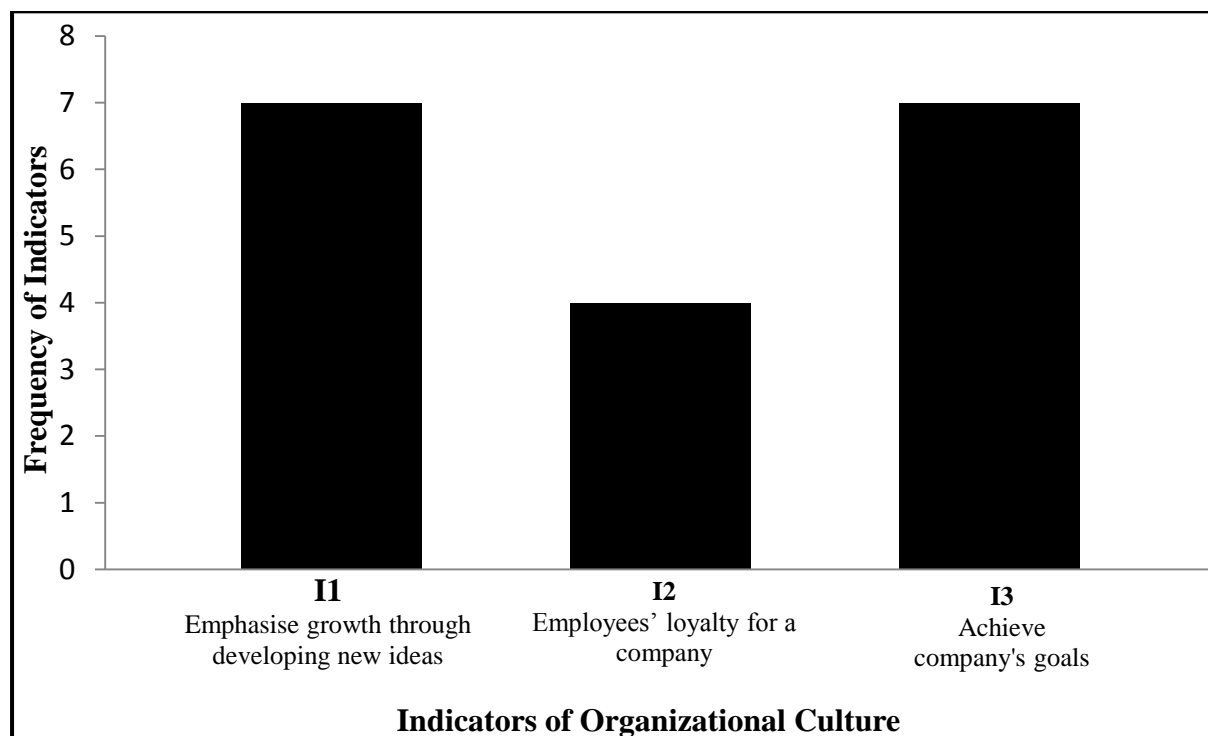


Figure 7.21: Indicators of the organisational culture of e-business systems demonstrated by participating SMEs

7.1.1.1 Summary (Stage 1: Initiation)

In summary, drawing on the discussion about the influence of the common factors affecting the initiation stage of the e-business systems adoption process in SMEs, the following observations are made: a) a total of five factors (i.e. *relative advantage*, *external pressure*, *management support*, *owner-manager characteristics*, and *organisational culture*) have strong positive influence on the SMEs' initiation of e-business systems, b) only two factors (i.e. *cost*, *organisational readiness and awareness*) have possible influence, and c) three more factors (i.e. *government support programs*, *uncertainty in business environment*, and *trading partners' readiness*) have weak influence. The implications of these observations in terms of industry sector and comparison with the existing e-business literature are discussed in Chapter 8.

7.1.2 Common Factors Affecting Adoption Decision Stage

Factor1: Cost

Drawing on the views of Wymer and Regan (2005), 'cost' is defined as expenses to setup and maintain an e-business system. It is operationalised in terms of two indicators (which are reproduced from Section 3.11 and Appendix E to explain case study findings): a) e-business is not expensive (I1) and b) e-business's cost is not relevant (I2). A total of two participating SMEs considered that cost has influenced their decision to adopt e-business systems. Both SMEs (i.e. MAN4 and SER16) regarded cost to have no relevance to their adoption decision. No SMEs indicated either a strong positive or a negative influence on their decision to adopt e-business systems. Figure 7.22 summarises the influence of cost on the adoption decision stage of e-business systems in SMEs.

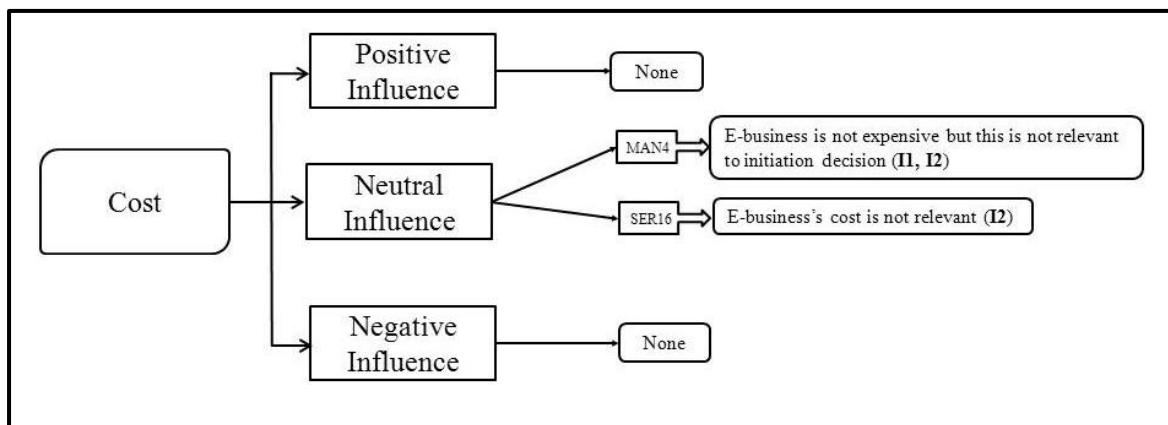


Figure 7.22: Influence of e-business cost on the adoption decision stage

These two SMEs acknowledged that e-business systems are not expensive but this has no influence on their decision to adopt e-business systems. According to the manager of MAN4 "I acknowledge that an e-business system is not expensive. However, I think this has no influence on the decision to adopt an e-business system, because if the management of our company needs to do something they will do it regardless of the cost". This view was also shared by the manager of SER16 who added "Actually we need this technology at any cost, So, I do not think that this factor affected the company's decision to adopt an e-business system".

A review of the case study evidence suggests that these two SMEs demonstrated an almost equal number of indicators for the existence of cost on their decision to adopt an e-business system. E-business systems are not expensive (I2) was the leading indicator of the existence of the cost. Whereas, the reasonable cost of e-business systems (I1) was the less frequently cited indicator for the presence of cost influence on e-business systems adoption decision stage. The case study finding suggests that all the participating SMEs believe that this factor has no influence on their decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that cost has a ‘weak influence’ on the SMEs’ decision to adopt e-business systems. A rich discussion of these observations is provided in Chapter 8. Figure 7.23 presents the frequency of the e-business cost indicators cited by the participating SMEs.

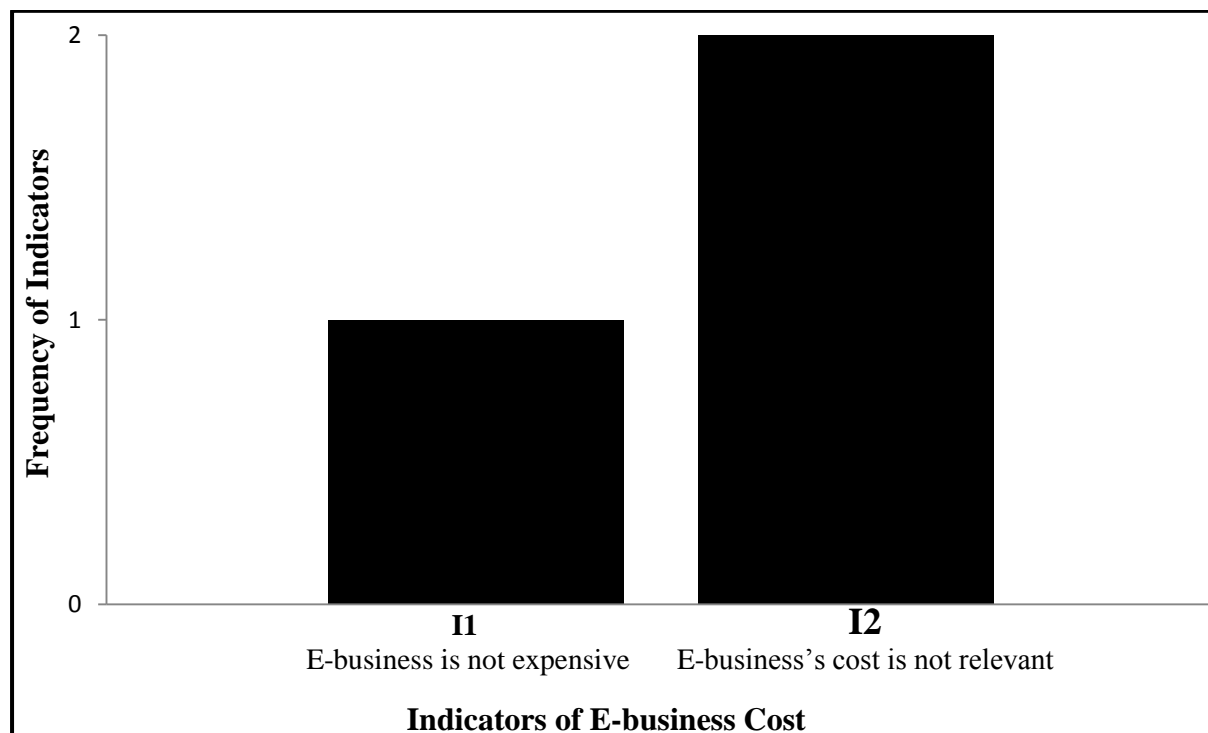


Figure 7.23: Indicators of the cost of e-business systems demonstrated by participating SMEs

Factor 2: Relative Advantage

According to the views expressed by Kendall, Tung et al. (2001), ‘relative advantage’ is defined as the benefit perceived by SMEs in adopting e-business systems to conduct business. It is operationalised in terms of four indicators: a) improve the presence of the company between its competitors (I1), b) improve a company’s image (I2), c) customer satisfaction (I3), and d) increase sales (I4). A total of two participating SMEs considered that relative advantage has influenced their decision to adopt e-business systems. All SMEs considered relative advantage to have a strong positive influence on their decision to adopt e-business systems. No SMEs indicated either a weak or negative influence of relative advantage. Figure 7.24 summarises the influence of relative advantage on the adoption decision stage of e-business systems in SMEs.

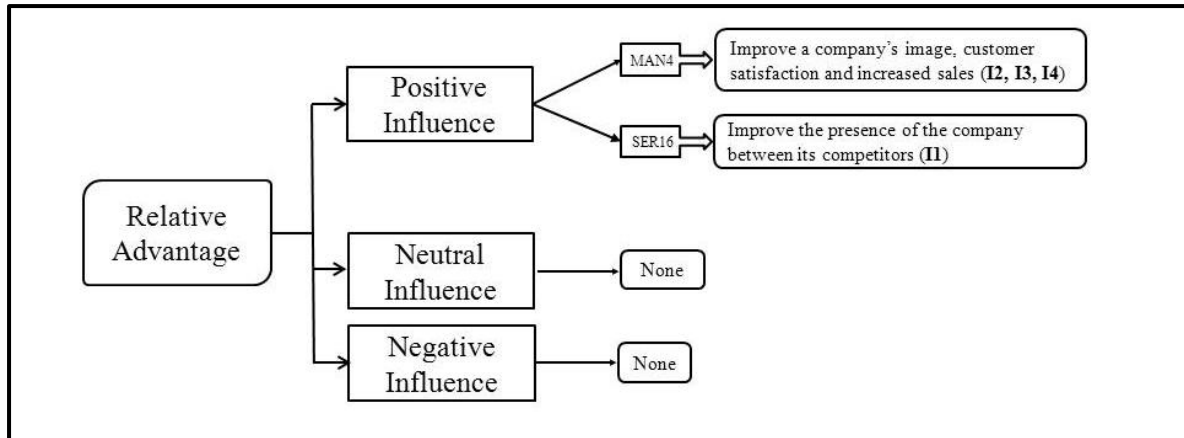


Figure 7.24: Influence of the relative advantage on the adoption decision stage

Out of these two SMEs, one (i.e. MAN4) indicated that improve the company's image (I2), company's customer satisfaction (I3) and increased sales (I4) positively contributed to the SME's decision to adopt e-business systems. For instance, the manager of MAN4 remarked *"If the customer checks our online system and finds it easy to use with all needed information available, then this will improve the company image and convince our customers to deal with the company. In addition, adopting e-business systems will increase sales and marketing. Therefore, all these advantages are the key driver to adopt e-business systems"*.

Another SME (i.e. SER16) indicated that 'improved the presence of the company between its competitors (I1)' positively contributed to this SME's decision to adopt e-business systems. According to the manager of SER16 *"The competition in this industry is high. So, we are working day and night to provide new services or innovation which will put our company on top of the competition. Therefore we decided to adopt e-business systems in the company"*.

A review of the case study finding suggests that these two SMEs demonstrated a different number of indicators for the existence of relative advantage. All indicators of relative advantage were cited equally to indicate the presence of relative advantage influence on the adoption decision stage of e-business systems by the participating SMEs. The case study findings suggest that all participating SMEs believe that this factor has positively influenced their decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that relative advantage of e-business systems has 'strong positive influence' on the SMEs' decision to adopt e-business systems. A discussion of these observations is offered in Chapter 8. Figure 7.25 presents the frequency of the relative advantage indicators cited by the participating SMEs.

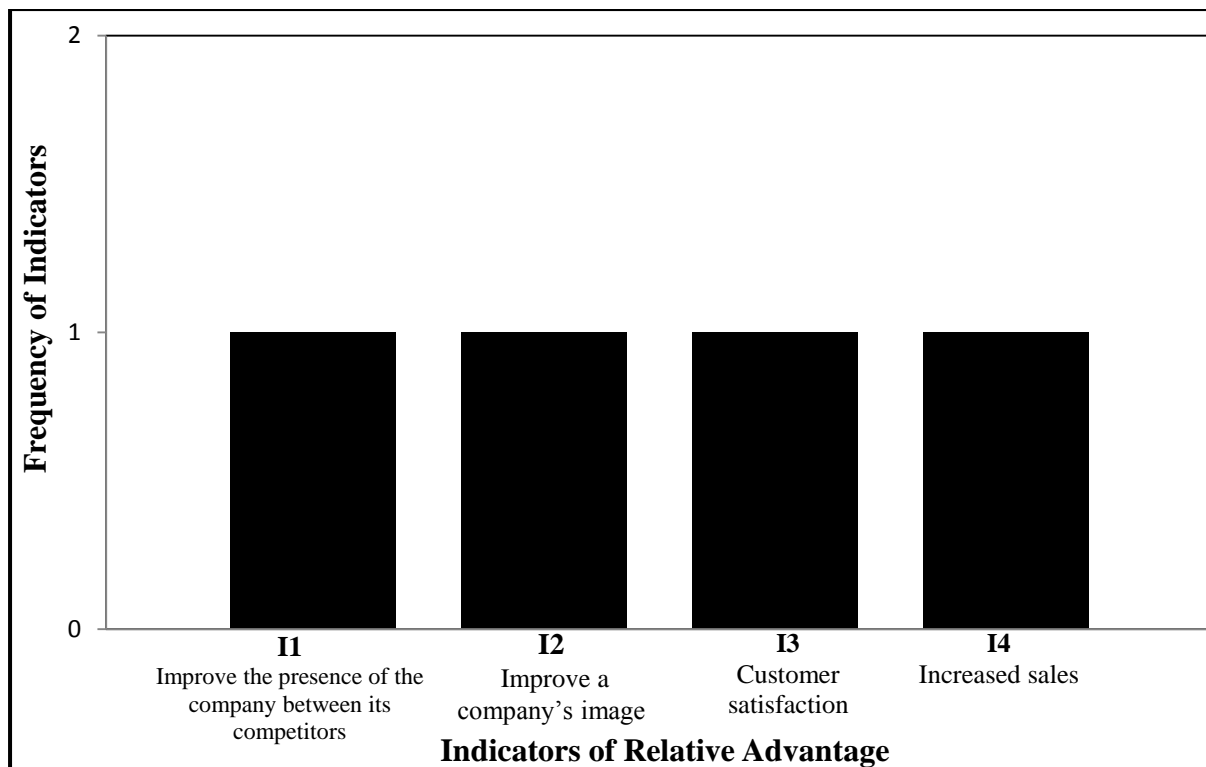


Figure 7.25: Indicators of the relative advantage of e-business systems demonstrated by participating SMEs

Factor 3: External Pressure

Based on the views expressed by Pearson & Grandon (2006), ‘external pressure’ is defined as direct or indirect coercive force exerted by competitors, social referents, other firms, the government, and the industry to adopt e-business systems. It is operationalised in terms of three indicators: a) competitors’ pressure (I1), b) customer pressure (I2), and c) supplier pressure (I3). A total of two SMEs considered that external pressure had influenced their decision to adopt e-business systems. All participating SMEs regarded external pressure to have a strong positive influence on their decision to adopt e-business systems. No SMEs indicated either a weak or a negative influence of external pressure. Figure 7.26 summarises the influence of external pressure on the adoption decision stage of e-business systems in SMEs.

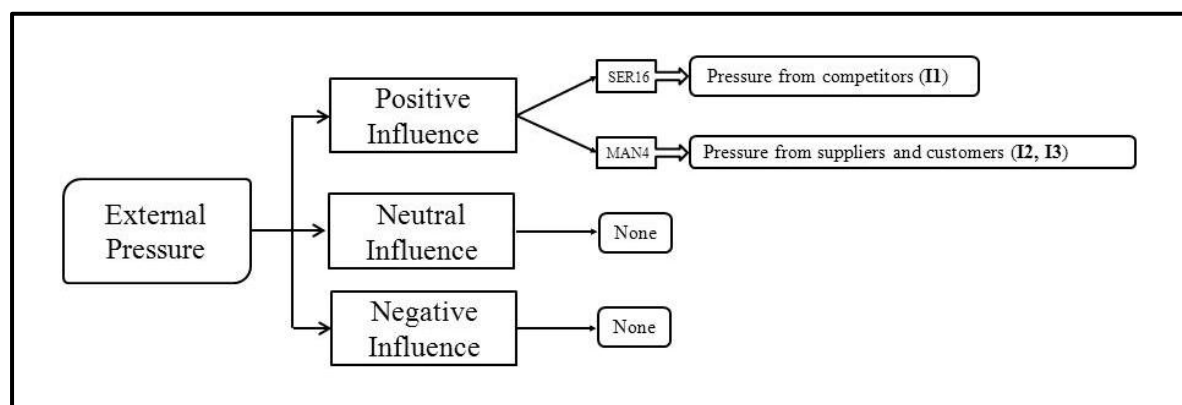


Figure 7.26: Influence of external pressure on the adoption decision stage

Out of these two SMEs, one (i.e. SER16) indicated that the competitors' pressure (I1) positively contributed to this SME's decision to adopt e-business systems. According to the manager of SER16 *"We experienced pressure from our competitors. So we decided to use e-business systems"*. The remaining one (i.e. MAN4) indicated that the customer pressure (I2)' and suppliers pressure (I3) positively contributed to this SME's decision to adopt e-business systems. The manager of MAN4 commented *"We received several recommendations from our customers and suppliers to use an e-business system. Therefore, this has influenced the company decision to adopt e-business systems"*.

A review of the case study evidence suggests that these two SMEs demonstrated a nearly equal number of indicators for the existence of external pressure. All indicators of external pressure were equally cited by the participating SMEs. The case study finding suggests that all participating SMEs believed that this factor had positively influenced their decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that external pressure has a 'strong positive influence' on the SMEs decision to adopt e-business systems. A discussion of these observations is provided in Chapter 8. Figure 7.27 presents the frequency of the external pressure indicators cited by the participating SMEs.

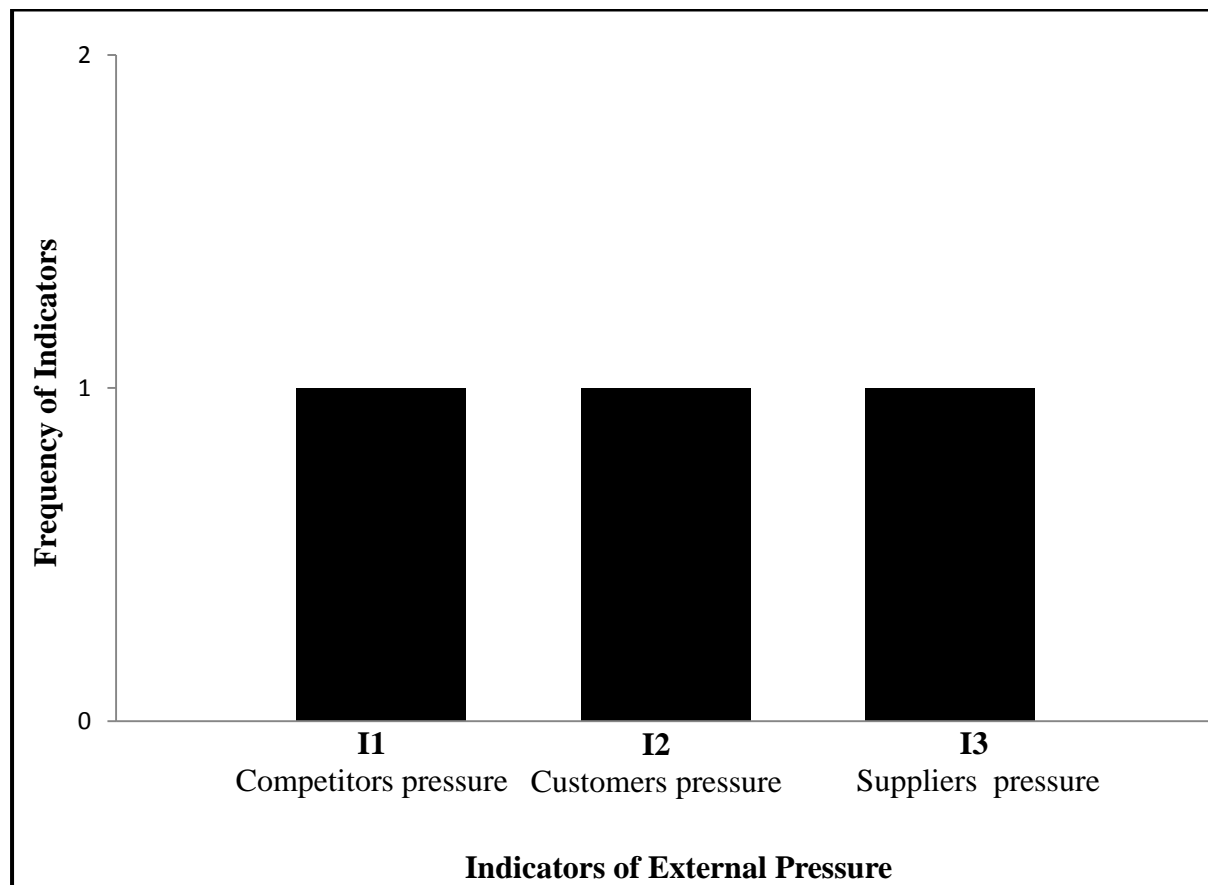


Figure 7.27: Indicators of the external pressure demonstrated by participating SMEs

Factor 4: Management Support

Drawing on the views of Wilson, Daniel et al. (2008) , management support is defined as the perceived level of encouragement and participation of the SME top management. It is operationalised in terms of two indicators: a) awareness of e-business systems advantages (I1) and b) senior management willing to develop the company (I2). A total of two participating SMEs considered that management support had influenced their decision to adopt e-business systems. All SMEs regarded management support to have a strong positive influence on their decision to adopt e-business systems. No SMEs indicated either a weak or a negative influence of management support. Figure 7.28 summarises the influence of management support on the adoption decision stage of e-business systems in SMEs.

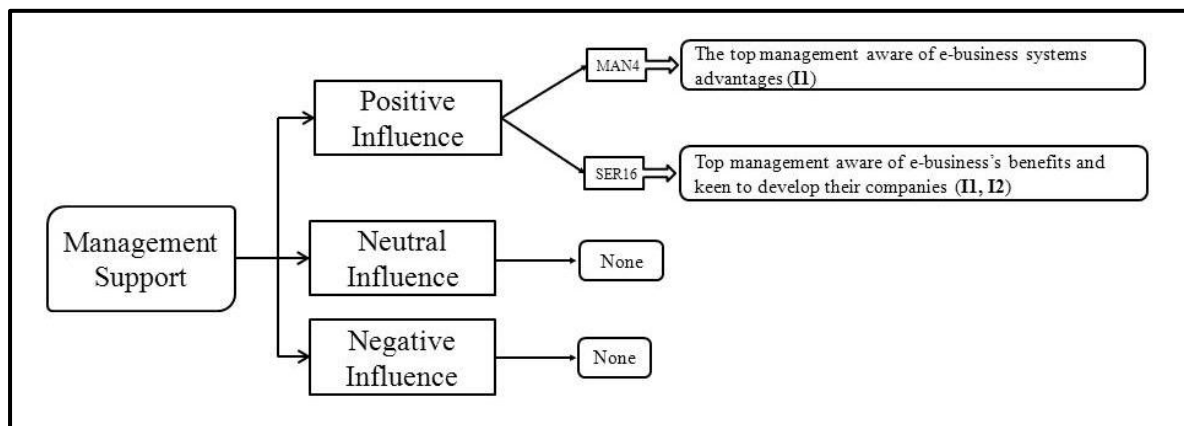


Figure 7.28: Influence of management support on the adoption decision stage

Out of these two SMEs, one (i.e. MAN4) indicated that top management willingness to develop the company (I1) positively contributed to this SME's decision to adopt these systems. The manager of MAN4 remarked "*The top management in our company has a plan which includes adopting e-business systems this year due to our need to develop our business transactions. Therefore, this is the main factor behind adopting these systems in the company*". The other SME (i.e. SER16) indicated that the awareness of e-business systems advantages by company's management (I1) and their willingness to develop the company (I2) positively contributed to this SME's decision to adopt e-business systems. The manager of SER16 pointed out "*The owner always consults the general manager who has a master degree in IT about how to develop the company. This manager is aware of the advantages of e-business systems. So, the general manager has a great role in the adoption decision of e-business systems in the company*".

A review of the case study finding suggests that these two SMEs demonstrated almost equal number of indicators for the existence of management support on their decision to adopt e-business systems. Awareness of e-business systems advantages (I1) was the leading indicator of the existence of management support, whereas, the senior management of the companies willingness to develop the company (I2) was the less frequently cited indicator for the presence of management support. All participating SMEs believe that this factor has positively influenced their decision to adopt e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that management support has a 'strong positive influence' on the participating SMEs' decision to adopt e-business systems. A rich discussion of these observations is provided in Chapter 8. Figure 7.29 presents the frequency of the management support indicators cited by the participating SMEs.

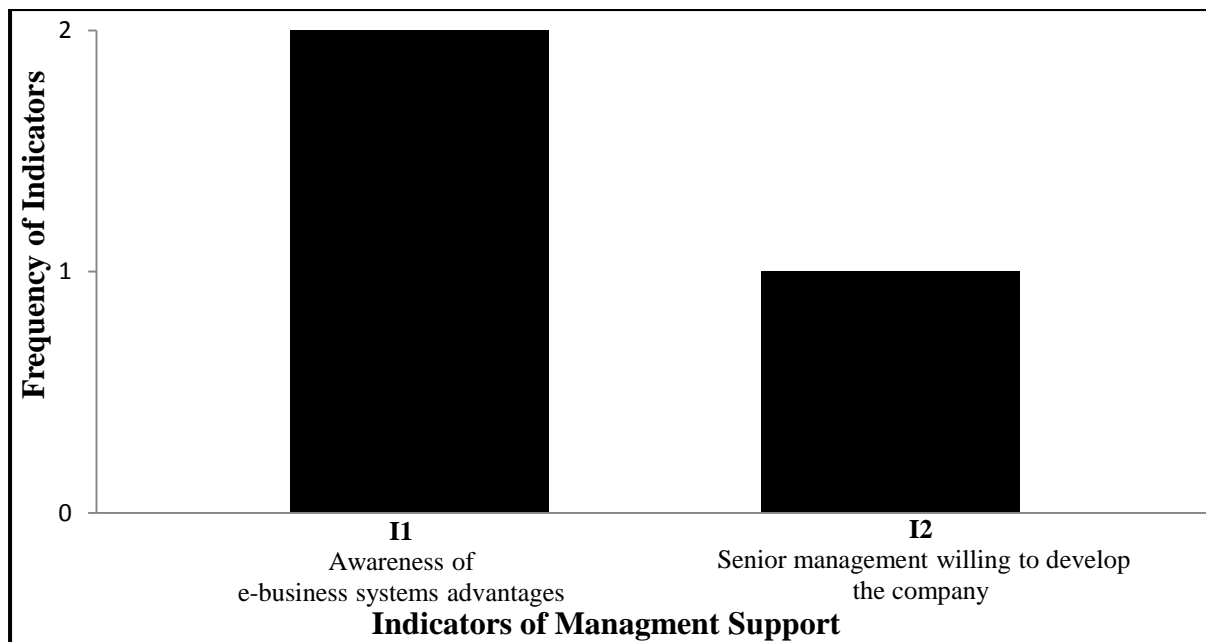


Figure 7.29: Indicators of management support demonstrated by participating SMEs

Factor 5: Government Support Programs

According to the views expressed by Simpson and Docherty (2004), ‘government support programs’ is initiated to encourage SMEs to seek advice and stimulate demand for advice and support. It is operationalised in terms of three indicators: a) no idea about government support programs (I1), b) hard to access the government support programs (I2), and c) government support program is not relevant (I3). Both participating SMEs indicated that the government support programs had no relevance to their decision to adopt e-business systems. No SMEs indicated either a strong positive or a negative influence of government support programs. Figure 7.30 summarises the influence of the government support programs on the adoption decision stage of e-business systems in SMEs.

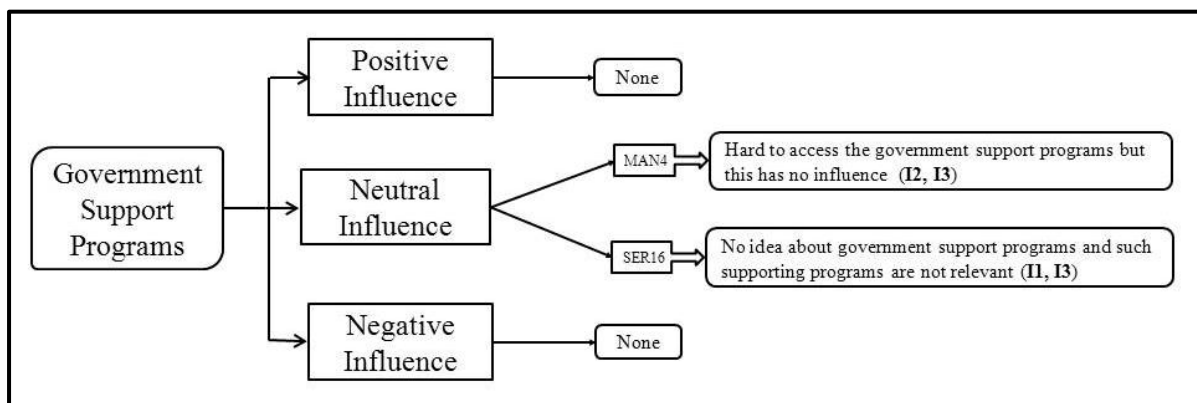


Figure 7.30: Influence of government support programs on the adoption decision stage

Out of these two participating SMEs, one (i.e. MAN4) indicated that they found it hard to access such supporting programs (I2) and these programs have no relevance to their adoption decision of e-business systems (I3). According to the manager of MAN4 “We did not receive any support from the government because it is really hard to meet their requirements to get such support. Therefore this factor has no influence on our decision to adopt e-business systems in the company”. In addition, the manager of SER16 pointed out that they have no

idea about government support programs (I1). Therefore, this was not relevant to the company's decision to adopt e-business systems. This manager stated *"We have no idea about such support from the government. Therefore, this has no influence on our decision to adopt e-business systems in the company"*.

A review of the case study finding suggests that these two SMEs demonstrated an equal number of indicators for the existence of government support programs. Government support programs is not relevant (I3) was the leading indicator for the existence of government support programs. Whereas, no idea about government support programs (I2) and hard to access the government support programs (I2) were less frequently cited indicators. Therefore, using the measurement scale (Section 3.11.2), it is suggested that government support programs has a 'weak influence' on the SMEs' decision to adopt e-business systems. These observations are discussed in Chapter 8. Figure 7.31 presents the frequency of the government support programs indicators cited by the participating SMEs.

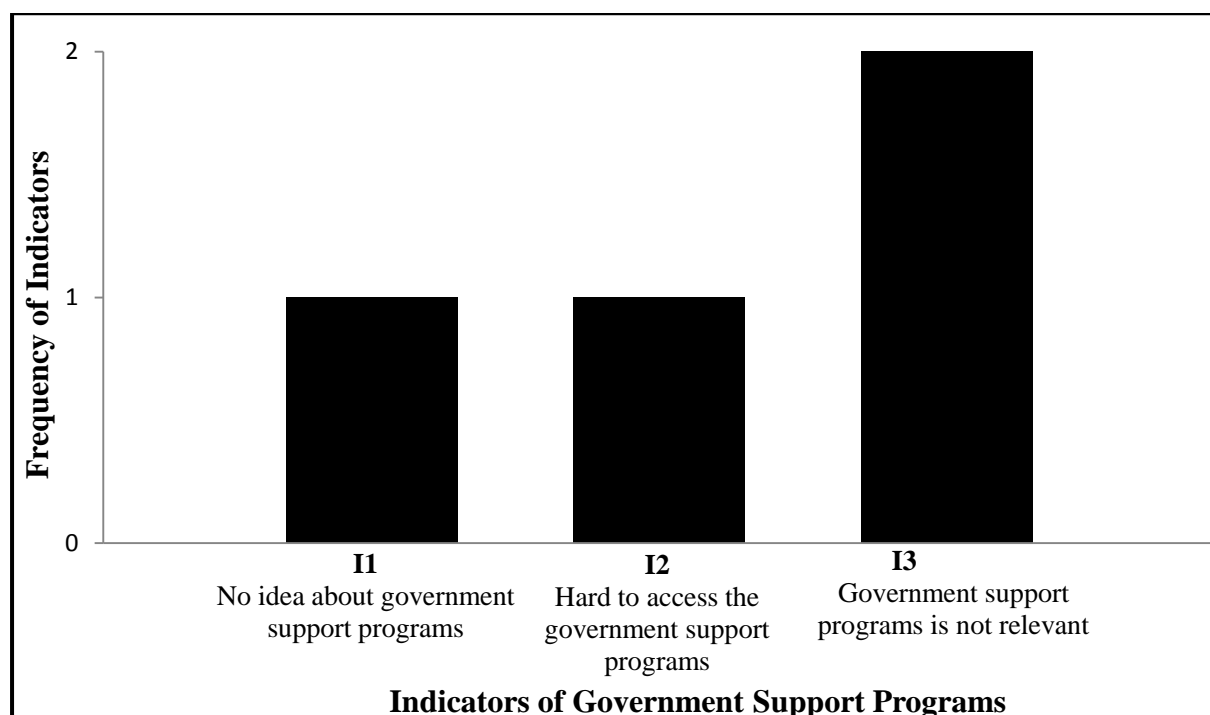


Figure 7.31: Indicators of government support programs demonstrated by participating SMEs

Factor 6: Uncertainty in Business Environment

Drawing on the views of Sung, Lu et al. (2010), 'uncertainty in business environment' is defined as a situation in which a company has little information about its external environment to use in achieving its organisational goals. It is operationalised in terms of two indicators: a) no uncertainty in business environment (I1) and b) uncertainty in business environment is not relevant (I2). All two participating SMEs considered that uncertainty in business environment had no relevance to their decision to adopt e-business systems. No SMEs indicated either a strong positive or a negative influence of uncertainty in business environment. Figure 7.32 summarises the influence of the uncertainty in the business environment on the adoption decision stage of e-business systems in SMEs.

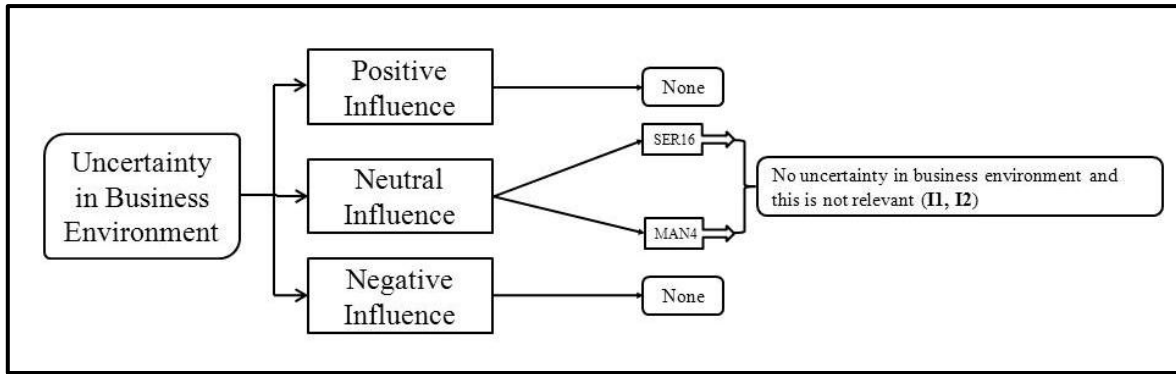


Figure 7.32: Influence of uncertainty in business environment on the adoption decision stage

These two SMEs indicated that there is no uncertainty in their business environment (I1) and such uncertainty is not relevant to their decision to adopt e-business systems. For example, the manager of SER16 remarked “*The Saudi market is going very well especially in the hospitality industry. So, there is no uncertainty here like Dubai. Therefore this has no influence on the adoption decision of e-business systems in the company*”. Likewise, the manager of MAN4 expressed similar views.

A review of the case study finding suggests that these two SMEs demonstrated an equal number of indicators for the presence of uncertainty in business environment. Absence of uncertainty in business environment (I1) and uncertainty in business environment is not relevant (I2) were the leading indicators for the existence of uncertainty in business environment. Both participating SMEs believed that this factor had no influence on their decision to adopt e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that uncertainty in business environment has a ‘weak influence’ on the SMEs’ decision to adopt e-business systems. A rich discussion of these observations is provided in Chapter 8. Figure 7.33 presents the frequency of the uncertainty in business environment indicators cited by the participating SMEs.

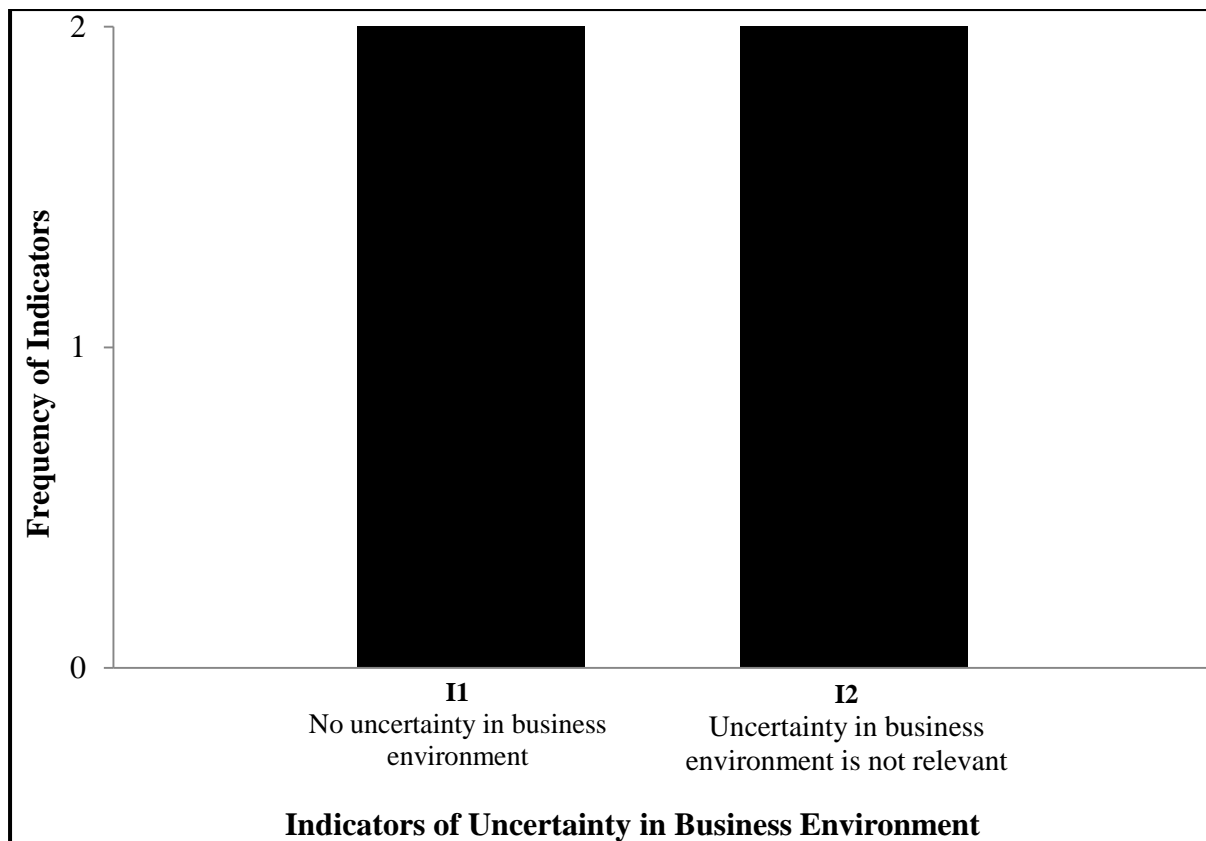


Figure 7.33: Indicators of the uncertainty in business environment demonstrated by participating SMEs

Factor 7: Owner-Manager Characteristics

Based on the views expressed by Mukhtar (2002), owner-manager characteristics is defined in terms of the owner-manager's leadership style, experience, education level, the degree of delegation within the organisation, and the importance of personal objectives in the decision making process. It is operationalised in terms of three indicators: a) leadership style (I1), b) owner-manager's education level (I2), and c) owner-manager experience (I3). A total of two participating SMEs considered owner-manager characteristics to have an influence on their decision to adopt e-business systems. Both SMEs regarded this factor to have a strong positive influence on their decision to adopt e-business systems. No SMEs indicated either a weak or a negative influence of owner-manager characteristics. Figure 7.34 summarises the influence of the owner-manager characteristics on the adoption decision stage of e-business systems in SMEs.

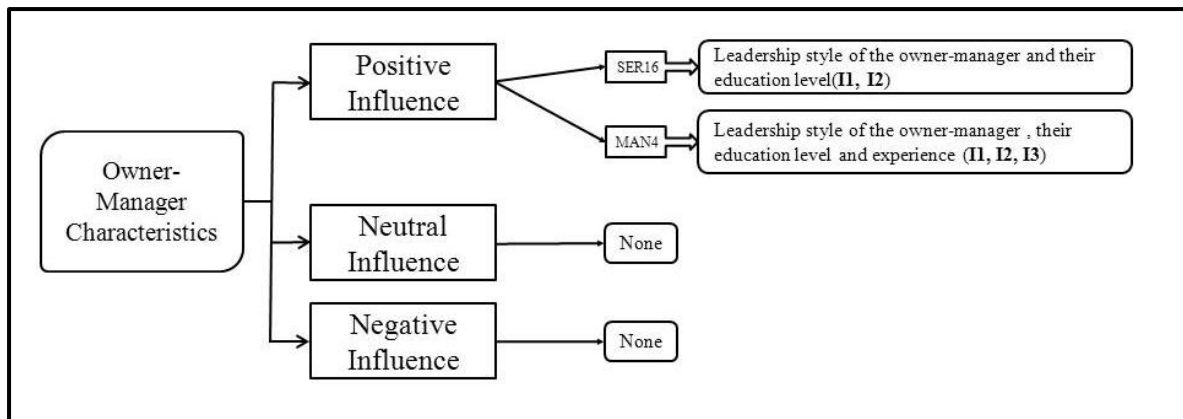


Figure 7.34: Influence of owner-manager characteristics on the adoption decision stage

Out of these SMEs, one (i.e. MAN4) indicated that the leadership style of the owners and managers (I1), their education level (I2) and experience (I3) had positively contributed to this SME's decision to adopt e-business systems. According to the manager of this company "The owner of the company creates a consultation committee which discusses any new ideas and projects and comes up with unique decisions. This helps to avoid mistakes in decision making. This factor has encouraged top management to go for e-business systems. In addition, the company's owner has a Master's Degree in nuclear engineering from USA, and he also has work experience from USA. Therefore, this factor is very important in the adoption of e-business systems". In addition, another SME (i.e. SER16) specified that the leadership style of the owner-manager (I1) and their education level (I2) positively contributed to this SME's decision to adopt e-business systems. The manager of this company said "The manager is proactive and a well-educated person which helps to implement e-business systems in the company".

A review of the case study evidence suggests that these two SMEs demonstrated a slightly different number of indicators for the existence of owner-manager characteristics. The leadership style of the owner-manager (I1) and education level (I2) were the leading indicators of the existence of the owner-manager characteristics, whereas, 'the owner-manager experience (I3)' was the less frequently cited indicator for the presence of owner-manager characteristics. The case study findings suggest that all participating SMEs agreed that this factor has a strong positive influence on their decision to adopt e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that owner-manager characteristics has 'strong positive influence' on the SMEs decision to adopt e-business systems. These observations are discussed in Chapter 8. Figure 7.35 presents the frequency of the owner-manager characteristics indicators cited by the participating SMEs.

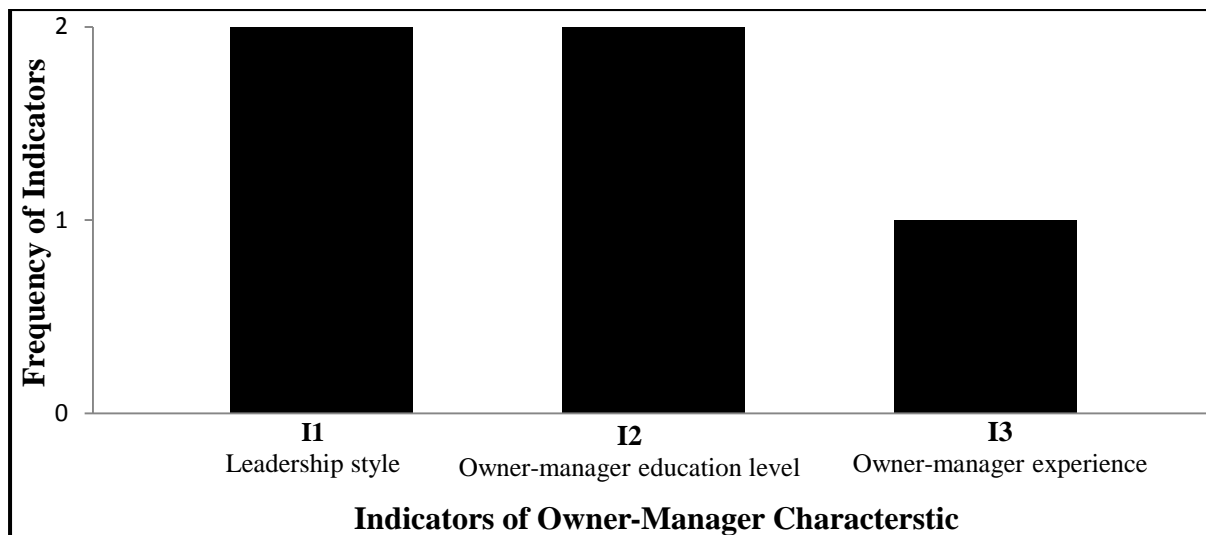


Figure 7.35: Indicators of owner-manager characteristics demonstrated by participating SMEs

Factor 8: Organisational Readiness and Awareness

Drawing on the views expressed by Iacovou, Benbasat et al. (1995), ‘organisational readiness and awareness’ is defined as availability of the financial and technological resources to adopt e-business systems in an organisation and the existence of an awareness of e-business importance. It is operationalised in terms of two indicators (which are reproduced from Section 3.11 and Appendix E to explain the case study findings): a) company’s financial readiness (I1) and b) company’s technological readiness (I2). A total of two participating SMEs considered organisational readiness and awareness to have influenced their decision to adopt e-business systems. Both SMEs indicated that this factor had a strong positive influence on their decision to adopt e-business systems. No SMEs indicated either a weak or negative influence. Figure 7.36 summarises the influence of organisational readiness and awareness on the adoption decision stage of e-business systems in SMEs for the participating SMEs.

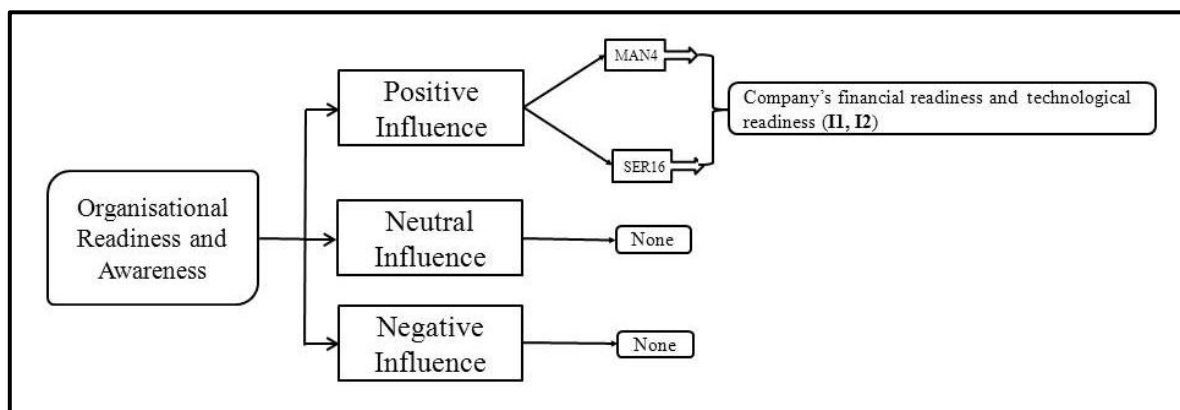


Figure 7.36: Influence of organisational readiness and awareness on the adoption decision stage

Both SMEs indicated that the ‘company’s financial readiness (I1)’ and ‘technological readiness (I2)’ positively contributed to these SMEs’ decision to adopt e-business systems. For instance, the manager of MAN4 remarked “*We have enough financial resources and very powerful technological infrastructure which helps us to buy the latest technological equipment and systems. Furthermore, one of the main reasons to adopt e-business systems in our company is the need for these systems. So this factor has encouraged us to adopt e-business systems*”. Likewise, the manager of SER16 expressed similar views.

A review of the case study evidence suggests that these two SMEs demonstrated an equal number of indicators for the presence of organisational readiness and awareness on their decision to adopt an e-business system. The company’s financial readiness (I1) and technological readiness (I2) were the leading indicators to reflect the influence of organisational readiness and awareness on the adoption decision of e-business systems. The case study findings suggest that all participating SMEs agreed that this factor had positively influenced their decision to adopt e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that organisational readiness and awareness has a ‘strong positive influence’ on the SMEs’ decision to adopt e-business systems. These observations are elaborated in Chapter 8. Figure 7.37 presents the frequency of the organisational readiness and awareness indicators cited by the participating SMEs.

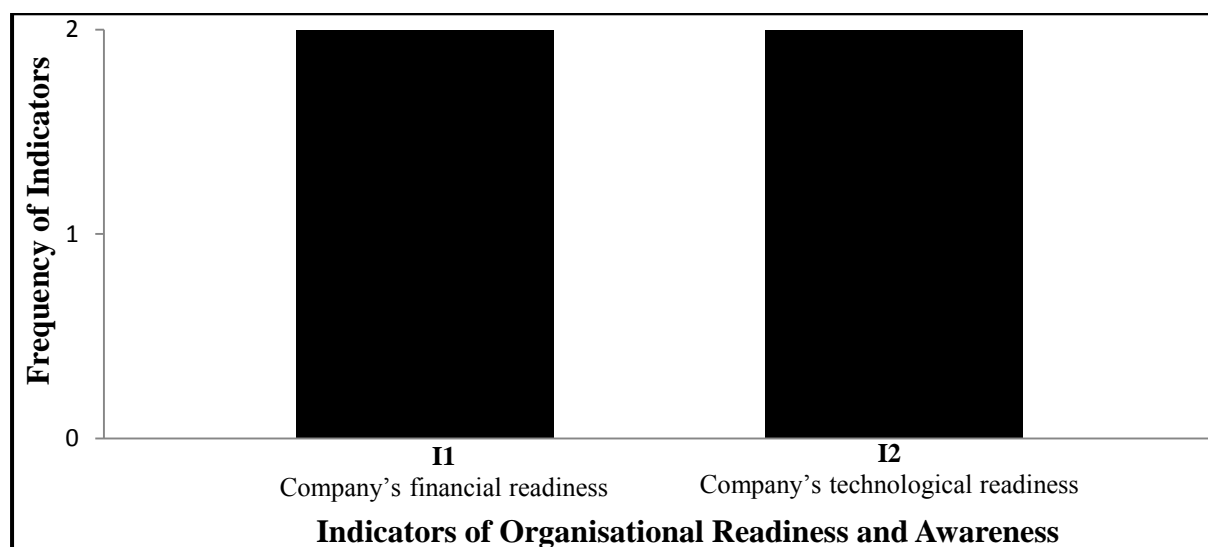


Figure 7.37: Indicators of organisational readiness and awareness demonstrated by the participating SMEs

Factor 9: Trading Partners’ Readiness

Based on the views expressed by Oliveira and Martins (2010), trading partners readiness is defined as the ability and willingness of a trading partner to adopt an e-business system. It is operationalised in terms of three indicators: a) trading partner willingness to adopt e-business (I1), b) ability to use e-business by trading partner (I2) and c) trading partner readiness is not relevant (I3). A total of two participating SMEs indicated the influence of trading partner readiness on their decision to adopt e-business systems. Out of these SMEs, one (i.e. SER16) regarded it to have a strong positive influence on their decision to adopt e-business systems. The other one (i.e. MAN4) considered trading partner readiness to have no relevance to their decision to adopt these systems. No SMEs indicated a negative influence of trading partner

readiness. Figure 7.38 summarises the influence of trading partner readiness on the adoption decision stage of e-business systems in SMEs for the participating SMEs.

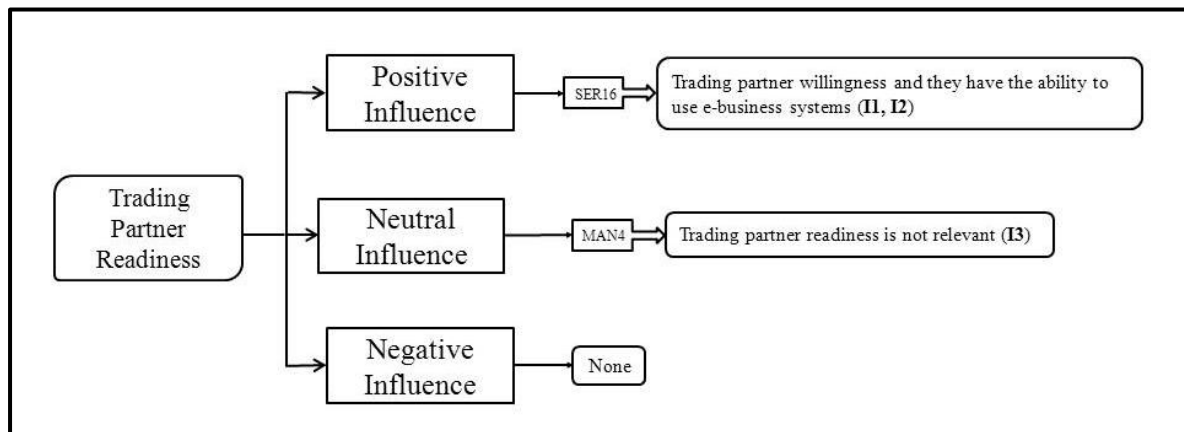


Figure 7.38: Influence of trading partners' readiness on the adoption decision stage

The manager of SER16 (which indicated that the trading partner willingness to use e-business systems (I1) and ability to use e-business by trading partner (I2) positively contributed to this SMEs' decision to adopt e-business systems) comment on this factor "All of our partners are using e-business technology in their companies. So, they have positive influence on the adoption decision of an e-business system in our company". In contrast, the manager of MAN4 (which indicated that trading partner readiness is not relevant (I3) to their decision to adopt e-business systems) indicated "We have no trading partner. Therefore, this has no relevance to our decision to adopt e-business systems".

A review of the case study evidence suggests that these two SMEs demonstrated a slightly different number of indicators for the presence of trading partner readiness on their decision to adopt an e-business system. All three indicators of trading partner readiness were equally cited by the participating SMEs. The case study finding suggests that only one of the participating SMEs agreed that this factor had positively influenced its decision to adopt such systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that trading partner readiness has a 'possible influence' on the SMEs' decision to adopt e-business systems. A rich discussion of these observations is provided in Chapter 8. Figure 7.39 presents the frequency of the trading partners' readiness indicators cited by the participating SMEs.

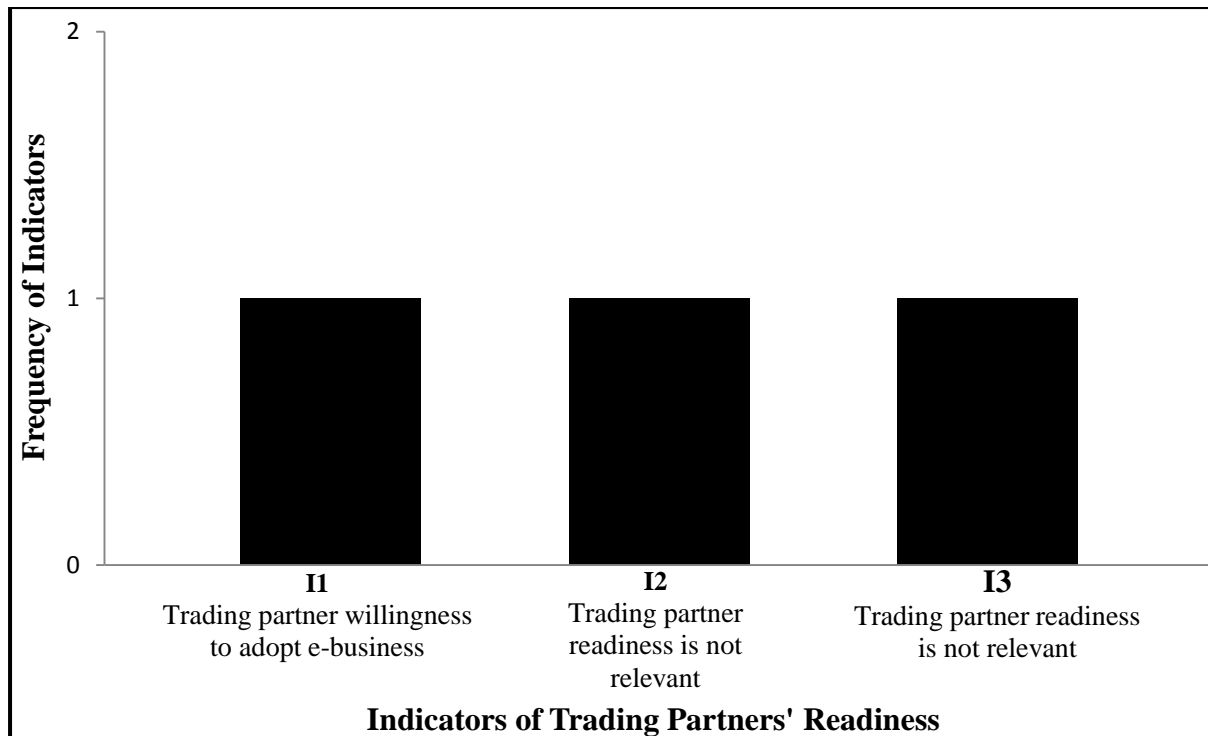


Figure 7.39: Indicators of trading partners' readiness demonstrated by the participating SMEs

Factor 10: Organisational Culture

According to Barney (1986), 'organisational culture' is defined as "a complex set of values, beliefs, assumptions, and symbols that define the way in which a firm conducts its business" (p. 659). It is operationalised in terms of three indicators: a) emphasise growth through developing new ideas (I1), b) employees' loyalty for a company (I2), and achieve company's goals (I3). A total of two participating SMEs considered that organisational culture has influenced their decision to adopt e-business systems. These SMEs regarded organisational culture to have a strong positive influence on their decision to adopt e-business systems. No SMEs indicated either a weak or negative influence of organisational culture. Figure 7.40 summarises the influence of the organisational culture on the adoption decision stage of e-business systems in SMEs.

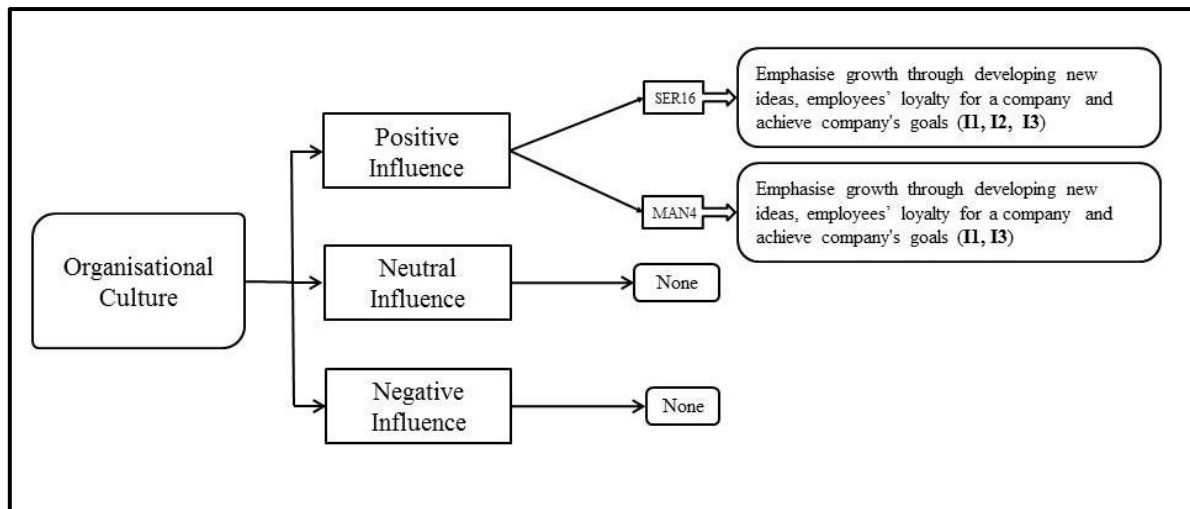


Figure 7.40: Influence of organisational culture on the adoption decision stage

Both SMEs indicated the companies emphasising growth through developing new ideas (I1), the employees' loyalty for a company (I2), and achieving company's goals (I3) positively contributed to these SMEs' decision to adopt e-business systems. For instance, the manager of SER16 remarked "Adoption of e-business systems is one of our recent new services that will facilitate the customer's communication with the company. In addition, I believe the secret key behind our success is the loyalty of our employees toward the company's management. We have several social activities between the company's management and employees every year which reflects on the development of the company. Alternatively, I think the leadership style is supporting the company to achieve its goals on time. So, this influences the adoption decision of e-business systems in our company". Likewise, the manager of MAN4 expressed similar views.

A review of the case study evidence suggests that these two SMEs demonstrated an almost equal number of indicators for the existence of organisational culture on their decision to adopt an e-business system. Emphasise growth through developing new ideas (I1) and achieving company's goals (I3) were the leading indicators of the existence of organisational culture. Whereas, 'the employees' loyalty for a company (I2)' was the less frequently cited indicator for the presence of organisational culture influence on the adoption decision stage. All participating SMEs believed that this factor had a strong positive influence on their decision to adopt e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that organisational culture has a 'strong positive influence' on the SMEs' decision to adopt e-business systems. These observations are discussed in Chapter 8. Figure 7.41 presents the frequency of the organisational culture indicators cited by the participating SMEs.



Figure 7.41: Indicators of organisational culture of e-business systems demonstrated by participating SMEs

7.1.2.1 Summary (Stage 2: Adoption Decision)

In summary, drawing on the discussion about the influence of the factors affecting the adoption decision stage of the e-business systems adoption process in SMEs, the following observations are made: a) a total of six factors (i.e. *relative advantage*, *external pressure*, *management support*, *owner-manager characteristics*, *organisational readiness* and *awareness*, and *organisational culture*) had a strong positive influence on the SMEs' decision to adopt e-business systems, b) only one factor (i.e. *trading partners' readiness*) had possible influence, and c) three factors (i.e. *cost*, *government support programs* and *uncertainty in business environment*) had a weak influence. The implications of these observations in terms of industry sector and comparison with the existing e-business literature are discussed in Chapter 8.

7.1.3 Common Factors Affecting the Implementation Stage

Factor1: Cost

Drawing on the views of Wymer and Regan (2005), 'cost' is defined as the expenses to setup and maintain an e-business system. It is operationalised in terms of four indicators (which are reproduced from Section 3.11 and Appendix E to explain the case study findings): a) e-business is not expensive (I1), b) availability of e-business systems' vendors (I2), e-business's cost is not relevant (I3), and e-business cost is barrier to implement these systems (I4). A total of 10 participating SMEs considered that cost has influenced e-business systems implementation. Out of these, five (i.e. MAN5, MAN7, MAN10, SER18, and SER20) regarded cost to have a strong positive influence, four (i.e. MAN6, MAN8, SER17, and SER19) considered cost to have no relevance to e-business implementation, and one (i.e. MAN9) regarded cost to have a negative influence. Figure 7.42 summarises the influence of the e-business cost on the implementation stage of e-business systems in SMEs.

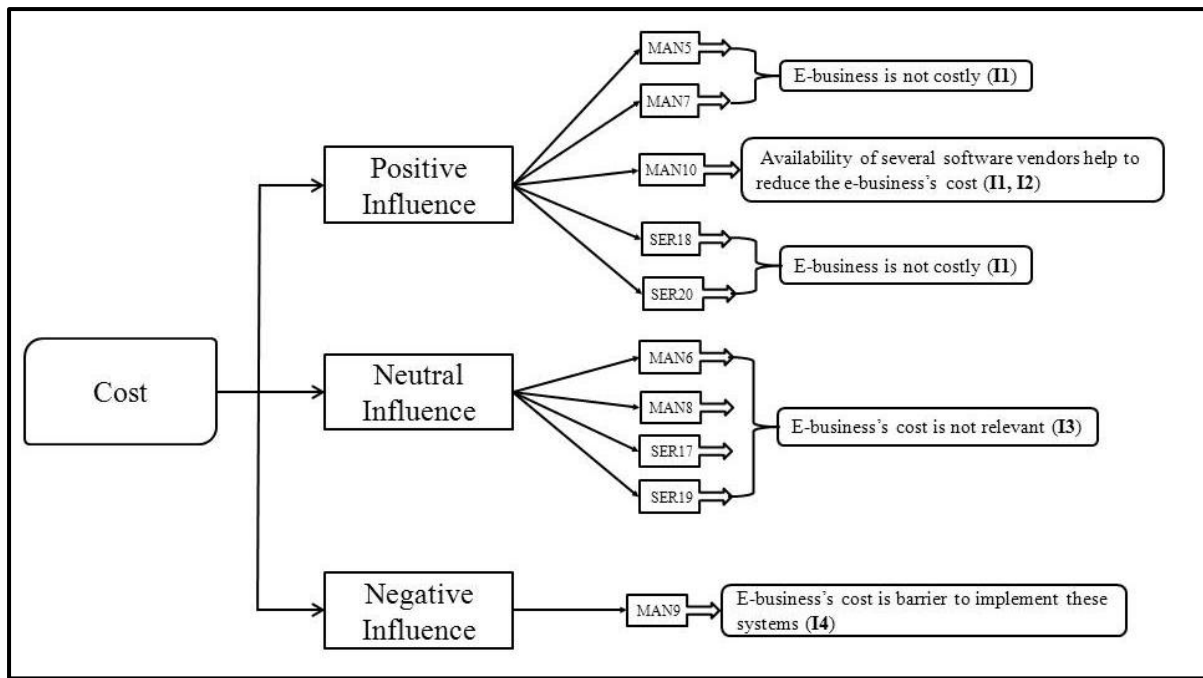


Figure 7.42: Influence of cost on the implementation stage

These four SMEs indicated that e-business is not expensive (I1) and availability of e-business systems' vendors (I2) positively contributed to their implementation of e-business systems. For instance, the manager of MAN7 remarked *"I think the cost of implementing e-business systems affected the implementation decision in our company positively, because we recognise that the gained benefits of implementing e-business systems is more than we spent in the implementation process and its price was an acceptable price"*. A similar sentiment was expressed by the manager of MAN10 who added *"I think the availability of several software vendors of e-business applications and the lower price of these systems had a major positive influence on the company decision to implement these systems"*. Likewise, the managers of MAN5, SER18, and SER20 expressed similar views. In contrast, four SMEs (which indicated that cost has no influence on the implementation stage) highlighted that cost is not relevant to e-business systems implementation. For example, the manager of MAN8 commented *"There was no cost; the mother (Australian) company gave it to us as part of the company. Therefore, this factor has not influenced our implementation of e-business system"*. Likewise, the owner and managers of MAN6, SER17, and SER19 expressed similar visions. On the other hand, the SME, which indicated a negative influence of e-business systems cost on the implementation of these systems, specified that cost is a barrier to implement such systems in the company (I4). The manager of this company remarked *"It is the main barrier for the company to implement an e-business system; otherwise we could have implemented it before two years"*.

A review of the case study evidence suggests that these 10 SMEs demonstrated almost equal number of indicators for the existence of cost influence on the implementation stage of e-business systems. E-business is not expensive (I1) and e-business's cost is not relevant (I3) were the leading indicators of the existence of cost as a factor. Whereas, the availability of e-business systems vendors (I2) and e-business cost is barrier to implement these systems (I4) were less frequently cited indicators for the presence of cost. The case study findings suggest that five participating SMEs believe this factor has a strong positive influence on their implementation of e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that cost has 'possible influence' on the e-business systems'

implementation. A rich discussion of these observations in terms of industry sector and comparison with existing literature is provided in Chapter 8. Figure 7.43 presents the frequency of the cost indicators cited by the participating SMEs.

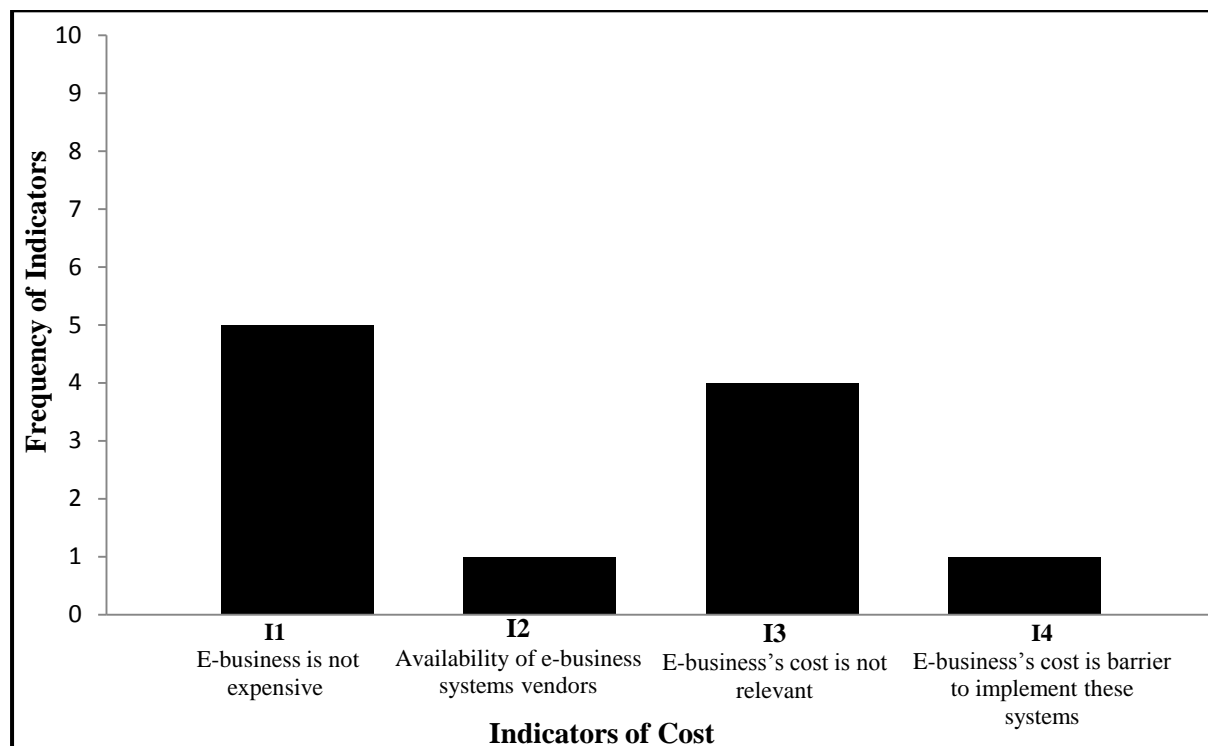


Figure 7.43: Indicators of the cost of e-business systems demonstrated by participating SMEs

Factor 2: Relative Advantage

Based on the views expressed by Kendall, Tung et al. (2001), ‘relative advantage’ is defined as the benefit perceived by SMEs in adopting e-business systems to conduct business. It is operationalised in terms of six indicators: a) development of the company (I1), improved the presence of the company against its competitors (I2), improved a company’s image (I3), customer satisfaction (I4), increased sales (I5), and perceived e-business benefits (I6). A total of 10 participating SMEs considered that relative advantage had influenced their implementation of e-business systems. All these SMEs regarded relative advantage to have a strong positive influence on the implementation of e-business systems. No SMEs indicated either a weak or a negative influence of cost on the implementation of e-business systems. Figure 7.44 summarises the influence of relative advantage on the implementation stage of e-business systems in SMEs.

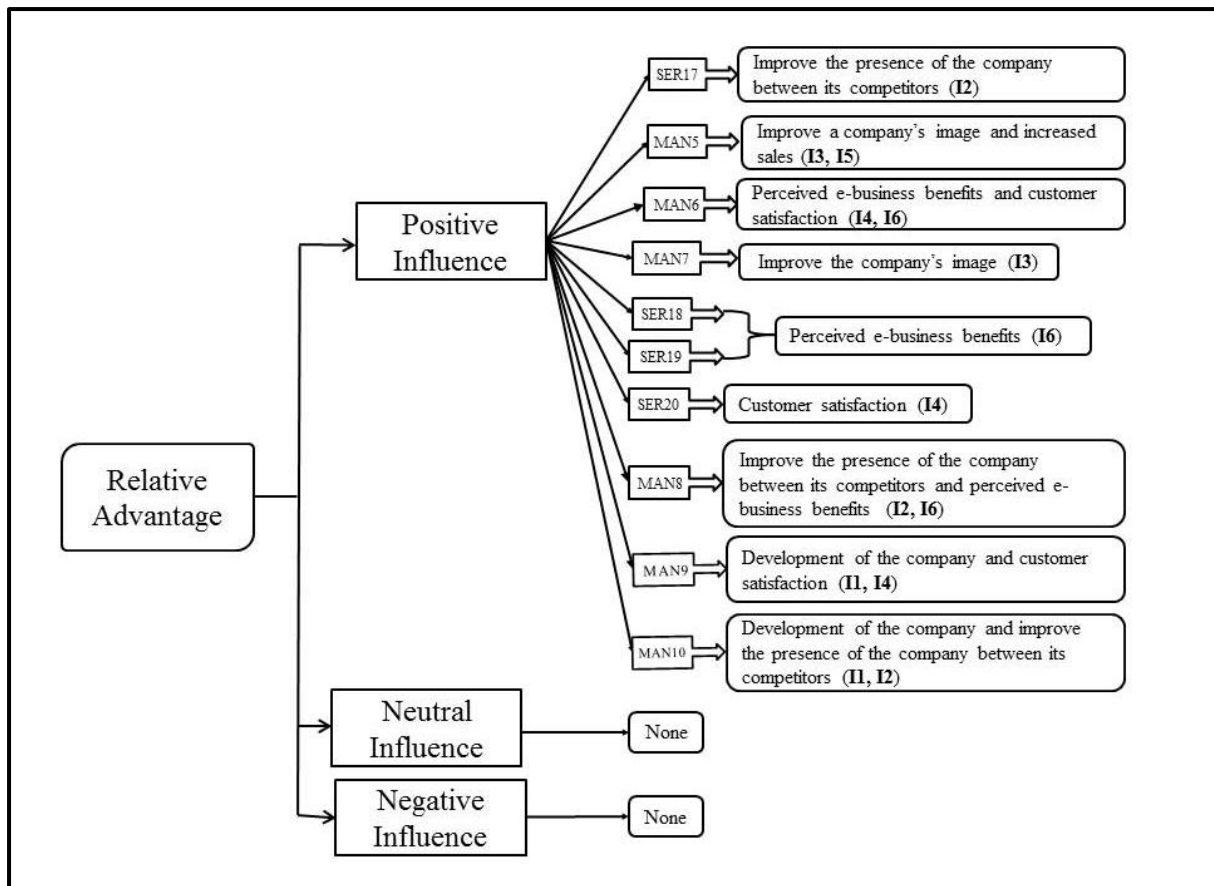


Figure 7.44: Influence of relative advantage on the implementation stage

Out of these 10 SMEs, two (i.e. SER18 and SER19) indicated that perceived e-business benefits (I6) positively contributed to these SME's implementation of e-business systems. For instance, the manager of SER19 remarked "If we do not believe that our company will not gain any benefits of implementing an e-business system, we will not think about it. So, yes we implement the e-business system due to the desire to gain the most benefits from this system". The manager of SER18 expressed similar views. In addition, another one (i.e. MAN8) pointed out that improved the presence of the company against its competitors (I2) and perceived e-business benefits (I6) positively contributed to the implementation of e-business systems. According to the manager of MAN8 "If I know there is a tool which will give me an advantage and make me unique, yes I use this tool. Therefore, we implemented an e-business system to make us unique and seek the advantage of this system". In addition, three SMEs (i.e. MAN5, MAN9, and SER20) highlighted that development of the company (I1), improved a company's image (I3), customer satisfaction (I4), and increased sales (I5) positively contributed to the SME's implementation of e-business systems. For instance, the manager of MAN5 indicated "I believe that the primary factors in the use of this system are the encouragement of sales followed by improving the image of the company and achieving a competitive advantage". Likewise, the managers and owners of the remaining participating SMEs (i.e. MAN6, MAN7, MAN8, MAN9, MAN10, SER17, and SER20) expressed similar opinions.

A review of the case study findings suggests that these 10 SMEs demonstrated a different number of indicators for the existence of relative advantage on the implementation of e-business systems. 'Perceived e-business systems benefits (I6)' was the leading indicator for the presence of relative advantage. Whereas, 'development of the company (I1)', 'improved a

company's image (I3)', and 'increased sales (I5)' were less frequently cited indicators for the existence of relative advantage. The case study evidence suggests that all participating SMEs believe this factor had a strong positive influence on the implementation of e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that relative advantage has a 'strong positive influence' on the SMEs' implementation of e-business systems. A rich discussion of these observations in terms of industry sector and comparison with existing literature is provided in Chapter 8. Figure 7.45 presents the frequency of the relative advantage indicators cited by the participating SMEs.

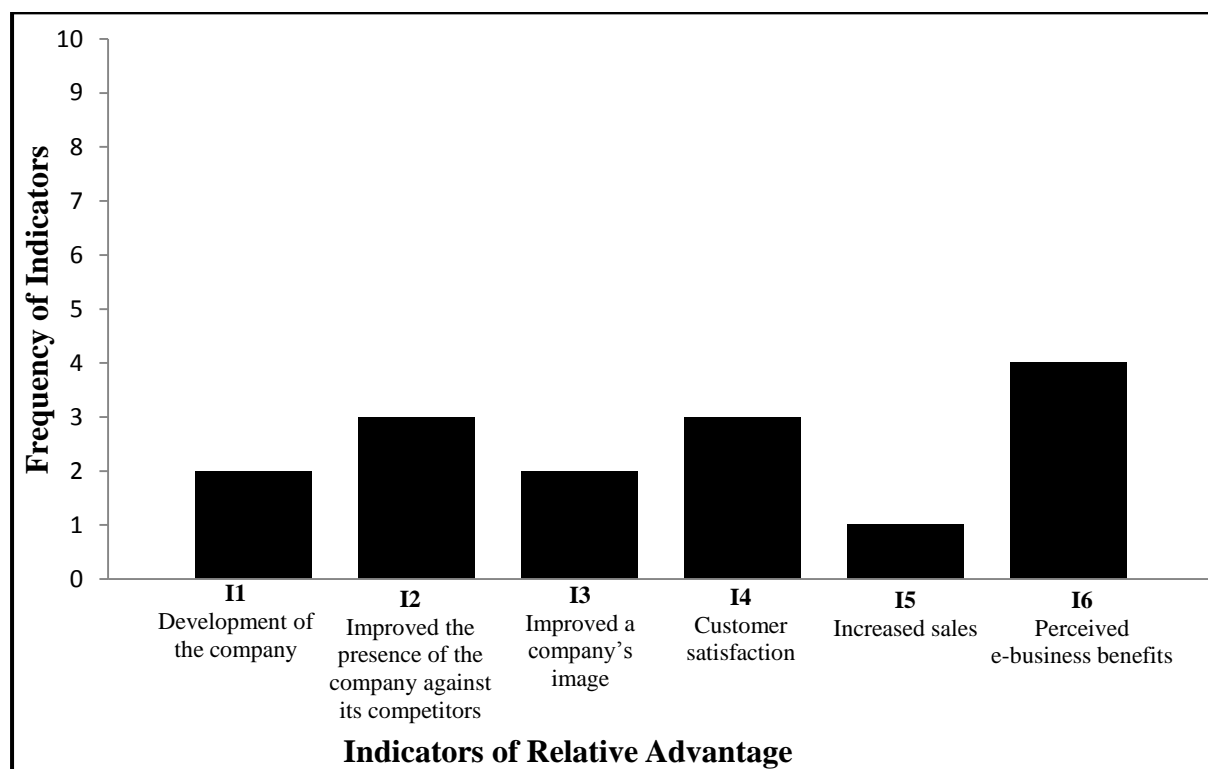


Figure 7.45: Indicators of relative advantage demonstrated by participating SMEs

Factor 3: External Pressure

According to Pearson & Grandon (2006), 'external pressure' is defined as direct or indirect coercive force exerted by competitors, social referents, other firms, the government, and the industry to adopt e-business systems. It is operationalised in terms of five indicators: a) competitor' pressure (I1), customer' pressure (I2), supplier' pressure (I3), company depends on other firms that are already using e-business (I4), and external pressure is not relevant (I5). A total of 10 participating SMEs considered that external pressure has influenced the implementation of e-business systems in their companies. Out of these, five (i.e. SER17, SER19, MAN5, MAN8, and SER20) considered external pressure to have a strong positive influence on the implementation stage of e-business systems, another five (i.e. MAN6, MAN7, SER18, MAN9, and MAN10) indicated that external pressure has no influence on the implementation of e-business systems. No SMEs indicated a negative influence of external pressure. Figure 7.46 summarises the influence of external pressure on the implementation stage of e-business systems in SMEs.

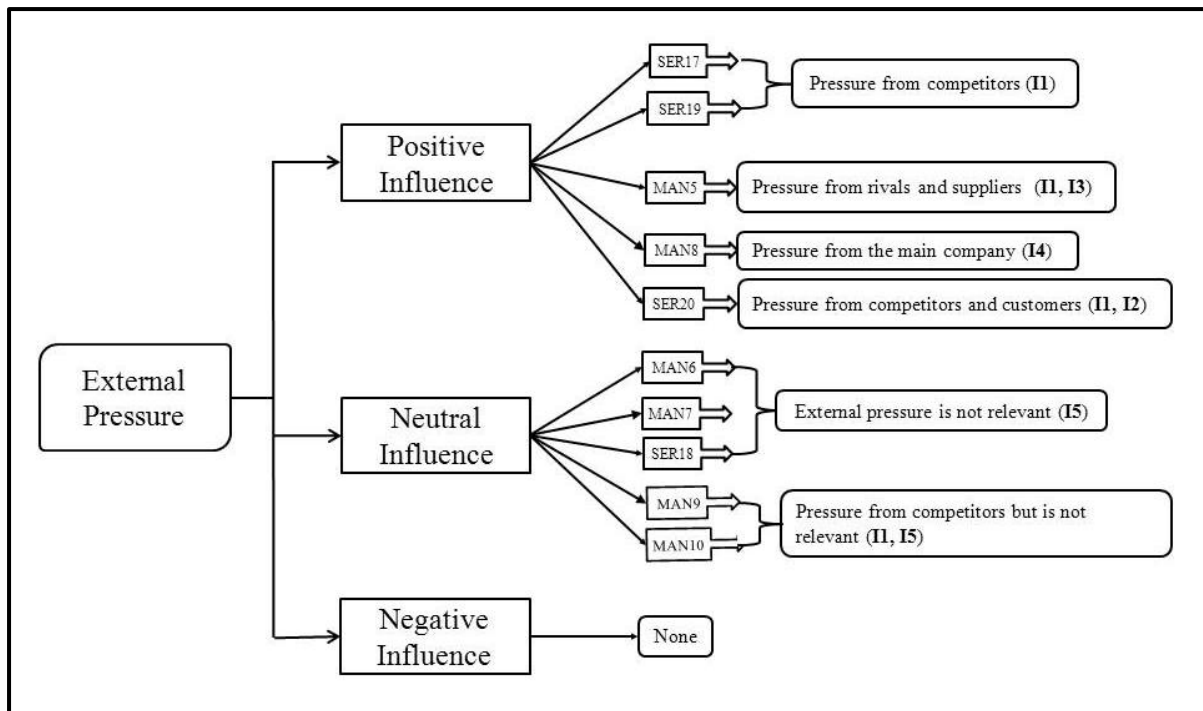


Figure 7.46: Influence of external pressure on the implementation stage

Out of these five SMEs, two (i.e. SER17 and SER19) indicated that the pressure from companies' competitors (I1) positively contributed to these SME's implementation of e-business systems. According to the manager of SER17 "We need our company to be the best in the market. So, we are trying to implement the latest technology which makes us unique and hard to compete with". Likewise, the manager of SER19 expressed similar views. Three SMEs (i.e. MAN8, MAN5, and SER20) highlighted that pressure from rivals (I1), customers (I2), suppliers (I3), and pressure from the main company (I4) positively contributed to their implementation of e-business systems. According to the manager of SER20 "The main reason to implement e-business systems by the company was the pressure from our competitors and customers". In addition, the manager of MAN5 added "The competition is immense, and also there is pressure from our suppliers, therefore we decided to use these systems". Likewise, the manager of MAN8 expressed similar views.

A review of the case study evidence suggests that these 10 SMEs demonstrated a different number of indicators for the presence of external pressure. Competitor pressure (I1) was the leading indicator for the existence of external pressure. Whereas, customers' pressure (I2), supplier pressure (I3), the company depend on other firms that are already using e-business (I4), and external pressure is not relevant (I5) were less frequently cited indicators for the presence of external pressure. The case study findings suggest that five participating SMEs believe this factor has a strong positive influence on their implementation of e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that external pressure has 'possible influence' on the implementation stage of e-business systems. These observations are further elaborated in Chapter 8. Figure 7.47 presents the frequency of the external pressure indicators cited by the participating SMEs.

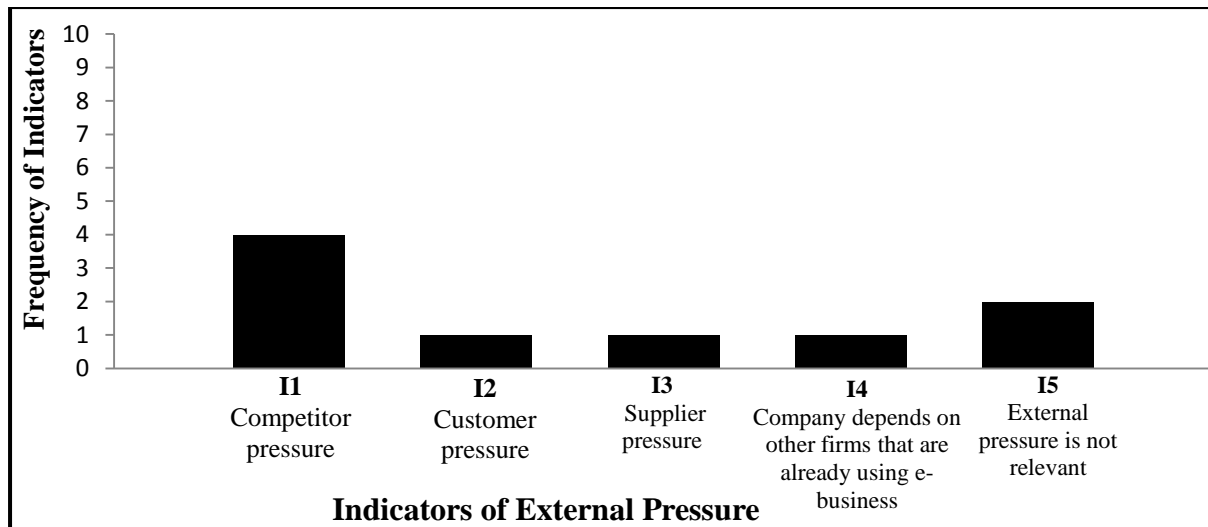


Figure 7.47: Indicators of external pressure demonstrated by participating SMEs

Factor 4: Management Support

Based on the views expressed by Wilson, Daniel et al. (2008), management support is defined as the perceived level of encouragement and participation of the SME top management. It is operationalised in terms of three indicators: a) awareness of e-business systems advantages (I1), b) senior management willingness to develop the company (I2), and c) availability of technical background for top management (I3). A total of 10 participating SMEs considered that management support has influenced the implementation of e-business systems. All the SMEs considered management support to have a strong positive influence on the implementation of e-business systems. No SMEs indicated either a weak or a negative influence of management support. Figure 7.48 summarises the influence of management support on implementation stage of e-business systems in SMEs.

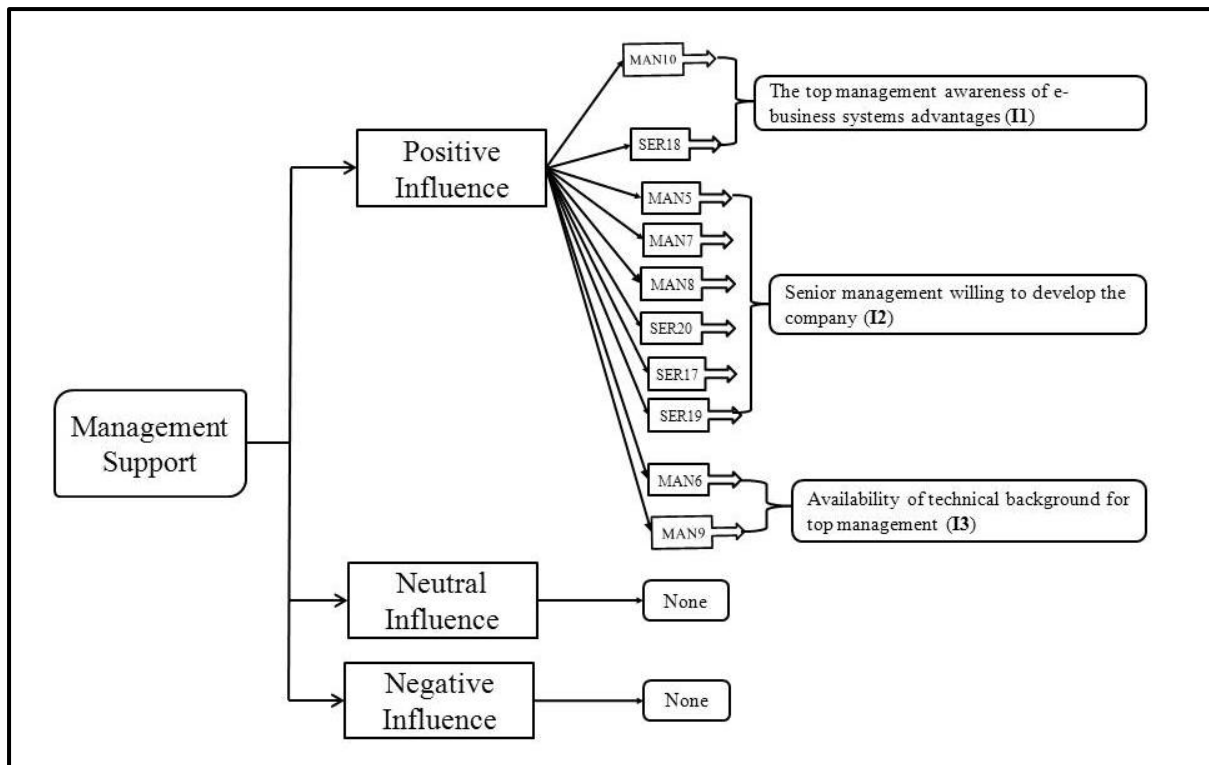


Figure 7.48: Influence of management support on the implementation stage

Out of these 10 SMEs, two (i.e. MAN10 and SER18) indicated that the awareness of e-business systems advantages (I1) by top management positively contributed to the implementation of e-business. For instance, the manager of MAN10 remarked “*The senior management supported and encouraged the implementation process of e-business systems in the company because of their awareness about the advantages of such systems*”. Another six SMEs (i.e. MAN5, MAN7, MAN8, SER20, SER17, and SER19) indicated that the senior management willingness to develop the company (I2) positively contributed to the implementation of e-business systems. The manager of SER17 pointed out “*Top management are keen to develop the company. So, they have the main role to implement e-business systems in the company*”. The remaining SMEs expressed similar views. Lastly, two (i.e. MAN6 and MAN9) indicated that availability of technical background for top management (I3) positively contributed to the implementation of e-business systems. For instance, the manager of MAN6 highlighted “*The general manager has a background in IT, so he was the main supporter for the implementation of an e-business system in our company*”. The manager of MAN9 expressed similar views.

A review of the case study findings suggest that these 10 SMEs demonstrated an equal number of indicators for the existence of management support on their implementation of e-business systems. Senior management willingness to develop the company (I2) was the leading indicator for the presence of management support. Whereas, the top management awareness of e-business systems advantages (I1) and availability of technical background for top management (I3) were less frequently cited indicators for the presence of management support. All participating SMEs believed this factor had a strong positive influence on their implementation of e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that management support has a ‘strong positive influence’ on the implementation stage of e-business systems. A rich discussion of these observations is

provided in Chapter 8. Figure 7.49 presents the frequency of management support indicators cited by the participating SMEs.

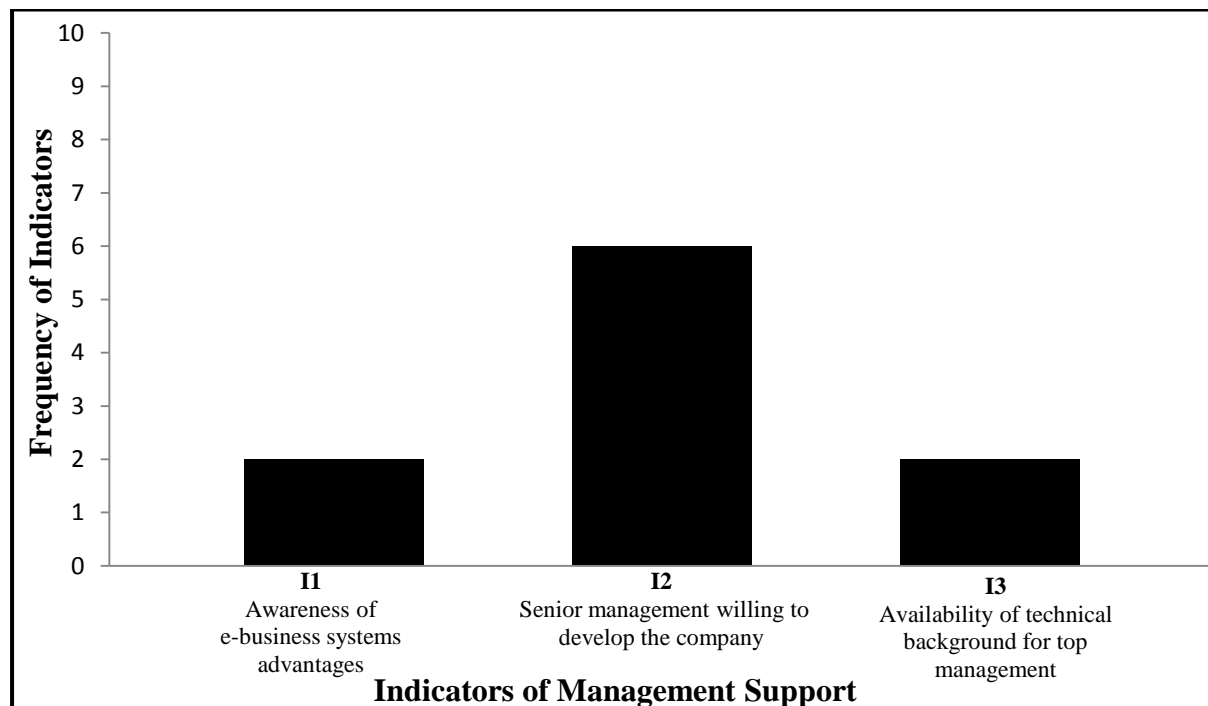


Figure 7.49: Indicators of the management support demonstrated by participating SMEs

Factor 5: Government Support Programs

Drawing on the views expressed by Simpson and Docherty (2004), ‘government support programs’ is initiated to encourage SMEs to seek advice and stimulate demand for advice and support. It is operationalised in terms of four indicators: a) financial support (I1), b) no idea about government support programs (I2), c) hard to access the government support programs (I3), d) government support programs is not relevant (I4). A total of 10 participating SMEs indicated that the government support programs have no relevance to their implementation of e-business systems. No SMEs indicated either a positive or a negative influence of government support programs. Figure 7.50 summarises the influence of the government support programs on the implementation stage of e-business systems in SMEs.

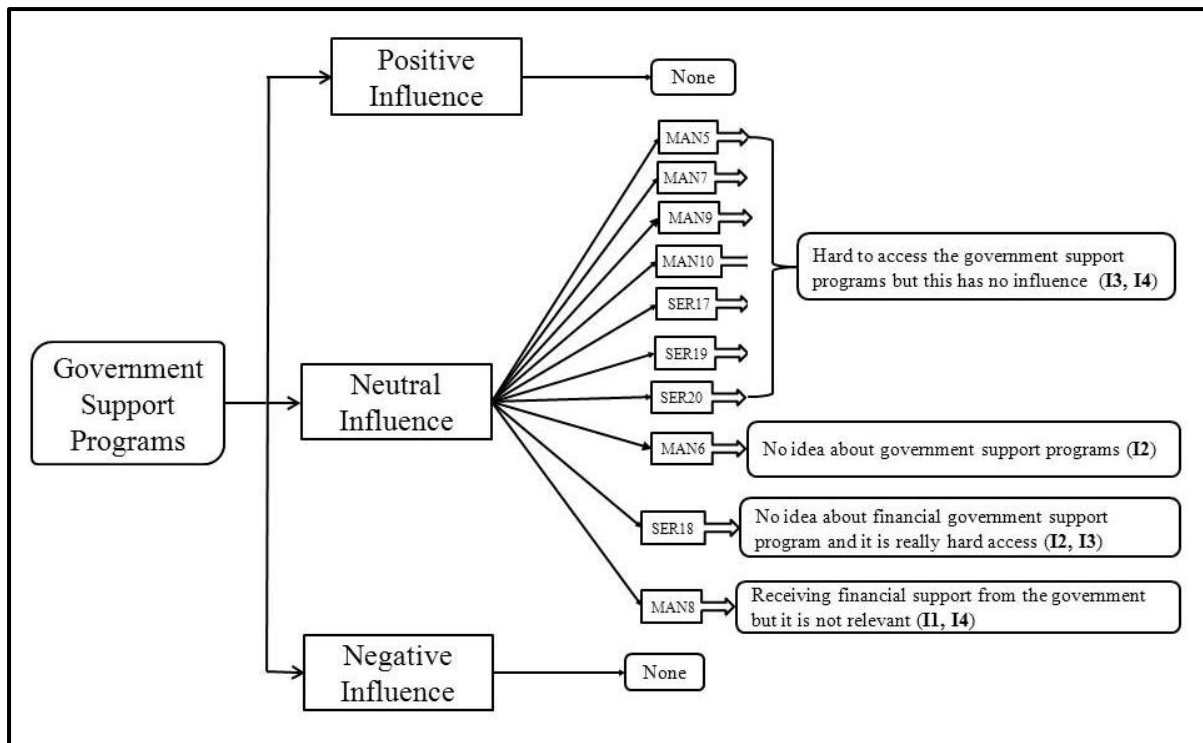


Figure 7.50: Influence of the government support programs on the implementation stage

Out of these 10 SMEs, seven (i.e. MAN5, MAN7, MAN9, MAN10, SER17, SER19, and SER20) indicated that they found it hard to access such supporting programs (I3) and these programs have no relevance to the implementation of e-business systems (I4). According to the owner of SER17 “We did not receive any support from the government because it is really hard to meet their requirements to get such support. Therefore this factor has no influence on our decision to implement e-business systems in the company”. This sentiment was shared by the managers of MAN5, MAN7, MAN9, MAN10, SER19, and SER20. In addition, one (i.e. MAN8) acknowledged that they received financial support from the government but such support had no influence on the implementation of e-business systems. The manager of this company remarked “We benefit from the Kafala program, but this did not influence the e-business implementation in our company”. The remaining SMEs (i.e. MAN6 and SER18) indicated that they have no idea about financial government support programs (I2) or it is really hard to access them (I3). For example, the manager of SER18 stated “I do not know what the Kafala program is and we did not receive any assistance from the government as it is really hard to meet the government’s conditions”.

A review of the case study evidence suggests that these 10 SMEs demonstrated an almost equal number of indicators for the existence of government support programs. Hard to access the government support programs (I3) and government support programs is not relevant (I4) were the leading indicators of the existence of government support programs influence on the implementation stage of the e-business systems adoption process in SMEs. Whereas, financial support (I1) and no idea about government support programs (I2) were less frequently cited indicators for the presence of government support programs. Therefore, using the measurement scale (Section 3.11.2), it is suggested that government support programs have a ‘weak influence’ on the SMEs’ implementation of e-business systems. A rich discussion of these observations is provided in Chapter 8. Figure 7.51 presents the frequency of the government support programs indicators cited by the participating SMEs.

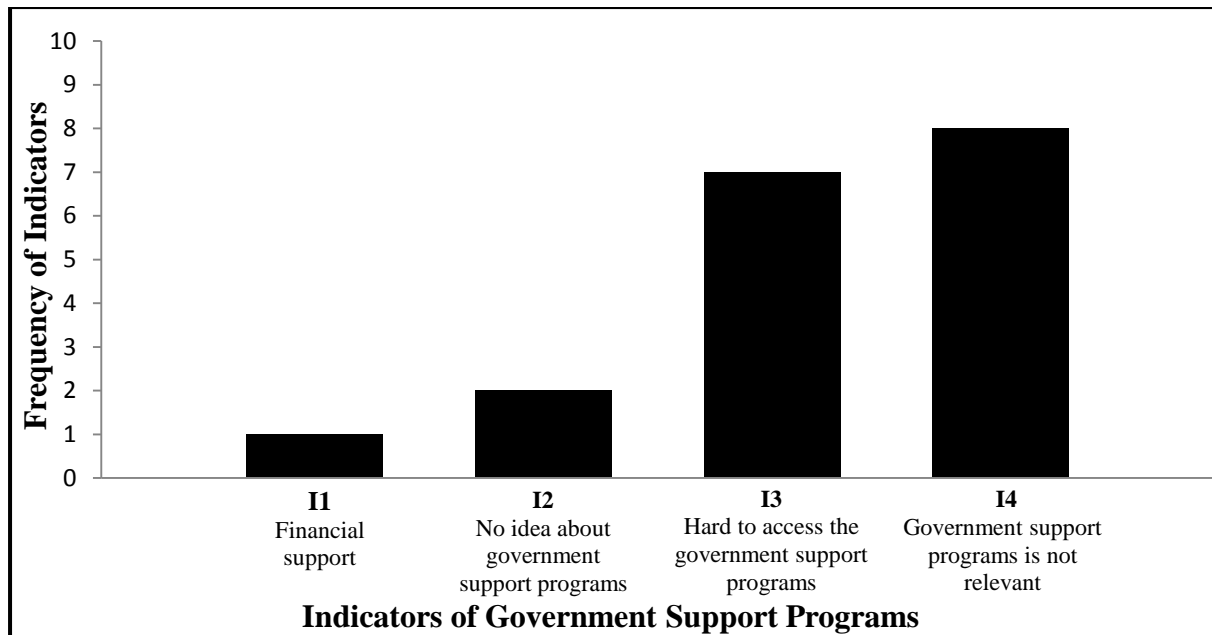


Figure 7.51: Indicators of government support programs demonstrated by participating SMEs

Factor 6: Uncertainty in the Business Environment

According to Sung, Lu et al. (2010), ‘uncertainty in business environment’ is defined as a situation in which a company has little information about its external environment to use in achieving its organisational goals. It is operationalised in terms of three indicators: a) no uncertainty in business environment (I1), b) uncertainty in the business environment is not relevant (I2), c) uncertainty in decision making (I3). A total of 10 SMEs considered that uncertainty in the business environment has influence on the implementation of e-business systems. Out of these, nine (i.e. MAN5, MAN6, MAN10, SER20, SER17, MAN7, MAN8, SER18, and SER19) indicated that uncertainty in the business environment has no relevance to the implementation of e-business systems. Only one SME (i.e. MAN9) indicated that this factor has negatively influenced the implementation of e-business systems. No SMEs indicated a strong positive influence of uncertainty in the business environment. Figure 7.52 summarises the influence of uncertainty in business environment on the implementation stage of e-business systems in SMEs.

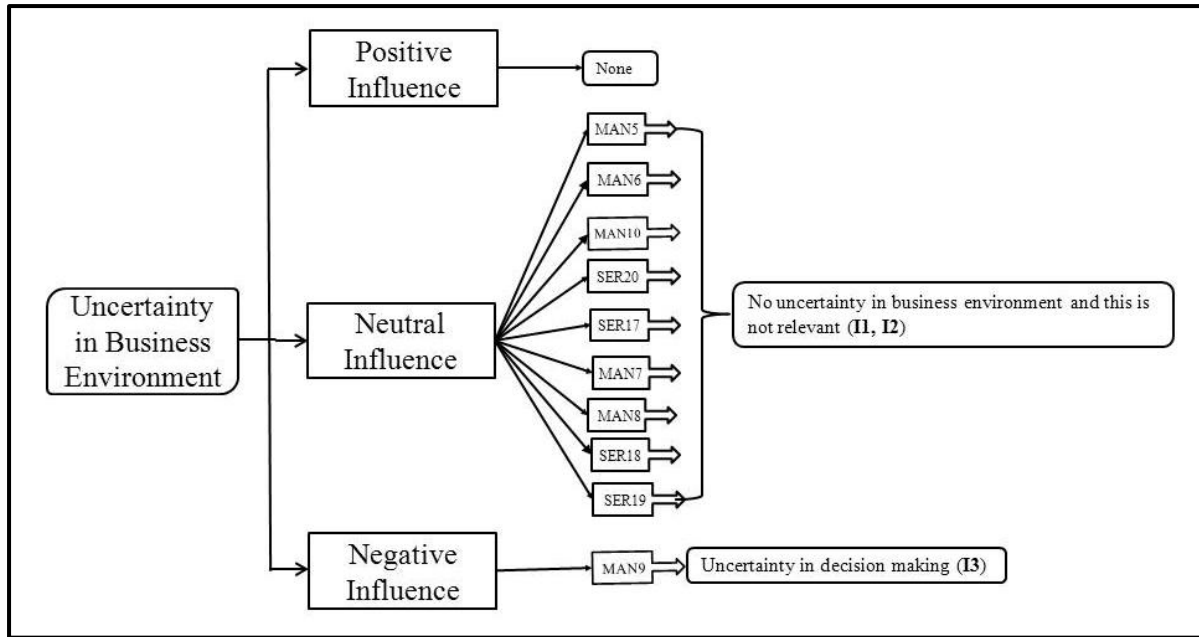


Figure 7.52: Influence of uncertainty in business environment on the implementation stage

The SMEs which considered uncertainty in the business environment had no influence on the implementation of e-business systems indicated that there is no uncertainty in their business environment (I1) and such uncertainty is not relevant to their implementation of e-business systems (I2). For example, the owner of SER17 remarked “*The decision of e-business system implementation was made based on our clear vision about what is happening in the business environment. So, this factor has no influence*”. Likewise, the managers of MAN5, MAN6, MAN10, SER20, MAN7, MAN8, SER18, and SER19 expressed similar views.

A review of the case study findings suggest that these 10 SMEs demonstrated nearly equal number of indicators for the existence of uncertainty in business environment on the implementation of e-business systems. No uncertainty in business environment (I1) and uncertainty in the business environment is not relevant (I2) were the central indicators of the existence of uncertainty in business environment. Therefore, using the measurement scale (Section 3.11.2), it is suggested that uncertainty in business environment has a ‘weak influence’ on the SMEs’ implementation of e-business systems. These observations are discussed in Chapter 8. Figure 7.53 presents the frequency of the uncertainty in business environment indicators cited by the participating SMEs.

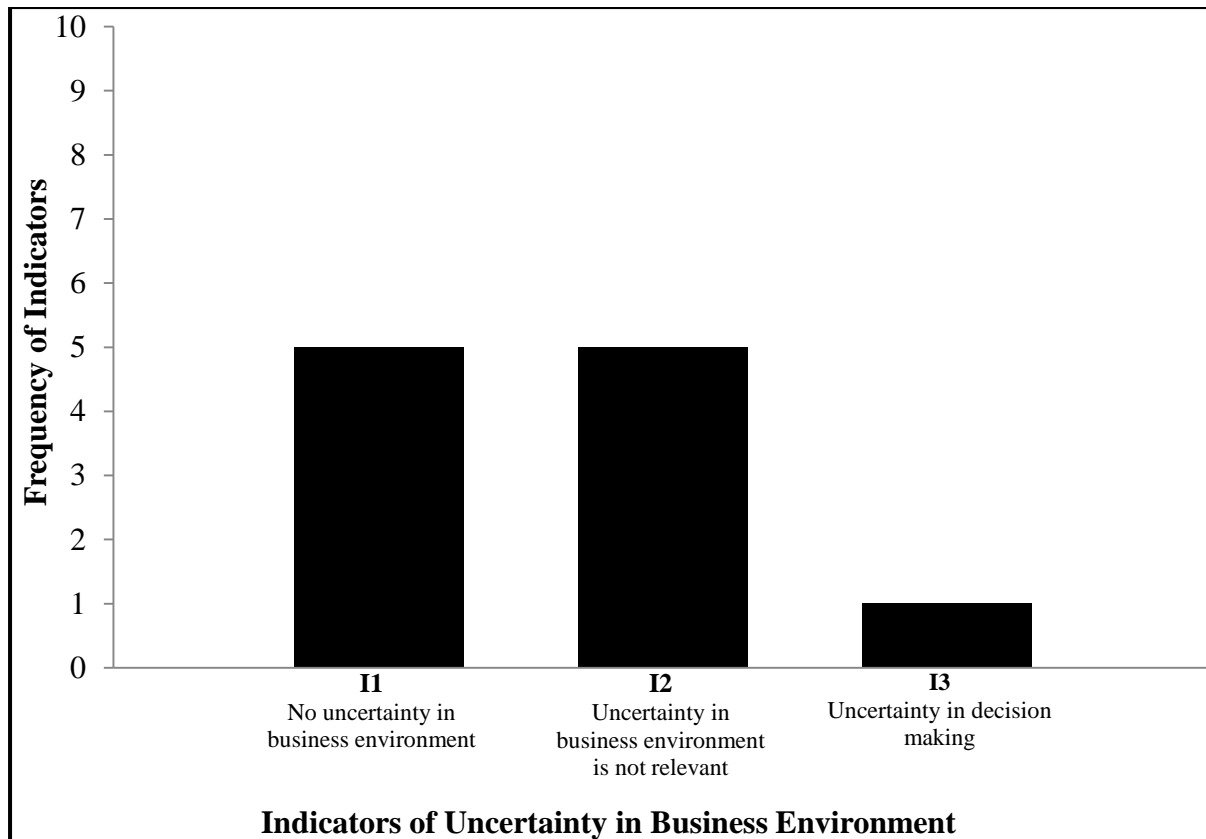


Figure 7.53: Indicators of uncertainty in business environment demonstrated by participating SMEs

Factor 7: Owner-Manager Characteristics

Drawing on the views expressed by Mukhtar (2002), owner-manager characteristics is defined in terms of the owner-manager leadership style, experience, education level, the degree of delegation within the organisation, and the importance of personal objectives in the decision making process. It is operationalised in terms of five indicators: a) leadership style (I1), b) owner-manager education level (I2), c) owner-manager experience (I3), d) owner-manager characteristic is not relevant (I4), and e) professional networking (I5). A total of 10 participating SMEs considered that owner-manager characteristics had influenced the implementation of e-business systems. Out of these, eight (i.e. MAN5, MAN7, SER20, MAN10, SER18, SER19, MAN8, and MAN6) indicated that the owner-manager characteristics had positively influenced the implementation of e-business systems in their companies and two (i.e. MAN9 and SER17) indicated that this factor is not relevant to the implementation of e-business systems. No SMEs indicated a negative influence of owner-manager characteristics. Figure 7.54 summarises the influence of the owner-manager characteristics on the implementation of e-business systems in SMEs.

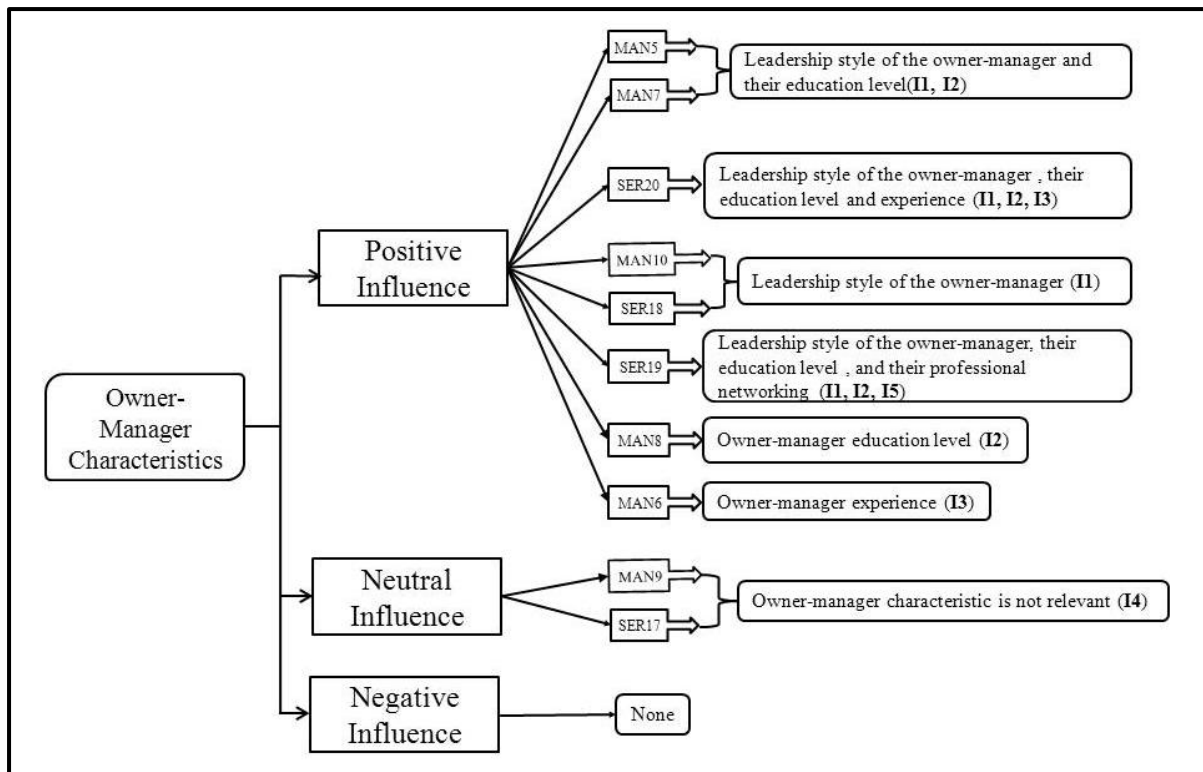


Figure 7.54: Influence of owner-manager characteristics on the adoption decision stage

Eight SMEs highlighted that leadership style (I1), owner-manager education level (I2), owner-manager experience (I3), and professional networking (I5) had positively influenced the implementation stage of e-business systems. For instance, the manager of MAN5 remarked “All of the management staff in our company is keen to adopt technology in every aspect of the company, as well as ensuring constant cooperation between all of the employees. Regarding the owner of our company, his attention is focused on making gains only, not on all of the other aspects. Our company is run by a general manager, who is well-educated and on the lookout for everything that will bring benefit in the development of the company, including e-business systems”. In addition the manager of MAN6 indicated “We are a technology based company and we want to use all tools that technology has to offer for the customer. I do not necessarily think it was about an education level, I think it was more about having experience in IT”. Likewise, the managers of MAN7, SER20, MAN10, SER18, SER19, and MAN8 expressed similar views. In contrast, these two SMEs indicated that owner-manager characteristics have no relevance to their implementation of e-business systems. For example, the manager of MAN9 remarked “In the case of Saudi Arabia the business owner must be a Saudi citizen and we cannot expect that he should be highly educated. So I think this factor has not influenced the implementation of the e-business system”. Likewise, the owner of SER17 expressed a similar opinion.

A review of the case study findings suggests that these 10 SMEs demonstrated a different number of indicators for the existence of owner-manager characteristics on their implementation of e-business system. Leadership style (I1) and Owner-manager education level (I2) were the leading indicators of the existence of owner-manager characteristics. Whereas, the owner-manager experience (I3), owner-manager characteristics is not relevant (I4), and professional networking (I5) were less frequently cited indicators for the presence of owner-manager characteristics. The case study evidence suggests that eight participating

SMEs agreed that this factor has positively influenced their implementation of e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that owner-manager characteristics has a ‘strong positive influence’ on the SMEs’ implementation of e-business systems. A rich discussion of these observations is provided in Chapter 8. Figure 7.55 presents the frequency of the owner-manager characteristics indicators cited by the participating SMEs.

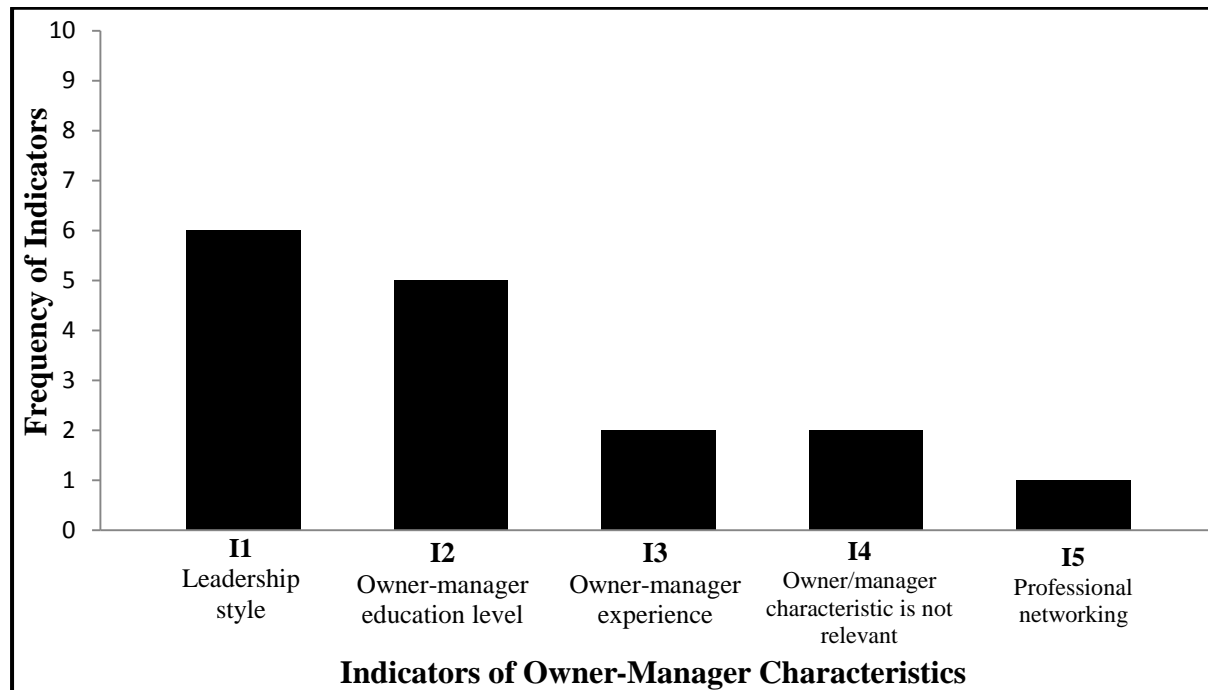


Figure 7.55: Indicators of owner-manager characteristics demonstrated by participating SMEs

Factor 8: Organisational Readiness and Awareness

Based on the views expressed by Iacovou, et al. (1995), ‘organisational readiness and awareness’ is defined as availability of the financial and technological resources to adopt e-business systems in the organisation and the existence of an awareness of e-business importance. It is operationalised in terms of four indicators: a) company’s financial readiness (I1), b) company’s technological readiness (I2), c) awareness of skilled employees about e-business systems (I3), d) organisational readiness and awareness is not relevant (I4). A total of 10 participating SMEs considered organisational readiness and awareness to have an influence on the implementation stage of e-business systems. Out of these SMEs, nine (i.e. MAN5, MAN9, SER17, SER18, SER19, MAN10, MAN7, MAN6, and SER20) indicated that this factor has influenced positively the implementation of e-business systems in their companies. Only one (i.e. MAN9) indicated that the organisational readiness and awareness had no relevance on the implementation of e-business systems. No SMEs indicated a negative influence. Figure 7.56 summarises the influence of organisational readiness and awareness on the implementation stage of e-business systems in SMEs for the participating SMEs.

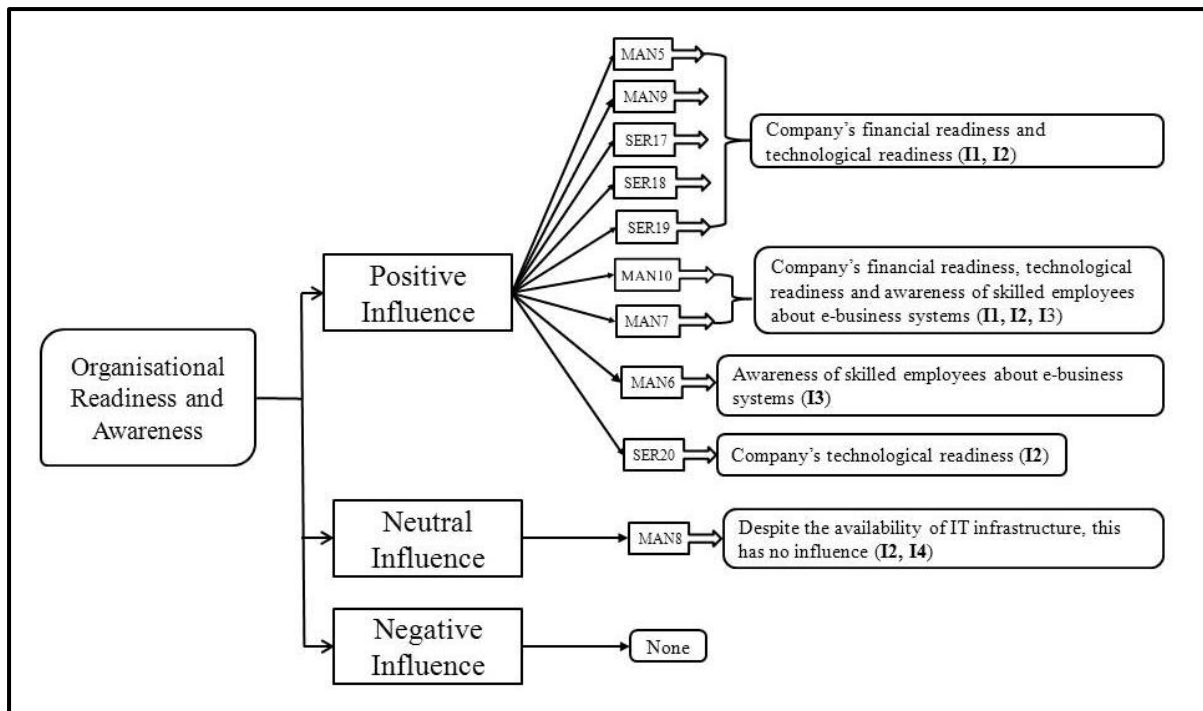


Figure 7.56: Influence of organisational readiness and awareness on the implementation stage

Nine SMEs pointed out that their company's financial readiness (I1), technological readiness (I2), and awareness of skilled employees about e-business systems (I3) contributed positively in the implementation stage of e-business systems. For example, the manager of MAN9 commented "Everything depends on the finance ability in the company which includes implementing the software, marketing and training. Also, we are dealing with high technological products which need to have an efficient technological infrastructure. This very much helps when implementing an e-business system". In addition, the manager of MAN6 remarked "We are using freeware and shareware systems and the managers in the company are aware of it. They know how it works and to what extent it is beneficial for the company. Therefore, this very much supports the decision to adopt e-business systems". Likewise, the owner and managers of the MAN5, SER17, SER18, MAN10, MAN7, MAN6, SER20 and SER19 expressed similar views. In contrast, the SME which indicated that organisational readiness and awareness had no relevance to the implementation of e-business systems acknowledged that despite the availability of powerful IT infrastructure, this factor was not relevant to the implementation of e-business systems. For instance, the manager of MAN8 commented "This system was given to us by the mother company. We must use this system, so we setup the required technological infrastructure which facilitated the implementation of this system. But, this factor has no influence on the implementation decision".

A review of the case study evidence suggests that these 10 SMEs demonstrated a different number of indicators for the existence of organisational readiness and awareness on their implementation of an e-business system. Company's financial readiness (I1) and company's technological readiness (I2) were the leading indicators to reflect the influence of organisational readiness and awareness influence on the implementation of e-business systems. Whereas, awareness of skilled employees about e-business systems (I3) and organisational readiness and awareness is not relevant (I4) were less frequently cited

indicators for the presence of organisational readiness and awareness. The case study findings suggest that most participating SMEs agreed that this factor has positively influenced the implementation of e-business systems in their companies. Therefore, using the measurement scale (Section 3.11.2), it is suggested that organisational readiness and awareness has a ‘strong positive influence’ on the implementation stage of e-business systems. These observations are discussed in Chapter 8. Figure 7.57 presents the frequency of the organisational readiness and awareness indicators cited by the participating SMEs.

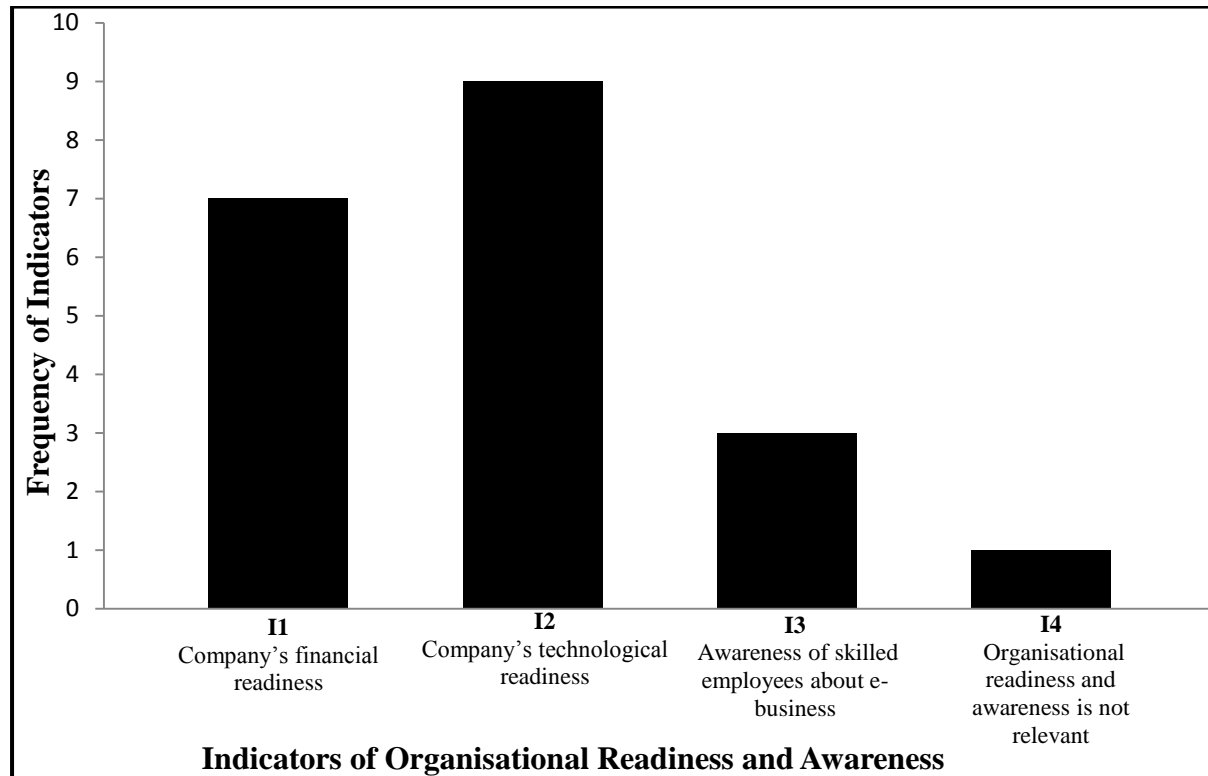


Figure 7.57: Indicators of organisational readiness and awareness demonstrated by participating SMEs

Factor 9: Trading Partners' Readiness

According to Oliveira and Martins (2010), ‘trading partners’ readiness’ is defined as the ability and willingness of a trading partner to adopt an e-business system. It is operationalised in terms of three indicators: a) trading partner willingness to adopt e-business (I1), b) ability to use e-business by trading partner (I2) and c) trading partner readiness is not relevant (I3). A total of nine participating SMEs considered that trading partners’ readiness had influenced the implementation of e-business systems. Out of these, three (i.e. MAN5, MAN7, and MAN8) regarded it to have a strong positive influence on the implementation of e-business systems, and six (i.e. MAN6, MAN9, MAN10, SER17, SER18, and SER20) considered trading partners’ readiness to have no relevance to e-business systems implementation. Thus, no SMEs indicated a negative influence of trading partners’ readiness. Only one SME (i.e. SER19) did not comment on this factor. Figure 7.58 summarises the influence of the trading partners’ readiness on the implementation stage of e-business systems in SMEs for the participating SMEs.

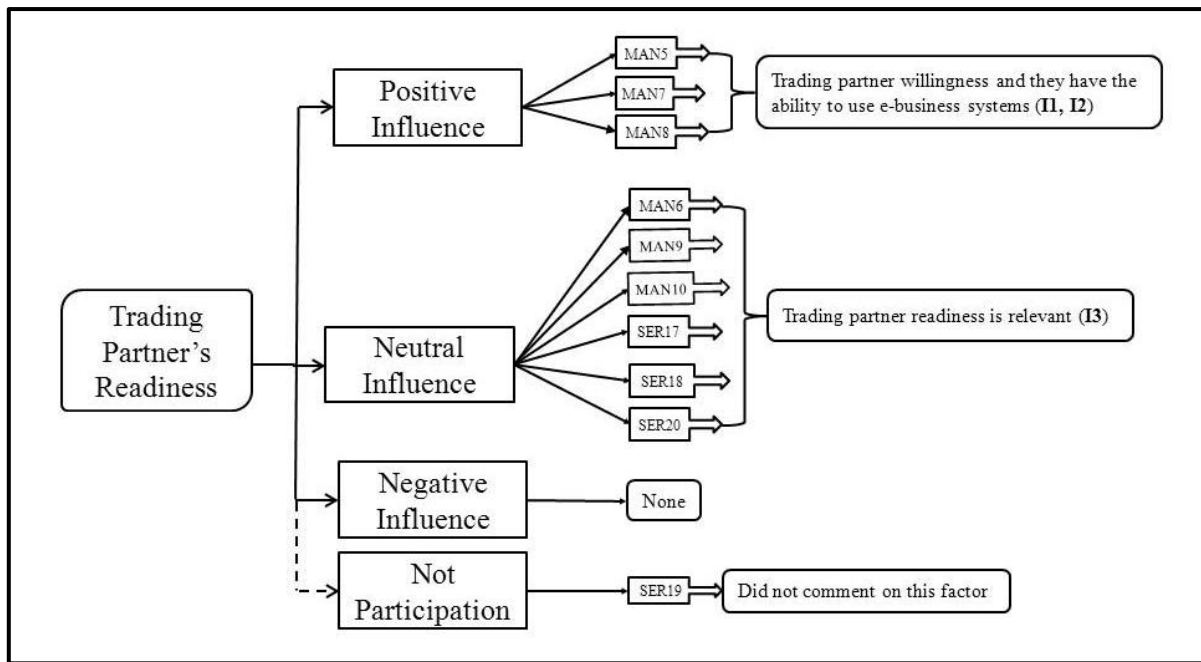


Figure 7.58: Influence of trading partners' readiness on the implementation stage

These three SMEs indicated that trading partner willingness to implement e-business (I1) and 'ability to use e-business by trading partner (I2)' had positively influenced their implementation of e-business systems. For instance, the manager of MAN7 remarked "*The general manager of the company who was responsible for contacting our partners conducted several meetings with our partners and he realised their willingness to use e-business systems. Then the management of the company decided to implement e-business systems. So, the decision of implementing e-business systems in the company was based on support from the trading partner. In addition, some of the partners already used e-business systems and they told us about the benefits of implementing e-business systems. Therefore, yes this factor has influenced the implementation decision of e-business systems in the company*". Similar views were expressed by the managers of MAN5 and MAN8. In contrast, six SMEs highlighted that trading partners' readiness had no relevance to the implementation of e-business systems. For example, the manager of SER18 commented "*We implemented e-business systems due to our need for such technology. Therefore the trading partners of our company had no influence on the implementation of e-business systems*". This sentiment was shared by the owner and managers of MAN6, MAN9, MAN10, SER17, and SER20.

A review of the case study findings suggests that these 10 SMEs demonstrated a slightly different number of indicators for the presence of trading partners' readiness on the implementation of e-business systems. Trading partner readiness is not relevant (I3) was the leading indicator to reflect the influence of trading partners' readiness influence on the implementation of e-business systems. Whereas, trading partner willingness to adopt e-business (I1) and ability to use e-business by trading partner (I2) were less frequently cited indicators for the presence of trading partners' readiness. The case study evidence suggests that only three of the participating SMEs agreed that this factor had positively influenced the implementation of e-business systems. Therefore, using the measurement scale (Section 3.11.2), it is suggested that trading partners' readiness has 'possible influence' on the implementation stage of e-business systems. A rich discussion of these observations is provided in Chapter 8. Figure 7.59 presents the frequency of the trading partners' readiness indicators cited by the participating SMEs.

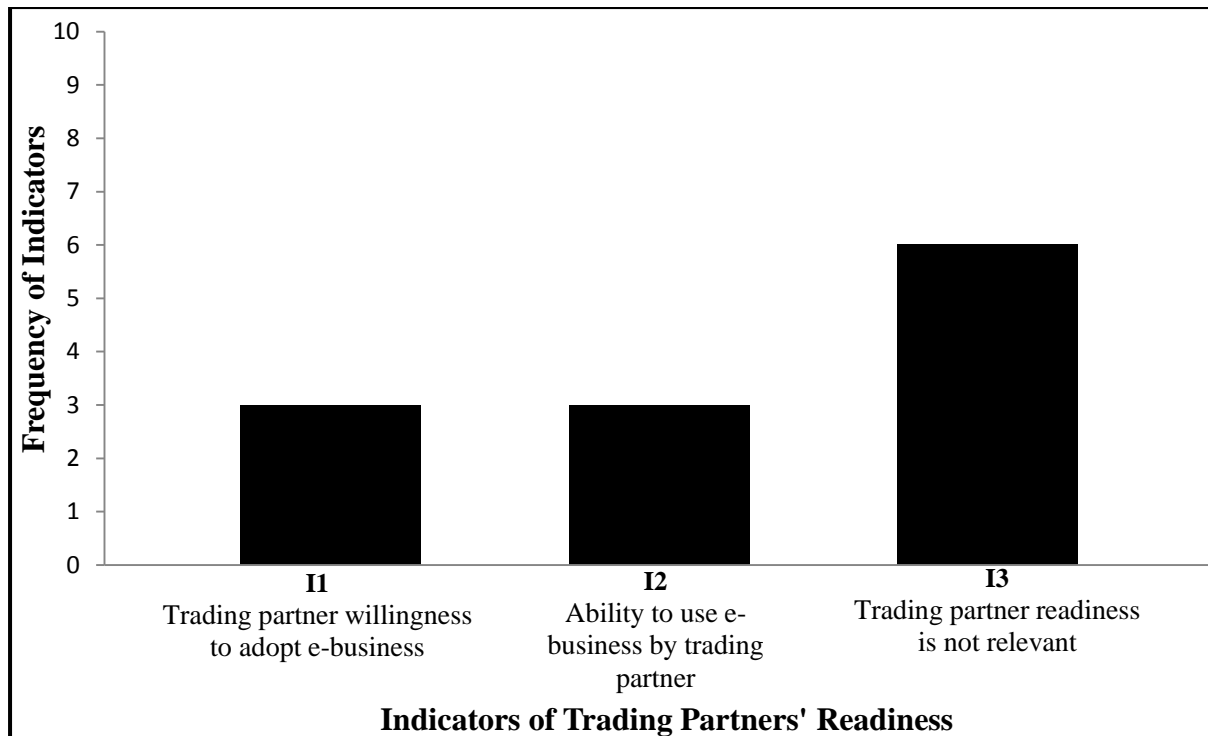


Figure 7.59: Indicators of the trading partners' readiness demonstrated by participating SMEs

Factor 10: Organisational Culture

Drawing on the views of Barney (1986), 'organisational culture' is defined as "a complex set of values, beliefs, assumptions, and symbols that define the way in which a firm conducts its business" (p. 659). It is operationalised in terms of three indicators: a) emphasise growth through developing new ideas (I1), b) employees' loyalty for a company (I2), and achieve company's goals (I3). A total of 10 participating SMEs considered that organisational culture had influenced the implementation of e-business systems in their companies. All participating SMEs regarded organisational culture to have a strong positive influence on implementation of e-business systems. No SMEs indicated either a weak or a negative influence of organisational culture. Figure 7.60 summarises the influence of organisational culture on the implementation stage of e-business systems in SMEs.

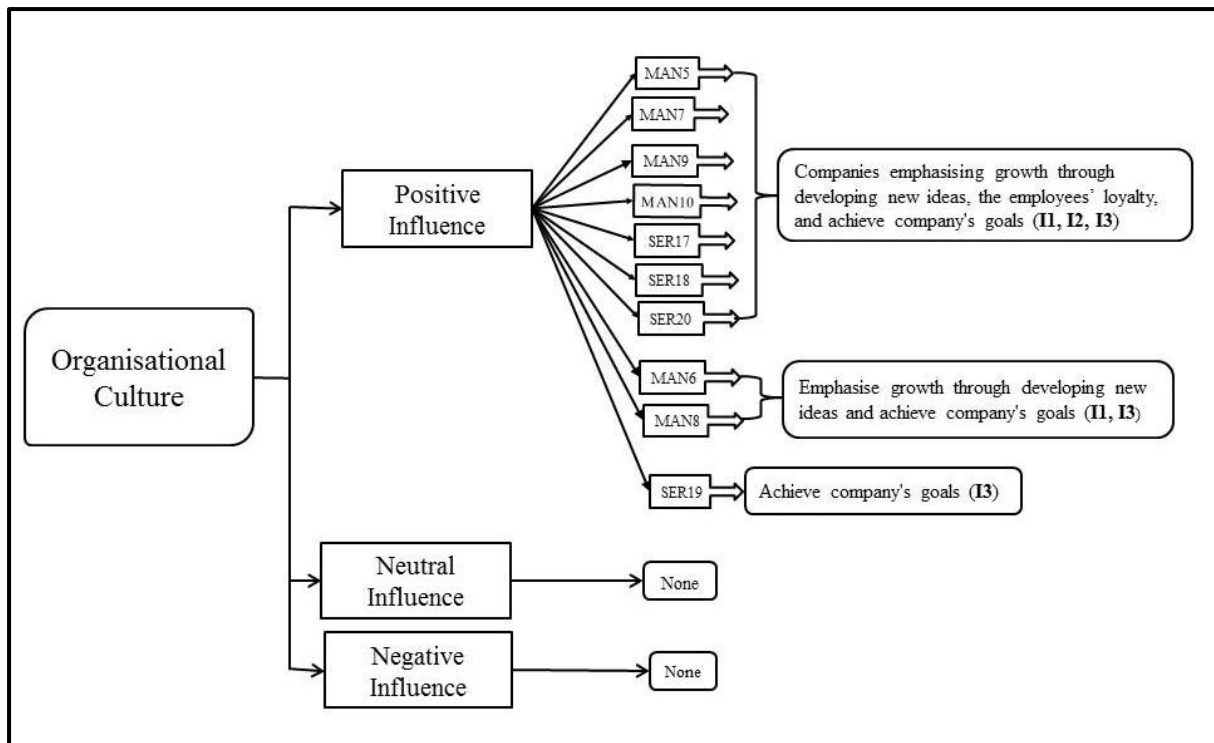


Figure 7.60: Influence of organisational culture on the implementation stage

All the SMEs indicated the companies emphasising growth through developing new ideas (I1), the employees' loyalty for a company (I2), and achieve company's goals (I3) positively contributed to these SMEs' implementation of e-business systems. For instance, the manager of SER20 remarked "We have a specific section available online for suggestions from our customers. So when we find any good suggestion, we directly implement it. In addition, the secret key for the success of this company is the loyalty for the company by its employees and management. The owner is dealing with all employees in a respectful manner. So, they have loyalty to the company which reflects on the development of the company. On the other hand, we achieved 'ISO certification' and we have a long term plan and short term plan. Each plan has a range of goals that must be achieved within a specific period of time. In addition, the implementation of e-business systems was one of our goals which have been achieved". Likewise, the manager of SER19, MAN8, MAN6, SER18, SER17, MAN10, MAN9, MAN7, and MAN5 generally expressed similar views.

A review of the case study evidence suggests that these 10 SMEs demonstrated a different number of indicators for the existence of organisational culture on the implementation of the e-business system. Emphasise growth through developing new ideas (I1) and achieve company's goals (I3) were the leading indicators of the existence of organisational culture. Whereas, 'the employees' loyalty for a company (I2)' was a less frequently cited indicator for the presence of organisational culture influence on the implementation stage. All participating SMEs believed that this factor had positively influenced e-business systems implementation. Therefore, using the measurement scale (Section 3.11.2), it is suggested that organisational culture has a 'strong positive influence' on the implementation of e-business systems. A rich discussion of these observations in terms of industry sector and comparison with existing literature is provided in Chapter 8. Figure 7.61 presents the frequency of the organisational culture indicators cited by the participating SMEs.



Figure 7.61: Indicators of organisational culture of e-business systems demonstrated by participating SMEs

7.1.3.1 Summary (Stage 3: Implementation)

The case study findings about the common factors affecting the implementation stage of the e-business systems adoption process revealed that: a) a total of five factors (i.e. *relative advantage*, *management support*, *owner-manager characteristic*, *organisational readiness and awareness*, and *organisational culture*) had a strong positive influence on the implementation of e-business systems, b) three factors (i.e. *cost*, *external pressure*, and *trading partners' readiness*) had possible influence, and c) two factors (i.e. *government support programs* and *uncertainty in business environment*) had weak influence on this stage of the e-business systems adoption process in SMEs. The implications of these observations are discussed in Chapter 8.

7.2 Summary

This chapter has presented case study findings from the participating SMEs about the common factors affecting the three stages (i.e. *initiation*, *adoption decision*, and *implementation*) of the e-business systems adoption process in SMEs. A total of 10 factors were identified as common factors. Out of these 10, six (i.e. *relative advantage*, *external pressure*, *management support*, *owner-manager characteristic*, *organisational readiness and awareness*, and *organisational culture*) positively influenced all three stages, two (i.e. *cost* and *trading partners' readiness*) have a possible influence and another two (i.e. *government support programs* and *uncertainty in business environment*) have a weak influence on those stages. This is summarised in Table 7.1. The next chapter presents an insightful discussion of the case study findings presented in Chapter 6 and this chapter.

Table 7.1: Summary of factors the influence the three stages of the e-business systems adoption process in Saudi SMEs

E-business Systems Adoption Stages	Common Factors									
	Cost	Relative Advantage	External Pressure	Management Support	Government Support Programs	Uncertainty in Business Environment	Owner-Manager Characteristic	Organisational Readiness and Awareness	Trading Partners' Readiness	Organisational Culture
Initiation	Possible	Strong positive	Strong positive	Strong positive	Weak	Weak	Strong positive	Possible	Weak	Strong positive
Adoption Decision (*)	Weak	Strong positive	Strong positive	Strong positive	Weak	Weak	Strong positive	Strong positive	Possible	Strong positive
Implementation	Possible	Strong positive	Possible	Strong positive	Weak	Weak	Strong positive	Strong positive	Possible	Strong positive
Overall Factors Influence	Possible	Strong positive	Strong positive	Strong positive	Weak	Weak	Strong positive	Strong positive	Possible	Strong positive

(*) Only two Saudi SMEs were interviewed in this stage, therefore the findings are 'suggested' findings

CHAPTER 8: ANALYSIS AND DISCUSSION OF THE RESEARCH FINDINGS

8.0 Introduction

This chapter provides an analysis and discussion of the research findings presented in Chapter 6 and Chapter 7. The research model (Figure 4.8) that was evaluated in Phase 2 of this research study by a panel of online experts is used to guide the discussion. The reader is reminded that there are three adoption stages (i.e. *initiation*, *adoption decision*, and *implementation*) and each stage is influenced by two sets of factors (i.e. *stage specific factors* and *common factors*). In Section 8.1, the influence of the stage specific factors and common factors are discussed in terms of the TOE framework (Tornatzky and Fleischer 1990). In Section 8.2, the similarities and differences in the influence of the factors affecting the e-business systems adoption process between the manufacturing and service SMEs are discussed. The research model is then revised in Section 8.3 and the outcomes of the propositions drawn from the model are presented in Section 8.4. Finally, Section 8.5 concludes the chapter.

8.1 Discussion on the Influence of the Factors

The TOE framework (Tornatzky and Fleischer 1990) which was introduced in Section 2.3.2.2, is used to facilitate the discussion on the importance of factors (i.e. *stage specific* and *common*) affecting the e-business systems adoption process in Saudi SMEs. In line with the TOE framework, the factors were categorised into three groups: SME characteristics, e-business characteristics, and environment characteristics. To graphically illustrate the type of influence of these factors on each of the three adoption stages, the following guidelines are developed:

- A dotted arrow indicates weak influence of a factor and is thus a candidate for removal from the final research model.
- A dark arrow indicates a strong positive influence of a factor and hence is retained in the final research model.
- A dash arrow indicates a possible positive influence of a factor and is also included in the final research model.

8.1.1 Factors Affecting Initiation Stage

According to the research model (Figure 4.8), seven stage specific factors (i.e. *compatibility*, *complexity*, *trialability*, *observability*, *perceived e-business attributes*, *need for technical expertise*, and *knowledgeable employee attitude toward technology*) based on the theoretical arguments are considered to influence the initiation stage of the e-business systems adoption process in Saudi SMEs. Drawing on the case study evidence, the observed influences of these factors are summarised in Figure 8.1.

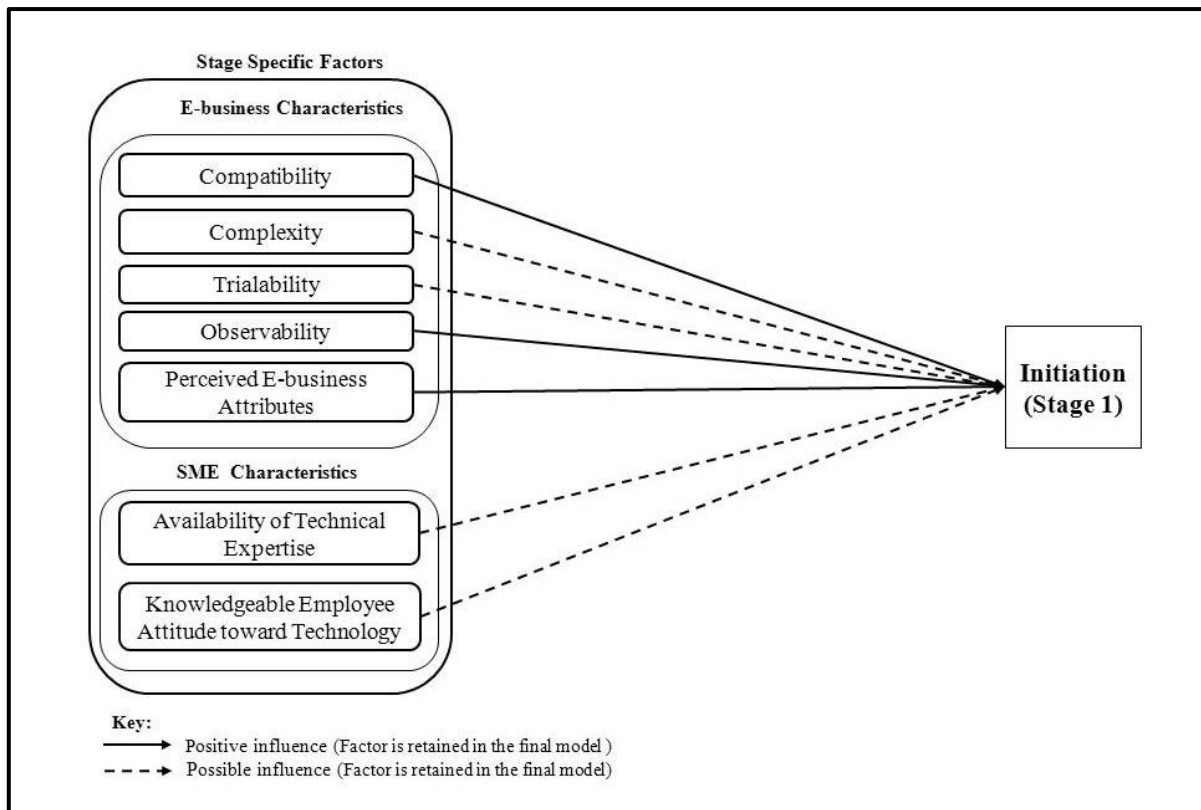


Figure 8.1: Influence of factors affecting the e-business initiation stage

Out of five e-business characteristics, three (i.e. *compatibility*, *observability*, and *perceived e-business attributes*) are found to be essential for Saudi SMEs to initiate e-business systems. The remaining two characteristics (i.e. *complexity* and *trialability*) are found to be somewhat important for Saudi SMEs to initiate these systems. Likewise, two SME characteristics (i.e. *availability of technical expertise* and *knowledgeable employee attitude toward technology*) are also found to be somewhat important for Saudi SMEs to initiate e-business systems. The details of each of these seven factors are discussed below.

Compatibility

The case study findings indicate that compatibility is essential for Saudi SMEs to initiate e-business systems because of the compatibility of e-business systems with Saudi SMEs' goals and values. This is in line with the views expressed in the technology adoption literature which suggests that compatibility is important for initiating a technological innovation (e.g. Rogers 2003). According to Al-Gahtani (2003), perceived compatibility of e-business systems is positively associated with its rate of adoption (including initiation). Moreover, some members of the online experts panel (who participated in Phase 2 of this study) also suggested that compatibility can be an influential factor for initiating e-business systems by SMEs. Thus, the influence of compatibility is considered to be a strong positive influence on the initiation stage of the e-business systems adoption process in Saudi SMEs, which provides support for proposition (P1). Consequently, compatibility is retained in the final research model.

Complexity

Unlike other studies which suggest that the complexity of e-business is a major issue (e.g. Rogers 2003; Raymond, Bergeron et al. 2005), the case study findings indicate that complexity is somewhat important for initiating e-business systems in Saudi SMEs. Some Saudi SMEs reported a low level of complexity associated with e-business systems which encouraged them to initiate these systems. Whereas, others viewed it as not that important because they had no idea about the extent to which their e-business solutions could become complex in the future. The technology adoption and innovation literature suggests that complexity associated with using a technological innovation has an important relationship with e-business initiation. Rogers (2003) predicts a faster adoption (including initiation) when a technology is not complex. In support of this, an expert who participated in the online experts panel (Phase 2) emphasised that the perceived characteristics of an innovation (including complexity) are significant factors for the initiation stage. In short, given the mixed views about complexity suggested by the participating Saudi SMEs and the relevant literature, complexity is considered to have a possible influence on the initiation stage of the e-business systems adoption process in Saudi SMEs. This in turn provides some support for proposition (P2). Consequently, complexity is retained in the final research model.

Trialability

Similar to complexity, trialability too is found to be somewhat important for Saudi SMEs to initiate their e-business systems. Some Saudi SMEs recognised trialability to be important because it enabled them to verify the appropriateness of the e-business systems for their businesses context. Others pointed out that trialability was not that important because an e-business system is a well-known application and they have already seen it used by other companies. In line with this finding, Limthongchai and Speece (2003) reported *trialability* to have some influence on e-business systems initiation by SMEs. The importance of trialability is supported by an online experts panel member who highlighted that trialability is an essential driver for initiating e-business systems in SMEs. In short, given the mixed views about trialability suggested by the participating Saudi SMEs and in the relevant literature, it is suggested that trialability too has possible influence on the initiation stage of the e-business systems adoption process in Saudi SMEs. This in turn provides some support for proposition (P3). Consequently, trialability is retained in the final research model.

Observability

The case study findings indicate that observability is critical for Saudi SMEs to initiate e-business systems because of: a) their awareness of how other companies gained benefits from initiating e-business systems, and b) the visibility of e-business systems' impact by SME management. This finding is in line with the views expressed in the technology adoption and innovation literature (e.g. Mansfield 1968; Rogers 2003; Alam, Khatibi et al. 2008) which suggests that observability is important for initiating a technological innovation. Furthermore, one member of the online experts panel recommended that observability be an essential factor for initiating e-business systems by SMEs. Thus, the influence of observability is strongly positive on the initiation stage of the e-business systems adoption process in Saudi SMEs which provides support for proposition (P4). Consequently, observability is retained in the final research model.

Perceived E-business Attributes

The case study findings suggest that perceived e-business attributes is important for Saudi SMEs to initiate e-business systems owing to the availability of information sources about e-business and the reliability of these sources. This is consistent with the views expressed in the technology adoption and innovation literature. For instance, Rogers (2003) remarked that perceived attributes of an innovation are an essential motivator for initiating technological innovation in an organisation. Thus, the influence of perceived e-business attributes is strongly positive on the initiation stage of the e-business systems adoption process in Saudi SMEs. This in turn provides support for proposition (P5). Consequently, perceived e-business attributes is retained in the final research model.

Availability of Technical Expertise

The case study findings reveal that availability of technical expertise is somewhat important for initiating e-business systems in Saudi SMEs. Some Saudi SMEs recognised the availability of technical expertise to be important because they emphasised the important role of IT staff (who are well trained in e-business systems) to assist the initiation of these systems in their companies. Whereas, others viewed it as not that important because they had little technical expertise in their companies, but still decided to initiate e-business systems. This latter view is to some extent contradicted by McGowan and Madey (1998) and Wymer and Regan (2005) who found that the availability of technical expertise to be important to initiate e-business systems. In short, given the mixed views about availability of technical expertise indicated by the participating Saudi SMEs and in the relevant literature, it is suggested that availability of technical expertise has possible influence on the initiation stage of e-business systems adoption process in Saudi SMEs. This in turn provides some support for proposition (P6). Consequently, availability of technical expertise is retained in the final research model.

Knowledgeable Employee Attitude toward Technology

This factor is found to be somewhat important to initiate e-business systems in Saudi SMEs. Some Saudi SMEs recognised knowledgeable employee attitude toward technology to be important because of their ability to convince the top management about e-business systems and their awareness of the importance of e-business systems. Whereas, others viewed it not that important because the attitude of these employees toward e-business systems was not relevant to the initiation of these systems in their companies. This latter view is in contrast with other studies (e.g. Rogers 2003; Abdul Hameed and Counsell 2012) that report perceptions of knowledgeable employees toward new technological innovation can play a substantial role in the initiation of IT systems in organisation. Furthermore, an expert who participated in the online experts panel (Phase 2) emphasised that knowledgeable employee attitude toward technology was a fundamental factor for initiating e-business systems in SMEs. In short, given the mixed views about knowledgeable employee attitude toward technology reported by the participating Saudi SMEs and in the relevant literature, this factor is considered to have a possible influence on the initiation stage of the e-business systems adoption process in Saudi SMEs. This in turn provides some support for proposition (P7). Consequently, knowledgeable employee attitude toward technology is retained in the final research model.

8.1.1.1 Summary of the Factors Affecting the Initiation Stage

From a discussion of the empirical evidence presented earlier, it can be suggested that, three (e.g. *compatibility*, *observability*, and *perceived e-business attributes*) out of five e-business' characteristics have strong positive influence on the initiation stage of the e-business systems adoption process in Saudi SMEs and the remaining two (e.g. *complexity* and *trialability*) have possible influence. In contrast, SME characteristics (e.g. *availability of technical expertise* and *knowledgeable employee attitude toward technology*) have possible influence on this particular stage. Overall, all the five factors representing e-business characteristics and two factors representing SME characteristics are retained in the final research model.

8.1.2 Factors Affecting the Adoption Decision Stage

According to the research model (Figure 4.8), eight stage specific factors (i.e. *communication*, *e-business law*, *customer readiness*, *security concerns*, *high competence in IS*, *perceived e-business value*, *owner attitude toward technology*, and *knowledgeable employee attitude toward technology*) based on the theoretical arguments are expected to influence the adoption decision stage of the e-business systems adoption process in Saudi SMEs. The observed influences of these factors, drawing on the empirical evidence, is summarised in Figure 8.2 and are discussed below.

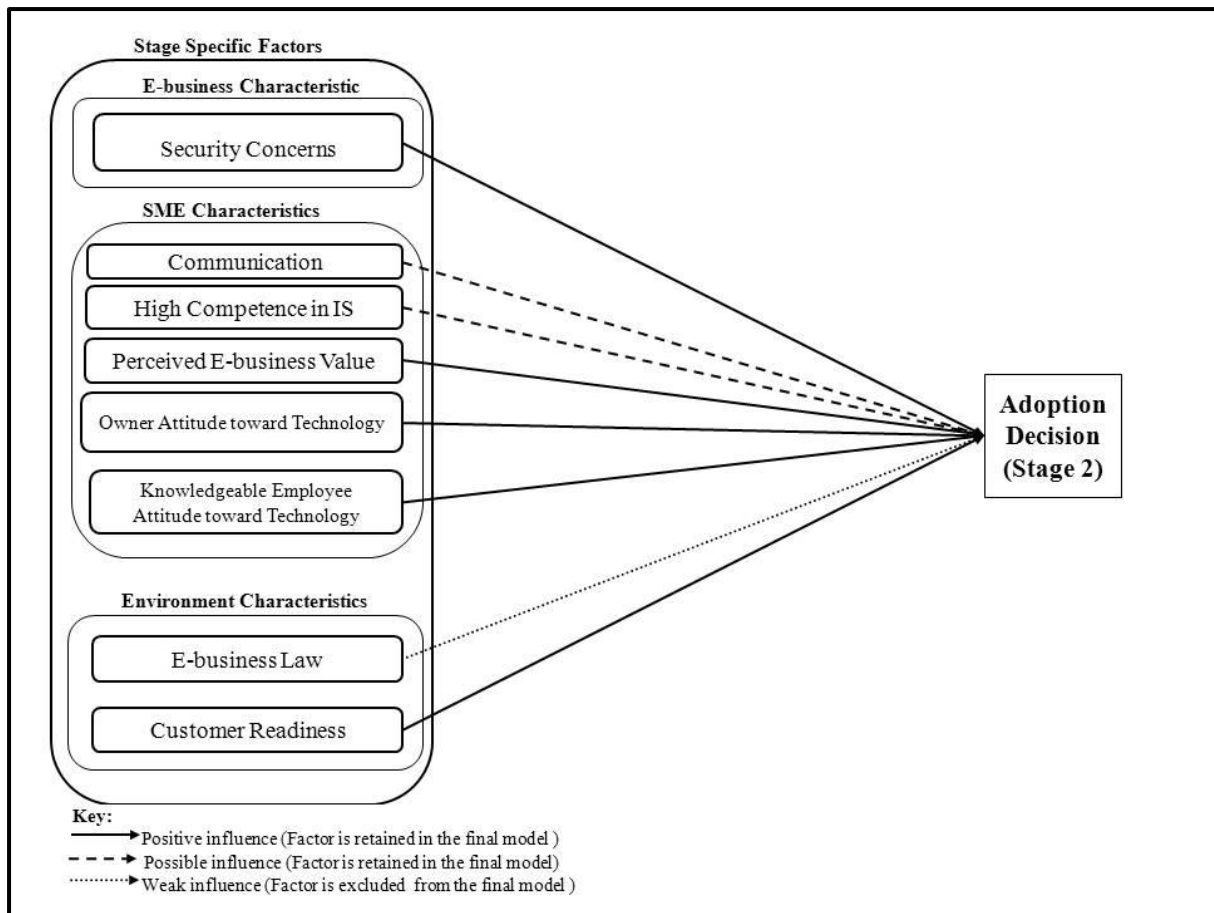


Figure 8.2: Influence of factors affecting the e-business adoption decision stage

One e-business characteristic (i.e. *security concerns*) is found to be important for the adoption decision stage of the e-business systems adoption process in SMEs. In contrast, out of five SME characteristics, three (i.e. *perceived e-business value*, *owner attitude toward technology*, and *knowledgeable employee attitude toward technology*) are found to be important for the adoption decision of e-business systems in Saudi SMEs. The remaining two characteristics (i.e. *communication* and *high competence in IS*) are found to be somewhat important for Saudi SMEs. In terms of the environment characteristics, one factor (i.e. *e-business law*) is found to be not relevant to the adoption decision stage of e-business systems in Saudi SMEs. Another environment characteristic (i.e. *customer readiness*) is found to be important to Saudi SMEs for their decision to adopt these systems. A brief discussion on each of these eight stage specific factors is provided below.

Communication

Communication is found to be somewhat important for Saudi SMEs to make a decision to adopt e-business systems. Some participating SMEs recognised communication to be important because e-business systems would help them to easily communicate with partners and exchange a considerable amount of communication. Whereas, the remaining SMEs acknowledged that although e-business systems seemed to facilitate communication of their companies with partners but it was not relevant to the adoption decision of e-business systems. This latter observation is in contrast to the commonly held view by e-business scholars (e.g. Wilson and Davies 2008) that communication influences potential adopters' propensity to make adoption decisions for e-business systems in SMEs, and the similar views expressed in

the technology adoption and innovation literature (e.g. Frambach and Schillewaert 2002). Thus, given the mixed views about communication reported by the participating Saudi SMEs and in the literature, communication seems to have a possible influence on the adoption decision stage of the e-business systems adoption process in Saudi SMEs. This in turn provides some support for proposition (P8). Consequently, communication is retained in the final research model.

E-business Law

E-business law is found to be not important for the adoption decision of e-business systems in Saudi SMEs because of two reasons: a) the absence of government support to promote e-business law in Saudi Arabia, and b) lack of awareness of SME owners and managers about the presence of e-business law. This finding is in contrast with the views of Iddris (2012) who advised policy makers to speed up the process of passing of e-business legislation bills in order to facilitate the adoption decision of e-business systems by SMEs. Thus, e-business law seems to have a weak influence on the adoption decision stage of the e-business systems adoption process in Saudi SMEs and hence it does not provide support for proposition (P9). Consequently, e-business law is excluded from the final research model.

Customer Readiness

The case study findings indicate that customer readiness is important for the adoption decision of e-business systems in Saudi SMEs because of customers' willingness to perform their business transactions online and their ability to deal with new technology. This is in line with the views expressed by such scholars as Jutla, Bodorik et al. (2002) who argued that when the customers are willing to use e-business systems, this would positively influence the adoption decision of e-business systems by SMEs. Moreover, some members of the online experts panel (who participated in Phase 2 of this study) also suggested that customer readiness is an essential factor for the adoption decision stage of e-business systems. Thus, customer readiness seems to have a strong positive influence on the adoption decision stage of the e-business systems adoption process in Saudi SMEs which provides support for proposition (P10). Consequently, customer readiness is retained in the final research model.

Security Concerns

Security concerns are not found to be a factor that discourages Saudi SMEs to make adoption decisions for e-business systems. This is because of the presence of powerful security systems and trust in using e-business systems by Saudi SMEs. This finding is in contrast with the views expressed by such e-business scholars as Pearson and Grandon (2006) and Abu Abid, Rahim et al. (2011). It is also not in line with the views expressed in the technology adoption and innovation literature (e.g. Killikanya and Chantranontwong 2000) which indicates that many organisations are not enthusiastic to embrace e-business systems due to their concerns over security matters and lack of confidence in the current set-up of e-business systems. In support of this view, an expert in Phase 2 recommended that security concerns could be a crucial factor that might slow down adoption decisions of e-business systems in SMEs. However, the case study findings indicate that low level of security concerns seems to have a strong positive influence on the adoption decision stage of the e-business systems adoption process in Saudi SMEs. This in turn provides support for proposition (P11). Consequently, security concerns are retained in the final research model.

High Competence in IS

High competence in IS is found to be somewhat important for Saudi SMEs to adopt e-business systems. Some participating SMEs recognised that high competence in IS is important because of the presence of training frameworks in Saudi SMEs and the availability of employees with high experience and e-business skills. This is supported by such e-business scholars as Hu, Yang et al. (2012) who reported that competence in IS should play an important role in the successful integration between e-business systems functions and company management during the adoption decision process. Some participating SMEs however did not regard high competence in IS to be important because their e-business operation and support are looked after by systems solution providers. Thus, given the mixed views about high competence in IS reported by the participating Saudi SMEs and in the relevant literature, it is suggested that high competence in IS seems to have a possible influence on the adoption decision stage of the e-business systems adoption process in Saudi SMEs. This in turn provides some support for proposition (P12). Consequently, high competence in IS is retained in the final research model.

Perceived E-business Value

Perceived e-business value is found to be important for Saudi SMEs for making decisions to adopt e-business systems because they acknowledged the potential impact of e-business systems on their companies for increasing sales volume. This finding is in line with Lin (2008) who indicated that when decision makers strongly perceive the overall organisational benefits of e-business systems, they are more likely to endorse the decision to adopt e-business systems in organisations. This view is also supported by some members of the online experts panel who suggest that perceived e-business value can be an important factor for the adoption decision stage of e-business systems. Thus, perceived e-business value seems to have a strong positive influence on the adoption decision stage of the e-business systems adoption process in Saudi SMEs. This in turn provides support for proposition (P13). Consequently, perceived e-business value is retained in the final research model.

Owner Attitude toward Technology

Similar to perceived e-business value, owner attitudes toward technology too are found to be important for Saudi SMEs to facilitate decisions about adopting e-business systems. This is because the owners of Saudi SMEs are aware of the value of e-business systems. Owners' awareness arises from their knowledge of IT and e-business. This finding is in line with the views of Chuang, Nakatani et al. (2007) who suggest that IT system adoption decisions in the SME context are primarily made by the owners who look at technology favourably. Hence, the owners' perceptions about the adoption of e-business systems are of key importance. Thus, owner attitude toward technology seems to have a strong positive influence on the adoption decision stage of the e-business systems adoption process in Saudi SMEs. This in turn provides support for proposition (P14). Consequently, owner attitude toward technology is retained in the final research model.

Knowledgeable Employee Attitude toward Technology

The case study findings indicate that knowledgeable employee attitudes toward technology is important for Saudi SMEs to make e-business systems adoption decisions because they are aware of the potential of e-business systems for their companies and they have the ability to convince top management about adopting e-business. This observation is consistent with the views expressed by such e-business scholars as Abdul Hameed and Counsell (2012) who found that knowledgeable employee' perceptions, innovativeness, and favourable attitude toward novel technology to have positively influenced organisations' decision to adopt IT. This is further in line with the views expressed in the technology adoption and innovation literature. For example, Rogers (2003) suggests that favourable attitudes of knowledgeable employees contribute to all stages (including the *adoption decision*) of the technological innovation adoption process. In support of this, an online experts panel (in Phase 2) commented that knowledgeable employee attitude toward technology could be a central factor for adopting e-business systems by SMEs. Thus, knowledgeable employee attitude toward technology seems to have a strong positive influence on the adoption decision stage of the e-business systems adoption process in Saudi SMEs which in turn provide support for proposition (P15). Consequently, knowledgeable employee attitude toward technology is included in the final research model.

8.1.2.1 Summary of Factors Affecting the Adoption Decision Stage

From a discussion of the case study evidence presented earlier, it is therefore suggested that, e-business characteristic (e.g. *security concerns*) has a strong positive influence on the adoption decision stage of e-business systems adoption process in Saudi SMEs. Out of five SME characteristics, three (e.g. *perceived e-business value*, *owner attitude toward technology*, and *knowledgeable employee attitude toward technology*) have a strong positive influence and the remaining two (e.g. *communication* and *high competence in IS*) have a possible influence on Saudi SMEs' decision to adopt e-business systems. In contrast, one (e.g. *e-business law*) of the environment characteristics has a weak influence on the adoption decision stage of e-business systems, another one (e.g. *customer readiness*) has strong positive influence on this particular stage. Overall, all but one factor representing e-business characteristic, SMEs characteristics, and environment characteristics are retained in the final research model. Only *e-business law* from the environment characteristics is excluded from the model.

8.1.3 Factors Affecting the Implementation Stage

According to the research model (Figure 4.8), four stage specific factors (i.e. *training*, *high competence in IS*, *perceived e-business attributes*, and *lower level employee attitude toward technology*) based on the theoretical arguments are suggested to influence the implementation stage of the e-business systems adoption process in SMEs. The observed influence of these factors, drawing on the empirical evidence, is summarised in Figure 8.3.

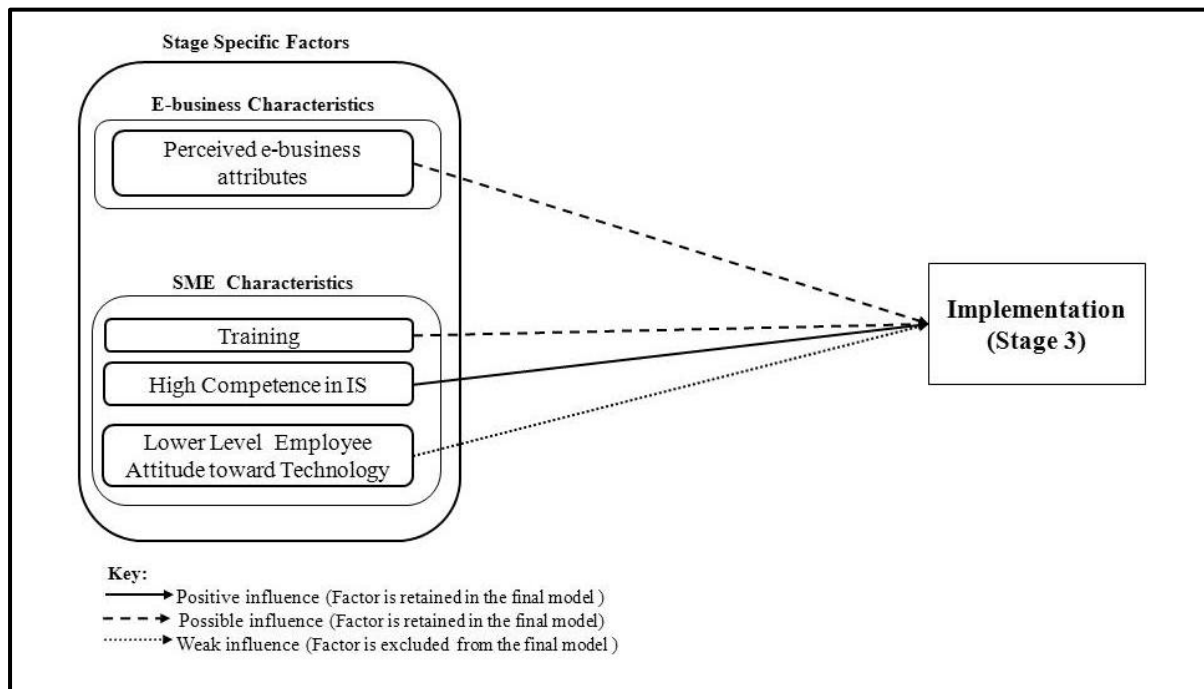


Figure 8.3: Influence of factors affecting the implementation stage

One e-business characteristic (i.e. *perceived e-business attributes*) is found to be somewhat important for Saudi SMEs to implement e-business systems. In contrast, out of three SME characteristics, only one (i.e. *high competence in IS*) is found to be important for e-business systems implementation in Saudi SMEs. The second one (i.e. *training*) is found to be somewhat important for Saudi SMEs. In contrast, only one factor (i.e. *lower level employee attitude toward technology*) is found to be not relevant to the implementation stage of e-business systems in Saudi SMEs. The details of each of these four factors that affect implementation of e-business systems are provided below.

Training

The case study findings indicate that training is somewhat important for implementing e-business systems at the Saudi SMEs. Some Saudi SMEs recognised training to be important because they acknowledged the availability of periodical training in general, and appreciated the value of training in helping the implementation of e-business systems in their companies. Others viewed training as not so important because the implementation of e-business systems took place in their companies without considering the requirement for training. Therefore, according to them training was not a major driver for using e-business systems. This latter view is not in line with the technology adoption and innovation literature (e.g. McGowan and Madey 1998; Devins, Johnson et al. 2004) which suggests that training is important for implementing e-business systems. Thus, given the mixed views expressed by the

participating Saudi SMEs about the importance of training, it is suggested that training may have a possible influence on the implementation of e-business systems in Saudi SMEs. This in turn provides some support for proposition (P16). Consequently, training is retained in the final research model.

High Competence in IS

The case study findings indicate that a high level of competence in IS is important for Saudi SMEs to implement e-business systems because the availability of a workforce with considerable experience and expertise can help overcome e-business systems implementation difficulties. This is in line with the views expressed by some e-business scholars (e.g. Hu, Yang et al. 2012). It is also in line with the technology adoption literature which suggests that high competence in IS is important for implementing a technological innovation (e.g. Teo and King 1997). Thus, high competence in IS is likely to have a strong positive influence on the implementation stage of the e-business systems adoption process in Saudi SMEs which in turn provides support for proposition (P17). Consequently, high competence in IS is retained in the final research model.

Perceived E-business Attributes

Perceived e-business attributes is found to be somewhat important for Saudi SMEs to implement e-business systems because of mixed opinions expressed by the participating Saudi SMEs. Some SMEs recognised perceived e-business attributes to be important due to the availability of information sources about e-business and the reliability of these sources. Whereas, others pointed out that perceived e-business attributes is not that important because information about the efficiency of e-business is very poor and not reliable. In contrast with this latter view, Wilson, Daniel et al. (2008) state that the availability and reliability of information about e-business systems facilitates implementation of e-business systems in SMEs. Thus, given the mixed views about perceived e-business attributes suggested by the participating Saudi SMEs and support for this factor from the literature, it is suggested that perceived e-business attributes has a possible influence on the implementation of e-business systems in Saudi SMEs. This in turn provides some support for proposition (P18). Consequently, perceived e-business attributes is retained in the final research model.

Lower Level Employee attitude toward Technology

Lower level employee attitude toward technology is not important for Saudi SMEs to implement e-business systems because those employees do not actively participate in the implementation of e-business systems in their companies. This is in contrast to the commonly held view by scholars like Ihlstrom and Nilsson (2003) who report that employee's attitude is expected to influence e-business systems implementation by SMEs. Thus, lower level employee attitude toward technology has a weak influence on the implementation stage of the e-business systems adoption process in Saudi SMEs. This in turn does not provide support for proposition (P19). Consequently, lower level employee attitude toward technology is excluded from the final research model.

8.1.3.1 Summary of Factors Affecting the Implementation Stage

From a discussion of the case study evidence presented earlier, it is thus suggested that: a) e-business characteristic (e.g. *perceived e-business attributes*) has a possible influence on the implementation stage of the e-business systems adoption process in Saudi SMEs; b) out of three SME characteristics, only one (e.g. *high competence in IS*) has a strong positive influence and another one (e.g. training) has a possible influence on the implementation of e-business systems. The remaining SME characteristic (i.e. *lower level of employee attitude toward technology*) has a weak influence on the implementation stage; and c) one factor representing e-business characteristic and two factors representing SME characteristics are retained in the final research model and one factor of SME characteristics is excluded from the model.

8.1.4 Common Factors Affecting Three Stages of E-business Adoption

The research model (Figure 4.8) indicates the presence of 10 common factors (i.e. *cost, relative advantage, external pressure, management support, government support programs, uncertainty in business environment, owner-manager characteristics, organisational readiness and awareness, trading partners' readiness, and organisational culture*) which are expected to influence all three stages of the e-business systems adoption process in SMEs. The influence of these factors is summarised in Table 8.1 and is discussed below.

Table 8.1: Type of influence of common factors affecting three stages of e-business systems adoption in Saudi SMEs

E-business Systems Adoption Stages	Common Factors									
	E-business Characteristics		SME Characteristics				Environment Characteristics			
	Cost	Relative Advantage	Management Support	Owner-Manager Characteristic	Organisational Readiness and Awareness	Organisational Culture	External Pressure	Government Support Programs	Uncertainty in Business Environment	Trading Partners' Readiness
Initiation	Possible	Strong positive	Strong positive	Strong positive	Possible	Strong positive	Strong positive	Weak	Weak	Weak
Adoption Decision (*)	Weak	Strong positive	Strong positive	Strong positive	Strong positive	Strong positive	Strong positive	Weak	Weak	Possible
Implementation	Possible	Strong positive	Strong positive	Strong positive	Strong positive	Strong positive	Possible	Weak	Weak	Possible
Overall Factors Influence	Possible	Strong positive	Strong positive	Strong positive	Strong positive	Strong positive	Strong positive	Weak	Weak	Possible
Implications for Model	Retained	Retained	Retained	Retained	Retained	Retained	Retained	Excluded	Excluded	Retained

(*) Only two Saudi SMEs were interviewed in this stage, therefore the findings are 'suggested' findings

Cost

The case study findings indicate that cost is somewhat important for Saudi SMEs to initiate and implement e-business systems. The majority of the participating SMEs recognised cost to be important because a reasonable amount of expenses are required to support e-business systems, whereas, a few SMEs did not consider cost to be that important because of the availability of adequate financial resources at their companies. Likewise, the case study findings further indicated that cost is not that important for Saudi SMEs to make an adoption decision for e-business systems due to access to adequate finances. This finding is in contrast to the commonly held view by some e-business scholars (e.g. Beheshti and Salehi-Sangari 2007) that the cost of e-business systems represents a major adoption concern for SME managers. Thus, given the mixed views about cost suggested by the participating Saudi SMEs, it is considered to have a possible influence on the adoption process of e-business systems in Saudi SMEs. This in turns provide some support for proposition (P20). Consequently, cost is retained in the final research model.

Relative Advantage

The case study findings indicate that relative advantage is important for Saudi SMEs to initiate, adopt, and implement e-business systems because of: a) merits from e-business would help SMEs to support their presence against their competitors, and b) improve company's image. These findings are consistent with the views expressed by such e-business scholars as Jeon, Han et al. (2006) and Alam, Khatibi et al. (2008). This is further in line with the views expressed in the technology adoption and innovation literature (e.g. Tornatzky and Fleischer 1990; Rogers 2003) which finds relative advantage to be important for adopting (including *initiation*, *adoption decision*, and *implementation*) a technological innovation. Thus, relative advantage has a strong positive influence on all three stages of the e-business systems adoption process in Saudi SMEs. This is in turn provides support for proposition (P21). Consequently, relative advantage is retained in the final research model.

External Pressure

External pressure is found to be important for Saudi SMEs to initiate and make adoption decisions for e-business systems. This is because SMEs experience intensive competition from their business rivals which in turn motivates them to initiate and adopt e-business systems to safeguard their position in the market. On the other hand, external pressure is found to be somewhat important for Saudi SMEs to implement e-business systems. Some Saudi SMEs recognised external pressure arising from their business rivals, suppliers, and customers to affect the actual e-business systems implementation process. Whereas, others pointed out that external pressure was not relevant to their e-business systems implementation process because specific decisions made within the implementation activities were not influenced by external pressure but were made based on the companies' need. This latter finding contradicts the views expressed in the technology adoption literature which suggests that external pressure is important for all stages of the adoption process (e.g. Rogers 2003). Thus, considering the strong positive influence of external pressure on the initiation and adoption decision stages and possible influence on the implementation stage, it is inferred that external pressure has a strong positive influence on all three stages of the e-business systems adoption process in Saudi SMEs. This is in turn provides support for proposition (P22). Consequently, external pressure is included in the final research model.

Management Support

The case study findings suggest that management support is important for initiation, adoption decision, and implementation of e-business systems in Saudi SMEs because of their awareness of e-business systems advantages and their willingness to promote e-business systems in their companies. This is consistent with the views expressed by some e-business scholars (e.g. Simpson and Docherty 2004; Jeyaraj, Rottman et al. 2006) who found management support to be important for adopting (including *initiation*, *adoption decision*, and *implementation*) e-business systems. Thus, management support is considered to have a strong positive influence on all three stages of the e-business systems adoption process in Saudi SMEs. This in turn provides support for proposition (P23). Consequently, management support is retained in the final research model.

Government Support Programs

Unlike other e-business studies (e.g. Gengatharen, Standing et al. 2005 and Jeon, Han et al. 2006) that suggest government support programs could play an important role to facilitate the adoption (including *initiation*, *adoption decision*, and *implementation*) of e-business systems among SMEs, the case study findings indicate that government support programs are not important for Saudi SMEs to initiate, adopt, and implement e-business systems. Some participating SMEs complained that it was really hard for them to access government support programs. Others pointed out that government support programs were not relevant for their e-business introduction due to lack of cooperation between the Saudi government and SMEs. Thus, government support programs are considered to have a weak influence on the three stages of the e-business systems adoption process in Saudi SMEs and do not provide support for proposition (P24). Consequently, the factor ‘government support programs’ is excluded from the final research model.

Uncertainty in Business Environment

Similar to government support programs, uncertainty in the business environment too is found to be not important for Saudi SMEs to initiate, adopt, and implement e-business systems because some participating SMEs indicated the presence of low uncertainty in the Saudi business environment. Others highlighted that uncertainty in the business environment is not relevant to the adoption process of e-business systems. This is in contrast to the commonly held view by a e-business scholar (e.g. Huang 2006) who reports that uncertainty in the business environment is one of the key influential factors that affect the adoption (including *initiation*, *adoption decision*, and *implementation*) of e-business systems. Thus, uncertainty in the business environment has a weak influence on all three stages of the e-business systems adoption process in Saudi SMEs and does not provide support for proposition (P25). Consequently, uncertainty in the business environment is excluded from the final research model.

Owner-Manager Characteristics

The case study findings indicate that owner-manager characteristics are critical for Saudi SMEs to initiate, adopt, and implement e-business systems because the owners or managers of Saudi SMEs have a unique leadership style and a high education level. This finding is consistent with the views expressed by such e-business scholars as Ihlstrom and Nilsson (2003), Taylor and Murphy (2004), and Oliveira and Martins (2010). These scholars found owner-manager characteristics to be important for all stages of the e-business systems adoption process. Furthermore, one member of the online experts panel emphasised that owner-manager characteristics play a vital role in facilitating the e-business systems adoption process in SMEs. Therefore, owner-manager characteristics are considered to have a strong positive influence on all three stages of the e-business systems adoption process in Saudi SMEs. It thus provides support for proposition (P26). Consequently, owner-manager characteristics are retained in the final research model.

Organisational Readiness and Awareness

Organisational readiness and awareness is found to be somewhat important for Saudi SMEs to initiate e-business systems. Some of the participating SMEs recognised organisational readiness and awareness to be important because of the presence of greater financial and technological readiness of these companies. Whereas, others viewed it as being not that important to the initiation of e-business systems because the availability of cheap e-business solutions in the market, which (in turn) do not need high organisational readiness to initiate these systems. Organisational readiness and awareness is found to be important for Saudi SMEs to adopt and implement e-business systems due to the financial and technological readiness of Saudi SMEs. This is in line with the commonly held view by e-business scholars (e.g. Gilaninia, Mousavian et al. 2002) that organisational readiness and awareness positively influences the adoption process of e-business systems in SMEs. In support of this, an online experts panel member (in Phase 2) commented that organisational readiness and awareness can be a key factor for adopting (including *initiation*, *adoption decision*, and *implementation*) e-business systems in SMEs. In summary, considering the strong positive influence on the adoption decision and implementation stages and possible influence on the initiation stage, this factor is considered to have a strong positive influence on all three stages of the e-business systems adoption process in Saudi SMEs and provides support for proposition (P27). Consequently, organisational readiness and awareness is retained in the final research model.

Trading Partners' Readiness

Trading partners' readiness is found to be not important for Saudi SMEs to initiate e-business systems. This is because partner readiness is not relevant to e-business systems initiation in Saudi SMEs as the decision to initiate these systems are made based on the companies' need. This observation is in contrast to the findings of the study of Zhu, Kraemer et al. (2003) who found that e-business systems initiation may be affected by the readiness of partners in the trading community. The case study findings further indicate that trading partners' readiness is somewhat important for Saudi SMEs to adopt and implement e-business systems. Some of the participating SMEs recognise trading partners' readiness to be important because they are willing to adopt e-business and they have the ability to use e-business systems which in turn motivate SMEs to adopt and implement these systems. Others viewed it as not that important because partners' readiness is not relevant to the e-business systems adoption decision and

implementation process in Saudi SMEs, as the decision to adopt these systems are made based on the companies' need. The former observation is in line with the views expressed by Zhu, Kraemer et al. (2003) who suggested that the e-business systems adoption process (including *initiation*, *adoption decision*, and *implementation*) may be affected by the readiness of partners in the trading community. In support of this, an expert in (Phase 2) suggested that trading partners' readiness could be an important factor for adopting e-business systems in SMEs. Given the presence of mixed views, a trading partners' readiness is considered to have a possible influence on the adoption process of e-business systems in Saudi SMEs and provides support for proposition (P28). Consequently, trading partners' readiness is retained in the final research model.

Organisational Culture

The results of this study indicate that organisational culture is important for Saudi SMEs to initiate, adopt, and implement e-business systems because Saudi SMEs emphasise growth through developing new ideas and are keen to achieve a company's goals. This is in line with the views expressed in the technology adoption literature which suggests that organisational culture is important for adopting (including *initiation*, *adoption decision*, and *implementation*) a technological innovation (e.g. Rogers 2003 and Škerlavaj, Štemberger et al. 2007). In support of this, an expert in (Phase 2) also suggested that organisational culture can be an important factor for adopting e-business systems in SMEs. Organisational culture is thus regarded to have a strong positive influence on all three stages of the e-business systems adoption process in Saudi SMEs and provides support for proposition (P29). Consequently, organisational culture is retained in the final research model.

8.1.4.1 Summary of Common Factors Affecting Three Stages

From a discussion of the case study findings presented earlier, it is suggested that: one of the e-business characteristics (e.g. *cost*) has a possible influence on the three stages of the e-business systems adoption process in Saudi SMEs, whereas another one (e.g. *relative advantage*) has a strong positive influence. All SMEs characteristics (e.g. *management support*, *owner-manager characteristics*, *organisational readiness and awareness*, and *organisational culture*) have a strong positive influence on those three adoption stages. Out of four environment characteristics, one (e.g. *external pressure*) has a strong positive influence and two (e.g. *government support programs* and *uncertainty in business environment*) have a weak influence. The remaining factor of environment characteristics (e.g. *trading partners' readiness*) has a possible influence on all three stages of the e-business systems adoption process in Saudi SMEs. Overall, with the exception of two environment characteristics factors (i.e. *government support programs* and *uncertainty in business environment*), the remaining factors belonging to these three groups are retained in the final research model.

8.2 A Comparison of Factors between Manufacturing SMEs and Service SMEs

This section compares the influence of the factors affecting each of the three stages of the e-business systems adoption process between the participating manufacturing and service SMEs. In particular, the similarities and differences of the influence of these factors are highlighted.

8.2.1 Initiation Stage

A summary of the influence of each factor (grouped according to the TOE framework) affecting the initiation stage of the e-business systems adoption process of Saudi manufacturing and service SMEs is shown in Table 8.2. The following observations are made for this table. First, a strong similarity in the influence of most of the factors included within the three factor groupings is noted for both manufacturing and service SMEs.

Second, a few factors (which are highlighted in bold in Table 8.2) within each factor grouping show differences in their influence between manufacturing and service SMEs. For example, in e-business characteristics, *compatibility*, *complexity*, and *cost* appear to be more important for the Saudi manufacturing SMEs to initiate e-business systems as compared to that of the service SMEs. Saudi manufacturing SMEs are likely to have prior experience in dealing with various types of technologies which in turn help increase their awareness about the extent to which e-business systems are compatible with their values and goals. This is in line with the views expressed by Alam, Khatibi et al. (2008) who found that prior experience of Malaysian manufacturing companies in dealing with technologies increased their awareness about the compatibility of e-commerce with their companies' values, goals, and culture which in turn facilitated e-commerce initiation in those companies.

Furthermore, Saudi manufacturing SMEs are likely to have adequate technical capabilities which in turn help to reduce their concerns about the complexity associated with e-business systems. This is consistent with views expressed by Lin and Lee (2005) who found that manufacturing companies seem to have the ability to hire e-business systems specialists and maintain significant technical expertise which in turn better positions them for initiating complex e-business systems as opposed to the companies operating in other sectors. Furthermore, Saudi manufacturing SMEs seem to have greater financial resources which in turn motivate them to initiate e-business systems regardless of the cost of e-business systems. Table 5.1 and Table 5.2 support this view as they indicate that the annual sales of Saudi manufacturing SMEs are greater than those of service SMEs. The notion that manufacturing SMEs having greater financial capabilities than service SMEs is also consistent with views expressed by Zhu, Kraemer et al. (2004).

Table 8.2: The influence of the factors affecting the initiation stage of e-business: manufacturing versus service SMEs

Factors Grouping based on TOE	Type of Factors	Factors	Manufacturing SMEs	Service SMEs
E-business Characteristics	Stage Specific	Compatibility	Strong positive	Possible
		Complexity	Strong positive	Possible
		Trialability	Possible	Possible
		Observability	Strong positive	Strong positive
		Perceived E-business Attributes	Strong positive	Strong positive
	Common Factors	Cost	Strong positive	Weak
		Relative Advantage	Strong positive	Strong positive
SME Characteristics	Stage Specific	Availability of Technical Expertise	Possible	Possible
		Knowledgeable Employee Attitude toward Technology	Possible	Possible
	Common Factors	Management Support	Strong positive	Strong positive
		Owner-manager Characteristics	Strong positive	Possible
		Organisational Readiness and Awareness	Possible	Possible
		Organisational Culture	Strong positive	Strong positive
Environment Characteristics	Stage Specific	<i>None</i>		
	Common Factors	External Pressure	Strong positive	Strong positive
		Government Support Programs	Possible	Weak
		Uncertainty in Business Environment	Possible	Weak
		Trading Partners' Readiness	Weak	Weak

In terms of SME characteristics, the *owner-manager characteristics* is found to be more important for Saudi manufacturing SMEs to initiate e-business systems as compared to that of the service SMEs. This is perhaps because the manufacturing SMEs may have more experienced and technology oriented owners and/or managers which in turn provides greater confidence to initiate e-business systems. This may not be the case for the service SMEs. This observation is broadly consistent with the views expressed by Raymond, Bergeron et al. (2005) who report that more experienced and more educated leaders of SMEs possess greater managerial competencies in regard to accomplishing manufacturing flexibility and integration which could facilitate the initiation of e-business systems.

Two factors (e.g. *government support programs* and *uncertainty in business environment*) from environment characteristics are found to be somewhat important for Saudi manufacturing SMEs and of weak importance for the service SMEs for initiating their e-business systems. Despite the initiatives of the Saudi government to support the development of SMEs in general, it is possible that the government may have paid greater attention to manufacturing SMEs due to the manufacturing sector's higher contribution to the national GDP of Saudi Arabia. According to Fund (2013), the total GDP contribution by the manufacturing sector increased from the level of SR 15 billion in 1975 to more than SR 109 billion at the end of 2010. Moreover, the contribution of manufacturing industry sector in the GDP of Saudi Arabia has increased from 4.1 % in 1975 to 12.6% at the end of 2010. Furthermore, the findings suggest that Saudi SMEs are eager to initiate e-business systems regardless of the support from the government. This is consistent with broader views of Abdul Hameed and Counsell (2012) who argued that the adoption of IT tends to be driven by individual initiatives rather than institutional support.

It is further argued that manufacturing Saudi SMEs are likely to be involved in large supply chains (either national or international) which contribute to increased uncertainty in the business environment. This in turn motivates them to initiate e-business systems in order to facilitate communication with their customers and other companies in their supply chains. This observation is consistent with the broader findings of Abdul Hameed and Counsell (2012). Overall, the factors of e-business characteristics seem to play an essential role in e-business systems initiation by Saudi SMEs as compared to other factor groupings (i.e. SMEs characteristics and environment characteristics).

8.2.2 Adoption Decision Stage

A summary of the influence of each factor (grouped according to the TOE framework) affecting the adoption decision stage of the e-business systems adoption process of manufacturing and service Saudi SMEs is shown in Table 8.3. The following observations are made. First, a strong similarity in the influence of most of the factors included within the three broader factor groupings is noted for both manufacturing and service SMEs. Second, a few factors (which are highlighted in bold in Table 8.3) within each factor grouping show differences in their influence between manufacturing and service SMEs. For example, in SME characteristics, *communication* and *high competence in IS* are likely to be important for Saudi service SMEs to make an adoption decision of e-business systems. Whereas the manufacturing SMEs indicate that these factors are not so important for the e-business systems adoption decision. The Saudi service SMEs are likely to be gathering information about e-business systems through their external communications with suppliers, customers, competitors, government agencies, or individuals which in turn may facilitate their decision to adopt such systems. This is consistent with the broader views of Kaynak, Tatoglu et al. (2005) who reported that one of the most vivid implications of internet-based e-commerce for SMEs is the potential for external communication which helps to gather information for new innovations and the product market.

Table 8.3: The influence of the factors affecting the adoption decision stage of e-business: manufacturing versus service SMEs

Factors Grouping based on TOE	Type of Factors	Factors	Manufacturing	Service
E-business Characteristics	Stage Specific	Security Concerns	Strong positive	Strong positive
	Common Factors	Cost	Weak	Weak
		Relative Advantage	Strong positive	Strong positive
SME Characteristics	Stage Specific	Communication	Weak	Strong positive
		High Competence in IS	Weak	Strong positive
		Perceived E-business Value	Strong positive	Strong positive
		Owner Attitude toward Technology	Strong positive	Strong positive
		Knowledgeable Employee Attitude toward Technology	Strong positive	Strong positive
	Common Factors	Management Support	Strong positive	Strong positive
		Owner-manager Characteristic	Strong positive	Strong positive
		Organisational Readiness and Awareness	Strong positive	Strong positive
		Organisational Culture	Strong positive	Strong positive
Environment Characteristics	Stage Specific	E-business Law	Weak	Weak
		Customer Readiness	Strong positive	Strong positive
	Common Factors	External Pressure	Strong positive	Strong positive
		Government Support Programs	Weak	Weak
		Uncertainty in Business Environment	Weak	Weak
		Trading Partners' Readiness	Weak	Strong positive

(*) Only two Saudi SMEs were interviewed in this stage, therefore the findings are 'suggested' findings

Furthermore, Saudi manufacturing SMEs seem to have greater financial resources which help to reduce the concerns about the availability of employees with high competence in IS. This makes the 'competence in IS' not that important for manufacturing SMEs due to their ability to hire e-business systems specialist and maintain significant technical expertise any time. The notion that manufacturing SMEs have greater financial capabilities than service SMEs is consistent with broader views expressed by Habib and Victor (1991) who suggested that the financial performance of USA manufacturing companies is expected to be greater as compared with service companies.

From the factor grouping ‘environment characteristics’, the *trading partners’ readiness* factor seems to be essential for Saudi service SMEs to make their e-business systems adoption decision as compared to that of the manufacturing SMEs. Saudi service SMEs are likely to be willing to share information and services with their trading partners who have technological capabilities. This observation is consistent with the broader views of Madlberger (2008) who found that service companies are likely to openly share information with other partners in supply chains. Overall, the factors of SME characteristics seem to be a key driver for making the adoption decision of e-business systems in Saudi SMEs in both sectors as compared to other factor groupings (i.e. e-business characteristics and environment characteristics).

8.2.3 Implementation Stage

A summary of the influence of each factor (grouped according to the TOE framework) affecting the implementation stage of the e-business systems adoption process of manufacturing and service Saudi SMEs is shown in Table 8.4. The following observations are made. First, a strong similarity in the influence of most of the factors included within the three broader factor groupings is noted for both manufacturing and service SMEs. Second, four factors (i.e. *perceived e-business attributes*, *training*, *external pressure*, and *trading partners’ readiness*) within each factor show differences in their influence between manufacturing and service SMEs. These are highlighted in bold in Table 8.4. For example, in e-business characteristics, *perceived e-business attributes* is found to be more important for Saudi manufacturing SMEs to implement e-business systems as compared to that of the service SMEs.

Table 8.4: The influence of factors affecting implementation stage of e-business: manufacturing versus service SMEs

Factors Grouping based on TOE	Type of Factors	Factors	Manufacturing	Service
E-business Characteristics	Stage Specific	Perceived e-business attributes	Strong positive	Possible
	Common Factors	Cost	Possible	Possible
		Relative Advantage	Strong positive	Strong positive
SME Characteristics	Stage Specific	Training	Possible	Strong positive
		High Competence in IS	Strong positive	Strong positive
		Lower Level Employee Attitude toward Technology	Weak	Weak
	Common Factors	Management Support	Strong positive	Strong positive
		Owner-manager Characteristic	Strong positive	Strong positive
		Organisational Readiness and Awareness	Strong positive	Strong positive
		Organisational Culture	Strong positive	Strong positive
Environment Characteristics	Stage Specific	<i>None</i>		
	Common Factors	External Pressure	Possible	Strong positive
		Government Support Programs	Weak	Weak
		Uncertainty in Business Environment	Weak	Weak
		Trading Partners' Readiness	Possible	Weak

Saudi manufacturing SMEs are likely to have internal technical experts which assist them to develop e-business systems in-house which in turn require more information about configuration and integration of new systems. This observation is in contrast with the views expressed by Duplaga and Astani (2003) who found that one of the top implementation problems for e-business in manufacturing industry is the lack of in-house expertise which in turn forces them to develop their e-business systems by external software vendors. With regards to SME characteristics, *training* is found to be more important for Saudi service SMEs to implement e-business systems as compared to that of the manufacturing SMEs. Saudi service SMEs seem to have employees with limited IS competence to deal with new systems which in turn require more training for them to be able use these systems. This observation is consistent with the views expressed by Windrum and De Berranger (2003) who found that employees in service industries are likely to have no prior experience in dealing with technology, and who in turn need more training courses.

From the environment characteristics factor grouping, the factor *external pressure* is found to be more important for Saudi service SMEs to implement e-business systems as opposed to that of the manufacturing SMEs. Saudi service SMEs are likely to experience intense pressure from their competitors and customers which in turn guide many of the decisions made by them during the implementation of e-business systems. This is consistent with the views expressed by Ramdani and Kawalek (2007) who found that pressure raised by rivals and customers of SMEs play a major role in the implementation processes of e-business systems. In addition, *trading partners' readiness* seems to be important for the service sector as compared to that of the manufacturing SMEs. In the implementation stage of e-business systems, Saudi service SMEs are likely to be giving much attention to the external environment rather than internally focus on the configuration and integration of e-business systems and training staff on these systems. This is consistent with the broader finding of the study of Zhu, Kraemer et al. (2003) who found that the e-business systems implementation may be affected by the readiness of partners in the trading community. Overall, the factors of SME characteristics seem to be a key driver for implementing e-business systems in Saudi SMEs in both sectors compared to other groupings (i.e. e-business characteristics and environment characteristics).

8.3 Final Research Model

The revised research model (Figure 4.8) is now reproduced (Figure 8.4) to facilitate the reader to understand how changes were incorporated in the research model based on the case study findings. This model indicates that seven factors affect the initiation stage, eight factors affect the adoption decision stage, and four factors affect the implementation stage. Furthermore, another 10 common factors influence all three stages of the e-business systems adoption process in Saudi SMEs.

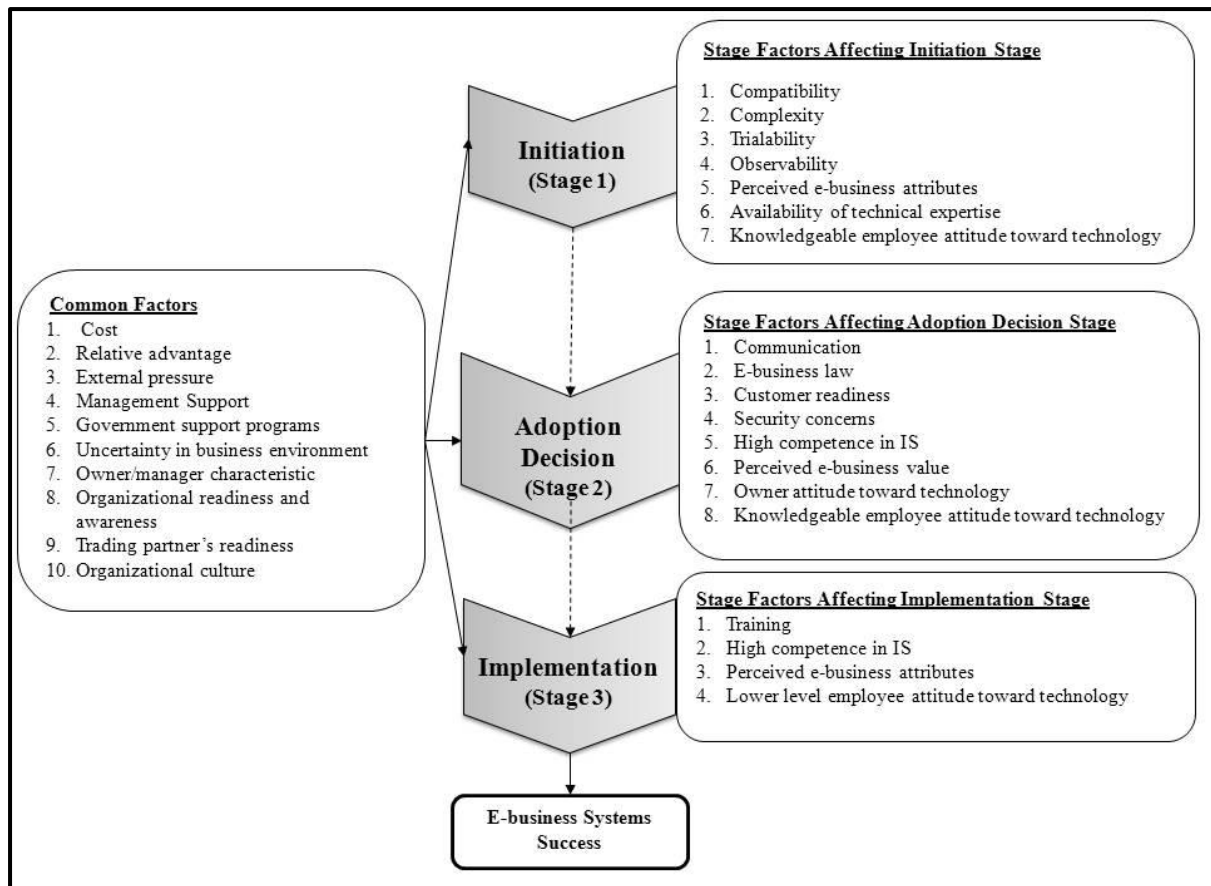


Figure 8.4: Revised research model based on the evaluation of the online experts panel

Drawing on the data gathered in both phases of this study, the final research model is presented in Figure 8.5. It reflects the changes made in the revised research model (Figure 8.4). Four factors are excluded from the total factors pool which affects the e-business systems adoption process in Saudi SMEs. For example, *e-business law* was found to have a weak influence on the adoption decision of e-business systems in Saudi SMEs. *Lower level employee attitude toward technology* was excluded from the final research model due to its weak influence on the implementation of e-business systems in Saudi SMEs. The remaining two are common factors (i.e. *government support programs* and *uncertainty in business environment*) which have a weak influence on all three stages of the e-business systems adoption process in SMEs. Table 8.5 shows the reduction in the number of factors after empirical evaluation.

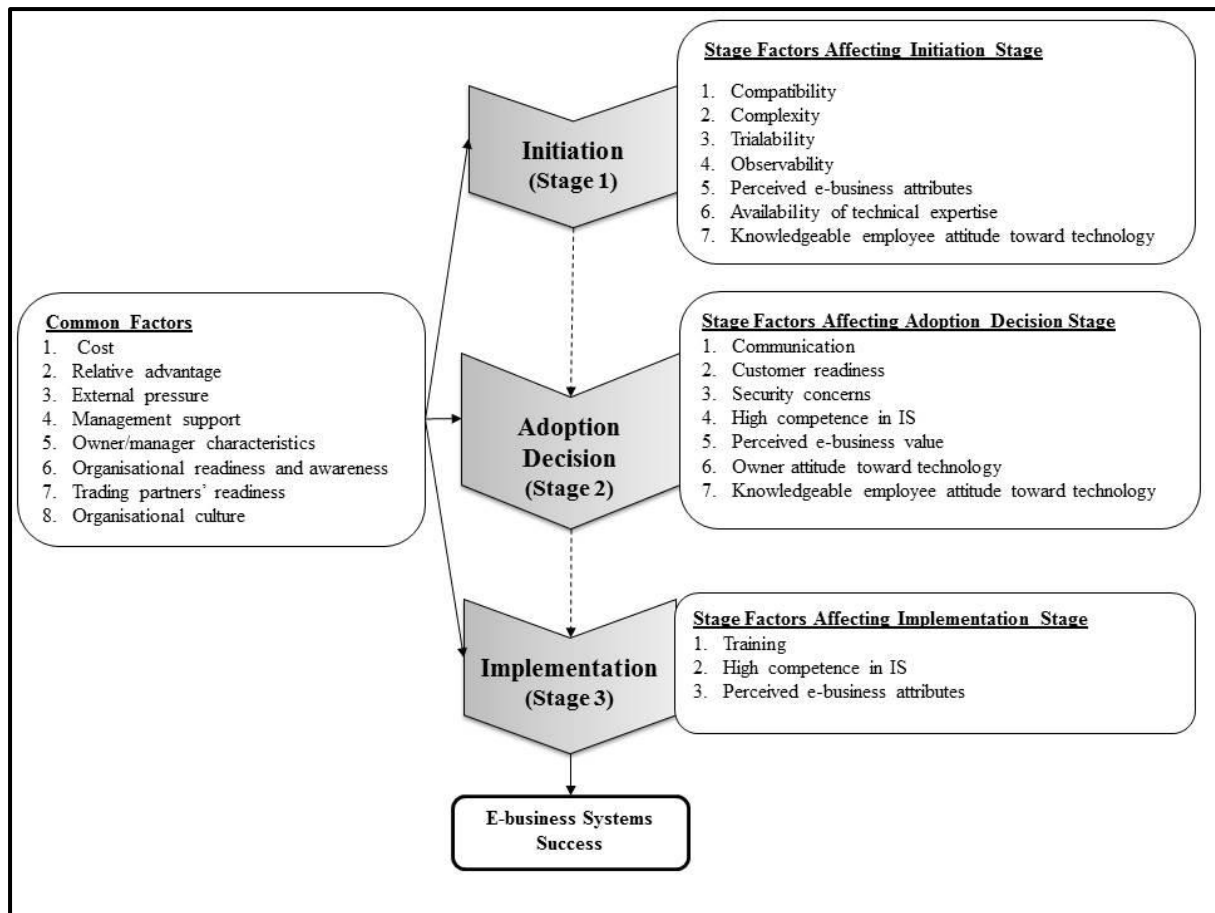


Figure 8.5: Final Research Model

Table 8.5: Number of factors in revised and final research model

Versions of Research Model	No. of Stage Specific Factors			No. of Common Factors	Total Factors
	Initiation	Adoption Decision (*)	Implementation		
Revised Research Model (Figure 4.8) reproduced in Figure 8.4	7	8	4	10	29
Final Research Model (Figure 8.5)	7	7	3	8	25
Excluded Factors	0	1	1	2	4

(*) Only two Saudi SMEs were interviewed in this stage, therefore the findings are 'suggested' findings

8.4 Research Propositions: Revisited

E-business initiation stage: The outcomes pertaining to the research propositions concerning the factors affecting the initiation stage of the e-business systems adoption process in Saudi SMEs (i.e. P1 to P7) were discussed in Section 8.1.1 and are summarised in Table 8.6. All research propositions for factors affecting the initiation stage of the e-business systems adoption process in Saudi SMEs are supported by the case study findings.

Table 8.6: Results pertaining to the suggestions made by propositions (P1-P7)

Propositions Description		Remarks
P1	Compatibility of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Full Support
P2	Low level of complexity of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Some Support
P3	Trialability of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Some Support
P4	Observability of e-business systems positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Full Support
P5	Perceived e-business attributes positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Full Support
P6	Availability of technical expertise positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Some Support
P7	Knowledgeable employees attitude toward technology positively influences the initiation stage of the e-business adoption process by Saudi SMEs	Some Support

E-business adoption decision stage: The case study findings relating to the research propositions concerning the influence of the factors affecting the adoption decision stage of the e-business systems adoption process (i.e. P8 to P15) were discussed in Section 8.1.2 and are summarised in Table 8.7. Out of eight propositions for factors affecting adoption decision stage of the e-business systems adoption process in Saudi SMEs, except one (i.e. P9), all the remaining seven propositions are supported by the case study findings.

Table 8.7: Result pertaining to the suggestions made by propositions (P8-P15)

Propositions Description		Remarks
P8	Communication positively influences the adoption decision stage of e-business systems adoption process by Saudi SMEs	Some Support
P9	e-Business law positively influences the adoption decision stage of e-business systems adoption process by Saudi SMEs	No Support
P10	Customer readiness positively influences the adoption decision stage of e-business systems adoption process by Saudi SMEs	Full Support
P11	Low level of security concerns negatively influences the adoption decision stage of e-business systems adoption process by Saudi SMEs	Full Support
P12	High competence in IS positively influences the adoption decision stage of e-business systems adoption process by Saudi SMEs	Some Support
P13	Perceived e-business value positively influences the adoption decision stage of e-business systems adoption process by Saudi SMEs	Full Support
P14	Owner's attitude toward technology positively influences the adoption decision stage of e-business systems adoption process by Saudi SMEs	Full Support
P15	Knowledgeable employees attitude toward technology positively influences the adoption decision stage of e-business systems adoption process by Saudi SMEs	Full Support

E-business implementation stage: The findings concerning the research propositions about the factors affecting the implementation stage of the e-business systems adoption process (i.e. P16 to P19) were discussed in Section 8.1.3 and are summarised in Table 8.8. Out of four propositions, only one proposition (i.e. P19) is not supported by the empirical findings.

Table 8.8: Results pertaining to the suggestions made by propositions (P16-P19)

Propositions Description		Remarks
P16	Training positively influences the implementation stage of the e-business systems adoption process by Saudi SMEs	Some Support
P17	High competence in IS positively influences the implementation stage of the e-business systems adoption process by Saudi SMEs	Full Support
P18	Perceived e-business attributes positively influences the implementation stage of the e-business systems adoption process by Saudi SMEs	Some Support
P19	Lower level employee's attitude toward technology positively influences the implementation stage of the e-business adoption process by Saudi SMEs	No Support

Propositions involving common factors: The findings about the research propositions concerning common factors affecting the three stages of the e-business systems adoption process (i.e. P20 to P29) were discussed in Section 8.1.4 and are summarised in Table 8.9. Out of 10 propositions for common factors affecting all three stage of the e-business systems adoption process in Saudi SMEs, two propositions (i.e. P24 and P25) are not supported by the empirical findings of this study.

Table 8.9: Results pertaining to the suggestions made by propositions (P20-P29)

Propositions Description		Remarks
P20	Low cost positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Some Support
P21	Relative advantage positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Full Support
P22	External pressure positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Full Support
P23	Management support positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Full Support
P24	Government support programs positively influences all three stages of the e-business systems adoption process by Saudi SMEs	No Support
P25	Uncertainty in business environment positively influences all three stages of the e-business systems adoption process by Saudi SMEs	No Support
P26	Owner-manager a characteristic positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Full Support
P27	Organisational readiness and awareness positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Full Support
P28	Trading partners' readiness positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Full Support
P29	Organisational culture positively influences all three stages of the e-business systems adoption process by Saudi SMEs	Full Support

8.5 Summary

This chapter has analysed and discussed the findings of the factors affecting the e-business systems adoption process in Saudi SMEs. The chapter has further discussed the similarities and differences in the influences of the factors affecting the e-business systems adoption process between manufacturing SMEs and service SMEs. Finally, the research model has been revised based on the outcomes of the research propositions. The next chapter concludes the thesis by answering the research questions and highlighting the contributions and the limitations of this study.

CHAPTER 9: CONCLUSION

9.0 Significance of the Study

This study is concerned with understanding the e-business systems adoption phenomenon for the Saudi Arabian SME context. SMEs play a major role in the Saudi economy and e-business systems adoption can help SMEs to become more competitive in the Arabian Gulf region. Traditionally, the e-business systems adoption phenomenon has been examined using a factor-based approach which focuses on the ‘adoption decision’ stage. Unlike much of the existing e-business research, this study adopted a ‘three stage’ approach to examine the e-business adoption process and identified a set of ‘stage specific’ and ‘common factors’ affecting each stage of the e-business systems adoption process for Saudi SME context. Furthermore, this study used a case study with multiple cases approach in which a total of 20 SMEs were carefully selected by identifying a conceptual population and following a rigorous case sites selection process by taking into consideration of ‘theoretical replication’ and ‘literal replication’ (Yin 2008). Moreover, the propositions relating to the influence of the factors at each stage of the adoption process (evaluated in this study) are drawn on logical arguments and are not related to any specific organisational feature (e.g. size, revenue, geographical location, and position in the supply chain) or industry characteristic (e.g. type of industry, structure of industry, and politics in industry). This rigorous process thus helps ensure as far as possible, external validity, so that the case study findings could also be applied to organisations operating in other industry settings.

9.1 Research Findings

This section discusses how the research questions, formulated in Section 1.1, were addressed in the thesis and presents a brief summary of the findings for each question.

9.1.1 How do the unique employee characteristics of SMEs operating in Saudi Arabia affect the e-business systems adoption process?

A conceptual study (described in Chapter 4) and a case study with multiple cases (presented in Chapter 6) were undertaken to answer this question. The conceptual study identified that the employee characteristics of Saudi SMEs are quite different from those of many Western nations due to the involvement of three distinct groups of people (i.e. owners, knowledgeable expatriates, and less educated labour force). It was argued that the attitude of these varied groups of people may in turn affect the successful e-business adoption process in Saudi SMEs. The influence of the attitude of owners and knowledgeable employees toward e-business systems was empirically confirmed by carefully analysing the e-business systems adoption initiatives of the participating Saudi SMEs. In contrast, the attitude of a less educated labour force toward e-business was not found to be important.

9.1.2 In what ways do the Saudi government support programs influence the e-business systems adoption process for Saudi SMEs?

A conceptual study (described in Chapter 4) and a case study with multiple cases (presented in Chapter 7) were used to shed light on this question. The Saudi government provides many different support programs that can help SMEs to adopt e-business systems. For instance, providing free consultation and advisory services, training, and promoting financing to SMEs within Saudi Arabia. The case study findings however indicated the lack of influence of Saudi government's role to facilitate the e-business systems adoption process in SMEs.

9.1.3 How do the factors (which are technical, organisational, and environmental in nature) affect the key stages of e-business adoption process of the Saudi SMEs?

A conceptual study (described in Chapter 4), and a case study with multiple cases (described in Chapter 6 and Chapter 7) provided an answer to this question. Drawing on the notion of 'stage model concept', the conceptual study identified three specific stages (i.e. *initiation*, *adoption decision*, and *implementation*) of the e-business systems adoption process for Saudi SMEs. Each stage is influenced by two types of factors: *stage specific* and *common factors*. These factors were grouped according to the TOE framework (Tornatzky and Fleischer 1990). The case study findings confirmed the influence of the majority (but not all) of these factors on each of the stages involved in the e-business systems adoption process for the Saudi SME context. The influence of these factors however varies. For example, a total of 17 factors affected the initiation stage. Out of these, seven factors (i.e. *compatibility*, *observability*, *perceived e-business attributes*, *relative advantage*, *external pressure*, *management support*, *owner-manager characteristics*, and *organisational culture*) had a positive influence on the initiation of e-business systems. Whereas six factors (i.e. *complexity*, *trialability*, *availability of technical expertise*, *knowledgeable employee attitude toward technology*, *cost*, and *organisational readiness and awareness*) had a possible influence. The remaining three factors (i.e. *government support programs*, *uncertainty in business environment*, and *trading partners' readiness*) had a weak influence on the initiation of e-business systems by Saudi SMEs.

Likewise, a total of 18 factors affected the adoption decision. Eleven of these factors (i.e. *security concerns*, *perceived e-business value*, *owner attitude toward technology*, *knowledgeable employee attitude toward technology*, *customer readiness*, *relative advantage*, *external pressure*, *management support*, *owner-manager characteristics*, *organisational readiness and awareness*, and *organisational culture*) positively influenced the adoption decision of e-business systems. Another three factors (i.e. *communication*, *high competence in IS*, and *trading partners' readiness*) had possible influence on the adoption decision stage. The remaining four factors (i.e. *e-business law*, *cost*, *government support programs*, and *uncertainty in business environment*) had a weak influence on this stage.

In regard to the implementation stage, 14 factors had influence on this stage. Out of these factors, six (i.e. *high competence in IS*, *relative advantage*, *management support*, *owner-manager characteristics*, *organisational readiness and awareness*, and *organisational culture*) had positive influence. Whereas, five (i.e. *perceived e-business attributes*, *training*, *cost*, *external pressure*, and *trading partners' readiness*) had a possible influence. The remaining three factors (i.e. *lower level employee attitude toward technology*, *government*

support programs, and *uncertainty in business environment*) had a weak influence on the implementation stage of e-business systems adoption process in Saudi SMEs.

9.1.4 How does the influence of the factors (which are technical, organisational, and environmental in nature) affecting the key stage of the e-business adoption process of Saudi SMEs vary between manufacturing and service sectors?

This study argued that industry characteristics of Saudi SMEs may have an effect on how various factors are perceived important by Saudi SMEs. This is because of the variation in the existence of competition between manufacturing and service SMEs. The case study findings confirmed that the influence of the factors affecting each stage of the e-business systems adoption process for Saudi SMEs varies between manufacturing and services sectors. For instance, six factors (i.e. *compatibility*, *complexity*, *cost*, *owner-manager characteristics*, *government support programs*, and *uncertainty in business environment*) differ in their influences on the initiation stage of the e-business systems adoption process. For example, *compatibility* had a strong positive influence on the initiation stage in manufacturing SMEs, but had a possible influence on the same stage of service SMEs. Likewise, three factors (i.e. *communication*, *high competence in IS*, and *trading partners readiness*) differ in influence on the adoption decision stage between manufacturing and service Saudi SMEs. For example, *communication* had a weak influence on the adoption decision stage of the manufacturing SMEs, but had a strong positive influence on the same stage of the service SMEs. Another three factors (i.e. *perceived e-business attributes*, *training*, and *trading partners readiness*) vary in their influence on the implementation stage of the e-business systems adoption process between manufacturing and service Saudi SMEs. For example, *training* was found to have a possible influence on the implementation stage of the manufacturing SMEs, but had a strong positive influence on the same stage of the service SMEs.

9.1.5 Are there any common or new factors that are perceived important across the key stages of e-business adoption by Saudi SMEs?

A conceptual study (described in Chapter 4), and a case study with multiple cases (described in Chapter 7) provided an answer to this question. The findings of this study confirmed that the majority of common factors identified in the study are important for Saudi SMEs to adopt e-business systems. These factors include: *cost*, *relative advantage*, *external pressure*, *management support*, *owner-manager characteristics*, *organisational readiness and awareness*, *trading partners' readiness* and *organisational culture*. No new factors were identified from the participating SMEs.

9.2 Contributions to Research and Practice

The outcomes of this study are useful to e-business researchers and practitioners alike.

For e-business researchers, the following contributions are made:

- a. The study has introduced a research model which assists in understanding the e-business systems adoption process in Saudi SMEs based on a notion of a ‘stage model’ approach.
- b. This study is the first known rigorous academic exercise on e-business systems adoption for the Saudi SME context. It provides detailed explanations on how various factors influence each of the three specific stages involved in the e-business systems adoption process. As such, the findings of this study contribute to building an empirical foundation for understanding the adoption process of e-business systems in the Saudi SME community.
- c. This study has also highlighted that the influence of various factors differs amongst the three stages of the e-business systems adoption process.
- d. This study has further reported how the influences of factors affecting the e-business systems adoption process vary based on industry type.
- e. From a methodology perspective, this study has successfully demonstrated the use of a case study with multiple cases approach in which participating SMEs were carefully selected drawn on the notion of ‘theoretical’ and ‘literal replications’.

For e-business practitioners, this study makes the following contributions:

- a. The ‘e-business systems adoption model’ developed in this study provides useful guidelines for the senior management of those Saudi SMEs that are contemplating the introduction of e-business systems for the first time. These guidelines will suggest which particular factors SME management should care for during different stages of the e-business systems adoption initiatives in their companies. This will in turn facilitate the eventual implementation success of e-business systems for the Saudi SMEs’ context.
- b. Knowledge of the factors affecting three different stages of the e-business systems adoption process can help SMEs better manage their e-business systems projects, facilitate minimising uncertainty associated with e-business adoption and thus assist SMEs to avoid e-business systems adoption failures.

9.3 Limitations of the Research

- a. The number of participating Saudi SMEs in the ‘adoption decision’ stage was quite small which may influence the accuracy of the findings for this particular stage. Future investigations should attempt to include a greater number of participating SMEs for the adoption decision stage.
- b. As this study is ex-post facto in nature, the participating interviewees were required to think back in time to remember the possible causes and relationships of the factors at e-business systems adoption stages. However, it is possible that the interviewees may have forgotten some of the important factors that were prevalent at that time. To safeguard against this, great care was taken to ensure that the interviewees were aware of the influence of the various factors affecting the e-business systems adoption process. Future studies should thus consider the use of the participatory observation technique.
- c. For medium size businesses, using one interview for each case could potentially be a limitation.

9.4 Directions for Further Research

Despite all the attempts made to undertake a rigorous research, there are certain issues that could not be addressed owing to time and resource constraints. Future extension of this study should look at the following aspects:

- a. A number of research propositions received ‘possible’ support due to factors which are unique to the particular case organisations operating in the manufacturing and service industry of Saudi Arabia. Hence, future studies should be conducted in other industry settings to determine whether the same set of factors exert a similar type of influence on each of the three stages of the e-business systems adoption process and depending on the findings, further revisions in the propositions could be suggested.
- b. E-business researchers are encouraged to apply the research model and propositions developed in this study to other countries from the Arabian Gulf region, preferably using the same research approach to find out whether similar findings can emerge.
- c. A large scale survey needs to be undertaken in Saudi Arabia to seek statistical validation of the findings reported in this study.

REFERENCES

- Abdul Hameed M. and Counsell S. (2012). "Assessing the Influence of Environmental and CEO Characteristics for Adoption of Information Technology in Organizations." Journal of Technology Management & Innovation **7**(1): 64-84.
- ABS. (2004). "Year Book 2003 Australian: Service Industries Overview." from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1321.0Main+Features12001?OpenDocument>.
- Abu Abid A., Rahim M., et al. (2011). "Experienced benefits and barriers of e-business technology adoption by SME suppliers." Communications of the IBIMA. J.
- Agarwal R. and Prasad J. (2007). "The role of innovation characteristics and perceived voluntariness in the acceptance of information technologies." Decision Sciences **28**(3): 557-582.
- Ajzen I. (1991). "The theory of planned behavior." Organizational Behavior and Human Decision Processes **50**(2): 179-211.
- Al-Gahtani SS. (2003). "Computer technology adoption in Saudi Arabia: correlates of perceived innovation attributes." Information Technology for Development **10**(1): 57-69.
- Al-hawari, M., H. Al-Yamani, et al. (2008) "Small Businesses' Decision to have a Website Saudi Arabia Case Study." **37**, 308-312.
- Alam S., Khatibi A., et al. (2008). "Factors affecting e-commerce adoption in the electronic manufacturing companies in Malaysia." International Journal of Commerce and Management **17**(1/2): 125-139.
- Alleid F., Rogerson S., et al. (2009). Factors affecting consumers' adoption of ecommerce in Saudi Arabia from a consumers' perspective. Fifth International Conference of Digital Information Management (ICDIM). Canda, IEEE: 379 - 383.
- AlGhamdi, R., S. Drew, et al. (2012). "Factors unflinching e-commerce adoption by retailers in Saudi Arabia: Qual Analysis." arXiv preprint arXiv:1211.2404.
- Alonso-Mendo F., Fitzgerald G., et al. (2009). "Understanding web site redesigns in small- and medium-sized enterprises (SMEs): a UK-based study on the applicability of e-commerce stage models." European Journal of Information Systems **18**(3): 264-279.
- Alwabel SA. and Zairi M. (2005). Factors influencing the implementation of e-commerce technologies by financial services in Saudi Arabia: an empirical study, University of Bradford, School of Management.
- Amit R. and Zott C. (2001). "Value creation in e-business." Strategic Management Journal **22**(67): 493-520.
- Arvaniti C. (2010). The evolution of e-business environment in fashion sector, IEEE.

- Ayyagari M., Beck T., et al. (2007). "Small and medium enterprises across the globe." Small Business Economics **29**(4): 415-434.
- Balocco R., Perego A., et al. (2010). "B2b eMarketplaces: business models that work." Industrial Management & Data Systems **110**(8).
- Balthazard PA. and Cooke (2003). Organizational culture and knowledge management success: assessing the behavior- performance continuum. Proceedings of the 37th Hawaii International Conference on System Sciences.
- Bandura A. (1989). "Human agency in social cognitive theory." American Psychologist **44**(9): 1175-1184.
- Barney J.B. (1986). "Organizational culture: can it be a source of sustained competitive advantage." Academy of Management Review: 656-665.
- Barua A., Konana P., et al. (2004). "Forthcoming in, March 2005 an empirical investigation of net-enabled business value." MIS Quarterly **28**(4): 585–620.
- Beckinsale M., Levy M., et al. (2006). "Exploring internet adoption drivers in SMEs." Electronic Markets **16**(4): 361-370.
- Beheshti HM. and Salehi-Sangari E. (2007). "The benefits of e-business adoption: an empirical study of Swedish SMEs." Service Business **1**(3): 233-245.
- Berman BJ. and Tettey WJ. (2001). "African states, bureaucratic culture and computer fixes." Public Administration and Development **21**(1): 1-13.
- Bllaikie N. (1993). Approaches to social enquiry. Cambridge, UK, Polity Press
- Brown, D. H. and N. Lockett (2004). "Potential of critical e-applications for engaging SMEs in e-business: a provider perspective." European Journal of Information Systems **13**(1): 21-34.
- Browne T., Robinson L., et al. (2003). "The case for a strategy for blended e-Learning at the University of Sussex." from <http://www.tud.ttu.ee/material/enn/EOPE/vlefinalreport-extract.pdf>.
- Burgess, S. (2010). "The use of focus groups in information systems research " Journal of interdisciplinary social sciences **5**(2): 57-68.
- Carr, V. (1999). "Technology adoption and diffusion." Retrieved April 20: 2004.
- Cavana D. and Delahaye BL., Eds. (2000). Applied business research : qualitative and quantitative methods, John Wiley & Sons Australia, Milton, Qld.
- Cavaye, A. and P. Cragg (1995). "Factors contributing to the success of customer oriented interorganizational systems." The Journal of Strategic Information Systems **4**(1): 13-30.

- Celuch, K., S. A. Taylor, et al. (2004). "Understanding insurance salesperson Internet information management intentions: A test of competing models." Journal of Insurance Issues **27**(1): 22-40.
- Chan, C. and P. Swatman (1999). "E-Commerce Implementation in Australia: a Case Study Approach." The 3rd Collaborative Electronic Commerce Technology and Research, Wellington, New Zealand.
- Chatzoglou, P., E. Vraimaki, et al. (2010). "Computer acceptance in Greek SMEs." Journal of Small Business and Enterprise Development **17**(1): 78-101.
- Chen, Z. and A. Dubinsky (2003). "A conceptual model of perceived customer value in e-commerce: a preliminary investigation." Psychology and Marketing **20**(4): 323-347.
- Chong, S. and C. Bauer (2000). A model of factor influences on Electronic Commerce adoption and diffusion in small-and medium-sized enterprises. Pacific Asia Conference on Information Systems (PACIS), Fremantle, Western Australia.
- Chong, W., M. Shafaghi, et al. (2010). "B2B e-marketplace: an e-marketing framework for B2B commerce." Marketing Intelligence & Planning **28**(3): 310-329.
- Chuang TT., Nakatani K., et al. (2007). "Examining the impact of organisational and owner's characteristics on the extent of e-commerce adoption in SMEs." International Journal of Business and Systems Research **1**(1): 61-80.
- Chwelos, P., I. Benbasat, et al. (2001). "Research report: Empirical test of an EDI adoption model." Information systems research **12**(3): 304-321.
- Cohen, L., L. Manion, et al. (2007). Research methods in education, Psychology Press.
- Collis, J. and R. Hussey (2009). Business research: A practical guide for undergraduate and postgraduate students, Palgrave Macmillan.
- Cooper, R. and R. Zmud (1990). "Information technology implementation research: a technological diffusion approach." Management Science **36**(2): 123-139.
- Council of Saudi Chambers (2010). Council of Saudi Chambers and Kafalah Program Organize Training Courses for SME Owners. C. o. S. a. M. s. Enterprizes. Riyadh, http://www.saudichambers.org.sa/2_9912_ENU_HTML.htm.
- Creswell, J. W. (2012). Qualitative inquiry and research design: Choosing among five approaches, SAGE Publications, Incorporated.
- Dailey, A. (1998). SAP R/3: Managing the life cycle.
- Daniel, E., H. Wilson, et al. (2002). "Adoption of e-commerce by SMEs in the UK." International Small Business Journal **20**(3): 253-270.
- Darrat, A. and S. Al-Sowaidi (2010). "Information technology, financial deepening and economic growth: Some evidence from a fast growing emerging economy." Journal of Economics and International Finance **2**(2): 028-035.

- Davies, A. J. a. and A. J. Garcia-Sierra (1999). "Implementing electronic commerce in SMEs – three case studies." BT Technology Journal **17**(3): 97-111.
- Davis, F. D. (1989). "Perceived Usefulness, Perceived Ease Of Use, And User Acceptance of Information Technology." MIS Quarterly **13**(3): 319-340.
- Davis, F. D., R. P. Bagozzi, et al. (1989). "User Acceptance Of Computer Technology: A Comparison Of Two Theoretical Models." Management Science **35**(8): 958-989.
- De Ruiter, S. and E. Van Heck (2004). "The impact of multi-access technologies on consumer electronic auctions." European Management Journal **22**(4): 377-392.
- Delone, W. and E. McLean (2003). "The DeLone and McLean model of information systems success: A ten-year update." Journal of Management Information Systems **19**(4): 9-30.
- Department of Trade and Industry (DTI) (2001). What is an e-business? , www.dti.gov.uk/for_business.html
- Devins D., Johnson S., et al. (2004). "Employer characteristics and employee training outcomes in UK SMEs: a multivariate analysis." Journal of Small Business and Enterprise Development **11**(4): 449-457.
- Dholakia, R. and N. Kshetri (2004). "Factors impacting the adoption of the Internet among SMEs." Small Business Economics **23**(4): 311-322.
- Dubelaar, C., A. Sohal, et al. (2005). "Benefits, impediments and critical success factors in B2C E-business adoption." Technovation **25**(11): 1251-1262.
- Duplaga, E. A. and M. Astani (2003). "Implementing ERP in manufacturing." Information Systems Management **20**(3): 68-75.
- Dutta, S. and P. Evrard (1999). "Information technology and organisation within European small enterprises." European Management Journal **17**(3): 239-251.
- Eikebrokk, T. R. and D. H. Olsen (2007). "An empirical investigation of competency factors affecting e-business success in European SMEs." Information & Management **44**(4): 364-383.
- Eisenhardt, K. M. (1989). "Building theories from case study research." Academy of management review: 532-550.
- Emiliani, M. (2000). "Business-to-business online auctions: key issues for purchasing process improvement." Supply Chain Management: An International Journal **5**(4): 176-186.
- European Commission (2005). SME Definition E. a. I. s. a. M.-s. (SMEs).
- Ezzy, D. (2002). Qualitative analysis : practice and innovation, Allen & Unwin, Crows Nest, N.S.W.

- Fishbein, M. and I. Ajzen (1975). "Belief, attitude, intention and behavior: An introduction to theory and research."
- Fitzgerald, B. F., A. M. Fitzgerald, et al. (2007). Internet and E-commerce Law: Technology, Law and Policy, Lawbook Co.
- Frambach, R. T. and N. Schillewaert (2002). "Organizational innovation adoption: a multi-level framework of determinants and opportunities for future research." Journal of Business Research **55**(2): 163-176.
- Fund, S. I. D. (2013). "Industrial Development in Saudi Arabia." Retrieved 20-03-2013, from <http://www.sidf.gov.sa/En/INDUSTRYINSAUDIARABIA/Pages/IndustrialDevelopmentinSaudiArabia.aspx>.
- Fygenson, M. (2006). "Understanding and predicting electronic commerce adoption: An extension of the theory of planned behavior." MIS Quarterly **30**(1): 115-143.
- Gaiser, T. (2008). "Online focus groups." The Sage Handbook of Online Research Methods. London/Beverly Hills: 290-306.
- Garfield, M. J. (2005). "Acceptance of ubiquitous computing." Information Systems Management **22**(4): 24-31.
- Gengatharen, D., C. Standing, et al. (2005). "Government-supported community portal regional e-marketplaces for SMEs: evidence to support a staged approach." Electronic Markets **15**(4): 405-417.
- Gengatharen, D. E. and C. Standing (2005). "A framework to assess the factors affecting success or failure of the implementation of government-supported regional e-marketplaces for SMEs." European Journal of Information Systems **14**(4): 417-433
- Gibbs, A. (1997). "Focus groups." Social research update **19**(8).
- Giddens, A. (1984). The constitution of society: Outline of the theory of structuration, University of California press.
- Gilaninia, S., S. J. Mousavian, et al. (2012). "The Role of Factors among Organization in Organizational Readiness of Small and Medium Companies for Acceptance of E-Commerce."
- Global Oil Reserve. (2010). "Greatest Oil Reserves by Country." Oil and Gas from http://www.nationmaster.com/graph/ene_oil_res-energy-oil-reserves.
- Grandon, E. and J. Pearson (2004). "Electronic commerce adoption: an empirical study of small and medium US businesses." Information & Management **42**(1): 197-216.
- Grant, S. (1999). E-Commerce for Small Businesses, Innovation Through Electronic Commerce. Proceedings of the 2nd International Conference. Manchester, England.

- Gregor, S. and R. Johnston (2000). Developing an understanding of interorganizational systems: Arguments for multi-level analysis and structuration theory, Citeseer.
- Guba, E. G. and Y. S. Lincoln (1994). "Competing paradigms in qualitative research." Handbook of qualitative research **2**: 163-194.
- GULF STATES (April, 2010). SME growth crucial but needs major reform, Oxford Analytica Daily Brief Service. **1**.
- Gunasekaran, A., R. E. McGaughey, et al. (2009). "E-Procurement adoption in the Southcoast SMEs." International Journal of Production Economics **122**(1): 161-175.
- Gunasekaran, A. and E. Ngai (2008). "Adoption of e-procurement in Hong Kong: An empirical research." International Journal of Production Economics **113**(1): 159-175.
- Hajiaghayi, M., R. Kleinberg, et al. (2004). Adaptive limited-supply online auctions, ACM.
- Hamill, J. (1997). "The Internet and international marketing." International Marketing Review **14**(5): 300-323.
- Hamill, J. and K. Gregory (1997). "Internet marketing in the internationalisation of UK SMEs." Journal of Marketing Management **13**(1): 9-28.
- Hansen, J. V. and N. C. Hill (1989). "Control and audit of electronic data interchange." MIS Quarterly: 403-413.
- Hartman, A. S., J. Sifonis, et al. (2000). Net Ready: Strategies for Success in the E-economy, New York: McGraw-Hill.
- Hashim, M. K. (2010). "Revisiting the role of small and medium-sized enterprises in the Malaysian economy." Pedagogika **1**(1).
- Helo, P. (2004). "Managing agility and productivity in the electronics industry." Industrial Management & Data Systems **104**(7): 567-577.
- Hernandez, B., J. Jimenez, et al. (2010). "Business management software in high-tech firms: the case of the IT services sector." Journal of Business & Industrial Marketing **25**(2): 132-146.
- Hertog, S. (2010). Benchmarking SME policies in the GCC: a survey of challenges and opportunities. Brussels, Belgium, London School of Economics and Political Science.
- Hew, D. and W. Loi (2004). Entrepreneurship and SMEs in Southeast Asia. Singapore, Institute of Southeast Asian Studies
- Ho, S. H. and Y. Y. Ko (2008). "Effects of self-service technology on customer value and customer readiness: The case of Internet banking." Internet research **18**(4): 427-446.
- Hofstede, G. (2010). "Geert Hofstede™ Cultural Dimensions." 18 Jan 2010, from http://www.geert-hofstede.com/hofstede_arab_world.shtml.

- Hsu, C. L., H. P. Lu, et al. (2007). "Adoption of the mobile Internet: An empirical study of multimedia message service (MMS)." Omega **35**(6): 715-726.
- Hu, Q., J. Yang, et al. (2012). "The Impact of E-Commerce on Organizational Performance: The Role of Absorptive Capacity and Integrative Capability." E-Life: Web-Enabled Convergence of Commerce, Work, and Social Life: 261-273.
- Huang, L. (2006). "Building up a B2B e-commerce strategic alliance model under an uncertain environment for Taiwan's travel agencies." Tourism Management **27**(6): 1308-1320.
- Iacovou, C., I. Benbasat, et al. (1995). "Electronic data interchange and small organizations: adoption and impact of technology." MIS Quarterly **19**(4): 465-485.
- Iddris, F. (2012). "Adoption of E-Commerce Solutions in Small and Medium-Sized Enterprises in Ghana." European Journal of Business and Management **4**(10): 48-57.
- Ihlstrom, C. and M. Nilsson (2003). "E-business adoption by SMEs—prerequisites and attitudes of SMEs in a Swedish Network." Journal of Organizational Computing and Electronic Commerce **13**(3): 211-223.
- Jeon, B., K. Han, et al. (2006). "Determining factors for the adoption of e-business: the case of SMEs in Korea." Applied Economics **38**(16): 1905-1916.
- Jeyaraj A., Rottman JW., et al. (2006). "A review of the predictors, linkages, and biases in IT innovation adoption research." Journal of Information Technology **21**(1): 1-23.
- Jutla, D., P. Bodorik, et al. (2002). "Supporting the e-business readiness of small and medium-sized enterprises: approaches and metrics." Internet Research: Electronic Networking Applications and Policy **12**(2): 139-164.
- Kaplan, B. and D. Duchon (1988). "Combining qualitative and quantitative methods in information systems research: a case study." MIS Quarterly: 571-586.
- Karanasios, S. and S. Burgess (2008). "Tourism and Internet adoption: a developing world perspective." International Journal of Tourism Research **10**(2): 169-182.
- Kendall, J., L. Tung, et al. (2001). Electronic commerce adoption by SMEs in Singapore, Published by the IEEE Computer Society.
- Killikanya, C. and P. Chantranontwong (2000). "E-Commerce: Internet slow to make inroads." Mid-year Economic Review: 32-35.
- Kim, K. and B. Prabhakar (2004). "Initial trust and the adoption of B2C e-commerce: The case of internet banking." ACM sigmis database **35**(2): 50-64.
- Kim, S. S. and N. K. Malhotra (2005). "A longitudinal model of continued IS use: An integrative view of four mechanisms underlying postadoption phenomena." Management science **51**(5): 741-755.

- Klein, E. E., T. Tellefsen, et al. (2007). "The use of group support systems in focus groups: Information technology meets qualitative research." Computers in Human Behavior **23**(5): 2113-2132.
- Klein, H. K. and M. D. Myers (1999). "A set of principles for conducting and evaluating interpretive field studies in information systems." MIS Quarterly: 67-93.
- Krippendorff, K. (2004). Content analysis: An introduction to its methodology, Sage Publications, Inc.
- Kurnia, S. and R. Johnston (2000). "The need for a processual view of inter-organizational systems adoption." The Journal of Strategic Information Systems **9**(4): 295-319.
- Kurnia, S. and M. Rahim (2007). Electronic Procurement System SUCCESS in Australia.
- Kwon, T. and R. Zmud, Eds. (1987). Unifying the fragmented models of information systems implementation. Critical Issues in Information Systems Research. Chichester, England, John Wiley & Sons, Inc.
- Lee, J.-N. and Y.-G. Kim (2005). "Understanding outsourcing partnership: A comparison of three theoretical perspectives." Engineering Management, IEEE Transactions on **52**(1): 43-58.
- Lefebvre, L.-A., É. Lefebvre, et al. (2005). "Exploring B-to-B e-commerce adoption trajectories in manufacturing SMEs." Technovation **25**(12): 1443-1456.
- Lei-da Chen, S. and A. Pandzik (2003). "Small business Internet commerce: a case study." Information Resources Management Journal **16**(3): 17-31.
- Lennon, S., M. Kim, et al. (2007). "A longitudinal look at rural consumer adoption of online shopping." Psychology and Marketing **24**(4): 375.
- Levy, M. and P. Powell (2003). "Exploring SME Internet Adoption: Towards a Contingent Model." Electronic Markets **13**(2): 173 - 181.
- Levy, M., P. Powell, et al. (2005). "Strategic Intent and E-Business in SMEs." Information Resources Management Journal **18**(4): 1-20.
- Li, F. and H. Williams (2012). "Interorganizational systems to support strategic collaboration between firms." E-Commerce and V-Business: 153.
- Liaw, S.-S., W.-C. Chang, et al. (2006). "Attitudes toward search engines as a learning assisted tool: approach of Liaw and Huang's research model." Computers in Human Behavior **22**(2): 177-190.
- Lim, N. (2001). "Customers' beliefs behind business-to-consumer electronic commerce " Australian Journal of Information Systems **9**(1): 70-78.
- Limthongchai, P. and M. W. Speece (2003). The effect of perceived characteristics of innovation on e-commerce adoption by SMEs in Thailand. Proceedings of the

Seventh International Conference on Global Business and Economic Development, Citeseer.

- Lin, C., Y. Huang, et al. (2007). "A study of planning and implementation stages in electronic commerce adoption and evaluation: the case of Australian SMEs." Contemporary Management Research **3**(1): 83-100.
- Lin, H.-F. (2008). "Empirically testing innovation characteristics and organizational learning capabilities in e-business implementation success." Internet research **18**(1): 60-78.
- Lin, H.-F. and G.-G. Lee (2005). "Impact of organizational learning and knowledge management factors on e-business adoption." Management Decision **43**(2): 171-188.
- Lin, H. F. (2008). "Empirically testing innovation characteristics and organizational learning capabilities in e-business implementation success." Internet research **18**(1): 60-78.
- Lin, O. and D. Joyce (2004). "Critical success factors for online auction web sites." BACIT **2**(3).
- Ling, C. Y. (2001). Model Factors Influences on Electronic Commerce Adoption and Diffusion in Small-& Medium-sized Enterprises.
- Liu, C. H. and P. Y. Chang (2013). "Information System Success Model in Healthcare and Medical Informatics with Open Source Software." Applied Mechanics and Materials **311**: 20-25.
- Madlberger, M. (2008). Interorganizational collaboration in supply chain management: what drives firms to share information with their trading partners? Hawaii International Conference on System Sciences, Proceedings of the 41st Annual, IEEE.
- Magal, S., P. Kosalge, et al. (2009). "Using importance performance analysis to understand and guide e-business decision making in SMEs." Journal of Enterprise Information Management **22**(1/2): 137-151.
- Magal, S., P. Koslage, et al. (2008). "Towards a Stage Model for E-Business Adoption Among SMEs: Preliminary Results for Manufacturing and Service Firms." AMCIS 2008 Proceedings: 148.
- Maguire, S., S. Koh, et al. (2007). "The adoption of e-business and knowledge management in SMEs." Benchmarking: An International Journal **14**(1): 37-58.
- Manibo, M. (2010). "Regional businesses lag behind in adopting e-commerce, reveals a new book by Dubai academic ", from <http://www.ameinfo.com/127620.html>.
- Mansfield, E. (1968). Industrial research and technological innovation: An econometric analysis, Norton New York.
- Marasini, R., K. Ions, et al. (2008). "Assessment of e-business adoption in SMEs." Journal of Manufacturing Technology Management **19**(5): 627-644.

- Markus, M. and D. Robey (1988). "Information technology and organizational change: causal structure in theory and research." Management science **34**(5): 583-598.
- Martilla, J. A. and J. C. James (1977). "Importance-performance analysis." The journal of marketing: 77-79.
- Martin, L. and H. Matlay (2003). "Innovative use of the Internet in established small firms: the impact of knowledge management and organisational learning in accessing new opportunities." Qualitative Market Research: An International Journal **6**(1): 18-26.
- McGowan, M. K. and G. R. Madey (1998). "The influence of organization structure and organizational learning factors on the extent of EDI implementation in US firms." Information Resources Management Journal (IRMJ) **11**(3): 17-27.
- Mefford, D. (2009). How Does Priceline Work?, EduBook.
- Mehrtens, J., P. Cragg, et al. (2001). "A model of Internet adoption by SMEs." Information & Management **39**(3): 165-176.
- Merriam, S. B. (1998). Qualitative Research and Case Study Applications in Education. Revised and Expanded from" Case Study Research in Education.", ERIC.
- Mingers, J. (2003). A critique of statistical modelling from a critical realist perspective. Proceedings of the 11th European Conference on Information Systems, Naples, Italy.
- Mirchandani, D. and J. Motwani (2001). "Understanding small business electronic commerce adoption: an empirical analysis." Journal of Computer Information Systems **41**(3): 70-73.
- Mohr, L. (1982). Explaining organizational behavior, Jossey-Bass.
- Moore, G. and I. Benbasat (1991). "Development of an instrument to measure the perceptions of adopting an information technology innovation." Information systems research **2**(3): 192-222.
- Muffatto, M. and A. Payaro (2004). "Implementation of e-procurement and e-fulfilment process: a comparison of cases in the motorcycle industry." International Journal of Production Economics **89**(3): 339-351.
- Mukhtar, S. M. (2002). "Differences in Male and Female Management Characteristics: A Study of Owner-Manager Businesses." Small Business Economics **18**(4): 289-310.
- Myers, M. D. (1997). "Qualitative research in information systems." Management Information Systems Quarterly **21**: 241-242.
- Narayanan, S., A. S. Marucheck, et al. (2009). "Electronic Data Interchange: Research Review and Future Directions*." Decision sciences **40**(1): 121-163.
- Nasco, S. A., E. G. Toledo, et al. (2008). "Predicting electronic commerce adoption in Chilean SMEs." Journal of Business Research **61**(6): 697-705.

- Neirotti, P., E. Paolucci, et al. (2013). "Is it all about size? Comparing organisational and environmental antecedents of IT assimilation in small and medium-sized enterprises." International Journal of Technology Management **61**(1): 82-108.
- Neuman, W. L. (2003). Social research methods: Qualitative and quantitative approaches, Boston: Allyn and Bacon.
- Neuman, W. L. (2006). Social research methods: Qualitative and quantitative approaches, Boston: Allyn and Bacon.
- Ockenfels, A., D. Reiley, et al. (2006). "Online auctions." NBER Working paper.
- Oh, K.-Y., D. Cruickshank, et al. (2009). "The adoption of e-trade innovations by Korean small and medium sized firms." Technovation **29**(2): 110-121.
- Oliveira, T. and M. Martins (2010). "Understanding e-business adoption across industries in European countries." Industrial Management & Data Systems **110**(9): 1337-1354.
- Oliveira, T. and M. F. Martins (2010). "Understanding e-business adoption across industries in European countries." Industrial Management & Data Systems **110**(9): 1337-1354.
- Orlikowski, W. J. and J. J. Baroudi (1991). "Studying information technology in organisations: Research approaches and assumptions." Information Systems Research **2**(1): 1-28.
- Otsuki, M. (2002). "SMEs supporting systems in Saudi Arabia." from <http://www.ssic2008.com/assets/files/PDF/101-150/114.pdf>.
- Oxford Analytica. (2010). "Gulf States: SME growth crucial but needs major reform."
- Panzano, P., B. Seffrin, et al. (2004). "The innovation diffusion and adoption research project (IDARP): Moving from the diffusion of research results to promoting the adoption of evidence-based innovations in the Ohio mental health system." New research in mental health **16**: 78-89.
- Parker, C. M. and T. Castleman (2007). "New directions for research on SME-eBusiness: insights from an analysis of journal articles from 2003 to 2006." Journal of Information Systems and Small Business **1**(1-2): 21-40.
- Pearson, M. and E. E. Grandon (2006). "An Empirical Study of Factors That Influence E-Commerce Adoption/Non-Adoption in Small and Medium Sized Businesses." Journal of Internet Commerce **4**(4): 1-21.
- Perren, L. and M. Ram (2004). "Case-study method in small business and entrepreneurial research mapping boundaries and perspectives." International Small Business Journal **22**(1): 83-101.
- Pierce, J. and A. Delbecq (1977). "Organization structure, individual attitudes and innovation." Academy of Management Review **2**(1): 27-37.

- Pikkarainen, T., K. Pikkarainen, et al. (2004). "Consumer acceptance of online banking: an extension of the technology acceptance model." Internet Research **14**(3): 224-235.
- Premkumar G., Ramamurthy K., et al. (1997). "Determinants of EDI adoption in the transportation industry." European Journal of Information Systems **6**(2): 107-121.
- Priluck, R. (2006). "The impact of Priceline. com on the grocery industry." International Journal of Retail & Distribution Management **29**(3): 127-134.
- Pudjianto, B. and Z. Hangjung (2009). Factors affecting e-government assimilation in developing countries.
- Puschmann, T. and R. Alt (2005). "Successful use of e-procurement in supply chains." Supply Chain Management: An International Journal **10**(2): 122-133.
- Rahim, M. M. (2003). UNDERSTANDING ADOPTION OF INTER-ORGANISATIONAL SYSTEMS (IOS): THE ROLE OF ORGANISATIONAL MOTIVATIONS. Doctor of Philosophy, The University of Melbourne.
- Rahim, M. M. and S. N. As-Saber (2011). "E-procurement adoption process: an arduous journey for an Australian city council." International Journal of Electronic Finance **5**(2): 150-168.
- Ramdani, B. and P. Kawalek (2007). "SME Adoption of Enterprise Systems in the Northwest of England." Organizational Dynamics of Technology-Based Innovation: Diversifying the Research Agenda: 409-429.
- Ramdani, B. and P. Kawalek (2008). "SMEs & IS innovations adoption: A review & assessment of previous research." Academia Revista Latinoamericana de Administración(39): 47-70.
- Ramsey, E., P. Ibbotson, et al. (2008). "Factors that Impact Technology Innovation Adoption among Irish Professional Service Sector SMEs." International Journal of Innovation Management (ijim) **12**(04): 629-654.
- Rao, S., G. Metts, et al. (2003). "Electronic commerce development in small and medium sized enterprises." Journal, Vol **9**(1): 11-32.
- Raymond L., Bergeron F., et al. (2005). "The Assimilation of E-business in Manufacturing SMEs: Determinants and Effects on Growth and Internationalization." Electronic Markets **15**(2): 106-118.
- Rayport, J. and B. Jaworski (2001). E-commerce New York , NY, McGraw-Hill
- Reich, B. and I. Benbasat (1990). "An empirical investigation of factors influencing the success of customer-oriented strategic systems." Information systems research **1**(3): 325.
- Report linker (2010). Saudi Arabia Information Technology Report Q2 2010.

- Richards, L. (2009). Handling qualitative data: A practical guide, Sage Publications Limited.
- Riemenschneider, C. K. and V. R. McKinney (2002). "Assessing belief differences in small business adopters and non-adopters of web-based e-commerce." Journal of Computer Information Systems **42**(2): 101-107.
- Rogers, E. (1983). Diffusion of innovations. New York, Free Press.
- Rogers, E. (1995). Diffusion of innovations. New York, Free press.
- Rogers, E. (2003). Diffusion of innovations. New York, Free press.
- Scupola, A. (2002). Adoption issues of business-to-business internet commerce in European SMEs, IEEE.
- Scupola, A. (2009). "SMEs' E-commerce Adoption: Perspectives from Denmark and Australia." Journal of Enterprise Information Management **22**(1-2): 152-166.
- Shaikh, H. (2009). "Most SMEs in Saudi Arabia Optimistic about Trade Outlook"
" Retrieved 08 September 2009, from
www.menafn.com/qn_news_story_s.asp?StoryId=1093269847.
- SIDF, S. I. D. F. (2010). SMEs Financing Guarantee Program (KFALA). Riyadh
- Simpson, M. and A. Docherty (2004). "E-commerce adoption support and advice for UK SMEs." Journal of Small Business and Enterprise Development **11**(3): 315-328.
- Singh, M., D. Waddell, et al. (2008). Business to employee (B2E) E-business model: a service to employees or organisational management?, World Scientific and Engineering Academy and Society (WSEAS).
- Škerlavaj, M., M. I. Štemberger, et al. (2007). "Organizational learning culture—the missing link between business process change and organizational performance." International Journal of Production Economics **106**(2): 346-367.
- Soar, J., K. Vaidya, et al. (2004). Implementing e-procurement initiatives: impact of organisational learning across the public sector, University of Western Sydney.
- Spanos, Y. E. and I. Voudouris (2009). "Antecedents and trajectories of AMT adoption: The case of Greek manufacturing SMEs." Research Policy **38**(1): 144-155.
- Spencer, A. J., D. Buhalis, et al. (2012). "A hierarchical model of technology adoption for small owner-managed travel firms: An organizational decision-making and leadership perspective." Tourism Management **33**(5): 1195-1208.
- Stone, M. (2003). "SME e-business and supplier-customer relations."
." Journal of Small Business and Enterprise Development **10**(3): 345-353.
- Sung, T., Y. T. Lu, et al. (2010). "Time-based strategy and business performance under environmental uncertainty: An empirical study of design firms in Taiwan." International Journal of Design **4**(3): 29-42.

- Tao, Y.-H., C.-J. Cheng, et al. (2009). "What influences college students to continue using business simulation games? The Taiwan experience." Computers & Education **53**(3): 929-939.
- Tarafdar, M. and R. Roy (2003). "Analyzing the adoption of enterprise resource planning systems in Indian organizations: a process framework." Journal of Global Information Technology Management **6**(1): 31-51.
- Tashkandi, H. (2010). "3rd SMEs Forum: An Overview." Saudi Commerce and Economic Review Retrieved 18 Sept 2010, from <http://www.zawya.com/story.cfm/sidZAWYA20060119123619/3rd%20SMEs%20Forum%3A%20An%20Overview>.
- Tassabehji, R. (2003). Applying e-commerce in business, Sage Publications Ltd.
- Taylor, M. and A. Murphy (2004). "SMEs and e-business." Journal of Small Business and Enterprise Development **11**(3): 280-289.
- Teo, T. S. H. and W. R. King (1997). "Integration between business planning and information systems planning: an evolutionary-contingency perspective." Journal of management information systems: 185-214.
- Thompson, V. (1965). "Bureaucracy and innovation." Administrative Science Quarterly **10**(1): 1-20.
- Thong, J. (1999). "An integrated model of information systems adoption in small businesses." Journal of Management Information Systems **15**(4): 214.
- Timmers, P. (1999). Electronic commerce: strategies and models for B2B trading, Wiley.
- Tornatzky, L. and M. Fleischer (1990). "The process of technology innovation." Lexington, MA: Lexington Books.
- Turban, E., D. King, et al. (2010). Electronic commerce 2010: a managerial perspective, Pearson Prentice Hall.
- Vega, A., M. Chiasson, et al. (2008). "Extending the research agenda on diffusion: the case of public program interventions for the adoption of e-business systems in SMEs." Journal of Information Technology **23**(2): 109-117.
- Venkatesh, V. and F. D. Davis (2000). "A theoretical extension of the technology acceptance model: Four longitudinal field studies." Management science **46**(2): 186-204.
- Venkatesh, V., M. Morris, et al. (2003). "User acceptance of information technology: toward a unified view." MIS Quarterly **27**(3): 425-478.
- Ward, S. (2010). "SME definition in USA." Retrieved October, 2010, from <http://sbinfocanada.about.com/od/businessinfo/g/SME.htm>.
- Webb, B. and R. Sayer (1998). "Benchmarking small companies on the Internet." Long Range Planning **31**(6): 815-827.

- Weiss, J. A. and B. C. Dale (1998). "Diffusing against mature technology: issues and strategy." Industrial Marketing Management **27**(4): 293-304.
- Wen, K. and Y. Chen (2010). "E-business value creation in Small and Medium Enterprises: a US study using the TOE framework." International Journal of Electronic Business **8**(1): 80-100.
- Whyte, A., Ed. (1999). Understanding the role of community telecentres in development: a proposed approach to evaluation. Telecentre Evaluation: A Global Perspective, International Development Research Centre (IDRC).
- Wilkins, C. and C. Swatman (2000). "Electronic commerce as innovation-a framework for interpretive analysis."
- Williamson, K. (2002). "The Delphi method'." Research Methods For Students, Academics and Professionals, Centre for Information Studies, Charles Sturt University, Wagga Wagga, NSW: 209-220.
- Williamson, K. and A. Bow (2002). "Analysis of quantitative and qualitative data." K. Williamson, Research methods for students and professionals: Information management and systems: 285-303.
- Williamson, O. (1979). "Transaction-cost economics: the governance of contractual relations." The journal of Law and Economics **22**.
- Williamson, O. E. (1985). The Economic Institutions of Capitalism. New York, Free Press.
- Wilson, H., E. Daniel, et al. (2008). "The diffusion of e-commerce in UK SMEs." Journal of Marketing Management **24**(5): 489-516.
- Windrum, P. and P. De Berranger (2003). "The adoption of e-business technology by SMEs." Competitive Advantage in SMEs: 177-201.
- Wingfield, J., S. Lynn, et al. (2000). "Avoiding the 'costs' of testosterone: ecological bases of hormone-behavior interactions." Brain, behavior and evolution **57**(5): 239-251.
- Wu, C. (2004). "A readiness model for adopting Web services." Journal of Enterprise Information Management **17**(5): 361-371.
- Wymer, S. and E. Regan (2005). "Factors influencing e-commerce adoption and use by small and medium businesses." Electronic Markets **15**(4): 438-453.
- Xu, M., R. Rohatgi, et al. (2007). "E-business adoption in SMEs: some preliminary findings from electronic components industry." International Journal of E-Business Research **3**(1): 74-90.
- Yeh, C. H., G. G. Lee, et al. (2012). "How information system capability affects e-business information technology strategy implementation: An empirical study in Taiwan." Business Process Management Journal **18**(2): 197-218.
- Yin, R. K. (2008). Case study research: Design and methods, Sage Publications, Incorporated.

- Zhao, W. M. and Y. H. Luo (2013). "Research on the Integrated Management System of Supply Chain Based on Mobile E-Commerce Environment." Advanced Materials Research **659**: 224-228.
- Zhu, K. (2002). "Information transparency in electronic marketplaces: Why data transparency may hinder the adoption of B2B exchanges." Electronic Markets **12**(2): 92-99.
- Zhu, K., K. Kraemer, et al. (2003). "Electronic business adoption by European firms: a cross-country assessment of the facilitators and inhibitors." European Journal of Information Systems **12**(4): 251-268.
- Zhu, K., K. L. Kraemer, et al. (2004). "Information technology payoff in e-business environments: An international perspective on value creation of e-business in the financial services industry." Journal of management information systems **21**(1): 17-54.
- Zmud, R. (1982). "Diffusion of modern software practices: influence of centralization and formalization." Management science **28**(12): 1421-1431.
- Zmud, R. and L. Apple (1989). "Measuring information technology infusion." Production and Innovation Management **9**(2): 148-155.
- Zwass, V. (1994). "Electronic Commerce: Structures and Issues." International Journal of Electronic Commerce **1**(1): 3-23.

Appendix A: Factors Pool

Factors	Theoretical section		Empirical section		Frequency of cited factors
	Stage based theory	Adoption theory	Stage model empirical	E-business literature	
1. Absorptive capacity				(Spanos and Voudouris 2009)	1
2. Active information seeking	(Rogers 1983)				1
3. Application sponsor			(Cavaye and Cragg 1995)		1
4. Asset specificity		(Williamson 1979)			1
5. Attitude toward behaviour				(Nasco, Toledo et al. 2008)	1
6. Autonomy		(Kwon and Zmud 1987)			1
7. Avoidance of e-business planning			(Reich and Benbasat 1990)		1
8. Build on existing system			(Cavaye and Cragg 1995)		1
9. Capture customer data				(Hamill and Gregory 1997)	1
10. Centralisation/Decentralisation	(Pierce and Delbecq 1977; Zmud 1982; Kwon and Zmud 1987; Zmud and Apple 1989; Cooper and Zmud 1990)				5
11. CEO support			(Reich and Benbasat 1990)		1
12. Change agents	(Rogers 1983)				1
13. Communication (channel types, information source and communication amount)	(Thompson 1965; Pierce and Delbecq 1977)	(Giddens 1984; Tornatzky and Fleischer 1990)	(Chong and Bauer 2000)	(Hamill and Gregory 1997; Magal, Kosalge et al. 2009)	7
14. Companies' awareness of need for change		Rogers(1995)	(Reich and Benbasat 1990; Cavaye and Cragg 1995)	(Wymer and Regan 2005)	4

Factors	Theoretical section		Empirical section		Frequency of cited factors
	Stage based theory	Adoption theory	Stage model empirical	E-business literature	
15. Compatibility	(Rogers 1983; Kwon and Zmud 1987; Apple 1989; Rogers 1995)	(Rogers 1983; Kwon and Zmud 1987; Rogers 1995; Delone and McLean 2003)		Chan, and Swatman (1999); Mirchandani and Motwani (2001); Michael Pearson and Grandon(2006)	9
16. Complexity	(Rogers 1983; Kwon and Zmud 1987; Zmud and Apple 1989; Rogers 1995)	(Rogers 1983; Kwon and Zmud 1987)			4
17. Concentration/ dispersion		(Kwon and Zmud 1987)			1
18. Consciousness		(Giddens 1984)			1
19. Cosmopolitanism		Kwon and Zmud 1987			1
20. Cost (e.g. implementation cost)	(Cooper and Zmud 1990)		(Cavaye and Cragg 1995; Chong and Bauer 2000)		
21. Critical mass			(Chong and Bauer 2000)	(Quaddus, and Hofmeyer 2007)	2
22. Cultural differences			(Chong and Bauer 2000)		1
23. Customer involvement in e-business design			(Reich and Benbasat 1990)		1
24. Customer orientation				(Ramsey, Ibbotson et al. 2008)	1
25. Differentiation	(Pierce and Delbecq 1977)				1
26. Diversity of values	(Thompson 1965)			(Chan, and Swatman 1999; Wymer and Regan 2005;(Eikebrokk and Olsen 2007)	5
27. Ease of use		Rogers(1995)		(Igbaria, et al. 1997; Grandon and Pearson 2004; Michael Pearson and Grandon 2006)	4

Factors	Theoretical section		Empirical section		Frequency of cited factors
	Stage based theory	Adoption theory	Stage model empirical	E-business literature	
28. E-business capability				(Wymer and Regan 2005; (Ramsey, Ibbotson et al. 2008) ; Spanos and Voudouris 2009 ; Scupola, 2009)	4
29. E-business design matches relationship			(Reich and Benbasat 1990)		1
30. E-business price			(Reich and Benbasat 1990)		1
31. E-business staff experience			(Cavaye and Cragg 1995)		1
32. Effectiveness				(Dutta and Evrard 1999; Dholakia and Kshetri 2004; Eikebrokk and Olsen 2007)	3
33. Environmental uncertainty	(Pierce and Delbecq 1977)				1
34. E-profitability				(Magal, Kosalge et al. 2009)	1
35. External pressure (e.g. perceived competitive pressure, dependency trading partner power, supplier power, buyer power and industry pressure)	Rogers(1983)		(Chong and Bauer 2000)	(Levy, et al. 2005;Michael and Grandon 2006; Beckinsale, et al. 2006; Quaddus, and Hofmeyer 2007; (Ramsey, Ibbotson et al. 2008) ; (Spanos and Voudouris 2009)	8
36. Formulation.	(Pierce and Delbecq 1977)				1
37. Full pilot test				(Reich and Benbasat 1990)	1
38. Funding			(Chong and Bauer 2000)		1
39. Generating a business case			(Tarafdar and Roy 2003)		1
40. Government executive experience /regulation				(Wymer and Regan 2005; Scupola, 2009)	2
41. Heterogeneity	(Kwon and Zmud 1987)	(Kwon and Zmud 1987)			2

Factors	Theoretical section		Empirical section		Frequency of cited factors
	Stage based theory	Adoption theory	Stage model empirical	E-business literature	
42. High competence (IS)			(Reich and Benbasat 1990)		1
43. High level of resources			(Reich and Benbasat 1990)		1
44. High level of rivalry			(Reich and Benbasat 1990)		1
45. High priority			(Reich and Benbasat 1990)		1
46. Higher degree of co-ordination	(Thompson 1965)				1
47. Image		Rogers(1995)			1
48. Increased speed of dispatch goods				Levy, Powell et al. (2005)	1
49. Industry nature and tradition				Xu, et al. (2007)	1
50. Informal network/formal linking structures	(Kwon and Zmud 1987)	(Kwon and Zmud 1987)			2
51. Information availability		(Tornatzky and Fleischer 1990)	(Tarafdar and Roy 2003)	Wilson, Daniel et al. (2008)	3
52. Information intensity				(Mirchandani and Motwani 2001 ; Magal, et al.2008)	2
53. Infrastructure			(Dailey 1998; Chong and Bauer 2000)	(Eikebrokk and Olsen 2007; Scupola 2009);	4
54. Innovativeness				Wymer and Regan (2005)	1
55. Inter-organisational dependence		(Kwon and Zmud 1987)			1
56. Investor relationship				Magal, Koslage et al. (2008)	1
57. Job tenure		(Kwon and Zmud 1987)			
58. Knowledgeability		(Giddens 1984)			1
59. Lack of business know-how			(Vega, Chiasson et al. 2008)		1
60. Lack of push from supply chain				(Xu, et al. 2007; Magal, Koslage et al. 2008)	2

Factors	Theoretical section		Empirical section		Frequency of cited factors
	Stage based theory	Adoption theory	Stage model empirical	E-business literature	
61. Lack of reliable information about e-business			(Chong and Bauer 2000)		1
62. Lack of singleness of purpose	(Pierce and Delbecq 1977)				1
63. Lack of trust		(Williamson 1979)	(Vega, Chiasson et al. 2008)		2
64. Level of national infrastructure			(Chong and Bauer 2000)		1
65. Low level of parochialism	(Thompson 1965)				1
66. Management capabilities			(Tarafdar and Roy 2003)		1
67. Managerial and technology skills			(Chong and Bauer 2000)		1
68. Managerial productivity				Michael Pearson and Grandon (2006)	1
69. Managerial time			(Chong and Bauer 2000)	Mirchandani and Motwani (2001); Simpson and Docherty (2004)	3
70. Managing across national cultures				(Dutta and Evrard 1999)	1
71. Managing contractors				(Dutta and Evrard 1999)	1
72. Market structure		(Tornatzky and Fleischer 1990)			1
73. Marketing of system			(Cavaye and Cragg 1995)		1
74. Missing business knowledge			(Vega, Chiasson et al. 2008)		1
75. Need resource for innovation	(Thompson 1965)				1
76. Observability	Rogers(1983); Rogers(1995)				2
77. Operational risk		(Williamson 1979)			1
78. Opportunism risk		(Williamson 1979)			1
79. Organisational readiness			(Chong and Bauer 2000)	Beckinsale, Levy et al. (2006); Quaddus, M. and G. Hofmeyer (2007); Gunasekaran, et al. (2009)	4

Factors	Theoretical section		Empirical section		Frequency of cited factors
	Stage based theory	Adoption theory	Stage model empirical	E-business literature	
80. Organisation restructure	(Thompson 1965)				1
81. Organisational change	(Cooper and Zmud 1990)				1
82. Organisational characteristics				Chuang, Nakatani et al. (2007); Quaddus, M. and G. Hofmeyer (2007)	2
83. Organisational support				Michael Pearson and Grandon (2006)	1
84. Owner/manager characteristics				Chuang, Nakatani et al. (2007); Quaddus, M. and G. Hofmeyer (2007); Scupola, A. (2009)	3
85. Perceived behaviour control				(Nasco, Toledo et al. 2008)	1
86. Perceived benefits				Wilson, Daniel et al. (2008); Gunasekaran, et al. (2009)	2
87. Perceived ease of use				Michael Pearson and Grandon (2006)	1
88. Perceived usefulness				Michael Pearson and Grandon (2006)	1
89. Perceptions of technology feasibility				(Ramsey, Ibbotson et al. 2008)	1
90. Prior e-business use and experience				Spanos and Voudouris (2009)	1
91. Prioritisation of e-business				Wilson, Daniel et al. (2008)	1
92. Proactive stance			(Reich and Benbasat 1990)		
93. Production planning				Magal, Koslage et al. (2008)	1

Factors	Theoretical section		Empirical section		Frequency of cited factors
	Stage based theory	Adoption theory	Stage model empirical	E-business literature	
94. Production-oriented over specification and commitment of resources	(Thompson 1965)				1
95. Professional growth	(Thompson 1965)				1
96. Professional training	(Thompson 1965)				1
97. Professionalism	(Thompson 1965; Pierce and Delbecq 1977); Zmud(1982)				3
98. Project management skills			(Tarafdar and Roy 2003)		1
99. Rapid changes in technology				Chan, C. and P. Swatman (1999)	1
100.Re-engineering business processes (e.g. electronic order fulfilment and order management)				Magal, Koslage et al. (2008)	1
101.Relative advantage	Rogers(1983); Rogers(1995)	Rogers(1995)			
102.Reliability				(Eikebrokk and Olsen 2007)	1
103.Responsibility		(Kwon and Zmud 1987)			
104.Restricted financial resources			(Vega, Chiasson et al. 2008)		1
105.Role involvement		(Kwon and Zmud 1987)			1
106.Sales promotion				Magal, Koslage et al. (2008)	1
107.Security				Wymer and Regan (2005)	1
108.Sensitivity to competitive/customer environments				(Ramsey, Ibbotson et al. 2008)	1
109.Slack		(Williamson 1979)			1
110.Specialisation	(Kwon and Zmud 1987); (Zmud and Apple 1989)				2
111.Strategic decision aids				Michael Pearson and Grandon (2006)	1
112.Stratification	(Thompson 1965); (Pierce and Delbecq 1977)				2

Factors	Theoretical section		Empirical section		Frequency of cited factors
	Stage based theory	Adoption theory	Stage model empirical	E-business literature	
113. Subjective norm				(Nasco, Toledo et al. 2008)	1
114. Support for the sales force			(Reich and Benbasat 1990)		1
115. System integration					
116. Task-technology interaction	(Cooper and Zmud 1990)				1
117. Technical expertise and IT skills				Wilson, Daniel et al. (2008); (Ramsey, Ibbotson et al. 2008); Scupola, A. (2009)	3
118. Technical knowledge			(Tarafdar and Roy 2003); (Vega, Chiasson et al. 2008)		2
119. Technical skills			(Dailey 1998); (Chong and Bauer 2000); (Tarafdar and Roy 2003);		3
120. Technological opportunity recognition				(Ramsey, Ibbotson et al. 2008)	1
121. Technology strategy				(Spanos and Voudouris 2009)	1
122. Technology support infrastructure/system quality		(Williamson 1979); (Tornatzky and Fleischer 1990)			2
123. Tendency to wait and see			(Chong and Bauer 2000)		1
124. Threat of new entrants			(Reich and Benbasat 1990)		
125. Top management support		(Tornatzky and Fleischer 1990)	(Cavaye and Cragg 1995); (Chong and Bauer 2000)		
126. Training			(Tarafdar and Roy 2003)	Xu, M., R. Rohatgi, et al. (2007); Magal, Koslage et al. (2008)	3

Factors	Theoretical section		Empirical section		Frequency of cited factors
	Stage based theory	Adoption theory	Stage model empirical	E-business literature	
127.Transaction risk (opportunity costs)		(Tornatzky and Fleischer 1990)			
128.Trialability	Rogers(1983); Rogers(1995)	Rogers(1995)			3
129.Uncertainty	(Pierce and Delbecq 1977); Rogers(1983); (Zmud and Apple 1989); (Cooper and Zmud 1990); Rogers(1995)	Rogers(1995)	(Chong and Bauer 2000)		7
130.User participation in development			(Cavaye and Cragg 1995)		1
131.User resistance to change	(Cooper and Zmud 1990)				1

Appendix B: Case Study Interview Protocol

Factors Affecting e-Business Systems Adoption Process in Small and Medium Enterprises (SMEs) in Saudi Arabia

Interview Protocol for SME Owners or IT/e-Business Managers

Section A: Interviewee Profile

1. Please indicate your name, job title and explain your key roles.
2. How many years have you been associated with this company?
3. Please describe your academic background.

Section B: Organisation Profile

1. Please indicate the number of years your company is operating.
2. Please indicate the approximate annual revenue of the company.
3. How many employees work in your company?
4. Please describe the nature of business of your company.
5. Please indicate some of your key customers and suppliers.
6. Currently, does your company contemplating to use/use any e-business systems? If No, please proceed to section G.
7. If yes, then have you already adopted the e-business systems or exploring an opportunity to consider initiating these systems?
 - ◆ Go to **section D**, if your company is in exploring an opportunity.
 - ◆ Go to **section E**, if your company is in decision making stage.
 - ◆ Go to **section F**, if your company is already implement e-business systems.

Section C: Nature of e-Business Systems in Company

1. Please describe key e-business systems that your company is using.
2. Please explain the reasons for introducing those systems.
3. Please indicate the number of years those systems are in use.
4. Who are looking after the development, maintenance, and upgrading of these systems (in-house vs. external)?
5. What kind of technological platforms (e.g. Mac, Windows) are used to support these e-business systems?

Section D: Understanding Factors Affecting Initiation Stage of e-Business Introduction by SMEs.

1. In your opinion what are the factors that you believe have influenced your company's decision to consider initiating e-business systems? Please explain why these factors affecting such decision.
2. Would you agree that availability of technical staff or consultants with e-business skills have influenced your company's decision to consider initiating e-business systems? Please explain.
3. Do you think that availability of information on e-business systems influenced your company's decision to consider initiating e-business systems? Please explain.
4. Do you think that reliability of e-business systems influenced your company's decision to consider initiating e-business systems? Please explain.

5. Do you think that the attitude of employees (who have high experience and expertise) toward e-business systems have influenced your company's decision to consider initiating e-business systems? Please explain.
6. Do you think that the potential costs associated with e-business systems have influenced your company's decision to consider initiating e-business systems (e.g. implementation cost, transaction cost, operation cost, setup cost, maintenance cost, and manpower cost)? Please explain.
7. Would you agree that the support from the senior management is a factor that has affected your company's decision to consider initiating e-business systems? Please explain.
8. Would you agree that uncertainty in your business environment has influenced your company's decision to consider initiating e-business systems? Please explain.
9. Would you consider that the influence arising from an external body (e.g. perceived competitive pressure, dependency trading partner power, supplier power, buyer power and industry pressure) has influenced your company's decision to consider initiating e-business systems? Please explain.
10. Would you agree that the desire to gain a business advantages (e.g. competitive advantage, perceived benefit) has influenced your company's decision to consider initiating e-business systems? Please explain.
11. Do you think that the government support programs (e.g. Kafala program) which provide for your company have influenced your company's decision to consider initiating e-business systems? Please explain.

Section E: Understanding Factors Affecting Adoption Stage of e-Business Introduction by SMEs

1. In your opinion what are the factors that you believe have influenced your company's decision to adopt e-business systems? Please explain why these factors affecting such decision.
2. Do you think that complexity of e-business systems have influenced your company's decision to adopt e-business systems? Please explain.
3. Do you think that compatibility of e-business systems with your company (e.g. compatibility with business goals, compatibility with company's IT infrastructure and compatibility with the company's working practises of people) have influenced have influenced your company's decision to adopt e-business systems? Please explain.
4. Would you agree that communications (e.g. channel types, information sources, and communication amounts) have influenced your company's decision to adopt e-business systems? Please explain.

5. Do you think that e-business law has influenced your company's decision to adopt e-business systems? Please explain.
6. Do you think that security concerns of using e-business systems have influenced your company's decision to adopt e-business systems? Please explain.
7. Would you agree that high competence in information systems (e.g. project management skills, technical expertise and IT skills, and e-business staff experiences) have influenced your company's decision to adopt e-business systems? Please explain.
8. a) Would you agree that your company's financial readiness (e.g. organisational compatibility and facilitating conditions) has influenced your company's decision to adopt e-business systems? Please explain.

b) Would you agree that your company's technological readiness (e.g. technical compatibility) has influenced your company's decision to adopt e-business systems? Please explain.
9. Do you think that owner's attitudes toward technology have influenced your company's decision to adopt e-business systems? Please explain.
10. Do you think that the attitude of employees (who have high experience, qualification and expertise) toward e-business systems have influenced your company's decision to adopt e-business systems? Please explain.
11. Do you think that your company's awareness of need for change has influenced your company's decision to adopt e-business systems? Please explain
12. Do you think that the potential costs associated with e-business systems have influenced your company's decision to adopt e-business systems (e.g. implementation cost, transaction cost, operation cost, setup cost, maintenance cost, and manpower cost)? Please explain.
13. Would you agree that the support from the senior management is a factor that has affected your company's decision to adopt e-business systems? Please explain.
14. Do you think that uncertainty in your business environment has influenced your company's decision to adopt e-business systems? Please explain.
15. Would you consider that the influence arising from an external body (e.g. perceived competitive pressure, dependency trading partner power, supplier power, buyer power and industry pressure) has influenced your company's decision to adopt e-business systems? Please explain.
16. Do you think that the desire to gain a business advantages (e.g. competitive advantages, perceived benefits) have influenced your company's decision to adopt e-business systems? Please explain.

17. Do you think that the government support programs (e.g. Kafala program) which provide for your company have influenced your company's decision to adopt e-business systems? Please explain

Section F: Understanding Factors Affecting Implementation Stage of e-Business Introduction by SMEs

1. In your opinion what are the factors that you believe have influenced your company's decision to implement e-business systems? Please explain why these factors affecting such decision.
2. Would you agree that the mount of e-business systems training (e.g. training on system use, configuration, and backup) have influenced your company's decision to implement e-business systems? Please explain.
3. Do you think that high competence in information systems (e.g. project management skills, technical expertise and IT skills, and e-business staff experiences) have influenced your company's decision to implement e-business systems? Please explain.
4. Do you think that availability of information on e-business systems have influenced your company's decision to implement e-business systems? Please explain.
5. Do you think that reliability of e-business systems have influenced your company's decision to implement e-business systems? Please explain.
6. Do you think that your company's awareness of need for change has influenced your company's decision to implement e-business systems? Please explain.
7. Do you think that the attitude of employees (who have lower experiences, qualifications, and expertises) toward e-business systems have influenced your company's decision to implement e-business systems? Please explain.
8. Do you think that the potential costs associated with e-business systems have influenced your company's decision to implement e-business systems (e.g. implementation cost, transaction cost, operation cost, setup cost, maintenance cost, and manpower cost)? Please explain.
9. Would you agree that the support from the senior management is a factor that has affected your company's decision to implement e-business systems? Please explain.
10. Do you think that uncertainty in your business environment has influenced your company's decision to implement e-business systems? Please explain.
11. Would you agree that the pressures arising from an influential external body (e.g. perceived competitive pressure, dependency trading partner power, supplier power, buyer power and industry pressure) have influenced your company's decision to implement e-business systems? Please explain.

12. Would you agree that the desire to gain relative advantages (e.g. competitive advantages and perceived benefits) have influenced your company's decision to implement e-business systems? Please explain.

13. Do you think that the government support programs (e.g. Kafala program) which provide for your company have influenced your company's decision to implement e-business systems? Please explain.

Section G: SMEs which are not Using e-Business Systems

1. Please indicate why your company does not introduce e-business systems?
2. Do you have intention to introduce e-business systems within the next five years? Please explain.
3. Do you think that the lack of adequate government support is affecting your intention to introduce e-business systems within your company? Please explain.
4. Do you think that the security and privacy concerns are affecting your intention to introduce e-business systems within your company? Please explain.

(The End)

Appendix C: Human Ethic Certificate Approval



MONASH University

Monash University Human Research Ethics Committee (MUHREC)
Research Office

Human Ethics Certificate of Approval

Date: 20 January 2011

Project Number: CF10/3549 - 2010001877

Project Title: Factors affecting e-business systems introduction process by small and medium sized enterprises (SMEs) in Saudi Arabia

Chief Investigator: Dr Md Mahbubur Rahim

Approved: From: 20 January 2011 To: 20 January 2016

Terms of approval

1. The Chief investigator is responsible for ensuring that permission letters are obtained, if relevant, and a copy forwarded to MUHREC before any data collection can occur at the specified organisation. **Failure to provide permission letters to MUHREC before data collection commences is in breach of the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research.**
2. Approval is only valid whilst you hold a position at Monash University.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must contain your project number.
6. **Amendments to the approved project (including changes in personnel):** Requires the submission of a Request for Amendment form to MUHREC and must not begin without written approval from MUHREC. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by MUHREC at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.



Professor Ben Canny
Chair, MUHREC

cc: Assoc Prof Stephen Burgess, Mr Ali Abu Abid

Postal – Monash University, Vic 3800, Australia
Building 3E, Room 111, Clayton Campus, Wellington Road, Clayton
Facsimile +61 3 9905 3831
www.monash.edu/research/ethics/human/index/html
ABN 12 377 614 012 CRICOS Provider #00008C

Appendix D: Consent Form for Participating in E-business Systems Adoption Study

Consent Form - Saudi SME's owners and managers

Title: Factors Affecting e-Business Systems Adoption Process by Small and Medium sized Enterprises (SMEs) in Saudi Arabia

NOTE: This consent form will remain with the Monash University researcher for their records

I agree to take part in the Monash University study specified above. I have had the project explained to me, and I have read the Explanatory Statement, which I keep for my records. I understand that agreeing to take part means that:

- | | |
|--|--|
| 1. I agree to be interviewed by the researcher | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 2. I agree to allow the interview to be audio-taped | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 3. I agree to make myself available for a further interview, if required | <input type="checkbox"/> Yes <input type="checkbox"/> No |

I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way.

I understand that any data that the researcher extracts from the interview for use in reports or published findings will not, under any circumstances, contain names or characteristics that can identify me and/or my organisation.

I understand that interview transcript will be available under my request.

Participant's name

Signature

Date

Appendix E: Factors included in the Research Model: Measurement Approach

A list of indicators of factors affecting initiation stage

Factors	Definition	Number of Indicators	Description of Indicators	Literature Sources
Compatibility	Drawing on the ideas of Rogers (2003) compatibility is defined as “the compatibility of e-business systems with existing business model, technology infrastructure, culture, values, and preferred work practices of the firm”(p. 257).	5	Compatibility of e-business with company’s goals	Rogers (2003)
			Compatibility of e-business with company’s values	
			Compatibility of e-business with company’s preferred work practice	
			Compatibility of e-business with company’s business model	(Kendall, Tung et al. 2001)
			Compatibility of e-business with employees IT background	New indicator (created by the researcher)
Complexity	“The degree to which an innovation is perceived as relatively difficult to understand and use” (Rogers 2003, p.257).	4	Perceived low level of e-business complexity	Chong and Bauer (2000)
			Ease of using e-business	(Rogers 1995)
			No idea about e-business complexity	New indicators (created by the researcher)
			Notice the presence of complexity	

Factors	Definition	Number of Indicators	Description of Indicators	Literature Sources
Trialability	It refers to “the degree to which an innovation may be experimented with on limited basis (Rogers 2003, p. 258).	6	To know special features of e-business	Moore and Benbasat (1991)
			Well-known application	New indicators (created by the researcher)
			To know/try e-business in general	
			To explore advantages of e-business	
			Other companies use of e-business	
			Triability is not relevant	
Observability	Drawing on the ideas of Rogers (2003), the observability is defined as “the degree to which the results of the innovation are visible to others as well as ability to see beneficial results of using e-business by other businesses”(p. 258)	2	Observed how other companies gain benefits from e-business	(Kendall, Tung et al. 2001)
			Impact of e-business systems is visible to company’s management	
Perceived e-business attributes	The availability and reliability of information about e-business systems (Wilson, & Davies 2008)	3	Information sources about e-business	Chong and Bauer (2000)
			Information sources reliability about e-business	Wilson, Daniel et al. (2008)
			Information about the efficiency of e-business systems is very poor	New indicators (created by the researcher)
Availability of technical expertise	Drawing on (Wymer and Regan, 2005), this factor is defined as availability of technical knowledge and skills on e-business among company staff	2	Availability/non availability of e-business consultant	Wymer and Regan (2005)
			Availability/non availability of IT staff trained in e-business	

Factors	Definition	Number of Indicators	Description of Indicators	Literature Sources
Knowledgeable employee's attitude toward technology	Knowledgeable employees' attitude toward e-business is defined as the attitude of the employees who have a general knowledge of business and they appreciate the importance of e-business systems	3	Awareness of e-business importance	Abdul Hameed and Counsell (2012)
			Employees with ability to convince top management about e-business in the company	New indicators (created by the researcher)
			Employees awareness/attitude toward e-business is not relevant	

A list of indicators of Factors Affecting Adoption Decision Stage

Factors	Definition	Number of Indicators	Description of Indicators	Literature Sources
Communication	The use of information technology to “enhance communications and transactions with all of an organisation’s stakeholders such as customers, suppliers, government regulators, financial institutions, managers, employees, and the public at large” (Ling 2001)	3	Communication channel	(Ling, C., 2001)
			Communication amount	
			Ease of communication	New indicators (created by the researcher)
E-business law	The government policies and regulations which facilitate doing business online (Rao et al. 2003).	2	The absence of government support	New indicators (created by the researcher)
			Lack of awareness about the existence of e-business law	
Customer readiness	The customers being willing and able to use e-business systems (Jutla, et al. 2002)	2	Customers’ pressure on the company to use e-business systems.	New indicators (created by the researcher)
			Customers willingness to perform their business’s transactions online	
Security concerns	Concern about transmission of financial data: credit card and financial related account numbers and information (Dholakia and Kshetri, 2004)	4	Most reliable online payment provider	New indicators (created by the researcher)
			Powerful security systems	
			Perceived risk	(Dholakia and Kshetri, 2004)
			Presence of trust in e-business	

Factors	Definition	Number of Indicators	Description of Indicators	Literature Sources
High competence in IS	Staff skills and development of a learning process to improve competence levels in IS to accommodate e-business (Ramsey and Ibbotson, 2008).	3	Presence of education framework	(Ramsey and Ibbotson, 2008)
			Employees' experience	New indicators (created by the researcher)
			Employees' e-business skills	
Perceived e-business value	E-business value refers to "the value accrued to the economic players of the value system, i.e., mostly business firms. Hence, we constrain our measurements of value creation through e-business to changes in the economic and financial indicators of enterprises" (Christensen and Methlie 2003)	6	Awareness of e-business value	New indicators (created by the researcher)
			Customer's satisfaction	(Christensen and Methlie 2003)
			Increase sales volumes	
			Easiness of the transactions	New indicators (created by the researcher)
			Minimising the communication gap	
			Broader product variety	(Christensen and Methlie 2003)
Owner attitude toward technology	It refers to the behaviour and attitude of a company's owner toward a new technological innovation whether this behaviour and attitude are positive or negative (Parker and Castleman 2007).	3	Owner knowledge of IT and e-business	Chuang , et al. (2007)
			Owner awareness about e-business	New indicators (created by the researcher)
			Owner's experience	
Knowledgeable employee attitude toward technology	Knowledgeable employees' attitude toward e-business is defined as the attitude of the employees who have a general knowledge of business and they appreciate the importance of e-business systems (Hertog 2010).	3	Awareness of e-business importance	(Hertog 2010)
			Employees with ability to convince top management about e-business in the company	New indicators (created by the researcher)
			Awareness of e-business benefits to the company	

A list of Indicators of Factors Affecting Implementation Stage

Factors	Definition	Number of Indicators	Description of Indicators	Literature Sources
Training	The amount of training provided by vendors, consultants, or educational institutions external to the company (Wilson, & Davies 2008)	3	Availability of periodical training	New indicators (created by the researcher)
			Training on how to use the e-business system	Xu, et al. (2007)
			E-business training is not relevant	New indicators (created by the researcher)
High competence in IS	It is defined as staff skills and development of a learning process to improve competence levels in IS to accommodate e-business (Ramsey and Ibbotson 2008).	4	Employee's qualification	New indicators (created by the researcher)
			Employees' experience and expertise	(Xu, et al. 2007)
			Employees' with technical skills	(Ramsey and Ibbotson, 2008)
			High competence in IS is not relevant	New indicators (created by the researcher)
Perceived e-business attribute	The availability and reliability of information about e-business systems (Wilson, and Davies 2008)	4	Information sources about e-business	Chong and Bauer (2000);
			Information sources reliability about e-business	(Wilson, & Davies 2008)
			Information about the efficiency of e-business systems is very poor and not reliable	New indicators (created by the researcher)
			Information availability and reliability of e-business systems is not relevant	

Factors	Definition	Number of Indicators	Description of Indicators	Literature Sources
Low level employee attitude toward technology	Lower level employees' attitude toward e-business is defined as the attitude of the employees who have less general knowledge and expertise of business and they do not appreciate the importance of e-business systems (Hertog 2010).	2	Absence of low qualified employees in the company	New indicators (created by the researcher)
			Lower level employee's attitude toward technology is not relevant to the company's decision to implement e-business	

A list of Indicators of Common Factors Affecting all Three Stages

Factors	Definition	Number of Indicators	Description of Indicators	Literature Sources
Cost	Cost to setup and maintain (Wymer and Regan 2005)	4	E-business is not expensive	New indicators (created by the researcher)
			Availability of e-business systems' vendors	
			E-business's cost is not relevant	
			E-business's cost is a barrier to implement these systems	Dholakia and Kshetri (2004)
Relative advantage	The benefit perceived by SMEs in adopting EC to conduct business(Kendall, Tung et al. 2001)	8	Development of the company	New indicators (created by the researcher)
			Company's growth absolutely with market trend	
			Improve the presence of the company between its competitors	
			Improve a company's image	(Mirchandani and Motwani 2001)
			Customer satisfaction	Chuang et al. (2007)
			Increased sales	Ramsey and Ibbotson (2008)
			Perceived e-business benefits	Ramsey and Ibbotson (2008)
			Ease of accessibility	Chuang et al. (2007)
External pressure	"Direct or indirect pressure exerted by competitors, social referents, other firms, the government, and the industry to adopt e-commerce" (Pearson & Grandon, 2006, p. 10)	5	Competitors' pressure	Grandon and Pearson (2004)
			Customers' pressure	New indicators (created by the researcher)
			Suppliers' pressure	
			Company depends on other firms that are already using e-business	Pearson & Grandon, (2006)
			External pressure is not relevant	New indicators (created by the researcher)

Factors	Definition	Number of Indicators	Description of Indicators	Literature Sources
Management support	The perceived level of general support offered by top management in SMEs (Wilson, Daniel et al. 2008)	3	Awareness of e-business systems advantages	(Pearson and Grandon 2006)
			Senior management willing to develop the company	(Wilson, Daniel et al. 2008)
			Availability of technical background for top management	New indicators (created by the researcher)
Government support programs	It initiated to encourage SMEs to seek advice and stimulate demand for advice and support (Simpson and Docherty, 2004)	4	Financial support	Simpson & Docherty (2004)
			Hard to access the government support programs	Wymer and Regan (2005)
			No idea about government support programs	New indicators (created by the researcher)
			Government support programs is not relevant	
Uncertainty in business environment	Drawing on the views of Sung, Lu et al. (2010), the uncertainty in the business environment can be defined as a situation in which a company has little information about its external environment to use in achieving its organisational goals	5	Sophisticated systems owned by competitors	Sung, Lu et al. (2010)
			Global market trend toward digitalisation	
			Uncertainty in business environment is not relevant	New indicators (created by the researcher)
			No uncertainty in business environment	
			Uncertainty in decision making	

Factors	Definition	Number of Indicators	Description of Indicators	Literature Sources
Owner-manager characteristics	Owner-manager characteristics are defined in terms of the owner-manager's leadership style, experience, education level, the degree of delegation within the organisation, and the importance of personal objectives in the decision making process (Mukhtar 2002)	5	Leadership style	(Mukhtar 2002)
			Owner-manager's education level	
			Owner-manager's experience	
			Owner-manager characteristic is not relevant	New indicators (created by the researcher)
			Professional networking	
Organisational readiness and awareness	Availability of the financial and technological resources to adopt e-business systems in the organisation and awareness of e-business importance.	4	Company's financial readiness	(Iacovou, Benbasat et al. 1995)
			Company's technological readiness	Grandon and Pearson (2004)
			Awareness of skilled employees about e-business systems	New indicators (created by the researcher)
			Organisational readiness and awareness is not relevant	
Trading partners' readiness	Trading partners' readiness defined as ability and willingness of trading partner to adopt e-business system (Oliveira and Martins 2010)	3	Trading partner willingness to adopt e-business	(Oliveira and Martins 2010)
			Ability to use e-business by trading partner	
			Trading partner readiness is relevant	New indicator (created by the researcher)
Organisational culture	It defines "A complex set of values, beliefs, assumptions, and symbols that define the way in which a firm conducts its business" (Barney J.B. 1986).	3	Emphasise growth through developing new ideas	(Balthazard PA. and Cooke 2003)
			Employees' loyalty for a company	
			Achieve company's goals	