

Implementing Successful G2B Initiatives in the HKSAR: An Empirical Evaluation of G2B Websites

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Abstract

This research study aimed to gain insight into the implementation of government-to-business (G2B) initiatives for small and medium sized enterprises (SMEs) in Hong Kong, focusing on the underlying importance, benefits and challenges of these initiatives rather than simply articulating the number of electronic services provided to SMEs and the investments spent only. The current study therefore compared and evaluated e-Commerce and e-Government to examine the similarities and differences between these two mainstream Internet-based systems. An existing method for evaluating both business-to-consumer (B2C) and business-to-business (B2B) systems, namely, Extended Web Assessment Method (EWAM) was also reviewed. All these discussions collectively provide the theoretical framework for developing the theoretical research model of the current study, thereby setting out the research context and facilitating the conduct of the main investigations.

The main investigations of the current study were both descriptive and correlation-oriented, and they were carried out using a theory-grounded survey, through which SMEs' attitudes, behaviors and preferences about using G2B electronic services were examined. The survey questions incorporated the theoretical focus essential for investigating potential relationships among the variables and for testing the research hypotheses.

The main study concluded that the implementation of prevalent G2B initiatives in Hong Kong has been largely connected to pursuing conservative paradigms in public service provision. In conjunction with this claim, the current research realizes that the service providers have been inclining to dominate over both the business and technical aspects of the underlying implementation approaches and practices. As such, the service providers deserve to enact the role of big gatekeepers in delivering online information and services, meaning that they indeed tender substantial amounts of pre-determinacy in terms of placing a number of prescriptions and constraints on the functions, features and facilities of the online information and service products just mentioned.

The current research therefore lays out the new e-Government strategic agenda to increase the overall transparency of new public management. For this new agenda, the current research emphasizes the importance of the provision of *resilient-based public services (RPS)*, thereby advancing the democratic empowerment of all the stakeholders engaged in both prevalent as

well as future G2B initiatives, and also assuring to maximize the multifold effects of value creations.

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For the main study, thanks should give to those SME employees invited although it had been extremely difficult, whereas substantial amounts of efforts were spent to make far more telephone contacts until the target sample of SMEs was successfully contacted and gave their consensus on the participation in the main study. Without their voluntarily participation in the main study, the required data could not be collected for running various data analyses as planned for the current study.

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Statement of Candidate

I certify that the work in this thesis “Implementing Successful G2B Initiatives in the HKSAR: An Empirical Evaluation of G2B Websites” has not previously been submitted for a degree nor as part of requirements for a degree to any other university or institution other than Macquarie University.

I also certify that this thesis is an original piece of research and it has been written by me. Any help and assistance that I have received in my research work and the preparation of the thesis itself have been appropriately acknowledged. In addition, I certify that all information sources and literature used were indicated in this thesis.

The research presented in this thesis was approved by Macquarie University Ethics Review Committee with reference number: HE22JUL2005-DO4209.

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Table of Contents

	Page
<i>Abstract</i>	<i>1 – 2</i>
<i>Acknowledgements</i>	<i>3</i>
<i>Statement of Candidate</i>	<i>4</i>
<i>List of Figures</i>	<i>10</i>
<i>List of Tables</i>	<i>11 – 12</i>
<i>List of Acronyms</i>	<i>13 – 16</i>
<i>Chapter 1 Introduction</i>	<i>17 – 32</i>
1.1 Background	17
1.2 Motivation for research	19
1.3 Research problem	21
1.4 G2B initiatives in the HKSAR	25
1.4.1 The trading industry in the HKSAR	25
1.4.2 The importance of G2B initiatives for the trading industry in the HKSAR	26
1.4.3 The two selected G2B initiatives	27
1.5 Research objectives	31
1.6 Thesis outline	32
<i>Chapter 2 Literature Review</i>	<i>33 – 201</i>
2.1 Introduction	33
2.2 e-Commerce	33
2.2.1 Definition of e-Commerce	33

		Page
	2.2.2 Importance of developing e-Commerce	34
	2.2.3 Stages of e-Commerce	37
	2.2.4 Sectors of e-Commerce	37
	2.2.5 Importance of implementing B2B initiatives	37
	2.2.6 Performance of B2B initiatives	41
2.3	e-Government	46
	2.3.1 Definition of e-Government	46
	2.3.2 Importance of developing e-Government	48
	2.3.3 Stages of e-Government	53
	2.3.4 Sectors of e-Government	54
	2.3.5 Importance of implementing G2B initiatives	55
	2.3.6 Performance of G2B initiatives	59
2.4	Comparison of e-Commerce and e-Government	69
	2.4.1 Comparison of the selected characteristics of e-Commerce and e-Government	70
	2.4.2 Comparison of the value perspectives of e-Commerce / B2B and e-Government / G2B systems	73
	2.4.3 Summary of comparison of e-Commerce / B2B and e-Government / G2B systems	90
2.5	Evaluation of e-Commerce initiatives	92
	2.5.1 Measuring e-Commerce systems	92
	2.5.2 Measuring B2B systems	94
	2.5.3 The constructs of EWAM	99
2.6	Evaluation of e-Government initiatives	101
	2.6.1 Measuring G2B systems	101
	2.6.2 The adoption of EWAM	112

		Page
2.7	Theoretical research model and research hypotheses	115
2.7.1	Theoretical background	115
2.7.2	Central tenets of the theoretical research model	196
2.7.3	Research hypotheses	199
2.8	Summary	200
Chapter 3	<i>Research Methodology</i>	202 – 214
3.1	Introduction	202
3.2	Unit of analysis	202
3.3	Development of online survey	202
3.4	Pilot study	204
3.5	Main study	205
3.5.1	Sample selection	205
3.5.2	Data collection	208
3.5.3	Data analysis	210
3.6	Summary	213
Chapter 4	<i>Results and Discussion</i>	215 – 287
4.1	Introduction	215
4.2	Situation analysis results	216
4.3	EWAM analysis results	222
4.3.1	Comparison of electronic services provided by Tradelink-eBiz and Ge-TS	222
4.3.2	Comparison of each category of electronic services provided by Tradelink-eBiz, Ge-TS and the trading sector	230
4.3.3	Strategy evaluation of each category of electronic services	233

		Page
	of Tradelink-eBiz, Ge-TS and the trading sector	
4.4	Reliability analysis results	238
4.5	Factor analysis results	239
4.5.1	Comprehensibility	240
4.5.2	Ease of Use	240
4.5.3	Usefulness	243
4.5.4	Adaptability	245
4.5.5	Trust	246
4.5.6	Use Satisfaction	247
4.6	Multiple regression analysis results	247
4.6.1	Overview of multiple regression analysis	248
4.6.2	Comprehensibility	254
4.6.3	Ease of Use	260
4.6.4	Usefulness	266
4.6.5	Adaptability	274
4.6.6	Trust	281
4.7	Summary	286
Chapter 5	Conclusions	288 – 343
5.1	Introduction	288
5.2	Contributions	288
5.2.1	Comprehensibility	290
5.2.2	Ease of Use	304
5.2.3	Usefulness	320

		Page
5.2.4	Trust	329
5.3	Limitations	336
5.4	Future research	337
5.5	Summary	338
5.5.1	Revisiting e-Commerce and e-Government	338
5.5.2	Creating values for stakeholders	340
<i>Appendices</i>		<i>344 – 390</i>
Appendix A	The Constructs of EWAM	344
Appendix B	Online Survey Instrument	350
Appendix B.1	The English version of online survey instrument	350
Appendix B.2	The Traditional Chinese version of online survey instrument	356
Appendix B.3	The explanations or rationales for asking the survey questions	362
Appendix C	Screen Captures of Online Survey Website	372
Appendix D	Table of Reference Sources for Developing the Theoretical Research Model	386
<i>References</i>		<i>391 – 400</i>

List of Figures

		Page
Figure 1.1	Homepage of <i>Tradelink-eBiz</i>	29
Figure 1.2	Homepage of <i>Ge-TS</i>	31
Figure 2.1	Causal links of TAM	98
Figure 2.2	EWAM Components	100
Figure 2.3	Generic hierarchical system of e-Government measurement indicators	106
Figure 2.4	Value creation framework	116
Figure 2.5	Multiplier effects of value creations	117
Figure 2.6	Updated DeLone and McLean's IS success model	190
Figure 2.7	The high level theoretical G2B success model	196
Figure 3.1	Values and shares of Hong Kong's imports and exports by principal commodity in 2005	207
Figure 3.2	Industry sector and business nature of SMEs invited to participate in the main study	208
Figure 3.3	Demographics of SMEs participating in the main study	209
Figure 4.1	Respondents' usage of G2B electronic services	220
Figure 4.2	Respondents' satisfaction with using G2B electronic services	221
Figure 4.3	Comparison of the mean performance ratings of each category of G2B electronic services provided by <i>Tradelink-eBiz</i> , <i>Ge-TS</i> and trading sector	231
Figure 4.4	Strategy evaluation of each category of G2B electronic services provided by <i>Tradelink-eBiz</i> (a) and <i>Ge-TS</i> (b)	235
Figure 4.5	Strategy evaluation of each category of G2B electronic services for the trading sector	236
Figure 5.1	Increased elasticity of a service cluster	293
Figure 5.2	Anatomy of "one-stop" business-centric cluster and integrated G2B electronic services	299
Figure 5.3	Polymorphic information architecture	307
Figure 5.4	The "Thin" integration of the affiliated business and legacy system processes	312

List of Tables

		Page
Table 2.1	Performance of B2B initiatives	41
Table 2.2	Performance of B2B initiatives achieved in the SME sector	42
Table 2.3	Performance of G2B initiatives	60
Table 2.4	Performance of G2B initiatives achieved in the SME sector	61
Table 2.5	Value creation processes of e-Commerce / B2B and e-Government / G2B systems	91
Table 2.6	Overview of existing approaches to monitoring e-Government development	102
Table 2.7	Generic hierarchical system of G2B measurement indicators	108
Table 2.8	The Three-Ring Model for measuring dimensions of e-Government functions	109
Table 2.9	The theoretical G2B success model mapped with the constructs of EWAM	197
Table 2.10	Research hypotheses	200
Table 4.1	Demographic features of the survey participants	216
Table 4.2	Comparison of the mean performance ratings of each G2B electronic service for <i>Tradelink-eBiz</i> and <i>Ge-TS</i>	223
Table 4.3	Strategy evaluation of each category of G2B electronic services provided by <i>Tradelink-eBiz</i> , <i>Ge-TS</i> and the trading sector	233
Table 4.4	Reliability analysis results	239
Table 4.5	Final factor analysis results for the main construct Comprehensibility (COMP)	240
Table 4.6	Rotated component matrix for the main construct Ease of Use (EOU)	241
Table 4.7	Final factor analysis results for the main construct Ease of Use (EOU)	242
Table 4.8	Rotated component matrix for the main construct Usefulness (USEF)	244
Table 4.9	Final factor analysis results for the main construct Usefulness (USEF)	245
Table 4.10	Final factor analysis results for the main construct Adaptability (ADPT)	246
Table 4.11	Final factor analysis results for the main construct Trust (TRUST)	246
Table 4.12	Final factor analysis results for the main construct Use Satisfaction (USESAT)	247

		Page
Table 4.13	Final regression variables	248
Table 4.14	Final multiple regression analysis results for the multivariate relationship between the explanatory variables and item USESAT01	249
Table 4.15	Final hypothesis testing results for the multivariate relationship between the explanatory variables and item USESAT01	251
Table 4.16	Final multiple regression analysis results for the multivariate relationship between the explanatory variables and item USESAT02	252
Table 4.17	Final hypothesis testing results for the multivariate relationship between the explanatory variables and item USESAT02	253

List of Acronyms

AGIMO	Australian Government Information Management Office
ANOVA	Analysis of Variance
ATO	Australian Taxation Office
B2B	business-to-business
B2B e-Commerce	B2B Electronic Commerce
B2B Systems	IT-enabled or Internet-based B2B systems
B2C	business-to-consumer
B2C e-Commerce	B2C electronic commerce
BEP	Business Entry Point
BPR	Business process reengineering
C&ED	The Customs and Excise Department
C&SD	The Census and Statistics Department
C2C	consumer-to-consumer
CAD	Computer-aided Drafting
CCEM	Competence Center for Electronic Markets
CCM	Central Complaint Management
CIECC	China International Electronic Commerce Center
CMS	Content Management System
CO	Certificate of Origin
CRM	Customer Relationship Management
CyPRG	Cyberspace Policy Research Group
DCP	Dutiable Commodities Permits
Digi-Sign	Digi-Sign Certification Services Limited
DMS	Document Management System
DTTN	Digital Trade and Transportation Network
DV	Dependent variable
e-Commerce	Electronic commerce
e-Commerce Systems	IT-enabled or Internet-based e-Commerce systems
e-Government	Electronic government

e-Government Systems	IT-enabled or Internet-based e-Government systems
EAI	Enterprise Application Integration
EC	European Commission
ECDL	European Computer Driving License
EDI	Electronic Data Interchange
EMAN	Electronic Cargo Manifests
EFA	Exploratory Factor Analysis
ESD	Electronic Service Delivery
ETL	Extract, transform and load
ETO	Electronic Transactions Ordinance
EU	European Union
EWAM	Extended Web Assessment Method
FAQs	Frequently asked questions
FedEx	Federal Express
G2B	government-to-business
G2B Systems	IT-enabled or Internet-based G2B systems
G2C	government-to-citizen
G2E	government-to-employee
G2G	government-to-government
GDP	Gross domestic product
GETS	Government Electronic Trading Services
GIS	Geographic Information System
Government	The government of the HKSAR
government business processes	Government business and/or service delivery processes
HKSAR	Hong Kong Special Administrative Region
HKTDC	Hong Kong Trade Development Council
HS	Harmonized Schedule
HTTPS	Hypertext Transfer Protocol Secure
IA	Information Architecture
IBM	International Business Machines
IDA	Infocomm Development Authority

IDA	Interchange of Data between Administrations
ICT	Information and communication technologies
IS	Information Systems
IT	Information and communication technologies
IV	Independent variable
IVRS	Interactive Voice Response System
MoF	The Finnish Ministry of Finance
NLIS	National Land Information Services
NOIE	The National Office for the Information Economy
OECD	Organization for Economic Cooperation and Development
OO	Object-oriented
PC	Personal computer
PCA	Principal Components Analysis
PDPO	Personal Data (Privacy) Ordinance
PKI	Public Key Infrastructure
PPP	Public-Private Partnership
resources	Manpower, financial and time resources
ROI	Return on Investment
RPS	Resilient-based Public Service Provision
service consumers	Service and/or product consumers
service providers	Service and/or product providers
SIBIS	Statistical Indicators Benchmarking the Information Society
SMEs	Small and Medium Sized Enterprises
SOA	Service-oriented Architecture
SPSS	The Statistical Package for the Social Sciences
SSL	Secure Socket Layer
SUCCESS	Support and Consultation Centre for SMEs
TAM	Technology Acceptance Model
TDEC	Import and Export Declarations
TID	Trade and Industry Department
TNS	Taylor Nelson Sofres

TRA	Theory of Reasoned Action
Tradelink	Tradelink Electronic Commerce Limited
traditional public administration	Traditional brick-and-mortar public administration
TSEF	Tax Site Evaluation Framework
TTRS	Textiles Trader Registration Scheme
U.K. / UK	United Kingdom
UMI	University Microfilms International
UN	United Nations
UNPAN	United Nations Public Administration Network
URL	Uniform Resource Locator
U.S. / US	United States
VCF	Value creation framework
VCP	Value creation process
VIF	Variance Inflationary Factor
VOIP	Voice over Internet Protocol
VPN	Virtual Private Network
W3C	World Wide Web Consortium
WAI	Web Accessibility Initiative
WAM	Web Assessment Model
WTO	World Trade Organization
XML	Extensible Markup Language

Chapter 1 Introduction

1.1 Background

Since the 1990s, governments worldwide have been adopting information and communication technologies (IT or ICT) and the Internet. The result is a dramatic change in their delivery of public services and in relationships among citizens, businesses, employees, government departments and agencies. Benefits of such electronic government (e-Government) facilities include streamlined departmental administration and business operations, and easy public access to information (Carter and Belanger, 2003). Applications can be processed more quickly and efficiently, reducing costs for the business sector (Henriksen and Andersen, 2004), while e-Government initiatives can reduce the costs of public service delivery for the government and improve its internal and external performance (Holliday and Kwok, 2004). In short, e-Government initiatives benefit governments, their citizens and their businesses.

In this connection, the importance of developing e-Government has been acknowledged by a number of leading governments in the world. Notable evidence can be found from UNDESA (2005) at time of conducting the current study that global e-Government endeavors in terms of greater efforts and investments had been significantly made as in 2005. To this end, the current study revealed that around 94% of the United Nations (UN) member states had already embarked on their respective e-Government ventures, which was indeed a remarkable electronic service delivery (ESD) target achieved. Such efforts and investments had been measured in the study with the construction and comparison of e-Government readiness index, which is a collective measure of the capacity and willingness of each different UN member country to provide public services through the adoption and application of IT.

While e-Government capacity was specifically defined in the study as encompassing financial, infrastructural, human capital, regulatory and administrative capability of a public sector or government on the one hand, e-Government willingness was generally referred to empowering the general public through the provision of information and knowledge on the other hand. In this connection, the rankings of e-Government readiness out of 1 point were reported in the study for the top representative countries around the globe in 2005, including the United States (U.S.) (0.9062), Denmark (0.9058), Sweden (0.8983), the United Kingdom (U.K.) (0.8777), Republic of Korea (0.8727), Australia (0.8679), Singapore (0.8503), Canada (0.8425), etc. Notwithstanding these stated figures, it is also much appreciated from the study

the greatest benefits and hence importance of e-Government development because most surveyed UN member countries in regions, including North America, Europe, South and Eastern Asia had achieved higher level of e-Government readiness while comparing with the world average 0.4267 in 2005.

While taken into account the study of UNDESA (2005), there exists another one (The Economist Intelligence Unit, 2005) that evaluated e-readiness of 65 countries, that is, the world's largest economies in the e-Government domain. This study was carried out in cooperation with the International Business Machines (IBM) Institute for Business Value in 2005. In certain extents of measurement, the e-readiness rankings also illustrated the degree of government spending on IT as a proportion of Gross Domestic Product (GDP) and hence importance of e-Government development. Based on the findings of the study, it is noted that Denmark, the U.S., Sweden, Switzerland and the U.K., Hong Kong Special Administrative Region (HKSAR), or alternatively, Hong Kong, Australia, Singapore, etc. obtained e-readiness score higher than 8 out of 10 points. Additionally, there were around 40 out of 65 countries reported as having rather high e-readiness score in the range of 5 – 8 points.

While comparing the electronic services delivered for different sectors of the public community including citizens, businesses and government employees, in particular, it is perceived from Heeks (2006) that 35% of the U.K. businesses, which was more than 18% of citizens, had already had online interactions to deal with various government businesses as in 2003. In addition, the author emphasizes the more significant economic return on investment (ROI) in the implementation of e-Government initiatives specific to the business sector. With the notion of higher returns just mentioned, it is also noted from this study that more government-to-business (G2B) electronic services were provided dedicatedly to the business community in the European Union (EU) as found in 68% of sampled G2B websites, which offered full electronic case handling, whereas just 31% of sampled government-to-citizen (G2C) websites delivered the same functionality as in 2004.

Another benchmarking study on online public services was prepared by Capgemini (2007) on behalf of the European Commission (EC) to present the historical progress of the core measurement of full online availability of a suite of 20 selected G2B and G2C electronic services across 31 countries in Europe. This study supported the findings of Heek's study (2006) as mentioned in the preceding paragraph. Accelerating progress had been made by the countries involved since 2001 until 2006 in terms of provision of G2B electronic services (an

average of 68%) and G2C electronic services (an average of 40%) as in 2006. As can be seen from the significant gap between the supply of G2B and G2C electronic services, and clearly, electronic services for businesses are more common than those for citizens in Europe.

Such importance and significance of electronic services for businesses, that is, G2B initiatives are actually attached to their rich capabilities developed for the digital delivery of business services. To this end, there are substantial benefits that will result either directly or indirectly from G2B initiatives, meaning that both large business firms, small and medium sized enterprises (SMEs) should be aware of and take full advantages of using the electronic services of these G2B initiatives. In generalizing the numerous benefits G2B initiatives would confer on them, Carter and Belanger (2003) described that the business sector is allowed to access timely and accurate government information, and to transfer or exchange the required transaction data with the use of G2B electronic services, thereby facilitating the conduct of efficient online transactions in the sale and purchase of goods or services with government departments and agencies.

1.2 Motivation for research

The motivation for carrying out the current research was threefold. First, the ever-intensifying competition driven by global market forces means that business firms are seeking more seamless coordination and networking with government departments. To this end, the business sector in many countries is encouraging the government to streamline bureaucratic processes, enhance communication between businesses and government organizations, and improve operational efficiency by providing and expanding electronic services in G2B initiatives at the national level. The success of the G2B sector enables the promotion of electronic commerce (e-Commerce) for business-to-business (B2B) initiatives, where businesses deal online with their buyers, sellers and partners across the globe (Gibbs, Kraemer and Dedrick, 2003). As a result of improving their efficiency, effectiveness and reliability, business firms become more sustainable and globally competitive (Aichholzer and Sperlich, 2001). Additionally, Devadoss, Pan and Huang (2002) emphasized that G2B initiatives are candidates to be studied in the research related to e-Government because they largely require the substantial involvement of the Internet-connected government agencies and businesses. This research therefore focused on the role of G2B initiatives in building a comprehensive and responsive e-Government environment in a “one-stop, non-stop” way.

Second, such G2B initiatives also present challenges (Devadoss, Pan and Huang, 2002), such as the need to re-engineer internal bureaucratic procedures and establish external interaction mechanisms between government agencies and the business community. An appreciation, therefore, of factors that influence the success of G2B initiatives enhances our understanding of the broader topic of e-Government.

Third, research has tended to concentrate on a particular aspect of e-Government development, such as e-Readiness; back-offices' business re-engineering processes; the use, availability and quality of websites, portals and electronic services; and the impact of e-Government on economic, social, democratic and organizational processes (Kunstelj and Vintar, 2004). For example, Carter and Belanger (2003) evaluated citizens' intention to use e-Government services according to perceived characteristics of innovating (PCI) factors, including relative advantage, compatibility, ease of use and image. Grandon and Pearson (2004) built a research model to explain how SME managers' or owners' perception of the strategic value of e-Commerce influences their adoption of this technology. Such a narrow focus has left large gaps in our knowledge of e-Government processes and how they can best benefit the business community. For example, fewer than 10% of the U.S. government agencies have investigated what the business sector actually wants from G2B electronic services (Carter and Belanger, 2003), and little has been documented of the overall progress and performance of e-Government in the U.K. (Beynon-Davies and Williams, 2003). The latter commentary was also supported by National Audit Office (2007), which stated that various U.K. government organizations had been disclosing weak or insufficient information on the costs and usage of their websites, whereas some had improved the data concerned but just having slow progress. Findings from the few studies of large businesses and their B2B electronic services cannot be generalized (Grandon and Pearson, 2004); indeed, SMEs – a large segment of the business community and an important part of an economy – have been under-studied in terms of the development of e-Commerce.

It is imperative that research focuses on the uptake of G2B electronic services rather than simply articulating their provision to SMEs in terms of number of electronic services and amount invested. Therefore the aim of the current study was to gain insight into the implementation of G2B initiatives for SMEs, triggered by the underlying importance, significance, implications, benefits and challenges of these initiatives.

1.3 Research problem

As driven by the aforementioned research motivation in Section 1.2, this section describes the progress as well as performance of G2B initiatives currently implemented by governments in the developed world, identifies gaps in our knowledge and therefore lists research problems that remain unaddressed by previous studies. It then discusses the research problem in terms of the available time, resources and data, and outlines the relevance and implications of advancing our knowledge in the field of information technology management and public administration.

Although having perceived that there exists limited studies on the progress and performance of G2B initiatives, some essential findings can still be revealed from these previous studies that specifically lead to the generalization of the research problem of the current study. In this connection, the current research notes that there had been increased uptake of G2B electronic services such as obtaining online information and downloading government official forms started from 2004 through 2006. Specifically, the EC eurostat (2010) reported that around 55% of European businesses or enterprises had been using the G2B electronic services just mentioned as in 2006. While acknowledging this gradual progress made in Europe on the one hand, it is also noted from Infocomm Development Authority (IDA) of Singapore (2009) that nearly 70% of Singapore businesses had interacted or transacted with the Singapore Government as in 2005 on the other hand according to an annual e-Government perception survey conducted in 2006. Such substantial progress was likewise made as found in a study on an assessment of the U.S. state G2B web portals (Zhao, Truell, Alexander and Davis, 2007). According to one of the assessment results, around 83% of users would continue using the G2B electronic services such as “Doing Business with the State”, “How to Start a New Business”, “Employment and Workforce Information”, etc. being offered. This result clearly indicated a high level of services usage. Although having said this, the current research realizes that the users involved were not real end users of the electronic services concerned, that is, SMEs, whereas they were just business students at a Midwestern state university invited to participate in the study.

Although the factors that may contribute to the increase in uptake were not concluded in these previous studies, the main reason for the achievement tends to be the ambiguous targets set forth for ESD over the past few years as mentioned in Section 1.1. Nevertheless, with respect to measuring success, do the figures simply reflect that more members including SMEs of the business community will use G2B electronic services when there are more provisions of such

e-Government services in general? This is a rather loose and quantitative sense of measuring success because only the service quantity is dealt with. Or with a second thought on the public service quality, whilst having the assumption that those mindset barriers and non-infrastructure barriers are already eliminated during the course of adoption, does the use of G2B electronic services resort to some facilitating or success factors such as the expansions and enhancements of such e-Government services including their affiliated functions, features and facilities, from just informational and interactive to transactional uses? For the remaining percentages of businesses that do not use G2B electronic services, then what are the deficiencies in the functions, features and facilities provided?

However, the measure of G2B websites' success should include not only their usage statistics but also the level of business satisfaction with various G2B electronic services. It is necessary to explore what facilitates some electronic services being widely used, and the deficiencies in those not been commonly accessed, thereby ensuring a more accurate assessment of the service quality for the successful implementation of G2B initiatives.

In terms of SMEs and G2B initiatives, the focus of this research, previous studies have left some questions unanswered at time of conducting the current study. For example, Grandon and Pearson (2004) found that most SMEs have been reluctant to use e-Commerce services. Does this also mean that SMEs are reluctant to use G2B electronic services in the e-Government context? They found that more than 80% of SMEs in the U.S. use the Internet, but their use of e-Commerce services remains limited to seeking information and communicating via email. The authors provided no explanation of their findings in terms of the quality of various e-Commerce services. Similar findings were also gathered from a census of all central government websites of the U.K (National Audit Office, 2007). According to this report, a number of the U.K. departments and agencies participated in the census, and identified the extent to which their e-Government services were used by citizens and businesses in general as in 2006. The survey result showed that among all of the e-Government services provided, 49% are informational ones, whereas just 4% served for e-tendering or e-procurement, and 2% for purchasing purposes, which should be largely transactional in nature. All these evidences demonstrated that transactional e-Government services were still not very common at time of reporting although most leading governments have committed to the longer-term development of e-Government to enhance the overall service quality in a more comprehensive and dynamic manner.

Consequently, if these goals can be achieved in the context of e-Government, do SMEs or business users like to use transaction services in particular, and why? Can the quality of such transaction services deteriorate? If so, how can the quality of public service transactions be improved? Although barriers to adoption have been identified, such as authentication, security and privacy issues, have these factors been empirically tested and appropriate conclusions drawn? In summary, previous studies have not focused on the quality of G2B electronic services. What, then, are the success factors that lead to higher satisfaction for SMEs using G2B electronic services in the context of e-Government?

For the research gaps mentioned in the preceding paragraph, some previous studies have addressed in certain extents although in the context of business-to-consumer (B2C) e-Commerce only. Typical examples of such studies include Schubert (2003a), Kurnia and Schubert (2004), Kurnia, Leimstoll and Schubert (2005), which adopted Extended Web Assessment Method (EWAM), to evaluate various websites developed in the e-Banking and online grocery sectors along the dimensions of ease of use, usefulness and trust and from a consumer perspective. As another example, Economides and Terzis (2008), although having considered using EWAM, actually adopted Tax Site Evaluation Framework (TSEF) to evaluate tax websites in the G2C context, whilst also confining to study critical factors such as content, presentation, usability, technical, e-Services and interactivity, which would contribute to the success of G2C initiatives from the perspective of citizens only.

Nevertheless, the aforementioned research gaps remain not fully addressed in the specific aspects of SMEs and G2B initiatives in previous studies at time of conducting the current research. The current study was therefore carried out in the HKSAR for a number of reasons. First, the government of the HKSAR (the Government of Hong Kong Government) is leading by example through its comprehensive e-Government policy, the 2001 Digital 21 Strategy (Digital 21 Strategy of Hong Kong Government, 2007a). The government's ongoing efforts were further delineated in the 2004 Digital 21 Strategy (Digital 21 Strategy of Hong Kong Government, 2007b), which outlined the Government's move away from a conventional approach to public service delivery, and a strategy to reduce the bureaucracy of its departments and provide customer-friendly, business-oriented, value-added "one-stop" electronic government services to the public through the adoption and application of IT.

Second, SMEs in the HKSAR are increasingly emphasizing their business relationships and trading globally, and so an explosive growth in e-Commerce is likely. The Government should therefore streamline the coordination and collaboration available to SMEs by providing useful and convenient G2B electronic services that facilitate smooth and swift Internet access.

Third, transactions by SMEs with the Government involve complicated bureaucratic processes. This complex administrative context is ideal for investigating and empirically testing the research problem. Last, the required data on SMEs in the HKSAR are readily available from the literature and government documents.

The research problem is stated as follows:

The research study is about examining the factors that contribute to the development of a viable success model specifically for the implementation of G2B initiatives in the HKSAR.

The statement of the research problem is justified in terms of (1) its interest, importance and relevance to researchers and senior management of G2B initiatives, (2) the implications for practice and stakeholders, and (3) paving the way for carrying out potential future research of similar nature, in particular for the successful implementation of G2B initiatives within the e-Government framework.

Overall, the justifications just mentioned can be explicated that the theoretical G2B success model developed in this research addresses the knowledge gaps about G2B initiatives identified in the literature, and has the potential to contribute to similar models in related or similar disciplines. The model will enable governments to adopt a multi-faceted approach to implementing G2B initiatives, assisting them to identify and eliminate any impediments to the satisfactory use of G2B electronic services, and effectively promote their use. Specifically, implementing successful G2B initiatives requires a well-defined and coherent framework that incorporates both implementation practices – the implications for practice, and the associated value creations – the implications for stakeholders. Hence, governments should base on a new paradigm for implementing G2B initiatives; such a strategy should differ from the conventional approach to developing e-Government in the public sector and implementing B2B initiatives in the private sector, thereby pursuing a level of efficiency and effectiveness

in providing innovative G2B electronic services that encourage more widespread use. Following the basic tenets of the theoretical G2B success model and based on the current research findings, implications for practice are provided with recommendations or improvements for the successful implementation of G2B initiatives in the HKSAR on the one hand, whereas implications for stakeholders involved are provided with the values that would be created having fulfilled the improvements concerned on the other hand.

1.4 G2B initiatives in the HKSAR

The current research focused on two particular G2B initiatives in the HKSAR, and evaluated their success by examining how system characteristics such as website functions, features and facilities influenced the performance of the selected G2B systems. This section describes the trading industry in the HKSAR and the general importance of G2B initiatives for the industry, and provides a brief background of the two selected G2B initiatives.

1.4.1 The trading industry in the HKSAR

The trading industry in the HKSAR was chosen as the focus of the current research because of its vital importance to the Hong Kong economy. The World Trade Organization's (WTO) policies of open and international trade have led to a wide variety of trading businesses – including imports, exports and re-exports – being established in the Hong Kong economy. Trade dominates the Hong Kong economy with the value of traded goods reaching HK\$4,579.6 billion in 2005 according to the trade statistics published by the Trade and Industry Department (TID) of the HKSAR (TID of Hong Kong Government, 2005a). In 2005, Hong Kong ranked 11th among both the world's leading importers and exporters, and accounted for 2.8% of the world's total imports and exports (TID of Hong Kong Government, 2005b). In this connection, it is also noted that the total population of SMEs registered and established in the HKSAR had been approximately 280,000 as in 2005, which constituted more than 98% of the overall business establishments and employed about 50% of total workforce in the private sector (TID of Hong Kong Government, 2005d). Of these establishments, around 34.5%, that is, approximately 96,602 SMEs had engaged in import and export businesses according to the quarterly report of employment and vacancies statistics compiled by the Census & Statistics Department (C&SD) of the HKSAR in 2005 (C&SD of Hong Kong Government, 2005).

Imports arrive in Hong Kong via air, sea or land. Regardless of the type of goods, the importer must submit an import declaration and the Harmonized Schedule (HS) statistical

data to the C&SD within 14 calendar days of the shipment's arrival. Some commodities also require an import licence or permit. The carrier initiates customs clearance with the Customs and Excise Department (C&ED) of the HKSAR – submitted electronically for air cargo but manually for land and sea shipments – and pays any necessary excise duty before the C&ED finally releases the imported goods.

Export shipments from Hong Kong usually require the submission of export declarations and HS statistical data to the C&SD within 14 calendar days of export. Certain goods require an export licence and incur excise charges, and all exports need customs clearance from the destination government.

Both import and export procedures require traders to negotiate significant complexities, problems and challenges. Traditional procedures are either manual-intensive or semi-computerized. Despite the lack of computerization in traditional import and export procedures being perceived as a norm, automating business processes would go a long way towards making the trading industry in the HKSAR more competitive.

1.4.2 The importance of G2B initiatives for the trading industry in the HKSAR

Streamlining trading procedures by means of appropriate G2B electronic services would benefit both service providers and service consumers of the trading industry in Hong Kong. A study supports accordingly and advocates that trade facilitation, applications for permits and licences, and asset management could all be made more efficient through the provision of G2B electronic services (Van Wert, 2002). However, no studies to identify the influence or benefits of implementing G2B initiatives had been undertaken specifically for the SME sector engaged in the trading industry in the HKSAR, and for which the current research carried out the main investigations accordingly.

At present, several G2B websites have been implemented in Hong Kong:

- (1) The Business Entry Portal delivers joined-up and “one-stop” G2B electronic services under the ESD scheme for the business community to access a diverse range of government-related business information (Digital 21 Strategy of Hong Kong Government, 2007c).

- (2) The Electronic Tendering System establishes an electronic market place, facilitating the conduct of Government procurement activities such as releasing public tenders, receiving bids, making quotations and purchases over the Internet (Cabinet Office, 2001).
- (3) The Support and Consultation Centre for SMEs (SUCCESS), developed by the TID of Hong Kong and collaborations of trade organizations, private enterprises and other government departments, provides SMEs with information for running their business more effectively (TID of Hong Kong Government, 2005c).
- (4) Two G2B initiatives, *Tradelink-eBiz* and *Ge-TS*, have been developed and run by Tradelink Electronic Commerce Limited (Tradelink) and Global e-Trading Services Limited, respectively since the early 1990s. The two companies are currently the main service providers that serve to deliver Government Electronic Trading Services (GETS) for facilitating SMEs in Hong Kong to carry out a range of front-end import and export trading activities such as the submission, compilation and handling of specific official import and export documents via electronic means (Digital 21 Strategy of Hong Kong Government, 2009). Examples of such documents include cargo manifests, declaration notices, etc. (Tradelink-eBiz, 2003).

1.4.3 The two selected G2B initiatives

The *Tradelink-eBiz* and *Ge-TS* websites were chosen as a framework for the current study for several reasons. Both have similar objectives to the current research. Their implementation scale, transaction volume and variety of electronic services make them suitable for study. Both G2B systems have proven important and pertinent in computerizing and integrating the essential steps of import and export procedures via the Internet.

Both G2B systems exhibit similar system functions, features and facilities, and they serve similar customer groups. Both G2B websites have been aggressively soliciting customers, including SMEs from the trading community in Hong Kong. As an illustration, by January 2004 *Tradelink-eBiz* had a customer base of over 50,000 subscribed companies and generally processed over 60,000 transactions daily (Tradelink-eBiz, 2003). *Ge-TS* had a target of processing daily the 50,000 local importers' and exporters' trade-related documents, with more than 17 million documents submitted electronically by the local trading community in 2002 (Ge-TS, 2004). With such a high transaction frequency, the customer bases of both G2B

systems have the potential to provide substantial feedback and comment on the development of G2B initiatives in the HKSAR.

Both G2B systems provide electronic services to the trading community in Hong Kong, which comprises banks, importers, exporters, manufacturers, freight forwarders, air carriers, sea carriers and others. The types of transactions processed by the two systems, reported in government statistics, indicate that a large majority of members in the trading community being served are SMEs (Nam, 2002). Therefore, the two G2B systems were chosen for this research in association with SMEs as the pertinent unit of analysis in order to achieve the current research objectives.

Tradelink-eBiz

Tradelink was a joint venture set up between the Government and other private sector shareholders in 1992, with the Government's shareholding about 42% (Tradelink, 2011a). Tradelink's mission is to intensify the automation and promotion of a range of fundamental and value-added electronic trading services, thereby increasing the overall productivity and enhancing competitiveness of the trading community in Hong Kong (Tradelink, 2011b). Figure 1.1 illustrates the homepage of *Tradelink-eBiz*.

Having realized that SMEs may be unable to invest in IT resources and skills for gaining accesses to G2B electronic services, Tradelink has customized its services and software, making it more affordable and convenient to use (Tradelink, 2011c). Tradelink specifically designed *Tradelink-eBiz* as a comprehensive G2B portal built to help the SME sector of Hong Kong undertaken government-related trade transactions efficiently and effectively (Tradelink-eBiz, 2011a). *Tradelink-eBiz* has two major functions:

- (1) The Tradelink Transaction Gateway, equipped with secure hardware and software, enables importers, exporters and manufacturers to submit trade declarations online to the Government, apply for various trade licences and permits, conduct online enquiries on the transaction status and other relevant information, and have access to a wide range of affiliated services including checking, validation, authentication and archival of electronic messages, electronic billing and payments, and audit trails (Tradelink-eBiz, 2011a). A subsidiary company, Digi-Sign Certification Services Limited (Digi-Sign) (Digi-Sign, 2011), which is recognized under the Hong Kong Electronic Transactions Ordinance (ETO), also delivers a variety of certification facilities that meet the

requirements of Hong Kong traders for conducting G2B electronic transactions in a trusted environment (Tradelink-eBiz, 2003).

- (2) The *Tradelink-eBiz* Information Services provide practical and useful information, including transport schedules, exhibition details, financial data, trade news and features, information on tariffs, regulations and labour legislation to the traders in Hong Kong in the form of a full range of access links or Uniform Resource Locators (URLs) to other relevant websites (Tradelink-eBiz, 2011a).

Figure 1.1 Homepage of *Tradelink-eBiz*
(Adapted from *Tradelink-eBiz*, 2011b)



Ge-TS

To position Hong Kong as a leading trade centre, the Government appointed Global e-Trading Services Limited as a new service provider for GETS, thereby promoting the benefits of e-Commerce in the local trading community, and commercializing the service packages to encourage Hong Kong traders to conduct electronic transactions as far as practicable (Ge-TS, 2011a). Figure 1.2 illustrates the homepage of *Ge-TS*.

Ge-TS was granted a licence in March 2003 to provide electronic services to the trading community. Through this outsourcing arrangement, *Ge-TS* facilitates the submission of trade-related documents to the Government, processes trade-related documents, delivers customer and technical consultancy services, and collects payments on behalf of the Government. The initial focus has been on the facilities provided for lodging import and export declarations (TDEC), and applications for Dutiable Commodities Permits (DCP) from Hong Kong traders. The service has adopted Extensible Markup Language (XML), the prevalent technology, as the standard for transmitting electronic files and documents between *Ge-TS* and the Government Gateway (Ge-TS, 2011a).

Ge-TS also provides a full spectrum of auxiliary electronic services to meet the specific business needs of the trading community. These include e-Service, paper-based pick-up service, paper-based submission counter collection service, and paper-based submission drop-in-box service (Ge-TS, 2011b). All these value-added and customized services have been delivered partnering with HongKong Post to convert paper-based TDEC into electronic counterparts on behalf of the local traders, thus serving as one of the multiple channels for the submission of trade-related documents to the Government (CTIL, 2004). The value-added and customized electronic trading services provided by *Ge-TS* create wide-ranging benefits for the local trading community in their various essential import and export trading activities.

Figure 1.2 Homepage of Ge-TS
(Adapted from Ge-TS, 2011c)



1.5 Research objectives

The current research had three main objectives. First, based on a reference model of the prevalent IT-enabled or Internet-based B2B systems (B2B systems) in the e-Commerce domain, such as websites, portals, etc., the current study explored the influences and contributions of G2B success factors (independent variables or IV) towards increasing the overall use satisfaction, comprising SMEs' usage of and satisfaction with using G2B electronic services (dependent variables or DV) in the HKSAR. These constructs were then applied to building the theoretical G2B success model, which was also perceived as the proposed G2B website evaluation method to be used for carrying out the main study. The G2B electronic services concerned are delivered under the realm of IT-enabled or Internet-based G2B systems (G2B systems) including websites, portals, etc. in the e-Government domain.

Second, the research hypotheses were tested to determine which factors of the revised G2B success model or revised research model have most influence on the successful

implementation of G2B initiatives in the HKSAR. The results obtained from this stage of the current research were used to affirm a potentially viable G2B success model having excluded those non-influencing factors. Lastly, the current research findings were compiled and presented based on the interpretation of both the multiple regression analysis results and EWAM analysis results, or alternatively, EWAM strategy evaluation results, thereby making the necessary improvements in the appropriate service aspects of the two G2B systems under examination.

1.6 Thesis outline

This chapter has outlined the current status of G2B adoption by SMEs in the HKSAR, and has presented the motivation behind the research and the research problem as well as objectives.

Chapter 2 explains the theoretical framework by discussing previous studies, thus developing the theoretical G2B success model or theoretical research model for the current study. The theoretical research model comprises a range of research questions and testable hypotheses.

Chapter 3 discusses the choice of research method, the data collection and analyses, and how the research hypotheses were tested.

Chapter 4 presents the results of several different data analyses, and discusses the underlying findings in the light of the research objectives and research hypotheses.

Chapter 5 summarizes the current research findings in terms of both the multiple regression analysis results and EWAM strategy evaluation results in conjunction with their implications for the successful implementation of G2B initiatives in the HKSAR. Any limitations or deficiencies of the current study are highlighted in terms of how they may affect the validity or generalization of the research results. The chapter also suggests possible future research directions.

Chapter 2 Literature Review

2.1 Introduction

The majority of the discussions given in this chapter are representatives of the relevant literature drawn for setting out the research context and facilitating the conduct of the investigations of the current study accordingly.

While setting out the context of the current research, this chapter first defines e-Commerce and e-Government in Sections 2.2 and 2.3 respectively. Next, the chapter discusses in Section 2.4 the relationship between e-Commerce and e-Government, examining the similarities and differences between these two mainstream Internet-based systems. Existing methods for evaluating B2B and G2B initiatives are also reviewed in Sections 2.5 and 2.6 respectively. All these discussions collectively provide a theoretical framework for developing the theoretical research model of the current study. The chapter then reviews various potential and essential factors of the theoretical research model, that is, the proposed evaluation method for G2B initiatives in terms of their importance, significance and contributions to the successful implementation of G2B initiatives, thereby providing a basis for developing a series of research questions and testable hypotheses in Section 2.7, to which the answers were found out for drawing plausible conclusions in the current research. Finally, Section 2.8 summarizes the chapter.

2.2 e-Commerce

2.2.1 Definition of e-Commerce

A broad definition of e-Commerce is economic activities carried out via electronic means (Henriksen and Andersen, 2004); such activities are paperless, timeless and borderless (Schubert and Hausler, 2001). E-Commerce can also be defined in a functional context, which has been widely taken by the business community, as comprising all commercial activities – such as exchanging data and information, conducting financial transactions and offering pre- and post-sales support – which use information and communication technologies or are conducted over the Internet (Chan and Al-Hawamdeh, 2002; Gibbs, Kraemer and Dedrick, 2003; Zwass, 2003).

E-Commerce can be viewed from the perspective of innovation, meaning to extend businesses' reach to and interaction with their customers, while also taking advantage of automation to reduce service costs (Steward, Callaghan and Rea, 1999). From a technical perspective, e-Commerce can effectively integrate different information systems within an organization, or across public and private sector organizations, in terms of data and information exchange, and conduct of transactions along different value chains (Evans, 2002).

For the purposes of the current research, e-Commerce is defined from the perspective of value creation, bringing the greatest benefit to all participants in the value chain of the particular industry:

e-Commerce is the use of a wide array of emerging technologies including information, communication and Internet technologies, which are collectively touted as the adoption and application of IT at every point of a value chain. Traditional manual or brick-and-mortar business activities are replaced, enriched or expanded by the use of IT, thereby achieving remarkable gains in productivity and economy.

2.2.2 Importance of developing e-Commerce

In many instances, e-Commerce engenders new and novel ways of doing business in electronic markets. Much of the literature on the development of e-Commerce has focused on its importance in terms of the benefits and impacts created, rather than the architecture of IT-enabled or Internet-based e-Commerce systems (e-Commerce systems) such as websites and portals currently implemented worldwide.

e-Commerce: network effects

The increasingly important network effects of e-Commerce create innovational business opportunities (Dunt and Harper, 2001). The former industrial economy was driven by economies of scale, whereas the new information economy encompasses economies of networks of products and participants in electronic markets (Shapiro and Varian, 1999). These powerful network effects are stronger in B2B than in B2C initiatives, since B2B markets require more intensive interactions among participants; indeed, the number and size of the networks could lead to undue competition, and may therefore need to be scaled up or down (OECD, 2000b).

Based on the aforementioned literature, however, the network effects of e-Commerce can create real opportunities for the business community in various areas, thereby driving the transformations for the new form of business administration. Such areas are discussed in the perspectives below in order to place high importance on the development of e-Commerce, including (1) changing organizations, (2) creating new kinds of interactions and relationships, and (3) increasing productivity and reducing costs, particularly for SMEs.

e-Commerce: changing organizations

Many studies have examined the relationship between organizational change and IT investment. O'Donnell, Boyle and Timonen (2003), for example, pinpointed the importance of such a relationship in the broadest sense. Others have focused on the critical role played by e-Commerce in spearheading change in an organization. Businesses can overcome the limitations and constraints of the conventional physical organizational structure together with classical linear and autonomous business models by diversifying into partnerships, joint ventures, etc. that is, developing new business models (OECD, 2001). Also, business firms' traditional hierarchy of command and control can be changed by greater ease of disseminating information, meaning that more business alliances or ventures can be established if information is more symmetrically distributed across the Internet-driven networks (Dunt and Harper, 2001).

Other authors specifically addressed the changes in the business models of organizations, whereas e-Commerce websites can fulfill various digital intermediary roles including facilitation, matching, trust and aggregation for the market participants. Such digital intermediaries integrate various value chains, efficiently and effectively connecting buyers and sellers both nationally and globally (Griffin and Halpin, 2002). In this way the roles and structures of traditional intermediation of universal value chain linkage have been replaced by web-enabled intermediation in electronic market places (Zwass, 2003). The digital intermediaries in the form of disintermediation can replace traditional distribution chains of goods or services (OECD, 2001), and e-Commerce enables businesses to recast their roles by taking on the functions previously performed by intermediaries or agencies. Along with these disintermediation and reintermediation efforts, existing or classic business models must either be refined so they are web-enabled and adapted to the swirling changes brought about by e-Commerce, or become obsolete (Dunt and Harper, 2001).

e-Commerce: creating new kinds of interactions and relationships

The Internet helps forge rapid and close interactions between buyers and sellers in electronic markets (Dunt and Harper, 2001). Businesses use e-Commerce to promote themselves nationally and so propel the process of globalization (Steward, Callaghan and Rea, 1999; Zwass, 2003), and the Internet has also presented possibilities and opportunities, and allowed businesses to transform their relationships and expand market potentials (OECD, 2001). Buyers and sellers are embracing the emerging opportunities of the Internet by connecting and communicating more swiftly. Compared with traditional physical market places, both buyers and sellers are able to reap the greatest benefits from using previously unimagined e-Commerce services (OECD, 2000a).

e-Commerce: increasing productivity and reducing costs

Along with transforming organizations and creating new kinds of interactions and relationships, the network effects of e-Commerce simultaneously increase productivity and reduce costs. Drawing from the literature accordingly, e-Commerce streamlines business processes and simplifies transaction steps, thereby improving the overall efficiency. Costs are also significantly reduced through lower search and price modification costs, and narrower price dispersion for identical products (OECD, 2000a, 2001). Reducing the need for inventories or reducing procurement costs via online auctions can lead to the overall improvements in procurement processes. Distribution costs can be substantially reduced as well, especially for information-intensive products or services provided over the Internet (Dunt and Harper, 2001). E-Commerce also has economic and social impacts; as businesses enter the global market through their own company website, they readily and cost-effectively build their presence and expand their business networks, thus increasing their efficiency and lowering their transaction costs in the network economy (Chan and Al-Hawamdeh, 2002).

e-Commerce: importance for SMEs

Various studies have examined the importance of e-Commerce for SMEs. As the Internet enables SMEs to increase their customer base, they become global players (OECD, 2001), more able to compete with larger enterprises (Dunt and Harper, 2001; Chan and Al-Hawamdeh, 2002). In information-intensive industries, SMEs genuinely gain the advantage of low marginal distribution costs because they do not need to pursue scale economies of distribution as previously required by large firms (Dunt and Harper, 2001).

Summary of importance of developing e-Commerce

In summary, this section has discussed the importance of developing e-Commerce along some critical dimensions. It is therefore necessary to fully realize their suitability and application in setting out the context of the current research and studying the implementation of e-Government initiatives. This is mainly attributed to the fact that e-Commerce and e-Government deliver similar electronic services to individuals and organizations (Carter and Belanger, 2003), and they are comparable as mentioned in various ensuing sections in this chapter.

2.2.3 Stages of e-Commerce

Most e-Commerce customers find that purchasing a product or getting a service involves three main stages (Griffin and Halpin, 2002). In the information phase, the customer searches for information about the required products, services and potential suppliers. In the agreement phase, the customer agrees on the terms of contract with the supplier and places the order. Finally, in the settlement phase the customer pays for the product or service to complete the transaction. Whether all three phases are completed electronically depends on the type of market in which the transaction is being conducted. A seven-stage model of e-Commerce service delivery proposed by Lenk (2002) comprises similar stages of searching for the required products or services, making decision and agreeing on the contract, and completing the payment.

2.2.4 Sectors of e-Commerce

E-Commerce activities are generally conducted over the Internet in four main areas, including (1) business-to-business (B2B), involving organizations buying and selling goods or services, (2) business-to-consumer (B2C), where organizations sell goods or services to consumers, (3) consumer-to-consumer (C2C), in which buying and selling goods or services are carried out between consumers, and (4) the intra-organizational processes that support these e-Commerce activities (Zwass, 2003). Similar classifications of e-Commerce sectors have been proposed by Dunt and Harper (2001), Schubert and Hausler (2001), Phan and Stata (2002), and Scupola (2002).

2.2.5 Importance of implementing B2B initiatives

Section 2.2.2 outlined the importance of e-Commerce in terms of network effects, changes in organizations, new kinds of interactions and relationships, increasing productivity and reducing costs, and the relevance of e-Commerce to SMEs. This section reviews the literature on the same topics but narrows the focus to one type of e-Commerce, B2B initiatives.

B2B initiatives: network effects

B2B initiatives can link all the participants involved to increase the collaboration and improve the efficiency of business operations such as the design, marketing, distribution and production of goods or services (OECD, 2001). B2B electronic commerce (B2B e-Commerce) can extend a business's impact beyond the usual value chains of the industry through its network effects. Where new business contacts will no longer be acquired in serial, and they can be developed with diverse business affiliations spread over a large geographic area in particular for B2B electronic markets dedicated for designing and customizing products, fulfilling production and logistics (OECD, 1999a). Under the realm of e-Commerce, the network effects of B2B initiatives can drive the transformations as mentioned in Section 2.2.2.

B2B initiatives: changing organizations

Due to the network effects of B2B initiatives, organizational structure is changed by enabling more symmetrical distribution of information among business partners than occurs with traditional one (Dunt and Harper, 2001; OECD, 2004). Yet organizational change can also be more implicit, meaning that B2B e-Commerce allows trading partners to become more integrated and collaborative. Consequently, business alliances or joint ventures for new product development, product customization or assembly require incisive changes in traditional business models (OECD, 1999a). In addition, new business models can be developed by creating new digital intermediaries for information-intensive products or services, which aggregate the supply of information and functions about certain goods or services from affiliated suppliers. Therefore, business firms in the Internet-based B2B environment are enabled to develop new business models or revise existing ones by restructuring their value chains, thus providing a new range of intermediary services (OECD, 1999a).

E-Commerce creates substantial benefits and profound impacts, and B2B e-Commerce is of paramount importance because it is driven by global forces that put intense pressure on businesses from their competitors, buyers, sellers, partners and counterparts. Businesses must therefore pursue effective strategies to retain their global competitiveness in the face of the network effects of B2B initiatives. As explained by convergence theorists, most businesses therefore tend to engage in similar economic activities and achieve similar economic results. However, divergence theory also explains how the Internet prevents such convergent

economic activity as a result of the inherent nature of national diversity (Gibbs, Kraemer and Dedrick, 2003). However, this perspective of national diversity was beyond the scope of the current research.

Overall, the current research supposes that organizations' traditional physical boundaries still exist, although they are becoming increasingly blurred. This actually means that powerful networks of business firms are increasingly created with the network effects of B2B initiatives. Such highly connected business networks vary in number, size and form, but all are capable of developing contemporary processes such as globalization, outsourcing, alliance, digital intermediation including disintermediation and reintermediation, depending on the nature and needs of the respective industry. In making all these happen, businesses can thus use IT to flexibly restructure their existing business processes, work practices and workforces, and to define new mechanisms for information distribution and sharing. In such a way both intra- and inter-organizational system integrations in terms of faster communications, more efficient data and information exchanges, service aggregations and segregations can be achieved, whilst also enhancing collaborations and cooperation among businesses. Thus, classic business administration and service delivery mechanisms will become increasingly discerning, facilitating the convergence and divergence of business processes, communications, online information and services subject to the specific needs of different industries. Consequently, the current study focused on the notion of a new form of business administration and service delivery mechanisms.

B2B initiatives: creating new kinds of interactions and relationships

B2B e-Commerce enables active, frequent and real-time interactions and communications among the businesses involved. It should be acknowledged that the network effects of B2B initiatives allow businesses to extend their relationships beyond those achieved by conventional linear business processes, and to expand their markets or create new business at the same time (OECD, 1999a). It is thus realized from this study that business relationships are forged with multi-directional and information-intensive network nodes and links in B2B electronic markets. OECD (2001) has also discussed that previously competitive companies, such as General Motors and Ford, can use B2B e-Commerce to build new kinds of relationships, in which both companies realize greater benefits from using a single global B2B portal than they would by operating alone.

B2B initiatives: increasing productivity and reducing costs

The B2B domain of e-Commerce achieves the largest gains in efficiency, generally ranging between 2% and 40% of total costs, depending on the industry, and leading to significant price reductions of around 4% (OECD, 2000a). Such benefits are a result of better supply chain management, lower procurement and inventory costs (OECD, 2000a; Koch, 2004), improved inventory control and customer service delivery, reduced transaction costs (Dunt and Harper, 2001), reduced times for purchase cycle and order processing, and the need for fewer inventories to support production and sales (OECD, 2001).

B2B initiatives: importance for SMEs

As innovative small firms become more aware of the benefits of B2B systems, they can discover or expand new market niches, and improve efficiency and performance through linking electronic supply chains (OECD, 2001). With greater development of e-Commerce specifically for SMEs, those businesses will realize benefits such as reduced transaction costs, improved information and knowledge management for more efficient business processes and better performance in terms of increasing transaction speed and reliability (OECD, 2004).

Summary of importance of implementing B2B initiatives

According to the literature presented so far, B2B e-Commerce always achieves a diversity of benefits. While the focus of the current research was G2B initiatives, this section has described the benefits of B2B for two reasons. First, a government providing G2B initiatives also plays the role of a customer-oriented, supplier-oriented or service-oriented organization as in B2B electronic markets, where the participating entities are mainly private business firms (Bakry, 2004). Based on this similarity, the implementation of B2B initiatives acts as a working template for the implementation of G2B initiatives to follow or copy. However, it is uncertain whether the results achieved from the implementation of B2B initiatives can be replicated by G2B initiatives, yet the similarities are sufficient for B2B and G2B initiatives to be considered broadly analogous. In view of this gap identified in the literature, the current research addressed this gap by investigating the feasibility that the success model developed for the implementation of B2B initiatives could be recast into a similar model for G2B initiatives.

Second, the implementation of G2B initiatives in the national domain, if successful after taking the B2B best paradigms, will in turn advocate the successful implementation of both domestic and cross-border B2B initiatives as well. This recursive effect of implementation of both B2B and G2B systems elaborates the fact that the numerous benefits initially achieved

nationally can be transferred as the intended benefits, which are to be radically realized globally when businesses deal with their international buyers, sellers, partners and counterparts. Based on these ever-evolving expectations in terms of reaping the benefits from both streams of web-enabled systems, a combination of B2B success factors was collectively employed as the benchmarking exemplar for setting out the current research context to study the successful implementation of G2B initiatives in the HKSAR. Although having said this, it is still uncertain whether any adaptations are needed to be introduced to the B2B best paradigms so that a local government can reproduce desirably good results from such replications when undertaking its implementation of G2B initiatives.

2.2.6 Performance of B2B initiatives

A substantial body of the literature has addressed the development of B2B e-Commerce, in particular for the adoption of various categories of B2B initiatives. Table 2.1 lists a number of studies on the performance of B2B initiatives, which discussed the investments spent on and shares attained, whereas Table 2.2 summarizes the performance of B2B initiatives achieved specifically in the SME sector. The rest of this section then examines the barriers and triggers to the adoption of B2B initiatives.

Table 2.1 Performance of B2B initiatives

Performance Information	References
In the context of e-Commerce, the B2B segment was estimated to take the most share from around 70% to 85% of total electronic sales, and projected to rise to US1.3 trillion by 2003.	o OECD (1999a)
Three-quarters of electronic commerce in 2000 was conducted between businesses or by the B2B sector, and B2B e-Commerce was expected to grow more rapidly than the B2C segment during 2000–2003.	o OECD (2000a)
Boston Consulting Group’s 1999 study found that main sectors such as motor vehicles, shipping and high technology equipment had been receiving substantial benefits when participating in the value chains of B2B e-Commerce.	o OECD (2000a)
The share of B2B e-Commerce is larger and has been growing faster than the B2C segment.	o OECD (2000b)
B2B e-Commerce accounted for the majority of e-Commerce, and was forecast to be the dominant driver for the growth of e-Commerce. In Australia, B2B e-Commerce was forecast to grow from A\$6–20 billion to A\$133–235 billion by 2005.	o Dunt and Harper (2001)
Over 73% of companies surveyed in Singapore have corporate access to the Internet, and more than one-third of the companies have also implemented B2B initiatives.	o Chan and Al-Hawamdeh (2002)
In Asia and the Pacific, total Internet commerce – including both B2B and B2C e-Commerce – was about US\$37.3 billion in 2001, and it was expected to grow to approximately US\$521.9 by 2005. B2C e-Commerce had been more dominant than	o Nam (2002)

Performance Information	References
B2B e-Commerce in these regions. However, B2B e-Commerce had been more prevalent than B2C e-Commerce in the HKSAR for the same period.	
The development of B2B e-Commerce in Singapore has been significantly more advanced than the B2C sector. As in 2002, B2B transaction value was 5.3 times that of B2C, compared with 3.9 times for the OECD average, and 2.7 times for the U.S.	o Wong (2003)
As in 2000, B2B e-Commerce accounted for significantly higher GDP than that of B2C electronic commerce (B2C e-Commerce) in Denmark, Scandinavia, the U.S., the EU and OECD countries.	o Andersen, Bjorn-Andersen and Dedrick (2003)
Danish Government's 2002 IT policy statement had a shift in focus from developing B2C e-Commerce to B2B e-Commerce.	o Henriksen and Andersen (2004)
Based on the results of the eurostat survey as in 2001, there were between 63% and 93% of businesses reported using the Internet for purchases and sales.	o OECD (2004)
Forrester, Gartner, IDC, Jupiter and others predicted that B2B e-Commerce worldwide would exceed US\$13 trillion by 2003.	o Louisiana State University, 2006
The total value of B2B e-Commerce was anticipated to rise to more than US\$2.7 trillion by 2004, whilst the Asian market accounting for 13.6% of this figure.	o City University of Hong Kong, 2006

Table 2.2 Performance of B2B initiatives achieved in the SME sector

Performance Information	References
SMEs have been lagging behind larger firms in adopting and using B2B electronic services.	o OECD (2001) o Hilson (2003)
eurostat reported that an average of 19% of enterprises across the EU were using e-Commerce for sales in 2001, of which 42% were large enterprises and 17% were SMEs. In particular, Internet purchases were more popular than Internet sales, and the manufacturing, financial and wholesale trade sectors were more likely to carry out Internet purchases and sales.	o OECD (2003c)
As in 2000, large businesses in the electronics and logistics industries were more likely than SMEs to adopt e-Commerce.	o Wong (2003)
As in 2000, SMEs had shown a slow uptake of B2B e-Commerce. The gap between SMEs and larger firms was larger for Internet purchases than for Internet sales. Additionally, Internet sales, having a share of just greater than 1% achieved by SMEs, which was much less than 11% achieved by larger firms.	o OECD (2004)

Tables 2.1 and 2.2 show the strong performance by organizations implementing and adopting B2B initiatives. In summary, the uptake of B2B e-Commerce has exceeded that of the B2C counterpart, while SMEs have been lagging behind larger firms in adopting and using B2B electronic services.

B2B initiatives: adoption barriers

Barriers to the adoption of B2B initiatives can influence their performance in terms of either supply or demand. On the supply side, the digital delivery of business services can be hampered by the limited scope of B2B systems (Gibbs, Kraemer and Dedrick, 2003), budget and time constraints, the expertise and skills required for the implementation of B2B initiatives, or regulatory frameworks (OECD, 2003c). From a demand perspective, adoption barriers include various aspects of business or national culture such as risk aversion, lack of manpower, financial and time resources (resources) in businesses, lack of innovation, and the slow pace of change in organizational processes (Gibbs, Kraemer and Dedrick, 2003).

Several studies have identified the particular challenges faced by SMEs aiming to adopt B2B initiatives, including (1) unsuitability for existing business models, (2) unavailability of the required human, technological and managerial resources as well as skills, (3) cost constraints, (4) legal uncertainties, and (5) concerns over the security and reliability of the B2B systems (Scupola, 2002; Hilson, 2003; OECD, 2003c; OECD, 2004). The situation is further complicated by many SMEs preferring to stay with traditional business processes if they find B2B e-Commerce is unsuitable, even if the costs incurred outweigh the expected benefits (OECD, 2004), and the reciprocal lack of trust between most SMEs and their clients when conducting business online (OECD, 2001).

Because of numerous and widely varying challenges associated with the implementation of B2B initiatives, the current study did not address the aforementioned macro-oriented or large-scale problems. Rather, it focused on the successful implementation of B2B initiatives at the system or micro level in the light of the research objectives.

B2B initiatives: adoption triggers

Studies in Denmark have highlighted the need for a wide level of institutional intervention to ensure the success of B2B initiatives (Andersen, Beck, Wigand, Bjorn-Andersen and Brousseau, 2004; Henriksen and Andersen, 2004). These authors described four modes of institutional intervention, including (1) regulation and legislation of e-Commerce, (2) economic incentives to encourage businesses to take up B2B e-Commerce, (3) dissemination of information about e-Commerce to research practitioners and institutions, and (4) organizational management which focuses on improving efficiency of business processes and the level of governance in the public sector. OECD (1999a), Gibbs, Kraemer and Dedrick

(2003) concur with this approach of institutional intervention, suggesting greater emphasis on key national policy factors such as liberalizing telecommunications, undertaking e-Commerce promotion as well as support initiatives, and developing comprehensive legislation regarding e-Commerce, all of which expedite the diffusion of B2B e-Commerce.

In addition to the national policy factors outlined above, the widespread participation of SMEs in B2B e-Commerce is important. For example, the Singapore Government has put much effort into helping businesses develop B2B e-Commerce through education and promotion campaigns (Chan and Al-Hawamdeh, 2002). Other studies have pointed out the importance of providing SMEs technical training, assistances and advices (OECD, 2001; Schubert and Leimstoll, 2006), management training to enhance IT and managerial skills (OECD, 2004), and additionally, education about the benefits of adoption and application of IT (Evans, 2002; Greenwood, 2005). Governments can also help by providing financial incentives and support to business schemes used by successful SMEs (Evans, 2002). Finally, OECD (2004) has suggested, rather than just encouraging SMEs to use B2B electronic services, policies that facilitate the active participation of SMEs, such as shifting the focus to enhance technology neutrality and interoperability among different systems, providing tools to assess e-Commerce benefits and costs, reducing discriminatory access, and executing such policies with wider business frameworks to enhance the effectiveness of B2B electronic services.

The aforementioned literature primarily illustrates some of the essential enablers associated with the development of B2B e-Commerce at the policy or macro level. In contrast, the study like OECD (2004) expressed different views, in particular at the micro level regarding the adoption of B2B e-Commerce. Although having such categorization of adoption triggers, the micro-oriented problems discussed by OECD (2004) are closely adhered to good system design principles, for which the current research aimed to investigate.

Kearney (2000) interviewed more than 100 private businesses and industry experts that operate on the Internet-based market to facilitate commerce between buyers and sellers. Kearney identified the importance of achieving a critical mass in B2B electronic markets, and proposed a 3Cs framework of B2B. Since B2B e-Commerce is industry-specific, the 3Cs model requires the right blend of (1) Commerce, which embodies functions related to electronic catalogues and auctions, (2) Content, with functional focus on providing commerce and other value-added content, and (3) Connection, with a technical focus on both intra- and

inter-connections among the market participants. In other words, businesses hoping to pursue B2B must formulate and execute the optimal strategy in each of the basic tenets of the 3Cs model developed for the specific industry in order to attain critical mass of buyers and sellers. Exploiting such powerful functional and technical capabilities in each domain of the 3Cs model should lead to successful implementation of B2B initiatives.

Zwass (2003) expanded on Kearney's model, and proposed a 5Cs framework for businesses aiming to adopt B2B initiatives. Here, five activity domains correspond with functional and technical capabilities of B2B systems, including (1) Commerce, which creates innovational opportunities that offer flexible pricing, product customization and electronic transactions, (2) Collaboration, which establishes networks of business relationships in electronic markets, (3) Communication with efficient and effective access, (4) Connection, which allows connectivity any time and anywhere, and (5) Computation, which enables distributed computing and data analysis for problem-solving. Zwass (2003) has described that the five activity domains in the 5Cs framework are interconnected in the context of B2B e-Commerce. Successful B2B e-Commerce relies on accomplishing the collaboration activities on multiple layers as supported by those communication activities, which in turn require the connection and computation activities done on the Internet. It is thus acknowledged from this study that successes in B2B electronic markets are partially attributed to the underlying functional and technical capabilities of B2B systems at the micro level, or at the system level when taking a B2B system perspective. These facets of B2B systems fall within the scope of the current research.

Other similar frameworks to both the 3Cs and 5Cs model have been proposed. A study by Accenture (2006a) indicated that collaboration takes the place of connection in the 3Cs framework, while Madeja and Schoder (2003) noted that individualization, customization, information richness and connectivity are essential features for commercial websites. These highlighted web features are near-equivalents of the components of the 3Cs model. An example that illustrates the 3Cs model is the successful implementation of B2B systems at Intel (Phan and Stata, 2002), where the salient functions, features and facilities of B2B systems were meshing with the innovative e-Commerce strategies pursued by the company to capitalize on the power of the Internet. In the light of commerce and content of both models mentioned above, Intel has dedicated substantial efforts to delivering online customized services through providing updated and accurate web content, that is, product and price

information. Intel's deeper, broader and more direct relationships with customers, suppliers and distributors also align with the connection and collaboration of the models concerned.

Summary of performance of B2B initiatives

This section has briefly reviewed the development of B2B e-Commerce. Tables 2.1 and 2.2 illustrate mainly quantitative aspects of performance measurement, rather than the factors associated with the success or failure of B2B initiatives. While the new array of performance metrics currently used for assessing Internet-based systems can be distorted or vague, previous studies still indicate that B2B initiatives generally achieved average to fairly high performance in the business community, but with some exceptions in the SME sector. Nevertheless, B2B is still an important antecedent of G2B in terms of implementation and assessment.

The literature identifies a set of enablers and inhibitors at both macro and micro levels that contribute to the successful implementation of B2B initiatives in the broadest sense. For the purposes of the current research, those enablers and inhibitors identified at the micro level, in particular, were taken as a starting point to understand the best practices of B2B initiatives, thus aiming to appraise what facilitating factors drive the adoption of B2B initiatives, and additionally, to identify which impeding factors need to be enhanced or removed. In this connection, this part of the literature review also serves to preliminarily reveal the success and quality criteria pertaining to the assessment method of B2B initiatives, that is, EWAM, which is described later in this chapter. After all, as a result of combining together all facilitating factors for the successful implementation of B2B initiatives, they were taken as a basis for developing the theoretical G2B success model, which was then tested and proved in the current research context.

2.3 e-Government

2.3.1 Definition of e-Government

Despite e-Government being relatively new, the term is clearly defined. Drawing from the literature available on the definition of e-Government, it is well perceived that the Internet provides a powerful tool for reinventing local governments in terms of the new form of public administration and hence public service delivery. This section presents different definitions of e-Government from different perspectives.

According to OECD (2003b), e-Government is broadly defined as transforming existing public administration to a new form of governance through the adoption of IT:

The use of information and communication technologies, and particularly the Internet, as a tool to achieve better government (OECD, 2003b, page 63).

Poon and Huang (2002) defined e-Government as having five dimensions, including e-services, e-commerce, e-democracy, e-management and e-decision making. From a customer perspective, e-Government has three main groups of functions:

E-services refers to the electronic delivery of government services to the public; e-democracy provides electronic communications between government and citizens; and e-business involves transaction-based collaborations and activities between government and commercial sector (Poon and Huang, 2002, page 271).

Having realized that explosive growth in the Internet usage and rapid development of e-Commerce in the private sector have already come into practices, there have been downward pressures exerted on governments or the public sector to deliver electronic services to both individuals and businesses through the implementation of e-Government initiatives. In essence, e-Government initiatives empower citizens and communities through the adoption of IT, especially through the Internet in delivering electronic services to the public (Ho, 2002).

The preceding definitions of e-Government are taken in the broadest sense. Moon (2002) has described e-Government from the functional perspective as the production and delivery of public services through the application of IT. To this end, the author regarded e-Government as a longer-term commitment made by governments, whereby they provide the public government information and expertise, improve the relationships with the public by delivering efficient and cost-effective public services, thereby allowing the public to easily engage in and fulfill government business and/or public service delivery processes (government business processes).

Another more concise definition of e-Government can be given that the adoption of IT and the Internet have substantially changed or facilitated the way that individuals, communities and organizations learn, work and interact, meaning that the public sector has also revolutionized the way governments work (Huang, D'Ambra and Bhalla, 2002). The

potentials of IT have been greatly acknowledged by the leading governments that the operational efficiency of public administration can be improved, whereas both internal and external relationships among citizens, businesses, employees, government departments and agencies can also be enhanced (Aichholzer and Schmutzer, 1998; Seifert, 2003; Kunstelj and Vintar, 2004). To this end, governments also expect that electronic services are provided to reduce redundant manual procedures and documentation, and to save repeated data entry efforts, thereby increasing the efficiency and accuracy of data processing and meeting the demands of the business sector for simplified processing procedures and quick turnaround times for service requests (Wilkins, Swatman and Castleman, 2002). Similar definitions to what these authors have described, were given by Seifert (2003), Kunstelj and Vintar (2004). Furthermore, the virtualization of public administration, which facilitates the rapid transfer, sharing and integration of online information and services across organizational boundaries, can be accomplished accompanying with IT-driven intra- and inter-organizational change (Bekkers, 2003).

By taking the above definitions from the functional perspective and adapting a more comprehensive view on e-Government as given by Devadoss, Pan and Huang (2002), e-Government is defined in another way in the current study as follows:

E-Government brings profound changes and drives transformations in traditional governance by notable use of a wide range of emerging technologies including information, communication and Internet technologies, which are collectively touted as the adoption and application of IT, thereby renewing and restructuring public administrative processes, improving public service quality, and reducing costs of service delivery.

In summary, this definition of e-Government will be used to establish the research context of the current study because it is in close alignment with that of e-Commerce in terms of the value creations mentioned in Section 2.2.1, and more importantly, the objectives of the current research.

2.3.2 Importance of developing e-Government

E-Government has been described in a growing body of the literature, which elucidates the importance of the phenomenon in terms of its benefits and impacts. As postulated in the

literature, these subjects are similar or equivalent to those of e-Commerce discussed in Section 2.2.1.

e-Government: network effects

The development of e-Government has signaled a range of innovational opportunities in public service delivery (Devadoss, Pan and Huang, 2002; Teicher and Dow, 2002). Again, these breakthrough opportunities reside with the network effects of e-Government, which is in association with the network effects of e-Commerce as mentioned in Section 2.2.2. By looking at the literature on virtual organizations at the general level, they can be described as network organizations, which are generally characterized by some salient attributes including location-independent, and temporary interconnections as well as collaborations among each other. E-Government initiatives that effectively apply IT to exchange and distribute information can be collectively regarded as a type of virtual organizations in the public sector (Bekkers, 2003). Such e-Government initiatives herald new ways of governance through creating both intra- and inter-organizational networks (Bellamy and Taylor, 1998; Devadoss, Pan and Huang, 2002; Martin and Byrne, 2003; Seifert, 2003; OECD, 2003b; Holliday and Kwok, 2004). These networks vary in terms of their nature, the intensity and persistency of their interactions, their communications and collaborations on the one hand, whereas their size can be scaled up for exchanging or sharing the required resources among otherwise autonomous service and/or product providers (service providers) in the fragmented public domain on the other hand.

Overall, the current research perceives that the network effects of e-Government serve to be a new array of facilitations, thereby driving the transformations for the new form of public administration, which is also termed as new public management. Therefore, new public management is the outcome of the transformational potentials exploited from the development of e-Government. In this connection, Haldenwang (2004) also regarded new public management as achieving the outcomes of administrative actions based upon quality assessment. Nevertheless, according to Else (2002), the transformations in the public sector require the infusion of new energies and concerted efforts to foster changes in processes, structures and relationships, which were realized by West (2001) as profound consequences arisen from using revamped technologies as predicted by most transformationalists. However, West (2001) also pointed out that the development of e-Government at time of the study was not within a transformational model, but rather an incremental one, which emphasizes the compelling influences of social, economic and institutional forces on the technological

abilities to alter social realities. For the purposes of the current research, the investigations will be carried out in the light of the transformational model of e-Government, and accordingly, the facilitations are discussed below from the same perspectives as articulated in Section 2.2.2, including (1) changing organizations, (2) creating new kinds of interactions and relationships, and (3) increasing productivity and reducing costs.

e-Government: changing organizations

In accordance with the doctrines of new public management, the network effects of e-Government serve to be a catalyst for substantial changes and reforms in traditional governance. As a result, implementing e-Government initiatives does not merely mean putting all public services online; rather, they provide the impetus for a new paradigm in the modernization of public service delivery (O'Donnell, Boyle and Timonen, 2003). The authors also mentioned about the requirements for both internal and external reorganizations. Internal reorganization generally refers to the changes in existing government business processes and workflows, employee work and management practices, whereas external reorganization encompasses the internal one, and relates to the arrangement of outsourcing as well as other forms of collaborations with external parties including citizens, businesses and other government organizations.

Several studies have emphasized the diversity of networked and information-mediated governance, which reveals the impacts of internal and external reorganizations on organizational structure (Bellamy and Taylor, 1998; Ho, 2002; OECD, 2003b; Bakry, 2004; Kunstelj and Vintar, 2004). Under such networked governance, these impacts can occur within a single government department or agency, vertically within the whole government or horizontally among individuals, businesses and other governments to foster concerted joint-up efforts and hence changes in organizational structure. Armed with these joint-up efforts, as a result, they facilitate sharing information resources, streamlining bureaucracy and delivering seamless electronic public services. According to Chadwick (2003), if such networked governance involves both public and private actors, virtual public agencies and private business firms exist, whilst also enabling full integration of their information systems for data and information exchanges, decision-making and public service delivery. However, Symonds (2000b) pointed out the complexity in existing public-related organizational facets including business processes, service delivery mechanisms, interaction and communication strategies, etc., and therefore, difficulties are becoming increasingly apparent when implementing e-Government initiatives.

The scope of organizational change or transformation can also include the consequences of earlier changes in the context of e-Government. For example, there are concomitant changes in terms of downsizing the workforce of the federal government of the U.S. The author also reported that the downsizing figures were actually used as the primary metric to measure the success of e-Government initiatives during the Clinton Administration (Else, 2002). In a similar vein, some studies put emphasizes on redefining the roles and responsibilities of government employees having realized that more decentralized and integrated business operations can be readily accomplished both internally and externally within the networks of government organizations. Hence, previously isolated government departments and agencies together with their islands of information systems will become a thing in the past (PRISMA, 2002b; O'Donnell, Boyle and Timonen, 2003; Seifert and Bonham, 2004).

e-Government: creating new kinds of interactions and relationships

The advent of e-Government has put pressure on public organizations to embrace networked governance as a means of facilitating intensive interactions and faster communications, and building both internal as well as external relationships. Moreover, these new kinds of interactions and relationships, which tend to be more open, dynamic and transparent than previously, are by-products of the decentralization and integration of business operations under networked governance. The ultimate goal is to encourage deeper participations of diverse groups of actors in relation to running multi-faceted businesses with government departments and agencies (American City & County, 2000; Ho, 2002; Seifert, 2003). In addition, new kinds of relationships can be forged among political leaders or networks of governments, especially when dealing with cross-border public affairs (Bellamy and Taylor, 1998). Such relationships must be built upon an awareness of improved interaction as well as communication flows and hence trust among different parties involved, thus leading to their active and wide engagements in various public administrative activities (OECD, 2003b).

To summarize the essences of these studies, the current research supposes that the attributes, that is, the shape, nature and flows of the interactions and communications between businesses and public agencies are getting amorphous than ever because the participating entities can circumvent any limitations on physical spaces and bureaucratic processes. As well, the nature of the new contacts is readily to become more affirmative, committed and persistent, which is flourished by the innate spontaneity of network communication flows for creating longer-term relationships and ensuring business continuity.

e-Government: increasing productivity and reducing costs

This part of the literature review looks at some successful outcomes achieved as a consequence of the two facilitations mentioned above. The e-Government reform agenda can lead to improved efficiency and performance of a government, and additionally, substantial amounts of savings are generated although it is rather difficult to assess the impacts of e-Government on the economic growth (OECD, 2003b). Some studies have focused on the relationship between technological use and beneficial gains in terms of greater efficiency and cost reduction (Forman, 2002; Chadwick, 2003; Bakry, 2004). Specifically, savings of up to 50% can be resulted from converting bureaucratic systems and processes in relation to public enquiry, payments, document management, tendering, etc. from paper-based and labour-intensive platforms to web-based operating one (Chadwick, 2003). Furthermore, OECD Observer (2003), Seifert and Bonham (2004) have noted that technological advances are particularly useful in networked governance settings, in which the provision and greater sharing of information, and streamlined government business processes, can lead to a trimmed cost structure. Essentially, these networked governance settings should be retained in the e-Government context, given the current stringency in most government budgets.

e-Government: importance for SMEs

It is important that SMEs are provided with a range of electronic government services including information, communication and transaction services. However, the importance of developing e-Government appears to be articulated mainly as why e-Government, that is, the online facilitator, can increase the efficiency and coverage of public service delivery for SMEs. In other words, governments largely enact the role of model users of broadband-based electronic services and content, and demonstrate the benefits for SMEs by using e-Government services, thereby increasing awareness of the Internet's potential and inviting the adoption of e-Government in the small business sector. For example, e-Procurement initiatives have been implemented as new e-Commerce models in the context of e-Government, enabling SMEs to seek new market opportunities that are more transparent and competitive than in traditional government procurement processes (OECD, 2004).

Summary of importance of developing e-Government

In summary, this section has discussed the larger transformation issues in the public administration domain, stressing the impacts while meeting the broader goal of providing a comprehensive range of online information and services. However, the potential end users of

e-Government services may be unready or uninformed about how to access and use the various types of services available. For this reason, the current study addressed the actual usage and popularity of the so-called customer-oriented e-Government services from the customer perspective.

2.3.3 Stages of e-Government

Symonds (2000a), Martin and Byrne (2003), and OECD (2003a) have described that e-Government generally has four distinct stages of development. The first stage of e-Government has highly focused on developing one-way communication websites, or alternatively, providing informational e-Government services in the best interests of citizens and businesses.

At the second stage, the original one-way communication websites become two-way communication ones, which allow the public or service consumers to provide their information in return such as in the case of change of address, rather than using some traditional and prevalent communication channels including telephone, writing and email. Therefore, more sophisticated version of informational and interactive e-Government services are delivered at this stage.

The development of e-Government then starts to embark on the third stage to bring out transactional e-Government services for formal exchange of goods or services between governments and their customers including both citizens and businesses. To this end, traditional public services are replaced partially or completely with web-based customer self-services. Examples of such e-Government transaction services include renewing licenses, paying fines, filing taxes, etc.

Lastly, the fourth stage is emerged along the direction of delivering integrated e-Government services, serving to change usual government work practices and hence public service delivery mechanisms from multiple access paths of various government departments and agencies to one possible access path based on customer needs, thus providing enriching and customer-oriented experiences to the public when they use e-Government services.

According to Moon (2002), examples of the fourth stage of e-Government include Australia's state of Victoria, Singapore's e-Citizen Centre and the U.S. Government's portal site. The author put emphasizes on both vertical or intra-organizational system integration, and

horizontal or inter-organizational system integration, whilst also stating that considerable system integration efforts remain a huge challenge for the fourth stage of e-Government.

Stamoulis, Gouscos, Georgiadis and Martakos (2001), Vintar, Kunstelj, Decman and Bercic (2003) have just defined three stages of e-Government, whilst foregoing the integrated e-Government services. However, according to OECD (2003a), the latter e-Government services are the most enhanced ones, and they are delivered by aggregating the informational, interactive, and transactional e-Government services, together with customers' willingness to share their data across different government departments and agencies. The scope of the current research included these integrated e-Government services because they demonstrate a greater understanding of a comprehensive and "one-stop, non-stop" e-Government, the goal of most contemporary e-Government strategies worldwide.

2.3.4 Sectors of e-Government

Most e-Government initiatives generally have four sectors or relationships, including (1) government-to-citizen (G2C), (2) government-to-business (G2B), (3) government-to-employee (G2E), and (4) government-to-government (G2G) initiatives (Forman, 2002; Van Wert, 2002; Carter and Belanger, 2003; Seifert, 2003; Carter and Belanger, 2004; Reddick, 2004). Examples of various e-Government initiatives that offer electronic services specific to each sector's needs in the U.S. include (1) Savings Bond Direct, which supports the online direct sale of government savings bonds to the public (G2C), (2) FedBizOpps, which serves as a single point of entry for multiple accesses to federal government business opportunities via electronic means (G2B), (3) The Office of Personnel Management's Employee Express, which allows federal employees to manage their Thrift Savings Plan accounts and health benefits online (G2E), and (4) National Environmental Information Exchange Network, which enables standards-based voluntary information exchange among different state systems and the Environmental Protection Agency's systems using common language and secure connections over the Internet (G2G) (Carter and Belanger, 2004). Each sector of these e-Government initiatives clearly manifests itself as the provision of a dedicated range of electronic services including information, communication and transaction services, which allow individuals or citizens, businesses, government employees and other government organizations to communicate, interact and conduct online transactions with the designated public agencies (PRISMA, 2002a).

2.3.5 Importance of implementing G2B initiatives

Published studies of the benefits and impacts of implementing G2B initiatives are fewer in number than those investigating B2B initiatives, possibly because B2B initiatives started earlier. In this section, both the sequence and format of presentation will be in accordance with that of Section 2.3.2 in order to place the discussions of the importance of implementing G2B initiatives in close alignment with the notable benefits and impacts of e-Government development.

G2B initiatives: network effects

Else (2002) addressed the network effects of G2B initiatives from the perspective of strategic organizational transformation. G2B initiatives are typical examples of spawning networks of online collaborations, which facilitate sharing resources and leveraging expertise of external partners including government organizations, businesses in the private sector, other non-profits organizations, etc. Such increased online collaborations create synergistic relationships within the networks of external partners, and open up new opportunities for driving organizational transformation in the e-Government context. Of all the external partners involved, it is important to link businesses into the implementation of G2B initiatives since there have been obvious successes in the private sector business transformation in the aspect of strategic sourcing, which has been equally important but under-leveraged in traditional government business processes. Hence, the network effects of G2B initiatives can be envisaged as the online linkages built together with full IT expediciencies and capabilities of businesses in the private sector.

G2B initiatives: changing organizations

Reforms in the e-Government context have addressed the full range of networked governance objectives, which apply in particular for the G2B sector. In this regard, Sheridan (2001) stated that G2B initiatives, such as e-Procurement, enable the cooperative exchange of data and information between public agencies and business firms, thereby reducing the bureaucratic burden and expediting workflows. Such collaboration means that traditional government procurement processes are radically changed or replaced with the network-enabled facilities or counterparts of e-Procurement system. More importantly, businesses will realize higher profitability, and local government will achieve long-term prosperity in international trade, which is mediated through the network effects of G2B initiatives. Devadoss, Pan and Huang (2002) have described a showcase G2B initiative in Singapore, GeBIZ, which is an e-Procurement system that has involved the participation of all government agencies and

trading partners. According to Holliday and Kwok (2004), the G2B initiative InvestHK implemented in the HKSAR, offers information services regarding investment opportunities, and communication services that provide answers to queries raised by investors. InvestHK has also been developed as an interdepartmental web-based system, which plays the role of the facilitator for running a collaborative network with other government departments and agencies.

The aforementioned literature emphasizes beneficial outcomes of G2B initiatives. However, few studies have provided details of how those outcomes were achieved, although OECD (2003b) noted that the approach to engaging in procurement processes has changed with the advent of e-Government. Businesses are likely to adopt the new business models of e-Procurement such as online product catalogues, e-Auctions and e-Marketplaces. Existing government procurement processes have been re-engineered electronically in preparation for the implementation of an e-Procurement system. These re-engineering efforts have not been limited to automating and changing the procurement process steps, but have gone into redefining the business model of traditional procurement. A study by PRISMA (2002b) into the implementation details on the provision of “one-stop” e-Government services, that is, allowing businesses to deal with government organizations in a single contact, showed that improving existing front-line public services through the application of IT has just merely restructured public service provision, whilst ignoring changes in existing hierarchies and structures because of the difficulties imposed by bureaucratic inertia. This example shows the shallowness and narrowness of changes in public service delivery mechanisms as required for front-offices, and is at odds with the discussion in Section 2.3.2 about the imperative to change organizations’ processes, workflows, work practices, information dissemination, structure and business models within the context of e-Government. Consequently, this apparent contradiction formed an objective of the current research.

G2B initiatives: creating new kinds of interactions and relationships

Some studies have addressed the creation of new kinds of interactions and relationships in relation to the implementation of G2B initiatives. For example, Van Wert (2002) summarized that businesses in the U.S. are able to better manage their business operations with the aid of dynamic and interactive, but not just relying on static or informational G2B electronic services only. To this end, good business management is indicative of the online capabilities to expand outreach, submit comments, voice opinions and concerns to public officials over a variety of trade or business affairs. All these facilitations have already been deployed on

BusinessLaw.gov, which serves as the platform for the development of a Business Compliance One Stop, one of the e-Government initiatives specifically implemented for the business sector by the U.S. Small Business Administration in 2001.

As another example, OECD (2003b) described the transformation in relationships between business suppliers and the Italy Government through implementing an e-Procurement system, which was put in production by the Ministry of Economy and Finance in 2000. In essence, business suppliers engage in e-Commerce activities in the e-Government context, and they begin to understand the emerging opportunities by using G2B electronic services for securing more government business opportunities, and hence forging new and direct relationships with government organizations. Therefore, it becomes clear from this study that G2B electronic services are not offered solely as an alternative way of doing businesses with public agencies, but as a strong imperative for businesses in the private sector to take instead in order to be more competitive. In addition to these opportunities or facilitations, businesses can extend beyond the end-to-end transactional capacity of the system by fostering relationships with other market participants such as suppliers on inventory and purchasing requirements.

Lastly, PRISMA (2002b) also offered another relevant example, stating that retail businesses are required to deal with their local government in terms of marketing and selling their products via the accesses to special Internet-based portals. This is quite analogous to using the aforementioned e-Procurement services at the bottom line. More importantly, these web-based procurement activities can be carried out anytime and anywhere without the time and geographic constraints as placed by traditional government procurement processes.

G2B initiatives: increasing productivity and reducing costs

Many authors have discussed the tangible benefits of implementing G2B initiatives, which are mainly increased productivity and reduced costs. According to Interpretech (2002), and Serfert (2003), G2B initiatives have been promoted to streamline government business processes, thereby improving both efficiency and consistency of labour-intensive tasks such as processing business license applications and renewals. Also, many companies would like to realize substantial cost savings from using G2B electronic services in the similar way as those achieved by using B2B counterparts, particularly in light of policy makers' demands for greater efficiency and reduced costs. Van Wert (2002), and OECD (2003b) also supported the above claim, stating that businesses can reduce their burdens by saving time searching the required or other business compliance information, doing business registrations and filing

taxations online, thus leading to increase the overall productivity when dealing with public agencies. These results were achieved and attributed to the fact that businesses access well-organized, user friendly and integrated G2B electronic services, whereas business data are reused throughout the business cycle, and additionally, industrial standards as well as best practices in customer relationships, supply chain, knowledge management, etc. are adopted and incorporated into the implementation scope of G2B initiatives.

Such benefits of G2B initiatives have been recognized in a number of countries. In Mexico and Chile, a web-enabled business registration system has resulted in significantly lower average processing times and costs for new business registrations (Worldbank, 2006). In the U.S., a G2B initiative was implemented, International Trade Process Streamlining, which effectively provides exporter SMEs online access through a single entry point, and offers streamlined, integrated as well as customer-focused electronic services, thereby assisting both new and existing exporters electronically throughout the entire export cycle. This G2B system takes advantages of the network effects of G2B initiatives such that the greatest benefits can be achieved in terms of the substantial increase in national exports if each of 224,000 SMEs raises its productivity even by a small amount in the overall electronic export process. Furthermore, the network effects of G2B initiatives are well appreciated in the implementation of Consolidated Health Informatics. This G2B system expedites the instant share and reuse of medical information among the U.S. government agencies and private healthcare service providers as well as insurers, and consequently, healthcare of the large majority of the U.S. population will be greatly improved. As well, continuous cost retrenchment is also realized in the area of managing, transporting, copying and exchanging paper-based medical records, and therefore, both the private healthcare and government sectors will reduce recurrent expenditures in their respective paper-based records management (Forman, 2002).

G2B initiatives: importance for SMEs

The obvious benefits and profound impacts of the implementation of G2B initiatives have brought about significant attentions in both the business and government sectors. Several Finnish studies show that businesses are the most frequent users of G2B electronic services; they extensively use the Internet when dealing with public agencies than doing e-Commerce transactions for online purchasing, orders taking, etc. G2B transaction services are more popular than B2B ones in terms of total number of transactions annually with major public agencies such as tax administration alone. Furthermore, serving businesses with well-

established functional and technological solutions can surely help government organizations better prepare for serving citizens as well with the proper applications of the G2B solutions. However, whether SMEs have been widely using G2B electronic services is unclear, although the SME segment seems generally enthusiastic about these G2B initiatives (OECD, 2003a).

Scupola (2002) has argued that public organizations act as agents of change in the diffusion of the Internet commerce or e-Commerce, and so SMEs believe that the government sector should take the lead in adopting e-Commerce and providing information to SMEs about its potential benefits by means of advertising campaigns and training programs. In particular for the former initiative, public agencies can demonstrate good examples of early adoption of e-Commerce, and then encourage SMEs to conduct business with government organizations using G2B electronic services. However, the importance of G2B initiatives for SMEs is not just securing more government business opportunities for profit generation, but also a precondition for fueling the diffusion of e-Commerce among small businesses themselves.

Summary of importance of implementing G2B initiatives

The importance of implementing G2B initiatives is comparable with that of B2B initiatives in terms of similarities and differences. In addition to setting out the current research context in this part of the literature review, it is perceived from the literature that there has been the growing debate over the implementation of G2B initiatives in the e-Government context. While the importance of the implementation of G2B initiatives has been realized in the literature, research studies have focused more on B2B systems. Nevertheless, business firms engaged in B2B and G2B activities are quite different in their choice for conducting their business electronically with the counterpart sector respectively, and also in their capability to generate profits after making such a choice. In B2B electronic markets, businesses can optimize their use of available options of business media including the Internet to generate high profits. In contrast, businesses operating within the G2B electronic markets must adopt particular or predefined new business models if they want to secure more businesses with the government sector, thus opening up new and diverse business opportunities in the longer term.

2.3.6 Performance of G2B initiatives

This section evaluates the overall performance of G2B initiatives achieved since the development of e-Government, and identifies deficiencies in the various implementations. Table 2.3 summarizes the performance of G2B initiatives, and Table 2.4 highlights the

performance of G2B initiatives achieved specifically in the SME sector revealed at time of conducting the current study.

Table 2.3 Performance of G2B initiatives

Performance Information	References
<p>Based on a report compiled by Momentum Research Group, it is noted that both citizens and business users are slightly more satisfied with their e-Government services as compared with traditional government services. The study adopted experiential ROI, including (1) application and service relevance, (2) citizen and business satisfaction, and (3) preservation of the public trust for evaluation of e-Government development.</p> <p>Percent of respondents are summarized as 67% of citizens and 65% of businesses using e-Government services, whereas 63% of citizens and 52% of businesses using traditional government services.</p>	<ul style="list-style-type: none"> Shutter and Graffenreid (2000)
<p>In a recent survey conducted to study the demand for e-Government services in the business sector in Austria, the results showed that 65% of businesses were already aware of the implementation of G2B systems from Austrian government, and 62% wanted to communicate with the government over the Internet.</p> <p>Additionally, 30% of all businesses demanded for simplified public administration proceedings when dealing with affairs related to taxes and finances, 19% for services of social security and public health insurance, and lastly, 14% for allowances, permissions, etc.</p> <p>However, only 2% of businesses actually made their contacts with the government via the Internet at time of the study. On the other hand, over half of all businesses found that the security of web-based exchange of data, transfer of money, download of data and email communications were low.</p>	<ul style="list-style-type: none"> Aichholzer and Sperlich (2001)
<p>The study used Prisma's methodology to assess six major service fields, including administrations, health, persons with special needs: the disabled and elderly, environment, transport, and tourism. As well, common cross-cutting themes among the major service fields concerned, including (1) user-centred design and involvement, (2) multi-channel service delivery, (3) social inclusion, (4) trust, security and privacy, etc. were also investigated.</p> <p>Overall, there had been a strong increase in the provision of online government services in European countries since 2001, and particularly, the proportion of electronic services delivered for businesses amounted to 72%, which was significantly higher than those for citizens.</p>	<ul style="list-style-type: none"> Westholm and Aichholzer (2003)
<p>The study adopted a two-stage evaluation model, including cataloging of information online (Stage I), and putting transactions online (Stage II) to evaluate e-Government growth in the aspects of G2C, G2B and G2G relationships. Having applied the International City / County Management Association (ICMA) Electronic Government Survey 2002 to the two-stage evaluation model mentioned above in the U.S., positive results were shown at both Stages I and II of the implementation of G2B systems or e-Procurement systems.</p> <p>At Stage I, around 15.1% of cities or municipals surveyed had the ability to review product offerings online for property and/or liability insurance, and the highest use was online product offerings review of equipment at 68.9%, and office supplies at 67.9%.</p> <p>However, only modest progress had been made at Stage II of the implementation, showing that only 2.3% of cities took part in making purchase online for property and/or liability insurances, whereas making purchase online for equipment at 45.6% and office supplies at 53.7% respectively. These results also indicated that the</p>	<ul style="list-style-type: none"> Reddick (2004)

Performance Information	References
functions of purchasing equipment and office supplies online are well developed and more advanced in G2B initiatives than G2C ones.	
<p>A five-stage evaluation model, including emerging phase (Stage I), enhanced phase (Stage II), interactive phase (Stage III), transactional phase (Stage IV), and connected phase (Stage V) was used in the study.</p> <p>As in 2007, very few countries out of 192 UN member countries had implemented transactional G2B electronic services, which included bidding for public contracts (11%), tracking of permits (6%), and payment for business registrations and permits (15%). The study also indicated that more developed countries had entered a more advanced phase of e-Government development to provide transactional G2B electronic services.</p>	<ul style="list-style-type: none"> ○ UNPAN (2008)
<p>The study employed measurement indicators, that is, e-Government online availability, size of enterprise, and Internet connection bandwidth including broadband and narrowband connections to evaluate the progress of e-Government made in the overall EU business sector.</p> <p>According to the study, there had been an increased use of G2B electronic services by EU enterprise users from 57% as in 2005 to 72% as in 2009. Such G2B electronic services largely facilitated various types of online interactions with public authorities such as obtaining information, downloading forms, sending filled forms, treating administrative procedures and submitting proposals for tendering purpose.</p> <p>Furthermore, while comparing with other relevant studies, including Aichholzer and Sperlich (2001), Westholm and Aicholzer (2003), the results reported as in 2009 had shown a remarkable performance achieved in the context of implementing G2B initiatives.</p>	<ul style="list-style-type: none"> ○ EC eurostat (2010)

Table 2.4 Performance of G2B initiatives achieved in the SME sector

Performance Information	References
<p>As reported by the Flash EuroBarometer SMEs 2000 study, which focused on the demand for e-Government services in the business sector, only 27% of businesses used the Internet to communicate with public agencies, and 13% answered public calls for tender online.</p> <p>As well, almost half of all businesses agreed that they were able to reduce communication costs from using G2B electronic services, although nearly 48% thought that the use of the Internet was not profitable at all, and there were lacks of security and trust, and legal guarantees in doing online transactions.</p>	<ul style="list-style-type: none"> ○ Aichholzer and Sperlich (2001)
<p>The analytical framework of OECD (2003a) was based on the overall OECD E-Government Project, which incorporated measures on the implementation and impacts of e-Government. According to the Tax Administration Report 2001 as mentioned in OECD (2003a), number of businesses using the electronic services of a G2B system, TYVI Project, had doubled from 10,000 in 1999 to 20,000 in 2000, and 50,000 in 2002. The TYVI Project was implemented by the Finnish Ministry of Finance (MoF) to provide electronic form on the Internet for collection of monthly tax data and reports from business firms.</p> <p>More SMEs are getting familiar with the TYVI Project having marketed by intermediary brokers and the MoF, whilst also demonstrating the project's success by means of the increase in number of business users and in rising revenues for individual</p>	<ul style="list-style-type: none"> ○ OECD (2003a)

Performance Information	References
brokers.	
<p>The study assessed the quality and user satisfaction of different types of G2B electronic services provided by the 50 U.S. states and Washington, D.C. in 2006. Specifically, the study used content analysis to record the 51 G2B portal's service characteristics, availability and capacity. Measures of capacity, in particular, included content information, web navigation, interactive, transactional and integration services. Online survey instrument was used to report user satisfaction.</p> <p>The results showed that the large majority of the 51 G2B portals had been providing the mainstream G2B electronic services such as "Business Licenses, Permits & Regulations" (92%), "Business Taxes and Reporting" (92%), "How to Start a New Business" (80%)", etc.</p> <p>However, only a minority of the G2B portals concerned provided electronic services specific to the SME sector, including "How to Finance a Business" (41%), "Small Business Information and Assistance" (37%), "Helping Businesses Succeed" (18%), etc.</p> <p>Based on the results, the study suggested that continuous improvements were required to increase the availability, and additionally, to provide advanced transactional capacity of SME-specific G2B electronic services, thereby enhancing the state economic competitiveness in the Internet-based global economy.</p>	<ul style="list-style-type: none"> ○ Zhao, Truell, Alexander and Davis (2007)
<p>The study conducted the assessment in terms of e-Government online availability, size of enterprise, and Internet connection bandwidth including broadband and narrowband connections to evaluate the progress of e-Government made in the overall EU business sector.</p> <p>Based on the study, there had been increased uptake of G2B electronic services by the EU SME sector from 54% as in 2005 to 69% as in 2009. Examples of G2B electronic services mainly included obtaining information, downloading forms from and sending filled forms to public agencies. Likewise, significant progress had been made when comparing with the study of Aichholzer and Sperlich (2001).</p> <p>However, the use of G2B electronic services in the EU SME sector mentioned above was not as high as those achieved in the EU large enterprise sector from 76% as in 2005 to 89% as in 2009. Clearly, large enterprises rather than SMEs realized the greater benefits of using the Internet to interact with public authorities. To this end, the current research supposes that improvements are required to be made in order to increase the performance of G2B initiatives specifically for the SME sector.</p>	<ul style="list-style-type: none"> ○ EC eurostat (2010)

As can be seen from Tables 2.3 and 2.4, the implementation of G2B initiatives has been largely achieving average performance since the development of e-Government. It should also be noted that progress has been accelerated gradually towards the wider adoption and use of G2B electronic services throughout different periods of time despite the SME sector's concerns with security and hence conducting transactions online.

G2B initiatives: adoption barriers

The main barriers to the adoption of G2B initiatives have not been clearly identified in the literature; indeed, most studies indicate that formidable barriers to the wider adoption of e-

Government remain. The OECD's E-Government Imperative (2003) raised four main types of barriers, including (1) legislative and regulatory barriers, (2) budgetary barriers, (3) technical barriers, and (4) the digital divide, which continue to affect government-wide delivery of electronic services if not addressed (OECD, 2003a).

The OECD Observer (2003) elaborated these four dimensions. First, legislative and regulatory barriers currently impede the development of e-Government because businesses are unsure whether electronic government business processes have the same data security and technical standards as the equivalent paper-based processes, and whether government-wide online collaborations may be inhibited because different government departments and agencies have different approaches to managing performance, maintaining accountability frameworks and sharing data. Second, budgetary barriers refer to traditional government budgetary arrangements for securing isolated funding, and IT expenditures that have not been recognized as investments for demonstrating returns and benefits. Third, the pace of technological change is outstripping e-Government development, leading to uncertainties and negative impacts on the development of e-Government. Lastly, most developing OECD countries have less access to electronic government services than their more developed counterparts. This digital divide is becoming more acute in the business community, invigorating the sense of urgency to focus attention on ways of ameliorating the problem. Although having said this, it must be acknowledged that a significant majority of businesses including SMEs have been reluctant to use e-Government services and so they voluntarily place themselves within the group of the digital divide.

Various countries have their own particular barriers to the adoption of G2B initiatives. In Japan, resistance to the adoption of e-Government generally involves social impediments including the security and trust of online government services, and additionally, internal inertias such as political weakness and rigid bureaucratic culture that hinder the full development of e-Government (Jain, 2002). In the U.K., the National Land Information Services (NLIS) was an ambitious inter-organizational project designed to combine land and map information, and to offer new value-added products or services. Traditional demarcations of government organizations and their associated networks will continue to be the barriers to the development of coordinated e-Government and hence the delivery of integrated public services. This finding also implies that long-established bureaucratic networks together with their innate human and power relationships, have not effectively enabled information-mediated changes as required in e-Government since its development (Pollard, 2000). In

summary, Huang, D'Ambra and Bhalla (2002) supported the findings of Pollard (2000), and Jain (2002) about various facets of cultural aversions to the adoption of e-Government, which include organizational culture in the public administration domain, and also, national culture as well as social norms from the perspective of the public.

From the SME perspective, a lack of security, trust and legal guarantees are considered the major impediments to the greater use of e-Government services as discussed in Table 2.4. However, SMEs also encounter other difficulties when using various G2B electronic services, even more so than large companies. The problems have yet to be fully identified, and it is imperative to determine the adoption triggers for achieving a broad acceptance of G2B electronic services by this very important user segment.

The literature identifies both the macro- and micro-level adoption barriers to e-Government from both the perspectives of governments, that is, the service providers, and their user segments, that is, the service consumers. Stated another way, previous studies have broadly defined these adoption barriers and articulated their impacts on the major user sectors or segments of e-Government initiatives including individuals, businesses, employees and government organizations. However, those discussions have been rather general, and few studies have addressed SMEs' adoption of G2B initiatives. In addition, little research has focused on problems or solutions at the system or micro level, specifically for the SME sector. These micro problems are within the scope of the current study, and apart from the aforementioned macro problems of legislative, regulatory, budgetary and cultural barriers, they are actually the main adoption barriers. Therefore, the formal research agenda of the current study combined all existing research gaps related to SMEs and the micro problems concerned.

G2B initiatives: adoption triggers

O'Donnell, Boyle and Timonen (2003) have discussed the essential enablers from the broadest perspective, articulating that the successful implementation of e-Government initiatives substantially relies on a number of back-offices' reforms. OECD (2003a) mentioned that the Finnish government has sought to provide common solutions focusing on e-enablers, which introduce complementary processes and facilities on improving physical IT infrastructure, and access channels for e-Government services including websites, portals and portable phones. As well, Aichholzer and Sperlich (2001), and OECD (2003a) have discussed that legal frameworks such as digital identification and authentication are considered for

enhancements, that is, the electronic signature law for securing the conduct of online transactions. As an accompanying measure, Aichholzer and Sperlich (2001) also stated that the widespread promotion of electronic signatures is also achieved by unified policies, standards and guidelines developed for the purpose of identification and security control across all public agencies in Austria. Furthermore, a number of trust centres have already been established to provide the required institutional and organizational infrastructure, which facilitates the use of electronic signatures in the business community.

OECD Observer (2003) has suggested that legislative and regulatory barriers could be removed by clarifying the legal requirements and conditions that ensure government-wide data security and privacy in the e-Government context. Regarding budgetary barriers, cooperative funding mechanisms should be pursued among public agencies such that coordinated bids for new funds can be facilitated to finance the development of e-Government in terms of shared IT infrastructure and delivery of seamless electronic public services. As well, public agencies should be trained to treat IT expenditures as investments that will warrant benefits in future. For the problems of technological changes, broad, flexible and technology neutral legislations as well as regulatory frameworks are recommended for adoption in order to adapt to any possible adverse impacts of emerging technologies. OECD (2004) expressed the same point of view on this micro solution. Finally, according to Fountain (2001), OECD Observer (2003), and Prattipati (2003), improving and guaranteeing equitable online accesses through better access facilities and channel management of e-Government will highly reduce the digital divide. As noted from these studies, the solution does not fully address the problem relating to voluntary participants within the specific minority group, for which other viable solutions have yet to be worked out especially at the system or micro level. Carbo, Williams and Emeritus (2004) also put forward similar suggestions as stated by OECD Observer (2003), summarizing that better processes of planning, funding, developing, implementing and operating e-Government initiatives in political, social, cultural and economic contexts are preconditions for the successful implementation.

O'Donnell, Boyle and Timonen (2003), and OECD Observer (2003) have discussed additional facilitating factors, which have contributed to the success of e-Government implementation in various extents, including (1) open and strong commitment made from the government directorate board for delivering efficient and effective customer-oriented electronic services, (2) clear strategic leadership starting from the political, administrative to

the execution levels for sustaining e-Government projects at different stages of implementation, (3) learning e-Government experiences from other countries, and (4) astute public-private partnership (PPP) framework for acquiring the skills and products to deliver more innovative and integrated electronic services accompanying with private sector channels, reducing technical and capital risks, and sharing rewards. PPP framework is a micro-oriented adoption trigger because the notion of innovations can be actually depicted as the integration of data and functions from the system perspective taken by both the public and private partners involved.

Aichholzer and Sperlich (2001) have described another important prerequisite specifically for the successful implementation of G2B initiatives, stating that the level of computer or IT literacy of the employees and businesses involved are being increased through running several education programs such as the European Computer Driving License (ECDL) program, which is organized by the Austrian Computer Society. OECD Observer (2003) also emphasized that managers need to be strengthened with broad e-Government skills in addition to the basic technical understanding or IT literacy. With such e-Government skills, managers become more competent when engaging in decision-making processes, and dealing with important issues including public-private joint venture coordination, cooperation and collaborations across public organizations in relation to implementing e-Government initiatives.

OECD (2004) has suggested organizing target programmes for the SME sector in order to facilitate more widespread uptake of online government services. These facilitating programs should aim at taking a radical reconfiguration of existing policies for IT connectivity and readiness through providing a complete account of sector-specific policy actions. Such policy actions generally include (1) rolling out affordable quality broadband networks, (2) strengthening the national-wide IT infrastructure and intellectual property protection schemes to enhance security and trust, and to ensure privacy while conducting online transactions respectively, (3) formalizing low cost dispute resolution mechanisms for both domestic and cross-border online transactions, (4) developing e-Government strategy to expand online government services realm and hence operations with SMEs, and (5) removing the impediments to IT and e-Commerce skills formation accompanying with well-coordinated and comprehensive education and training seminars, workshops, etc.

The aforementioned facilitating factors are presented mainly at the policy or macro level. Micro-level enablers depend largely on the evaluation of IT-enabled or Internet-based e-

Government systems (e-Government systems) including websites, portals, etc. on a global scale regardless of what specific system platform they are operating on, or the sector for which they are providing electronic services. Few published studies have addressed micro-level enablers, but nevertheless, some studies are still presented in this part of the literature review to inspire the thinking about the set of potential micro-level facilitating factors for the successful implementation of G2B initiatives in the best interests of the SME segment.

Among the studies mentioned above, OECD (2004) demonstrated the usefulness of authentication and digital signature systems with their usefulness and effectiveness in promoting trust and facilitating the conduct of secured online transactions with government organizations. Choudrie, Ghinea and Weerakkody (2004) mentioned that the success of e-Government systems largely depends on their efficiency, usefulness and usability. Symonds (2000a) also emphasized the need to harness the salient functionality of the Internet, by which the overall efficiency, transparency and accountability are improved especially in the context of galvanizing the vast majority of small firms, that is, SMEs to use G2B electronic services. To this end, Kunstelj and Vintar (2004) presented a critical analysis of existing approaches to monitoring and benchmarking e-Government development with special emphasis given on EU metrics. It is noted from the study that the TietoEnator Trigon's model, developed under the EC's Interchange of Data between Administrations (IDA) programme, facilitates the evaluation of the maturity level of e-Government services along the dimensions of accessibility or ease to locate, usability or ease to learn and use, supply comprehensiveness and quality. This evaluation approach was of particular relevance to the current study because it can be fulfilled from the user point of view, and also, for the development of integrated e-Government services based on the three dimensions of criteria mentioned above.

A study by SIBIS (2001) emphasized the easy accessibility of e-Government websites by minority and disability groups. Accessibility has been addressed by the EC in e-Europe 2002, and the conformity of accessibility principles is ensured based on the Web Accessibility Initiative (WAI) guidelines, which were originated with the World Wide Web Consortium (W3C). Usability is also addressed in the study, noting that e-Government websites should be designed with a clear understanding of their intended use. As well, openness and internal effectiveness are included in the evaluation of success of e-Government systems worldwide in accordance with other studies presented by the Cyberspace Policy Research Group (CyPRG). According to these studies, the openness of e-Government websites refers to the provision of interactive and contact functions as well as facilities to the public, serving to open up a new

range of opportunities for communications, and to increase the overall transparency on serial and dynamic communication layers in the e-Government context. Moreover, the enhancements on internal effectiveness through automating government operations and hence improving responsiveness to the public are equally important. At this point of discussions, the aforementioned functional and technical capabilities of e-Government systems manifest themselves as facilitating factors that would likely drive businesses' adoption from the perspective of service consumers.

In association with SIBIS (2001), Carbo, Williams and Emeritus (2004) mentioned about the importance of placing the functional and technical focus on content management, information architecture, website applications and accessibility, and information literacy as well as fluency, from which near-equivalent benefits are derived as mentioned above in particular for the large majority of service consumers.

While contemporary e-Government systems should be built with useful and powerful capabilities, it is necessary to highly appraise the underlying implementation frameworks. Satyanarayana (2001) described the 6Cs framework for implementing successful e-Government initiatives, including (1) Content which connotes the meaning of content development started from identifying the system objectives, and ended with delivering the intended benefits to the system users, (2) Competencies with IT and management skills as required at various levels in the implementation and maintenance of e-Government projects, (3) Connectivity with widespread network capability for the delivery of continuous e-Government services, (4) Cyberlaws which separately and effectively deal with the intangible evidence and assurance matters in cyber-economy, (5) Citizen Interface which means providing affordable and ubiquitous channels for accessing electronic government services, and (6) Capital with new and flexible arrangements for financing e-Government projects on a longer-term sustained basis. The 6C model contains both macro- and micro-level components. Under this model, components including content, connectivity and citizen interface are closely related to system design, meaning that they are built inheriting the contributions of those micro-level enablers as discussed in the preceding paragraphs.

Summary of performance of G2B initiatives

The performance of G2B initiatives is summarized in some key areas. First, a suite of both macro and micro solutions to the corresponding level of problems is presented. However, the aforementioned literature has largely defined enablers and inhibitors at the macro level,

whereas just a few ones at the micro level. These micro-level enablers and inhibitors are identified explicitly from both the perspectives of governments, that is, the service providers, and their user segments, the service consumers although most of them are not specific to the business community, and even to the SME sector at all. Along this line, there are still equivocal findings on the micro problems and solutions regarding the implementation of G2B initiatives, meaning that they have not been extensively studied in the literature to completely review the overall performance of G2B initiatives.

Second, research focuses were placed on the micro problems and solutions for the purposes of the current research. This study expanded on the work of Koh and Prybutok (2003), who noted that, although it is important to recognize specific functions, features and facilities at the micro level as a new paradigm in the development and design of e-Government systems, it is still necessary to note the additional rationales for seeking a broader framework for the successful implementation in the aspect of intelligently organizing and effectively managing e-Government systems. The authors proposed the Three-Ring Model, a simple, intuitive and comprehensive implementation framework that categorizes the functions, features and facilities of e-Government websites according to (1) informational, (2) transactional, and (3) operational uses. According to the study, the broader implementation framework still requires identifying additional facilitating factors at the system or micro level.

2.4 Comparison of e-Commerce and e-Government

This section compares e-Commerce and e-Government in two dimensions, including (1) the selected characteristics in Section 2.4.1, and (2) the importance in terms of value perspectives of changing organization, creating new kinds of business interactions and relationships, and increasing productivity and reducing costs and other essential criteria in Section 2.4.2. In particular for the second dimension, various categories of value and impact creations are thus presented in separate fields or disciplines, thus enabling intuitive comparison between e-Commerce / B2B and e-Government / G2B systems in terms of the attributes as well as components, and more importantly, the essential rationales of the underlying means or mechanisms of the respective value creation process (VCP), that is, the value creation mechanisms. In a nutshell, since e-Commerce highly associates and is comparable with e-Government, the implementation of G2B initiatives for SMEs under the realm of e-Government will be portrayed as establishing the context of the research study, based on the comparisons done with the B2B counterparts for SMEs under the disciplines of e-Commerce.

2.4.1 Comparison of the selected characteristics of e-Commerce and e-Government

This section compares the selected characteristics including stages, sectors, performance, access, structure, accountability, mandatory relationships and trust between e-Commerce and e-Government.

Stages: e-Commerce and e-Government systems are similar

(i) e-Commerce systems

According to Section 2.2.3, customers need to go through several stages for effecting the completion of an electronic transaction in the e-Commerce context. These stages generally encompass searching the required product or service information, making decision for confirming the deal or contract, and executing the payment.

(ii) e-Government systems

Lenk (2002) summarized what mentioned in Section 2.3.3. Based on this study, it is noted that public service delivery mechanisms are modernized with consideration taken into the several typical stages of processing bi-directional e-Commerce transactions.

Sectors: e-Commerce and e-Government systems are similar

(i) e-Commerce systems

As can be summarized from Section 2.2.4, e-Commerce activities are categorized into the B2B, B2C, C2C sectors, and the intra-organizational processes that support the respective sector activities.

(ii) e-Government systems

According to Section 2.3.4, there are generally four sectors of e-Government with distinct implementation of G2C, G2B, G2E and G2G initiatives correspondingly.

Performance: e-Commerce and e-Government systems are similar

(i) e-Commerce systems

The overall performance of B2B e-Commerce is indicated with average to fairly high levels in Section 2.2.6 in spite of the fact that performance evaluations have not been mainly focused on measuring the quality, but rather on the quantity aspect of B2B systems.

(ii) e-Government systems

As stated in Section 2.3.6, the overall performance of G2B initiatives has been average since the development of e-Government. However, the performance information being presented does not clearly reveal the exact measurement in terms of the set of facilitating and impeding factors, which is yet to be completely defined at the system or micro level for the successful implementation of G2B initiatives. Addressing this knowledge gap, particularly for the SME segment, was one of the research objectives of the current study.

Access: e-Commerce and e-Government systems are different

(i) e-Commerce systems

Adhanda Enterprises (2000), Carter and Belanger (2003, 2004) compared the accessibility of e-Commerce with that of e-Government, stating that businesses are allowed to choose their customers in the free e-Commerce market places.

(ii) e-Government systems

Government organizations obligate to provide the entire eligible population including individuals and businesses various access opportunities to e-Government services. To this end, both individuals and businesses' rights to access, and the relevant political factor have to be considered in the first place when implementing e-Government initiatives (Adhanda Enterprises, 2000; Carter and Belanger, 2003, 2004).

Structure: e-Commerce and e-Government systems are different

(i) e-Commerce systems

Carter and Belanger (2003, 2004) compared the structure of businesses in the private sector with that of government agencies in the public sector, stating that decision-making authority is more centralized in the private sector.

(ii) e-Government systems

Decision-making authority structure is less centralized in the public sector, indicating that the dispersion of authority genuinely induces obstacles to the development and implementation of new e-Government services (Carter and Belanger, 2003, 2004). However, Chadwick (2003) claimed that the dynamics of e-Government facilitate rapid accesses to centralized databases for responsive decision-makings. Although having such dissimilar viewpoints, it is perceived from these studies that decentralized decision-making authority structure becomes cohesive again with the aid of centralized IT facilities that are provided in decision-making processes.

Vintar, Kunstelj, Decman and Bercic (2003) emphasized the emergence of changes in the entire structure, but not just confined to decision-making processes of public administration. With such radical restructuring in the e-Government context, the development of new mechanisms and procedures of public administration, and hence the delivery of new electronic government services are highly envisioned. Chadwick (2003) also mentioned that e-Government systems facilitate the flattening of hierarchical command structures, serving to empower employees in the government sector with greater creativity, and the capability for self-organizing and nurturing more collaborative relationships among each other.

Accountability: e-Commerce and e-Government systems are different

(i) e-Commerce systems

Carter and Belanger (2003, 2004) stated that the commercial sector does not need to reinforce accountability in terms of service provision.

(ii) e-Government systems

Public agencies of a democratic government should fulfill the mandatory requirement to increase the transparency and accountability of public service delivery in either traditional public administration (traditional brick-and-mortar public administration) or e-Government context. The new underlying mechanisms should therefore be pursued under the realm of e-Government for allocating the required resources, designing and implementing e-Government systems with interconnected government-wide functions, features as well as facilities, thus making a strong and open commitment to delivering transparent and accountable electronic government services in the best interests of the public (PRISMA, 2002b; Carter and Belanger, 2003, 2004).

Mandatory relationships: e-Commerce and e-Government systems are different

(i) e-Commerce systems

According to Carter and Belanger (2003, 2004), relationships between the participating entities involved are free and dynamic in the e-Commerce context on the one hand, whereas the relationships are not mandatory to be created and so long-term committed on the other hand.

(ii) e-Government systems

Mandatory relationships are recognized collectively as a distinguishing feature of e-Government from e-Commerce. To this end, government organizations should offer the

flexibility to persons for submitting personal information via electronic means (Carter and Belanger, 2003, 2004).

Trust: e-Commerce and e-Government systems are similar

(i) e-Commerce systems

Carter and Belanger (2003, 2004) emphasized that trust is of paramount importance for incorporation into the design and implementation of e-Commerce systems in order to support the electronic mediation of transactions to be conducted over the Internet.

(ii) e-Government systems

In the e-Government context, online rather than face-to-face interactions are highly demanded with service consumers in the conduct of electronic transactions as compared with traditional manual-intensive ones (Carter and Belanger, 2003, 2004).

2.4.2 Comparison of the value perspectives of e-Commerce / B2B and e-Government / G2B systems

This section compares the value perspectives including productivity, cost, profitability, administration, collaboration, service delivery, competition, advertising and marketing between e-Commerce / B2B systems and e-Government / G2B systems.

Productivity: e-Commerce / B2B and e-Government / G2B systems are similar

(i) e-Commerce / B2B systems

As summarized from Section 2.2.2, e-Commerce substantially increases the productivity of commercial activities in electronic mediation since the network effects of e-Commerce come into play to streamline and simplify the business steps involved. This value perspective is likewise taken when implementing B2B initiatives according to Section 2.2.5, aiming to embrace supply chain management, procurement processes, order processing and inventory control in the beneficial domain.

(ii) e-Government / G2B systems

As presented in Section 2.3.2, benefits are mainly realized in networked governance as the improvements on the overall productivity of public administration by means of the provision of information, greater sharing of data, replacement of paper-based and manual-intensive with streamlined government business processes. To the extent that these networked governance

settings should be configured in the e-Government context, they should also be retained when implementing G2B initiatives.

According to Section 2.3.5, and OECD (2003b), value creations are unleashed in terms of the tangible benefits brought to both governments and the business sector. With the use of G2B electronic services, labor-intensive tasks such as processing business license applications and renewals are substantially streamlined on the government side, whereas on the business side, searching business compliance information, doing business registrations and filing taxations online become more productive than traditional ways of dealing with public agencies. However, OECD (2003b) pinpointed that accurate assessment of efficiency gains of respective e-Government project is quite difficult to accomplish due to the lack of accepted or benchmarked measurement methods, or in other case, because of lesser importance of efficiency concerns in some e-Government projects, which just go for undertaking specific policy and political imperative.

Cost: e-Commerce / B2B and e-Government / G2B systems are similar

(i) e-Commerce / B2B systems

As stated in Section 2.2.2, substantial benefits are gained particularly in the aspect of lower search costs, lower costs in price modification, narrower price dispersion for identical products, reduction in procurement costs via online auctions, and in distribution costs for information-intensive products or services. Similarly, the implementation of B2B initiatives also reinforces the benefits realization having taken the same value perspective of reducing inventory and procurement costs as mentioned in Section 2.2.5.

(ii) e-Government / G2B systems

According to Section 2.3.2, although the economic impacts of the development of e-Government are difficult to estimate and access, the literature still claims that substantial cost savings of up to 50% in some cases can be realized as a consequence of taking the obvious advantages of productivity achieved from the implementation of e-Government initiatives. The business community, in particular, also gains the benefits of reduced costs from increased productivity when using G2B electronic services to deal with public agencies as discussed in Section 2.3.5.

Likewise, OECD (2003b) discussed the same difficulties above. However, its development still carries a potential degree of other impacts on the whole economy such as promoting

broader information society and demonstrating the take-up of e-Commerce. Seifert and Bonham (2004) supported this latter argument, stating that the economic development of a local government in terms of attracting foreign investments will substantially rely on its concomitant e-Government development.

Profitability: e-Commerce / B2B and e-Government / G2B systems are different

(i) e-Commerce / B2B systems

The value perspective of profitability has been strongly taken by the development of e-Commerce and the implementation of B2B initiatives. Since generating high profitability is critical in the private sector, businesses should therefore justify the implementation of B2B initiatives in terms of the initial and concurrent expenditures, future cash flow return, and attenuation of all the potential risks and uncertainties concerned (Osborne, 2005).

(ii) e-Government / G2B systems

Unlike businesses in the private sector, public agencies do not consider profitability when implementing G2B initiatives, and they have to take into other qualitative factors into consideration, including (1) the mandatory accountability of serving the diversified interests of both intra- and inter-governmental organizations, task forces and taxpayers regardless of whether there will be profit generation, and (2) the possibility of a disincentive to launch a G2B project that generates an excessive cash flow, which may be a penalty for success in some implementations because the excess profits will not normally be retained by the public agency that implements a particular project, or else controversies may be likely raised if the public agency intends to retain the profits (Osborne, 2005).

Thus, the public sector lacks a profit motive that would not normally be treated as a primary concern when developing e-Government (Osborne, 2005), and takes a different value perspective from that of the private sector in terms of profitability and financing (Lindskog and Wennberg, 2002).

Administration: e-Commerce / B2B and e-Government / G2B systems are similar

(i) e-Commerce / B2B systems

Business process re-engineering. According to Section 2.2.2, it is summarized that the new form of business administration is achieved through simplifying and streamlining existing business processes, operations as well as flows, and defining new mechanisms for information distribution and sharing. These fundamental changes, together with the adoption of IT, are

actually perceived as essential elements of business process reengineering (BPR) in classic business administration for the creation of the network effects of e-Commerce. These network effects are also transferred to those of B2B e-Commerce, meaning that BPR results and hence value creations are expected to achieve in the implementation of B2B initiatives as summarized from Section 2.2.5.

Organizational structure. As stated in Section 2.2.2, the network effects of e-Commerce definitely change the physical proximity of conventional organizational structure. Businesses will no longer be isolated, autonomous or just self-sustained based on the fact that traditional command, closed and control hierarchy of business firms will not be prevalent in the information age since there has been greater ease of dissemination of information within the open networks of businesses. This profound change in organizational structure is actually brought about with BPR efforts spent, and is also carried over to the implementation of B2B initiatives as mentioned in Section 2.2.5.

Interactions and relationships. As summarized from Section 2.2.2, the Internet facilitates opening up new business opportunities, establishing new business expediencies as well as connectivity, and hence transforming business relationships, thereby achieving globalization at the national level. As mentioned by OECD (2001), online, direct and dynamic interactions and hence relationships are readily and increasingly created over the Internet among networks of interested parties in the commercial sector as the new form of business administration.

According to Section 2.2.5 and OECD (2000b), B2B e-Commerce extends business relationships, which are forged with multi-directional and rich informational network nodes and links, thereby substantially creating more businesses and expanding markets than in the past. Furthermore, OECD (2000b) emphasized that businesses branded with trustworthy reputation amplify the degree and effect of being seen and known in B2B electronic markets, thus overcoming the drawback on lack of physical presence when dealing with business counterparts. OECD (1999a) also mentioned that trade initiatives implemented for the SME sector, such as decreasing or eliminating tariffs on procurement of selected IT products and equipment, encourage small firms to use the Internet for advertising and marketing themselves, and thus expanding B2B e-Commerce and international trade. Although having said this, OECD (2004) noted that larger businesses, likewise, are able to easily grasp the fair opportunities of expanding into areas in which SMEs previously dominated.

Transparency. Within the context of e-Commerce, the new form of business administration is characterized by increased transparency and visibility of business affairs. Stated another way, there have been growing pressures on business firms to articulate their responses to key areas such as environmental, economic and social challenges in relation to running their business. Thus, the overall transparency is enhanced in the best interests of stakeholders and the public community by using the Internet to post relevant information onto company websites (OECD, 2001).

However, such transparency has had negative implications for the development of B2B e-Commerce. According to OECD (1999a), the online trade issue of delivering and downloading content-rich digital products such as computer software, books, information services, etc. certainly brings about adverse impacts. It may be difficult to take traditional trade policy because the origin and destination of the digital products concerned cannot be easily tracked. Additionally, traditional notions of pricing and valuing conventional tangible products are blurred in a variety of business models of B2B e-Commerce such that clear audit trails cannot be pertinently defined and established. Since the transparency of business affairs cannot be ensured in such overly free B2B electronic markets, and consequently, larger issues connected to online trade disputes are raised, requiring substantial amounts of efforts to tackle.

Reliability. As discussed by Riedl (2004), it is generalized that most trust models consider the interplay of several important trust building factors such as (1) site quality, (2) security and privacy of web content, (3) perceived vendor reputation, (4) pre-interactional filters like trusting intention or willingness, (5) Internet skills, and (6) the development of trust. In particular for the development of trust, it is implicitly represented by the interaction and communication processes, channels and interfaces as required for achieving reliable and effective relationship management in e-Commerce market places.

OECD (1999a) discussed that B2B initiatives should be implemented with appropriate measures. This study just put a narrow focus into the security aspect, emphasizing that the application of authentication and certification is important given their role and functionality in ensuring the transaction security in B2B e-Commerce. Since the parties involved in B2B e-Commerce already know each other and they are linked contractually, the level of authentication is envisaged to be direct and simple. However, there are still problems yet to be fully addressed, including (1) the interoperability of various B2B authentication and

certification services being offered, and (2) the electronic payment settlement that requires some kinds of authentication procedures.

OECD (2001, 2004) emphasized the concerns with the security, protection of privacy and dispute resolution in e-Commerce market places, which certainly bring about notable adverse impacts on assuring the overall reliability of e-Commerce transactions. From the practical point of view, such problems disclose the incompatibility of different prevalent authentication and payment models due to diverging interests of various players involved, and the differences in legal and regulatory environments in which cross-border B2B transactions are being performed. From the business point of view, OECD (2004) also elaborated the importance of credibility to lesser-known SMEs in e-Commerce market places, and noted that the ability to build security and trust should effectively assure an online seller's credentials over the Internet.

In conclusion, tangible added values would not be gained as expected along the dimension of reliability under the new form of business administration, but instead increasing the burdens of performing electronic transactions in B2B e-Commerce when comparing with traditional ways of doing business.

(ii) e-Government / G2B systems

Business process re-engineering. According to Section 2.3.2, the network effects of e-Government facilitate both internal and external reorganizations, thus pursuing a new paradigm in the modernization of public service delivery as always revealed in the dominant strand of new public management discipline. Specifically, the doctrines of new public management delineate BPR efforts, which actually mean redesigning existing government business processes and workflows, changing employee work and management practices. OECD (2003b) supported the same argument, articulating that existing segmented public administrative processes in most OECD member countries just restrict efficient and effective information sharing both internally and externally. Haldenwang (2004), Seifert and Bonham (2004) have also discussed how BPR affects existing public administration. In particular, Seifert and Bonham (2004) elaborated BPR efforts in terms of the decentralization of decision-making and public service provision, which are certainly required in large organizations such as governments with entrenched bureaucracies.

As noted in Section 2.3.5, BPR efforts are also spent on the implementation of G2B initiatives. As a specific example, traditional government procurement processes are radically reengineered in an electronic orientation to provide the network-enabled functions, features and facilities of e-Procurement system.

Organizational structure. According to Section 2.3.2, BPR efforts nurture the development of e-Government, and in turn the new form of public administration that features the associated changes in organizational structure in the government sector. Instances of organizational change show that the public domain will no longer be fragmented within a flat government organization, whereas virtual public agencies and private business firms do coexist in networked governance, having open and diversified structural settings.

OECD (2003b) also discussed the application of email and electronic communication technologies in the context of e-Government, facilitating broader sharing of information and collaborations of work in web-based or non-hierarchical administration. However, OECD (2003a) expressed different viewpoint, stating that e-Government has not induced substantial changes in organizational structure as expected. It is noted from the study that cultural change in terms of greater staff involvement and ownership, in addition to BPR and new mechanisms for information distribution and sharing, is collectively the prerequisite for changing organizational structure, and hence leading to full exploitation of e-Government benefits. In spite of what mentioned above, the potential benefits are yet to be realized from the changes in organizational structure in the implementation of G2B initiatives according to Section 2.3.5. Therefore, the current research aimed to address the uncertainties concerned, and to incorporate them into the scope of investigations accordingly.

Interactions and relationships. The new form of public administration features new kinds of business interactions and relationships in the context of e-Government as mentioned in Section 2.3.2. In brief, networked governance facilitates carrying out decentralized and integrated business operations, whilst also enabling open, dynamic and transparent interactions as well as relationships among the actors both internally and externally, thus leading to their active and wide engagements in various public administrative activities.

According to Section 2.3.5, the implementation of G2B initiatives provides dynamic and interactive electronic services with online capabilities that allow businesses to expand outreach, submit comments, voice opinions and concerns to public officials over a variety of

trade or business affairs. All these new contacts are furnished by the network effects of G2B initiatives for creating longer-term relationships and ensuring business continuity with government organizations.

Transparency. In the context of e-Government, the new form of public administration is also characterized by the major changes in public transparency as discussed by OECD (2003a, 2003b), and Haldenwang (2004). In this regard, there have been increasing demands from laws for the disclosure of government information to the public, thereby closing traditional power gap between public agency officials and the public. As such, the increase in the transparency of government affairs will contribute to the reduction in corruption, thus leading to greater openness of government institutions and meeting economic policy objectives on the one hand, and more importantly, gaining trust from and improving relationships with the public on the other hand. In spite of the potential benefits of increased transparency, it is still subject to government decisions made on how to safeguard data privacy and disclose information at reasonable costs. The overall argument in favor of taking the value perspective of increased political and economic transparency is best perceived as the major successful outcomes achieved by decentralizing bureaucratic control, and increasing the reliability and accountability of government actions that come with the implementation of e-Government initiatives (Seifert and Bonham, 2004).

Reliability. The basic concepts of relevant trust models of e-Commerce can still be transferred to e-Government although the underlying differences have to be taken into account. Nevertheless, some trust building factors identified in e-Commerce are applied to the development of e-Government in different priorities depending on the country-specific context. Generally speaking, the implementation of e-Government initiatives takes into consideration some concerns with trust building, including (1) the pre-interactional filters such as Internet skills, assumed privacy and security risks, trusting beliefs, the lack of reputation, available web content, etc., (2) the usability in terms of the shortened time spent on the unpopular interaction with public agencies over the Internet, which may eventually entail distrust in using e-Government services, and (3) the provision of rich communication facilities that enhance the trust-worthiness or reliability of e-Government services. In addition to the identified trust building factors, the values of trust are created from the exploitation and best combination of more advantageous factors of e-Government. In the broadest sense, the success of economic growth depends largely on the recognition of the effectiveness and trust values of G2B electronic services (Riedl, 2004).

Collaboration: e-Commerce / B2B and e-Government / G2B systems are similar

(i) e-Commerce / B2B systems

Although it cannot be concluded from Section 2.2.2 that collaboration efforts have been substantially made while implementing e-Commerce systems, it is still expected to foster such collaboration efforts from the implementation of B2B systems. As summarized from Section 2.2.5, the network effects of B2B initiatives transcend traditional organizational boundaries. Transcending traditional organizational boundaries generally requires both intra- and inter-organizational collaborations and cooperation, meaning that both internal system integrations within an organization, and external system integrations among organizations in the aspects of communication, data and information exchange, service aggregation and segregation are to be accomplished in a seamless way. Therefore, the network effects of B2B systems are actually perceived as achieving the final collective outcome of both the full and partial integrations among the disparate information systems from a technical perspective, whereas establishing affiliated networks of companies from a business perspective.

(ii) e-Government / G2B systems

According to Section 2.3.2, seamless e-Government services are delivered by means of both internal and external system integrations, or alternatively, vertical and horizontal integrations in particular for information system domain. Therefore, it is conceivable that more parties concerned including various departments and agencies of a government, individuals, businesses and other governments are involved depending on different levels or degrees of collaborations as required. Along with the BPR efforts to restructure government business processes, to integrate different information systems for sharing and exchanging data as well as information, and expediting decision-making processes, a comprehensive range of integrated e-Government services can then be delivered from the customer point of view. Similarly, the generic collaboration approach described above is also applicable in the context of implementing G2B initiatives as stated in Section 2.3.5. As a typical example, traditional government procurement processes are reengineered, and related information systems are integrated to facilitate the provision of the networked-enabled functions and facilities of e-Procurement system. To this end, the network effects of this specific G2B system help create the collaboration efforts between public agencies and business firms for exchanging the required data and information, reducing bureaucratic burden and expediting the workflows of procurement processes.

There are other studies that addressed the issue of collaboration. OECD (2003b) compared two different approaches to modernizing traditional governance including instrumentalist approach and systemic approach. According to the study, the instrumentalist approach is seen equivalently as traditional public administration with clear division of labor, independent management focus, single-purpose and separate business operations, etc. in each government department and agency. The systemic approach achieves new public management by putting main focus on system integrations and coordination in both vertical and horizontal aspects. Such perspective can also be interpreted as the joined-up or whole-of-government perspective, which is to be taken for realizing the values created in a seamless government. To this end, a seamless government effectively integrates public service delivery processes and hence public service products in new public administration domain, and breaks down multiple bureaucratic boundaries and/or hierarchies. At this point of discussions, much has been said about the importance of system integrations in the e-Government context, and even more, most studies have discussed coordination and collaborations in an interchangeable or equivalent manner. However, OECD (2003a) argued that coordination does not simply mean collaboration, and also, cross-agency collaborations cannot be promoted to provide seamless electronic public services if both formal and informal coordination are just arranged within the e-Government context only.

Service Delivery: e-Commerce / B2B and e-Government / G2B systems are similar

(i) e-Commerce / B2B systems

According to Section 2.2.2, the network effects of e-Commerce have brought about substantial changes in traditional service delivery mechanisms. Because of the fact that more information can be disseminated symmetrically across the networks, new service delivery mechanisms feature the changes in classical linear and autonomous business models. New business models are getting to become more diversified accompanying with the formation of partnerships, joint ventures, etc. among businesses, digital intermediation, and additionally, with disintermediation and reintermediation efforts spent on replacing the roles and structures of traditional intermediation of universal value chains.

Again, due to the network effects of B2B initiatives as described in Section 2.2.5, business firms are enabled to develop new business models, or to revise existing ones through restructuring their existing business processes and hence value chains, by which a new range of intermediary services are provided to allow trading partners collaborating in an integrated way. Thus, the diversity of new business models is best described in terms of the difference in

the numbers, sizes, forms, and associated service delivery mechanisms of the highly connected networks of business firms, depending on the nature and needs of the respective industry or market. Typical examples of new and diverse business models are outsourcing, alliance, digital intermediation including disintermediation and reintermediation.

In addition to Sections 2.2.2 and 2.2.5, OECD (1999a) has discussed the emergence of some B2B business models in relation to competition issues, though not much associated with the underlying service delivery mechanisms. According to the study, large established enterprises gain first-mover advantages over small firms along the supply chains of B2B markets, thus leading to the greater convergence and concentration of market power of fewer enterprises only. Although having such competitive concerns, small firms overcome the difficulties in various ways so that they are able to seek more business opportunities, or at the least, to sustain in the dedicated market. In achieving so, this new breed of market participants closely integrates with the affiliated players and their associated value chains to exploit the potentials for new business models, or to change existing ones through the network effects of B2B initiatives. Specifically, examples of revamp of traditional business can be found in the creation of new digital intermediaries and aggregators of products or services, which reshape the overall competitive environment of a particular market. While this study confines the discussions of new B2B business models to the area of competition, however, it should be noted that new service delivery mechanisms are also defined under the respective business model therein.

Other studies have provided greater insight into the service delivery perspective. One such study explicated B2B electronic markets, wherein both buyers and sellers restructure their existing business processes and models in order to maximize their benefits (Neurauter, 2006). Based on this study, it is perceived that a business always puts considerable efforts into formalizing the service delivery mechanisms of its dedicated business model when dealing with the counterpart business engaged in the same B2B electronic market. Such efforts can be demonstrated from Griffin and Halpin (2002), who found that new digital intermediaries, one of the emerging business models in B2B electronic markets, can be readily developed to aggregate electronic services that should have been previously provided by separate business parties along the value chains. Therefore, the newly developed business model, after careful formalization, exhibits a form of aggregated or integrated service delivery mechanisms for adoption in the dedicated B2B electronic market.

On the other hand, Osborne (2005) discussed and compared the service delivery mechanisms of e-Commerce and e-Government in terms of service realm, and concluded that private firms in the commercial sector are acutely aware of who their target customers are, and how they can best serve the customer needs accordingly. Lindskog and Wennberg (2002) also made similar findings, but additionally, stated that both the public and private sectors still share more similarities than differences.

(ii) e-Government / G2B systems

Although it could not be summarized from Section 2.3.2 regarding the public service delivery mechanisms of e-Government initiatives, however, there still have been various studies conducted on the same topic of G2B initiatives. According to Section 2.3.5, G2B business models and the affiliated public service delivery mechanisms in the e-Government context are not as varied as those in the e-Commerce context. But still, some examples can be given, including (1) the new business models of e-Procurement like online product catalogues, e-Auctions and e-Marketplaces, and (2) “one-stop” e-Government services that facilitate businesses dealing with government organizations in a single contact. Specifically, traditional government procurement processes, or existing public service delivery processes are not automated only, but they are also changed through BPR efforts to redefine and develop the new business models that eventually transform public service provision.

From a public service delivery perspective, G2B electronic markets can be defined as the electronic services provided by a government to its business community. Additionally, the business, technology as well as security requirements, and the actual conduct of electronic transactions in B2B electronic markets are quite different from those identified in G2B electronic markets (Neurauter, 2006). As presented in the study, it seems that the actual execution of a G2B business model is different from that in B2B electronic markets. However, the study has noted the basic similarity from the comparison with B2B ones, articulating that a government also has to formalize the public service delivery mechanisms of its adopted business model in order to effectively deal with the counterpart business engaged in the G2B electronic market.

While Neurauter (2006) mainly affirmed the relationship between a business model and its service delivery mechanisms in a changing context, OECD (2003b) discussed the innate form, structure or arrangement of service delivery mechanisms. According to the study, integrated cross-agency public services have been emerging in many OECD member countries. A

specific example was also given that the governments of the U.K. and Ireland co-developed a common authentication system for the provision of a range of integrated cross-agency public services in an electronic orientation. Although this example just showed some essential electronic services of a G2G initiative jointly developed by the two governments, it is still conceivable that the similar types of integrated public services are provided among various departments and agencies of a government serving the business community, or to the business community directly under the realm of successful G2B initiatives. Griffin and Halpin (2002), and Bakry (2004) also mentioned that electronic services can be clustered, grouped or arranged according to the customer requirements of similar interests and natures for maximizing e-Government benefits. In view of the importance of cluster and integrated public service delivery mechanisms, the current study aimed to investigate in order to gain more insight into the perceived benefits and potential problems of implementing G2B initiatives.

While comparing the service realm between the service delivery mechanisms of the two main contexts of electronic commerce, government agencies need to serve unstructured customer segments, whilst also meaning that they have to deal with diversified customer needs in view of the fact that governments have their wide-ranging roles and responsibilities (Osborne, 2005). In studies such as Lindskog and Wennberg (2002), and Osborne (2005), although it is true that the service realm is different between e-Commerce and e-Government, it is just one facet of the overall service delivery mechanisms. Unquestionably, the business practice of pursuing new service delivery mechanisms subject to the changing business models in the context of e-Commerce is still prevalent and similar for application in e-Government.

On the other hand, OECD (2003b) discussed some other typical elements that properly constitute public service delivery mechanisms. These elements generally include setting service standards, benchmarking with the electronic services provided in the private sector, conducting customer surveys and developing multiple channels strategy. To this end, the notion of public service quality was addressed in the current study because it is one of the essential benefits or outcomes to be achieved from pursuing effective public service delivery mechanisms.

Competition: e-Commerce / B2B and e-Government / G2B systems are different

(i) e-Commerce / B2B systems

Power of actors involved. The value perspective of competition is quite flawed in e-Commerce market places according to most studies, meaning that the participating entities are

quite indifferent to the issue of competition. OECD (2000b) even stated that e-Commerce does not actually create truly new or unique competition issues. In favor of this argument, OECD (2000a) discussed the value creations in a discriminatory manner revolving around some typical categories of values and impacts of competition. One such discussion, in the new form of business administration, the barriers to entry into and exit from an electronic market are lowered by the openness and interoperability of the Internet. OECD (1999a, 2000b) also supported that no single firm or a minority of firms is able to dominate an electronic market, thus making the market more contestable than ever. Furthermore, OECD (2000a) mentioned that more intelligent online functions, features and facilities are provided such that the flows as well as exchanges of data and information, price searches and comparisons across e-Commerce websites are expedited, and search costs are substantially reduced. Consequently, a growing asymmetry of power is resulted between service providers and service consumers.

Price structure. OECD (2000a) also discussed the importance of maintaining high prices even though there are reductions in production costs. Since additional overhead costs may be incurred to switch from high distribution channels to low density routes such as switching from factories to residential areas as an example, or in other case, to engage in direct marketing and mass customization of products or services in some e-Commerce markets, and therefore, high prices and finely price discrimination for products or services are resulted in the respective case. It is thus perceived that high prices have larger impacts on competitive dynamics, whilst also meaning that competition among businesses in e-Commerce markets is becoming more intense.

Cost structure. Although the Internet effectively shifts power from service providers to service consumers in the highly competitive electronic markets, the cost structure of some e-Commerce markets featuring with digital or knowledge intensive products would ultimately result in less competitive situations (OECD, 2000a; Dunt and Harper, 2001). Exhibiting such non-competitive behaviors actually means having close-to-zero costs after the initial production, and hence increasing economies of scales. Unless otherwise some product differentiations such as timely and frequent updates of information products, and high degree of access convenience are provided to increase different levels of quality, and to induce high prices or price discrimination for the recovery of large initial fixed costs, the concern with less competitive cost structure cannot be easily alleviated among the firms engaging in such e-Commerce markets for information-intensive or software products. Nevertheless, service

consumers are again collectively the winner in this specific less competitive scenario (OECD, 2000a).

Anti-competition. Centralized B2B networks established by large or leading companies exert considerable influence on SMEs and lagging industries by drastically restructuring existing values chains, and draining resources to the richest sectors or industries. Hence, very large lock-in or clustering effects, and highly concentrated winner-takes-all scenarios can result in low contestability of other B2B participants in the dedicated electronic market in the aspects of innovation and competition, and for which governments should take policy actions to address the issues concerned (OECD, 1999a, 2000a, 2000b, 2004). OECD (2000b), and Porter (2001) also supported the same argument that exclusivity inducements have been effectively employed to raise the power of market dominators in particular during the mature phase of the establishment of a B2B electronic market. These so-called “stickiness” inducements of B2B websites include reinforcing the network effects of B2B e-Commerce with the provision of chat rooms or forecasting services among the market participants, or in other case, increasing the switching costs from one another with the use of proprietary standards as well as user interfaces, and with the offering of tailored products or services. But Porter (2001) also argued that buyers have been rather easy to switch to other suppliers with just a few mouse clicks in the Internet world when comparing with traditional ways of doing business. Although lower switching costs are now realized from the technical perspective, it should be aware of conventional requirement to negotiate a contract and build relationships with the new supplier.

On the other hand, SMEs are able to compete equally with more large firms in some e-Commerce markets for provision of business consulting and market research services. As such, SMEs reap the benefits of enhanced availability and accessibility of information via the Internet, thereby enlarging the customer base and improving customer relationships externally, whereas increasing the efficiency of business processes and reducing costs internally (OECD, 2003c). In summary, all these studies demonstrate that anti-competition is not a phenomenon, which should absolutely take its real effects in e-Commerce markets. In fact, there are multi-faceted or varied issues that will always change the competitive dynamics of e-Commerce market places.

While government policies are important as mentioned above, OECD (2004) highlighted the requirement that different countries pursuing the development of B2B e-Commerce should

observe the importance of technology neutrality and interoperability in reducing anti-competitive pressures or lock-in effects of larger dominant companies. Such open source platforms would definitely foster wider compatibility among different smaller and larger players in B2B electronic markets, meaning that small firms are easier to deal with larger firms at lower cost since not having induced conflicting changes in their established business models. OECD (2000b) suggested another possible solution to the problem of anti-competition, and articulated that third party ownership can be considered to maintain strict transparency and neutrality in implementing a successful B2B initiative in order to ensure as many buyers and sellers as possible are able to conduct business on the B2B platform. As well, on behalf of the original B2B system owner, third party ownership removes any continuing biases towards sharing sensitive information and conducting exclusive electronic transactions or exchanges.

Partnerships. OECD (1999a, 2001) discussed the ease and feasibility of fostering collaborations among so-called competitors in e-Commerce market places. Although a number of e-Commerce joint ventures or consortium initiatives have collapsed lately, diverse opportunities for B2B collaborations still reside with the businesses involved especially in the computing, health care, energy and automobiles industries. It is thus concluded that traditional competitive pressures have not been strengthened too much as expected in B2B e-Commerce. To this end, there have been no significant impacts on most firms while conducting business because they would just disguise themselves as business partners or associates instead, or stated simply, they may collaborate and co-compete with each other coincidentally such that the known competitive issues seem to be gone away at the least in the new form of competitive arena.

(ii) e-Government / G2B systems

Few studies have investigated competition issues in the government sector or e-Government domain. Given the different business or servicing context between e-Commerce and e-Government, it appears that the competition issues concerning e-Commerce are irrelevant to e-Government. To this end, Bakry (2004) emphasized that a government itself is a main organization of a location or country, which does not have any competitors at all. Nevertheless, the transition from the provision of conventional government services to e-Government services has already introduced new insights into channel management, which is defined as offering alternative channels of public service delivery to different sectors of the community. Such alternatives do not actually compete with existing mainstream government

services, but pursuing new public service delivery mechanisms and widening the eventual public service coverage. For the purposes of the current research, these augmenting or quasi-competitive aspects of e-Government were investigated.

Advertising and Marketing: e-Commerce / B2B and e-Government / G2B systems are different

(i) e-Commerce / B2B systems

In the e-Commerce context, online advertising and marketing should be much more efficient and effective (OECD, 2003c). According to the study, given the expansive effects of the Internet in diverse directions, online advertising and marketing services certainly augment the new e-Commerce or B2B business models in order to make them become more sustainable. In the light of the new channel media, formats and forms, multiplier effects of large customer base are increased in e-Commerce markets. Similarly, OECD (2001) also discussed that the posting of a wealth of information such as the availability, price and range of goods or services onto e-Commerce websites, has efficiently and effectively promoted the visibility and sales of businesses. Apart from simply establishing a presence, the full marketing potential of the Internet can be further exploited to link current product or service offerings with other contextual e-Commerce websites. As an example of such linkages, a winery company associates its products with websites that promote tourism, cuisine, etc. in order to market its differentiated offerings.

(ii) e-Government / G2B systems

Marketing in the public sector is totally different from that in the commercial sector in terms of approach and the underlying mechanisms. Seifert and Bonham (2004) stated that governments just endeavor to pursue marketization reforms, but not marketing campaigns to promote and expand business potentials or opportunities as always observed in the business community. In brief, such marketization reforms are generally perceived as marketization initiatives that are undertaken with the application of best practices identified from both the public and private sectors, thereby embracing the particular marketing concept to emphasize the importance of delivering customer-oriented but not government-centric e-Government services. AGIMO (2005) also mentioned about the need to learn from banks and other private organizations on how to accomplish online marketing since it is a new area of attentions that should be deserved in the government sector. Based on these studies, it is recognized that governments should better make joint or collaboration efforts with the private sector to market new online government services. However, West (2001) criticized that conflicts of

interests would be emerged if commercial advertisements are posted onto public sector websites and vice versa. Typical examples can be found from the cases that hotel chains are advertising on government tourism websites, or e-filing software is being sold on government revenue websites.

2.4.3 Summary of comparison of e-Commerce / B2B and e-Government / G2B systems

This section summarizes Sections 2.4.1 – 2.4.2 in three areas. First, it is necessary to understand the importance of the two principle types of systems in terms of their value and impact creations before proceeding with the building process of the theoretical G2B success model used in the current research. As can be seen from the above two sections, the literature reviewed so far has revealed the possible creations of values and positive impacts, which are also perceived as the aggregated outputs and benefits respectively to be achieved from the successful B2B and G2B initiatives, whilst holding to the good tenets of the chosen implementation models.

Second, the literature on e-Commerce, e-Government and the affiliated systems, both similarities and some important differences between the two main contexts of electronic commerce has been revealed to understand the inner workings of the respective value creation mechanisms. In this regard, the comparison results are summarized in Table 2.5. The purpose of doing so was to develop more insights into the derivation of the theoretical G2B success model in accordance with the selected B2B counterpart, that is, EWAM in subsequent sections of this thesis. On the other hand, portraying different value creation mechanisms between e-Commerce and e-Government systems, or between B2B and G2B systems does not mean that it is not feasible to realize the benefits and impacts during the course of value creations, although having perceived that the benefits and impacts themselves have their inherent differences between the systems of the two main contexts.

Third, the identified similarities and differences of various value creation mechanisms were of particular relevance for the purposes of the current research, and they were referenced when deriving the theoretical G2B success model as mentioned above. However, knowledge gaps still exist in the literature, whereas three of which were addressed in the current research and are summarized as follows:

- (1) It is still unclear whether the implementation of G2B initiatives would embrace the changes in organizational structure in the new form of public administration, and additionally, whether values would be gained although such perspective has already been taken in the implementation of e-Commerce, B2B and e-Government systems.
- (2) G2B business models and the affiliated public service delivery mechanisms in the e-Government context are not as varied as those in the e-Commerce context. However, it is still uncertain whether more diverse G2B business models would be developed in the longer-term development if the constraints concerned were removed.
- (3) For the value perspective of competition, few studies have discussed the related issues in the government sector. It appears that the competition issues including power of actors involved, price structure, cost structure, anti-competition and partnerships in relation to B2B e-Commerce are irrelevant to G2B initiatives. For example, third party ownership of B2B systems, which is one of the solutions to the problem of anti-competition, has made substantial contributions to the development of B2B e-Commerce. However, it is unclear whether the practice would be applied in the implementation of G2B initiatives. Furthermore, while handling the issues of anti-competition, the potential impacts of open platforms and business models of G2B systems on the overall use satisfaction of SMEs are yet to be determined.

Table 2.5 Value creation processes of e-Commerce / B2B and e-Government / G2B systems

Value Perspective / Code	Value Creation Process	Similar	Different
Productivity (PRD)	Value creation process in the aspect of "Productivity"	✓	
Cost (COS)	Value creation process in the aspect of "Cost"	✓	
Profitability (PRF)	Value creation process in the aspect of "Profitability"		✓
Administration (ADM)	Value creation process in the aspect of "Administration"	✓	
Collaboration (COL)	Value creation process in the aspect of "Collaboration"	✓	
Service Delivery (SED)	Value creation process in the aspect of "Service Delivery"	✓	
Competition (COM)	Value creation process in the aspect of "Competition"		✓
Advertising and Marketing (ADV)	Value creation process in the aspect of "Advertising and Marketing"		✓

2.5 Evaluation of e-Commerce initiatives

2.5.1 Measuring e-Commerce systems

According to Madeja and Schoder (2003), there have been few studies conducted on the development of measures, which facilitate accurate and effective assessment on the web features of companies' websites. It remains difficult, therefore, to assess the overall business benefits and values from implementing companies' websites.

Nevertheless, OECD (1999b) illustrated the essential metrics, which offer principles and guidance for addressing the measurement issues in e-Commerce. According to the study, the growth of e-Commerce markets is generally divided into three stages along the timeline of development, whilst also characterizing the three different levels of e-Commerce activity. Each successive stage of development reveals e-Commerce activities that are more dynamic and complex than those of the previous stages. To this end, the study used the S-curve to specifically describe the maturity of e-Commerce markets. It is also noted that while different research needs are initiated, and hence the corresponding set of measurement indicators are also required at each different stage of development in order to accurately and effectively perform the assessment of e-Commerce systems. The three broad areas of measurement indicators are listed as follows:

- (1) *e-Commerce readiness*. Indicators that measure the state of readiness of the technical, commercial and social infrastructure elements that supports the initial stage of e-Commerce development such as the potential usage and the access to each infrastructure element.
- (2) *e-Commerce intensity*. Indicators that address the measurement in relation to the state of e-Commerce systems at a more mature stage of development, serving to identify the leading sectors and main areas of applications by means of the measurement indicators such as the size and nature of e-Commerce transactions.
- (3) *e-Commerce impact*. Indicators that measure the performance in terms of creation of new sources of values at a later stage of e-Commerce development. This level of measurement has less concern about the growth of e-Commerce. Instead, the measurement intends to evaluate what goes beyond the substitution effects of e-

Commerce development, and to elicit knowledge of the overall quality of e-Commerce systems in terms of the potentials for value creations, evolution of products or services and value chain dynamics.

Additionally, OECD (1999b) mentioned that at least three types of questions should be asked before developing a definition of e-Commerce, including (1) why measurement is done, (2) what are measured, and (3) what can be measured. Therefore, the development of a pertinent e-Commerce definition is closely linked with the type of measurement concerned. In the light of this particular relationship, the definition of e-Commerce given in Section 2.2.1 clearly reveals the intention to measure the impacts of e-Commerce since the definition is worked out from the perspective of value creations. This perspective aligns with the research objectives of the current study. Unquestionably, the perspective of value creations closely aligns with what OECD (1999b) addressed in relation to measuring the impacts of e-Commerce in such aspects as the contributions to wealth creation, the efficiency gains, the changes in product and service value chains. But this study did not directly discuss the measurement of e-Government and the affiliated G2B systems.

Given the equivalence of the definition of e-Commerce to that of e-Government as presented in Sections 2.2.1 and 2.3.1 respectively, the impacts of G2B systems were measured in the current study with the set of impact indicators as generally used in measuring e-Commerce. Doing so would also fill existing research gap, and therefore, it is necessary to begin by referencing and building on existing measurement systems of plausible indicators or metrics.

For measuring the impacts of e-Commerce, OECD (1999b) has noted that there have not been so many previous works, whereas the overall statistical measurement of impacts is more challenging than measuring either readiness or intensity. The derivation of both technical and conceptual challenges actually coexists, denoting that the former challenges are created mainly due to the newly emergence of e-Commerce, and the relatively rapid pace of change in e-Commerce markets, whereas the latter challenges arise because of the misuse of data collection programmes that just merely collect the amounts of inputs, products produced, the amounts of transactions conducted, etc. in e-Commerce. Furthermore, measuring the impacts of e-Commerce really requires the measures of the business processes involved, meaning that the inner workings of the business processes and the interactions among them should be assessed as well. To this end, the measurement of G2B systems is also fraught with such similar challenges.

OECD (1999b) provided two examples of measuring impacts to address the challenges concerned. First, Statistics Canada used a number of qualitative questions in its Innovation Survey to measure the impacts of e-Commerce on existing business processes. Second, the Australian Bureau of Statistics also added questions to its longitudinal survey of businesses for measuring the impacts of the Internet use on the financial performance of businesses. Since such qualitative questions were not applicable in the current study of empirical and quantitative nature, therefore, the particular challenges still remain when measuring the impacts of G2B systems. Nevertheless, the study emphasized the need to develop new impact indicators and the associated measurement dimensions instead, which better deal with the dynamic aspects of e-Commerce markets, including (1) the fundamental economic changes in terms of the changes in business processes, business models as well as value chains, and (2) the participation and interactions among various actors involved. It is thus recognized that these new impact indicators, which are at the system or micro level, were relevant to the current study in relation to collecting the required information based on the set of potential facilitating factors or adoption triggers. For the purposes of the current research, those impact indicators were collectively taken as a paradigm to follow when building the theoretical G2B success model for the evaluation of G2B systems.

2.5.2 Measuring B2B systems

Little research has measured the impacts of B2B systems. Still, Madeja and Schoder (2003) proposed a research model, which seamlessly links the measurement of impacts with the evaluation of success of B2B websites. However, such linkage was not so strong because the degree of measuring impacts based on the eight web features of the proposed research model was not as large as expected. In the study, the authors claimed that corporate success can be achieved if companies are able to use the web features on their websites in an appropriate way. Most company websites are measured along limited technical-oriented web features or aspects such as the design, usability and acceptance of web pages, and with which their success or appropriateness of use of the web features are evaluated accordingly.

To overcome some of the deficiencies of the evaluations concerned, the eight web features collectively are broad enough for a comprehensive evaluation, which facilitates the measurement of (1) technical features including interactivity, availability and connectivity, (2) content-related features including information richness, media richness and variety, and immediacy, and (3) user-related features including as ease-of-use, individualization and

customization. It is thus perceived that of the eight web features, there comes to some degrees that interactivity and connectivity particularly allow measuring the impacts of B2B systems because they still cover and compile the measurement dimensions related to the participation and interactions among various actors involved. However, such measurement of impacts may still be insufficient as discussed in Section 2.5.1. Lastly, this study concluded the key success factors for B2B companies, referring to the fact that if their websites provide updated web content, and rich interactivity that offers bi-directional feedback and communication channels among the participating buyers and sellers involved in the dedicated B2B electronic market.

Conducting comprehensive evaluations of B2B systems has not been so perfect or rather subjective on a study-by-study basis, meaning that it is largely determined from the perspectives of the authors being taken and the theoretical concepts being grounded at time of the study. For example, Kurnia, Leimstoll and Schubert (2005) employed EWAM in their evaluation of Australian and Swiss e-Shops in the grocery sector because of its applicability in terms of the classic transaction phases as usually defined for an electronic transaction, together with its provision of online data collection and graphical reporting tools. In brief, EWAM is an evaluation tool developed for the assessment of e-Commerce systems in general, whereas also for measuring the impacts of e-Commerce and B2B systems in particular according to Section 2.5.1. In this regard, the following discussion presents the origins of EWAM and outlines the essential details of the evaluation model in order to provide more insights into the underlying theoretical concepts.

In the beginning, Schubert (2003a) elaborated the original Web Assessment Model (WAM) in the study. Partnering with the business sector, the original WAM was actually developed in 1997 at the Competence Center for Electronic Markets (CCEM) at the University of St. Gallen in Switzerland. WAM represents the all-embracing evaluation of the quality and success of existing e-Commerce applications from the customer point of view. According to Schubert and Selz (1999), the WAM evaluation criteria are derived from taking and unifying the three core perspectives or paradigms, including (1) the electronic markets perspective from which various phases of an electronic transaction are defined, (2) the technology perspective from which the Internet-inherent characteristics are identified, and (3) the marketing perspective from which a performance system is developed.

To measure the performance of e-Commerce websites from the electronic markets perspective, WAM is based on the three phases of an electronic transaction and one additional

component, including (1) Information Phase in which customers collect the required information on products or services and their prices, (2) Agreement Phase in which negotiations between customers and suppliers are made to confirm contractual deals, (3) Settlement Phase in which the actual fulfillment of payments and delivery of the physical or virtual products or services, and (4) Community Component by which online communities are established to facilitate communicating and sharing of common interests and building the networks of trusts among community members.

Schubert and Selz (1999) also mentioned that WAM most often aims at identifying possible success factors that differentiate one e-Commerce website from others on the same electronic market, whereas it is also useful for the evaluation of the performance and quality of an e-Commerce website from a consumer perspective. Overall, WAM can either be used by researchers or Internet marketers. For researchers, they use the evaluation model to identify the strengths and weaknesses of existing e-Commerce websites from a consumer perspective, and aim at developing the “best practice” website model as far as practicable, whereas for Internet marketers, they attempt to look for ways of improvements by assessing the current usage and status of their websites.

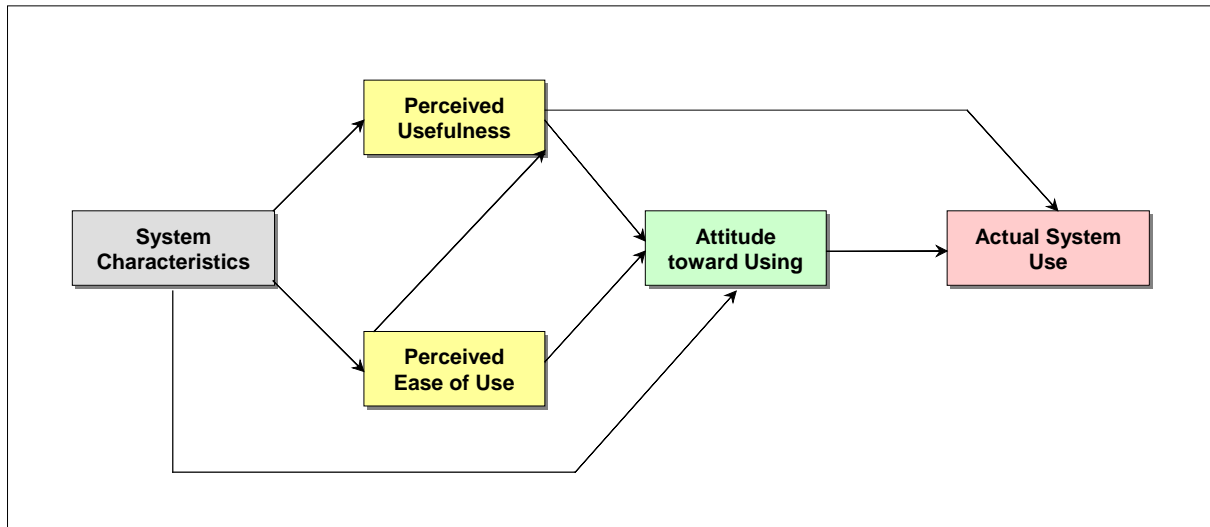
The original WAM was fundamentally revised in Summer 2000 in terms of adaptation of questionnaire and identification of new evaluation criteria, and became EWAM having incorporated technological advances in various aspects, and the accompanying value changes among users since the development of the old method (Schubert, 2003a). As a result, the original WAM was extended to include (1) the After-sales Phase that deals with satisfying customer support after effecting an electronic transaction, and (2) a new category “Criteria which concern all transaction phases” or “Final Section”. Apart from taking account of new research findings especially in the Internet marketing field, EWAM also embraces the important factors “Ease of Use” (“Perceived Ease of Use”) and “Usefulness” (“Perceived Usefulness”) of Davis’s (1985) Technology Acceptance Model (TAM), which was developed for the measurement of the acceptance of information systems. In addition to TAM, “Trust”, that is, subjective norm or social influences taken from the Theory of Reasoned Action (TRA) is incorporated in EWAM (Schubert and Leimstoll, 2001; Schubert, 2003a). To this end, the current research also notes that the construct names ‘Ease of Use’ and ‘Perceived Ease of Use’ together with ‘Usefulness’ and ‘Perceived Usefulness’ have been used interchangeably and equivalently between EWAM and TAM.

In addition to the aforementioned factors, since each electronic market exhibits its own specific sector profile such as banking, airline, grocery, etc., and therefore, for which the difference in the importance rating or weight, that is, user expectations of one evaluation criterion is considered as well. Thus, the level of importance would be declared differently at the level of each evaluation criterion and the level of each sector, in which the e-Commerce website concerned is to be assessed (Schubert and Leimstoll, 2001; Schubert, 2003a).

This part of the literature review now turns to the work of Huang, D'Ambra and Bhalla (2002), Schubert (2003a), Carter and Belanger (2004), and their descriptions of the theoretical concepts of both TRA and TAM, which are important models for application as a theoretical base in the derivation of EWAM. According to the studies, TAM was built following the causal link of TRA, which articulates that an individual's attitude towards a behavior determines the individual's intentions to perform the behavior concerned, which in turn becomes the actual behavior if such behavioral intentions have been tangibly fulfilled or executed in reality. However, TAM does not deal with an individual's subjective norms of uncertain psychometric abilities, that is, the social influences as suggested by TRA.

By drawing upon the TRA theory, TAM was developed to demonstrate the set of interrelation effects of the model components, whereas some of which had strong relevance to the purposes of the current study. Such relevancy is mainly found among the intermingled effects of the model components concerned. As such, it is reasoned that the two motivational variables involved, "Perceived Ease of Use" ("Ease of Use") and "Perceived Usefulness" ("Usefulness") pertaining to the corresponding system characteristics, will in turn exert influences on an individual's attitude towards and hence behavioral intentions to using the functions, features and facilities of IT systems, thus leading to the actual system use. To this end, the current research did not address "Attitude toward Using" since this construct just measures an individual's attitude towards using an IT system's functions, features and facilities, which was not an objective of the current research. For the two motivational variables mentioned above, Huang, D'Ambra and Bhalla (2002), Carter and Belanger (2004) also defined "Perceived Usefulness" as an individual's belief to enhance his / her work performance, whereas "Perceived Ease of Use" as an individual's belief to make less conscious effort in using an IT system. Given the influential effects of TAM, an individual's acceptance on IT systems in the private sector can be predicted and explained. It is thus noted that the two definitions also refer to the perceived value creations. Figure 2.1 illustrates the causal links of TAM.

Figure 2.1 Causal links of TAM
(Adapted from Schubert, 2003a)



Regarding the evaluation mechanisms, EWAM is an evaluation instrument suitable for accessing the service quality of e-Commerce systems by two principal steps. The first step of the evaluation mechanisms begins by assigning the chosen e-Commerce website to its dedicated sector, and consequently, an assessor subjectively rates the importance of each evaluation criterion specific to the sector concerned. In the second step, the assessor then evaluates the performance of the e-Commerce website assessed in accordance with each criterion. The overall evaluation of the e-Commerce website concerned has not finished yet until all the sector-specific importance ratings as declared in the first step are aggregated for multiplication with the performance ratings as captured in the second step. The purposes of this multiplication are mainly to level off some extreme values that would be obtained during the course of evaluation, and also to consider the difference in the Internet usage experience levels of the assessors involved (Kurnia, Leimstoll and Schubert, 2005).

EWAM has been extensively used in evaluating e-Commerce systems, research, teaching as well as consulting (Kurnia, Leimstoll and Schubert, 2005). Furthermore, EWAM has been largely employed to measure the performance of B2C systems, and also B2B systems in multiple sectors because of its generic evaluation criteria categories being put in place (Schubert, 2003a). However, the author has advised against using EWAM for mass evaluation of e-Commerce websites because of its complexity in the detailed analysis of multiple websites of one selected sector or industry. According to Schubert and Selz (1999), Kurnia, Leimstoll and Schubert (2005), existing version of EWAM also has another major constraint on the overall evaluation of e-Commerce systems. This means that the success of an e-

Commerce website cannot be solely judged from EWAM results, but should also be determined by other factors such as profitability, integration of the information systems at the back-end, and financial aspects taken from the vendor perspective. However, financial aspects were not addressed for the purposes of the current research.

It is thus noted that EWAM has been developed with its own data analysis methods, which are not proprietary ones indeed. However, they were not adopted as the main but rather auxiliary data analysis methods of the current study because of the deficiency and constraint as mentioned in the preceding paragraph. As well, the descriptive statistics and other quantitative measures currently done by EWAM can be undertaken by other well-known multivariate data analysis methods of positivistic nature as discussed in Chapter 3.

In conclusion, EWAM is one of the oldest evaluation methods of e-Commerce applications. To the extent that EWAM facilitates effective assessments, it enables understanding customers' expectations, improving and enhancing e-Commerce websites in different practical aspects, thereby increasing customers' satisfaction with using the electronic services provided (Kurnia, Leimstoll and Schubert, 2005). Overall, the evaluation scope of EWAM is wide enough to embrace what proposed by Madeja and Schoder (2003), and even more of the impact indicators as mentioned in Section 2.5.1. Therefore, EWAM appeals to Internet marketers or merchants for measuring B2B systems, and additionally, it might be particularly relevant to serve as a reference model when deriving the theoretical G2B success model of the current study.

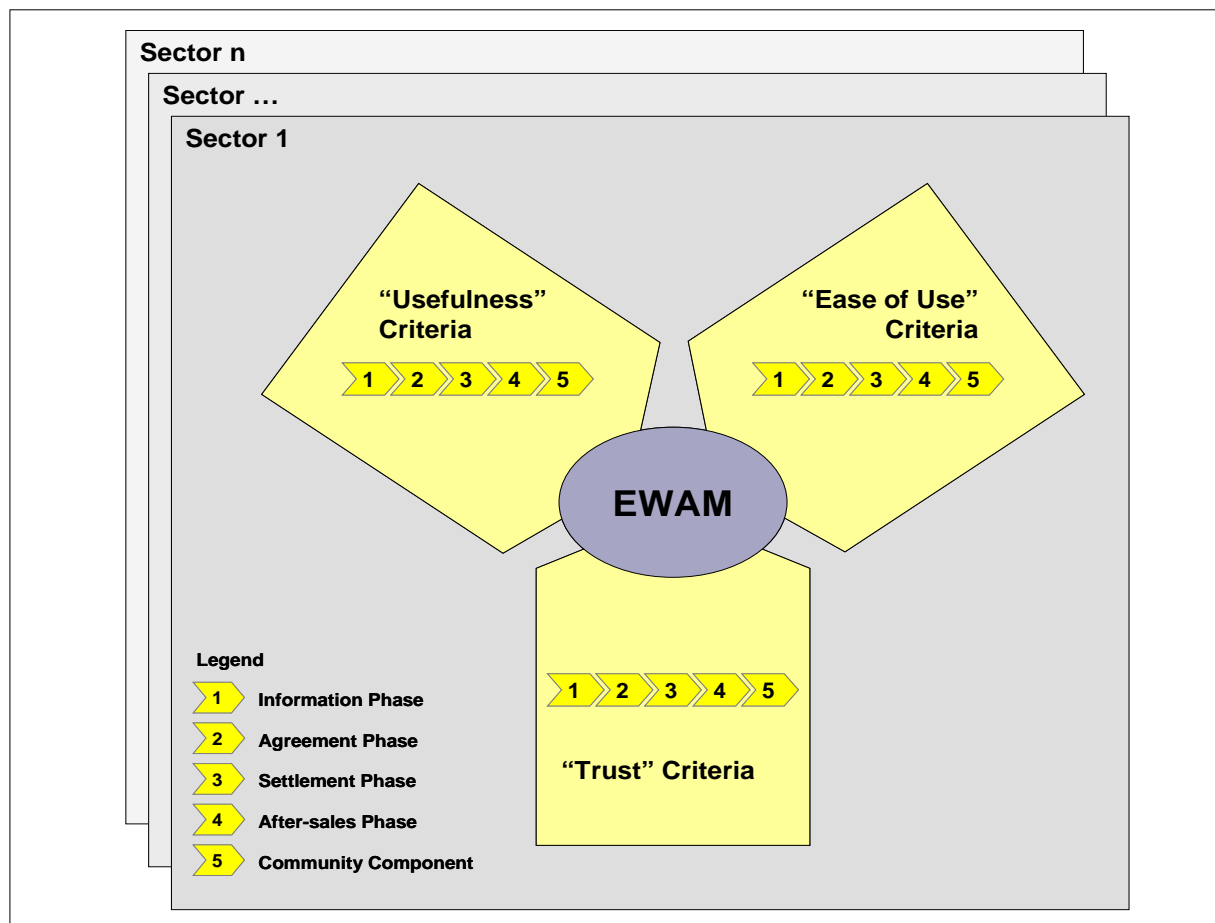
2.5.3 The constructs of EWAM

According to Schubert (2003a), EWAM facilitates evaluating the success of an e-Commerce application in terms of meeting customers' expectations or needs based on the success or quality features or evaluation criteria. Figure 2.2 illustrates that EWAM is the combination of the original WAM with the main "Ease of Use", "Usefulness" and "Trust" criteria categories, which collectively are a set of evaluation criteria developed to represent the most salient functions, features and facilities of Internet-based applications in the broadest sense, and consequently, to facilitate carrying out the appraisal of existing e-Commerce systems from a consumer perspective.

Each EWAM criterion is interpreted as a success or quality function, feature or facility to be firstly assigned to a main criteria category such as "Ease of Use", "Usefulness" or "Trust",

and then secondly, allotted to (1) one of the four transaction phases that include the information, agreement, settlement and after-sales phases of electronic markets, or (2) the Community Component, or (3) the new category “Final Section” with criteria which concern all transaction phases. To this end, the current research further elaborates the relationships that each main criteria category mentioned above has one or more EWAM criteria, whereas each of these EWAM criteria pertains to each or all of four transaction phases concerned, or the Community Component. The relationships concerned are presented in Appendix A, which also presents various construct measurements together with the corresponding explanation of the generic version of EWAM, based on which the theoretical G2B success model was derived for the purposes of the current research.

Figure 2.2 EWAM components
(Adapted from Schubert and Leimstoll, 2001; Schubert, 2003a)



2.6 Evaluation of e-Government initiatives

2.6.1 Measuring G2B systems

A growing body of the literature deals with the evaluation of e-Government and its affiliated systems. Again, various measurement indicators can be categorized to serve different research or study purposes. Kunstelj and Vintar (2004) conducted their critical analysis along the dimensions of (1) e-Readiness, (2) back-office, (3) front-office, and (4) effects and impacts. First, e-Readiness mainly focuses on measuring the readiness of individual players including governments, citizens and businesses to engage in electronic business. On the government side, the main issue related to setting out the right context in terms of IT infrastructure, strategies, policies and milestone plans, IT training and e-Government awareness programmes is important to tackle for the development of e-Government from the holistic point of view. While the measures of e-Readiness likewise deal with the level of use of IT infrastructure, and the general opinions on the development of e-Government from the perspective of service consumers, that is, citizens and businesses, however, this specific area of measurement is beyond the scope of the current study.

Second, evaluating the back-office capabilities of e-Government systems means assessing the integrations among the underlying disparate information systems of various participating entities as mentioned in the preceding paragraph. Such system integrations mainly refer to the sharing and exchange of data and information all along the value chains of the dedicated government business area. The current study recognizes that back-office system integrations are collectively the main concern, and therefore, their advantages and difficulties were investigated, serving to optimize the actual use of e-Government services from the customer point of view.

Third, the authors discussed the measurement of the front-office aspect of e-Government systems in two dimensions. Along the first dimension of the measurement, the corresponding assessments or investigations always go to the major supply facet, that is, the quality of e-Government websites and portals in terms of the online information and services provided, together with their public service delivery options. While along the second dimension of the measurement, it is the demand facet that investigates the actual use of e-Government websites in terms of the online information and services supplied. Thus, it is perceived that the overall evaluation allows understanding different levels of customers' expectations or needs, which entail different levels of actual system usage. Both supply and demand facets were addressed

in the current research, whilst also having the expectation to make contributions to the successful implementation of e-Government initiatives.

Lastly, Kunstelj and Vintar (2004) focused on measuring the impacts of e-Government, and stated that the assessments involved studying the influences on economic, social and democratic processes in the widest sense, whereas on organizational change, changes in work practices and methods in particular. Likewise, this specific area of evaluation is in close alignment with the purposes of the current research. Table 2.6 presents a brief overview of existing approaches to monitoring e-Government development.

Table 2.6 Overview of existing approaches to monitoring e-Government development
(Adapted from Kunstelj and Vintar, 2004)

Study	e-Readiness		Back-office	Front-office		Effects & Impacts	Countries / Regions Involved
	Government	Citizens & Businesses		Supply	Demand		
Accenture (2004)				M			World 22 countries
Burgess and Houghton (2002)				M			Australia
Booz Allen Hamilton (2002)	M	M		S		M	Australia and Sweden
Bartelsman Foundation (2001)	M			M			U.K., Canada, U.S. and Germany
BISER (2002)		M			M		EU 15 countries
The Henley Centre and MORI (2000)	M	M			M		U.K.
Cullen and Houghton				M	M		New Zealand
CapGemini Ernst & Young (2003 & 2004)				M			EU 15 countries
PLS Ramboll and Eworx (2003)					M	S	EU 15 countries
Erin Research Inc. (2003)					M		Canada
EuroBarometer (2002, 2000)		M			S	S	EU 15 countries
Vintar et al. (2002)	M		M	M			Slovenia
Vintar et al. (2004)			S	M			Slovenia
Leben et al. (2004)				M			Slovenia, Italy, U.K. and Australia
Gant and Gant (2002)				M			U.S.
Hart-Teeter (2003)	S	S			M		U.S.
TietoEnator Trigon (2001)				M			EU 15 countries, U.S. and Australia
Kaylor et al. (2001)				M			U.S.
KEeLAN (2002)				M			EU 15 countries
Muylle et al. (2004)					M		U.K. and France
Momentum (2000)		M			M	S	ZDA

Study	e-Readiness		Back-office	Front-office		Effects & Impacts	Countries / Regions Involved
	Government	Citizens & Businesses		Supply	Demand		
Canavate and Navarro (1997, 2000)				M			Spain
NACO (2000)	M		S	S			U.S.
NAO (2002)	S	S		M			U.K., Australia, U.S. and Germany
NOIE (2001)				M			Australia
NOIE and DMR (2003)	S	S		M	M	M	Australia
Nordic Council of Ministers (2003)	M		M	M		S	Norway, Sweden and Finland
Dutta et al. (2004)	M	M					World 102 countries
Birch (2003)	M		S			M	U.K.
PTI and ICMA (2000, 2001)	M			M		S	U.S.
REGIONAL-IST (2003)	M	M	S	M	S	M	Spain, Germany, Italy and Hungary
Strover and Straubhaar (2000)		M			M		Texas
SIBIS (2003)		M			M		EU and U.S.
Smith (2001)				M			New Zealand
SOCITIM (2004)				M			U.K.
Stowers				M			U.S.
Dexter and Parr (2003)		S			M		World 32 countries
UN (2003)		M		M			World 191 countries
COMNET-IT (2000)	M	S		M			World 86 countries
Demchak et al. (2000)				M			World 102 countries
West (2003)				M			World 198 countries

M = Main area of evaluation; S = Supplementary area of evaluation

As can be seen from Table 2.6, previous studies largely focused on measuring e-Readiness and the supply side of front-office, whilst also meaning that the measures in the aspects of back-office, demand side of front-office, effects and impacts have not commanded a great deal of attentions in international research and studies as found in the studies of EuroBarometer (2000, 2002), CapGemini Ernest & Young (2003, 2004), TietoEnator Trigon (2001), SIBIS (2003), BISER (2002) and REGIONAL-IST (2003). Kunstelj and Vintar (2004) also concluded that the large majority of existing evaluation methods of e-Government systems is not sufficiently comprehensive in the sense that they do not cover all aspects of measurement, meaning that they just address partial-faceted evaluations depending on the objectives of respective research and studies lately.

Based on these findings, Kunstelj and Vintar (2004) presented a detailed review of some typical approaches including the ones used by CapGemini Ernst & Young, NOIE, Vintar et al., TietoEnator Trigon, Accenture, PLS Ramboll and Eworx, Leben et al., Nordic Council of Ministers and Birch. Several common evaluation methods and shortcomings were identified among all of them, and they are summarized here to provide a deeper understanding of the underlying mechanisms. Of all these monitoring approaches, although having pursued different evaluation mechanisms, they facilitate evaluating the status of e-Government development, or equivalently, the overall maturity of e-Government services attained.

In particular for both CapGemini Ernest & Young and NOIE, they used stage models to address the measurement objectives purely from the perspective of service providers. Stated another way, the development of e-Government is generally described by means of several distinct stages, including (1) Information, (2) Interaction, (3) Transaction, and (4) Transformation. Details of each of these stages were discussed in Section 2.3.3. Kunstelj and Vintar (2004) claimed that neither staged model is good enough to reveal the true progress of e-Government development because of several reasons. First, the staged models just highly focus on assessing the visible or front-office parts of e-Government systems, and second, they do not evaluate whether the e-Government systems concerned would exploit the capabilities for delivering integrated e-Government services. Third, and more importantly, e-Government services delivered at the higher stages of the evaluation models like the stages of transaction and transformation do not likely include those services at the lower stages. To this end, the authors strongly argued that the stage models just evaluate e-Government services in a discrete way, meaning that a particular e-Government system or website would only be classified as exclusively providing transactional e-Government services only, as an example, and hence counted and presented accordingly in the relevant evaluation study reports to merely reveal its availability. Carbo, Williams and Emeritus (2004) also supported and stated that existing measures of the performance of e-Government systems in general are statistical-oriented, which is not really useful and effective in the sense that they do not specifically deal with the quality aspects such as privacy concerns, and level of customers' satisfaction with using e-Government services.

The substance of the argument by Kunstelj and Vintar (2004) is refuted in this part of the literature review because the original intent of any staged model was not to evaluate e-Government systems with the use of such a definition of e-Government services at all. In fact, the authors' misconception about the definitions of various types of e-Government services is

implausible and it should be elucidated that e-Government services delivered at any one stage are collectively a superset of the previous stages. Therefore, measuring the maturity of electronic services of a particular e-Government website is viewed as a contiguous practice instead, indicating that the strengths and capabilities for delivering transactional e-Government services, as an instance, should have already been exploited to provide informational and interactive ones as well. Nevertheless, the current research still recognizes that staged models normally help measure the maturity or intensity of the development of e-Government in terms of the breadth, that is, the number and nature of electronic services provided. If that is the case, then the staged evaluation models and their mechanisms are too simple, and they cannot be envisaged as the implementation model of e-Government initiatives as well.

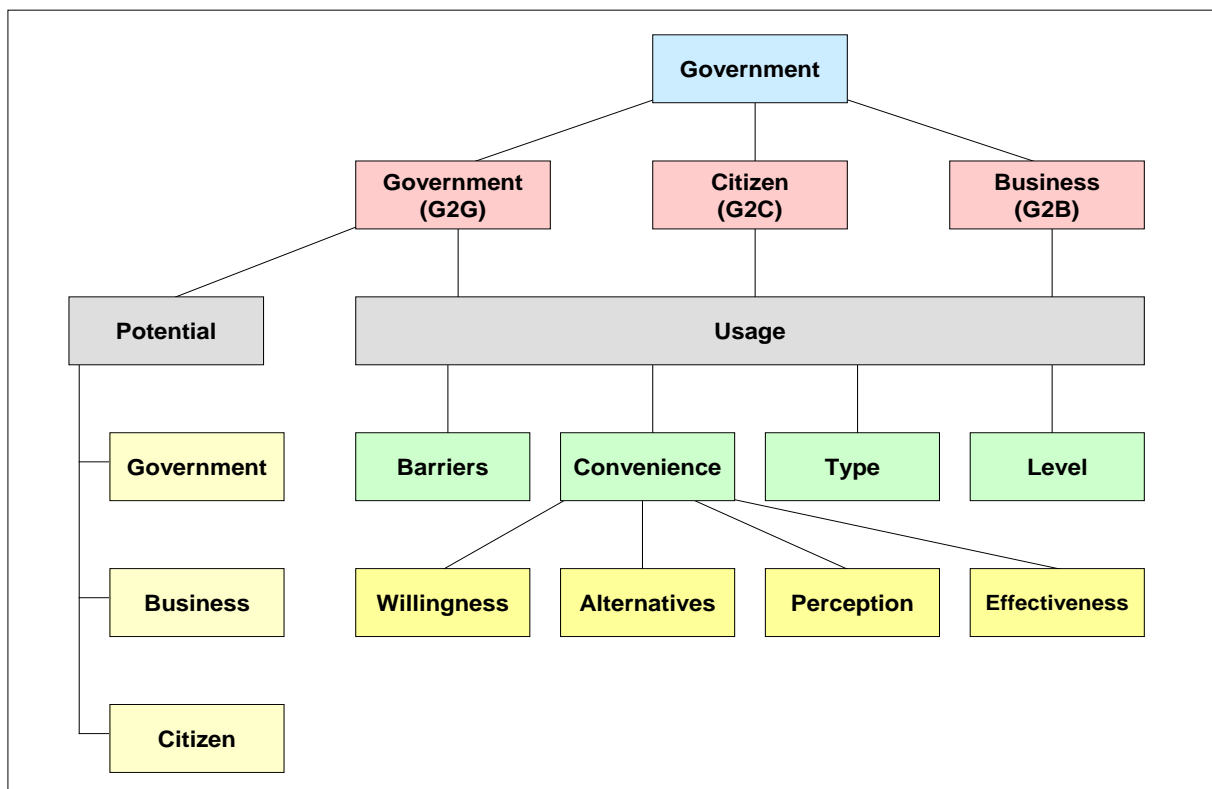
According to Kunstelj and Vintar (2004), while the staged evaluation models used by both CapGemini Ernest & Young and NOIE were not sophisticated or detailed enough, the remaining approaches analyzed in the study largely evaluated the overall maturity of e-Government development in the widest sense from the customer perspective. Additionally, the aspect of back-office system integrations was incorporated into the scope of the evaluation of e-Government development concerned. Amalgamating all these measurements together also means measuring the impacts or depth of e-Government, although the authors pointed out that none of the remaining approaches deal with the assessment in full extents. Nevertheless, this second collective group of methods permits the evaluation of an e-Government website and its electronic services concerned, that is, a single case with respect to (1) accessibility, (2) usability, (3) supply completeness and quality, (4) constitution in a single life event, and (5) various ways of life event coordination across the websites of different government agencies. To the e-Government website being evaluated, the notion of life event coordination refers to the e-Government services constituted in a particular life event, which are accessed through dispersed entry points, or the first entry point only of multiple online processes, or one single online process only. All these access paths are designed and structured subject to different degrees of automations and even system integrations to be done among the participating entities involved.

Based on the discussions given above, the second evaluation model prevails when comparing with the staged models since it reveals various combinations of provision of informational, interactive, transactional and even transformational e-Government services for a specific e-Government website. More importantly, it is likely that the second evaluation model

developed at the system or micro level pertains to the implementation model of successful e-Government initiatives, and for which the current study carried out the investigations accordingly. As such, the current research intends to fill existing research gap about back-office system integrations as mentioned in the preceding paragraph, in particular, which delineate the requirements for full-faceted evaluations specifically for the development of transformational governments, which are always expected to bring customer-centric, integrated and other value-added e-Government services to the public.

While the aforementioned studies concentrated on the issues or research gaps in relation to measuring the performance of e-Government development in general, SIBIS (2001) took further steps towards reviewing and studying existing indicators for measuring the performance of G2C, G2B and G2G systems respectively and specifically. Vigorous attempts were made in the study to present a comprehensive range of measurement indicators for e-Government development. Figure 2.3 presents the generic hierarchical system of e-Government measurement indicators to help illustrate the foundation for the successful implementation of various types of e-Government systems.

Figure 2.3 Generic hierarchical system of e-Government measurement indicators
(Adapted from SIBIS, 2001)



The anatomy of the hierarchical system of e-Government measurement indicators is illustrated in this part of the literature review to clearly explain the underlying structures and components. In essence, measuring the overall usage of citizens, businesses and governments of e-Government services generally embraces the aspect of (1) vision of e-Government in terms of the types of e-Government services and the levels of sophistication underneath each type of such electronic government services, and (2) acceptance and adoption of e-Government with regard to the barriers to and convenience of using the electronic services provided based on a thorough understanding of users' needs. Specifically, categories of sub-level indicators for measuring convenience include willingness, alternatives, perception and effectiveness. In particular for governments' usage of e-Government services, the aspect of potential for developing new types of e-Government services can be considered as an additional indicator. However, according to the study, the success of implementing e-Government initiatives needs to be assessed with respect to the vision, acceptance and adoption of e-Government. This concrete measurement objective was of particular relevance for the purposes of the current research, and therefore, the aspect of potential was excluded for further discussions in this thesis.

Nevertheless, it should be noted from SIBIS (2001) that understanding user's expectations or needs for using e-Government services also inspires the development of different sets of the aforementioned measurement indicators for each distinct group of users including citizens, businesses and governments. For the purposes of the current research, G2B systems are collectively the main concern to be addressed, and therefore, examples of the indicators that deal with the measurement of G2B systems in the two main aspects described above are given in Table 2.7, facilitating a basis for discussion in the remaining part of this section. To this end, SIBIS (2001) mentioned that although the hierarchical system of e-Government measurement indicators is rather standard and generic across different groups of users as to its intended purposes, the specific set of indicators presented in Table 2.7 would address the overall efficiency and effectiveness of G2B electronic services, which have been the major concerns in relation to the corresponding services usage.

Table 2.7 Generic hierarchical system of G2B measurement indicators
(Adapted from SIBIS, 2001)

Name of Indicator / Measuring	Examples of Indicator
Barriers / Barriers to the adoption of the G2B website concerned	<ul style="list-style-type: none"> ○ It is not easy to navigate on the website ○ Poor website content ○ The website requires special software, etc.
Willingness / Improvements to the G2B website concerned	<ul style="list-style-type: none"> ○ It is easy to get telephone or online help ○ Increased security when submitting information online ○ The options available to provide feedback and comment on the website, etc.
Alternatives / Ways of interacting offered by the G2B website concerned	<ul style="list-style-type: none"> ○ Written ○ Face-to-face ○ Telephone ○ Email, etc.
Effectiveness / Benefits of using the G2B electronic services concerned	<ul style="list-style-type: none"> ○ Faster delivery of electronic services ○ Convenient delivery of electronic services ○ More cost effective, etc.
Perception / Perceived benefits of using the G2B electronic services concerned	<ul style="list-style-type: none"> ○ It would save time when dealing with government agencies ○ It would save costs when dealing with government agencies ○ It is convenient to deal with government agencies out of office hours, etc.
Type of Usage / Availability of types of G2B electronic services concerned	<ul style="list-style-type: none"> ○ New business registration ○ Corporation tax declaration ○ Custom declaration, etc.
Level of Usage / Levels of sophistication of each type of G2B electronic services concerned	<ul style="list-style-type: none"> ○ Information ○ One-way interaction ○ Two-way interaction ○ Transaction, etc.

According to SIBIS (2001), although the scope of review was rather broad with regard to the number and variety of measurement indicators, many of them were simply defined without being fully validated or tested at time of the study. Therefore, they were just presented in the study as “under development” indicators, which examined the relationship between a government and businesses with regard to the types of G2B electronic services provided, and the levels of usage corresponding to each type of usage only. Examples of the types of usage refer to G2B electronic services such as corporation tax declaration, new business registration and custom declarations, whereas examples of the levels of usage refer to informational, interactive and transactional use of such G2B electronic services. Combining the indicators for both the types and levels of usage together actually measures the breadth of e-Government

development in terms of the availability of G2B electronic services, which is inadequate for close examination of the latter systems in particular. As stated in the study, the significance of the problems is further magnified, meaning that the indicators for measuring G2B systems in the aspect of acceptance and adoption can be identified as quite a large gap in the literature of related disciplines at time of the study, and they are classified as new innovative indicators pending for development in future studies.

On the other hand, as recapped from Section 2.3.6, Koh and Prybutok (2003) discussed a broader framework for measuring dimensions of e-Government functions, the Three-Ring Model, which was developed to classify e-Government functions according to the three primary categories of use of the Internet, including (1) Informational Use, (2) Transactional Use, and (3) Operational Use. The latter category also encompasses the interactive use of the Internet, facilitating one-way and two-way communications between service providers and service consumers. Based on each category of use, particular attentions should be commanded to the set of specific critical issues accordingly, thereby organizing and managing the development of each different type of e-Government systems in a more efficient and effective way. Although this study explained the underlying concepts very clearly, such disparate e-Government systems do not exist in reality because even though a single system in its entirety usually captures the three primary categories of use of the Internet. Nevertheless, the work of Koh and Prybutok (2003) contributes to the derivation of an evaluation instrument for measuring the performance of e-Government systems. Table 2.8 presents the Three-Ring Model.

Table 2.8 The Three-Ring Model for measuring dimensions of e-Government functions
(Adapted from Koh and Prybutok, 2003)

Category of Use	Examples of e-Government Functions
Informational Uses	<u>Online Publishings</u> <ul style="list-style-type: none"> Geographic Information System (GIS) data Online tour information of city Employee manuals, etc.
	<u>Broadcastings</u> <ul style="list-style-type: none"> Video web-broadcasting of government events Live traffic information, etc.
Transactional Uses	<u>Online Procurements</u> <ul style="list-style-type: none"> Calls for bids or proposals Bidder submissions, etc.

Category of Use	Examples of e-Government Functions
	<u>Online Payments</u> <ul style="list-style-type: none"> Collection of fines Collection of government fees Tax collections, etc.
Operational Uses	<u>Online Customer Services</u> <ul style="list-style-type: none"> Permit applications and renewals Business registrations Voter registrations Property registrations Online job applications Surveys and polls Forums and discussions, etc.
	<u>Support for Employees</u> <ul style="list-style-type: none"> Email Electronic records management Video conferencing, etc.

In another respect, Cabinet Office (2002) discussed the metrics used in evaluating e-Government websites, which are largely technical or statistical in the sense that most of them are usually obtained from web server logs. These logs just help provide number of website visitors and web page views, the most and least frequently visited web pages, error message counts, website traffic, etc. The information concerned will be subsequently used in analyzing the e-Government websites assessed to identify the most popular web content as well as orphaned web pages, providing information on users' personal computer (PC) platforms and web browsers, and monitoring network bandwidth use for the website accesses. Such analysis results do not accurately reflect the full evaluation and do not necessarily lead to improvements in the e-Government websites concerned. Overall, it is perceived from the aforementioned studies that measuring the depth or impacts of e-Government development is still the main research gap identified in the literature, which remains to be addressed in future research.

In view of existing deficiencies in measuring the performance of e-Government systems in general, Kunstelj and Vintar (2004) drafted an evaluation model for monitoring the long-term development of e-Government with a holistic approach. Based on the results of critical analysis on existing evaluation models, they attempted to make a fusion of all prevalent measurement indicators in the areas of (1) environment maturity in terms of e-Readiness, (2) back-office, (3) front-office, and (4) impacts in a comprehensive way. The overall objective was mainly to facilitate evaluating the performance of e-Government systems starting from the use of general indicators and then to specific indicators in each area described above

centering on users' needs for the provision of integrated e-Government services rather than fragmented ones. The authors proposed to undertake a full evaluation at the system or micro level by including the perspectives of both service providers and service consumers in each area except for back-office. However, some proposed indicators seems to be not detailed enough as to the accurate evaluation of the overall quality of the e-Government system concerned because they are mainly related to the amount, number and level of electronic services provided.

In the widest sense, Carbo, Williams and Emeritus (2004) also suggested developing an adaptive and dynamic model to evaluate the development of e-Government based on a synthesis of model components and the associated attributes as well as relationships of existing multiple models. In effect, the advantage of adopting multiple models with the best combination of strengths is the synergism resulted to help evaluate an initiative of e-Government development implemented in specific system context such as G2C, G2B, G2E and G2G. For the best combination of model components and hence relationships, it is necessary to consider different stages of e-Government development, and to pay attentions to the technical, organizational, cultural, economic, personal, ethical, social and political characteristics of various user communities and government agencies that serve the communities. Regardless of the usefulness of the hypothetical model proposed in the study, the authors also mentioned that no single set of evaluation metrics would fit all types of e-Government systems, meaning that adaptation efforts would have to be spent on refining such evaluation metrics pertaining to each specific system context.

Specifically, the hypothetical model was built based on the measurement indicators used in previous studies on various e-Government initiatives of the Commonwealth of Pennsylvania, the U.S. state that had the greatest spending on e-Government development. The set of evaluation metrics included (1) ease of use, (2) customer centric, (3) ease of navigation at different levels of a government, (4) inclusion of privacy policies and provision of privacy protection, and (5) public and private partnerships taking the perspective of service consumers, whereas (6) innovational use of IT to provide online information and services, (7) efficiency, (8) return on investment, (9) security and ease of auditing, (10) inclusion of qualitative and quantitative measures, and (11) effective evaluation mechanisms, which were so broad for measuring the impacts of e-Government development, and did not evaluate at the system or micro level at all since taking the perspective of service providers.

2.6.2 The adoption of EWAM

Existing evaluation models discussed by SIBIS (2001) and Koh and Prybutok (2003), and those proposed by Carbo, Williams and Emeritus (2004), Kunstelj and Vintar (2004), are rather conceptual and even some of them have not been fully validated and tested at time of conducting the respective study. Moreover, all four models deal with the evaluation of e-Government systems from both the perspectives of service providers and service consumers, although having the SIBIS evaluation model as presented in Table 2.7, and the Three-Ring Model of Koh and Prybutok (2003) as given in Table 2.8 highly oriented towards the system or micro level assessment from the customer point of view, and therefore, they were most relevant to the current study.

Since the SIBIS evaluation model is yet to be proven, the current research adopted the proven EWAM to derive the theoretical G2B success model. While comparing the main constructs and sub-constructs of EWAM, or collectively EWAM constructs as shown in Appendix A with the generic hierarchical systems of G2B measurement indicators as presented in Table 2.7, it is noted that the evaluation criteria of EWAM have been defined in quite a similar way to those of the SIBIS evaluation model. This suggests that the measurement indicators in the aspects of vision, acceptance and adoption of e-Government as presented in Figure 2.3 can be developed and adapted with reference to EWAM.

In another respect, the application of EWAM in the public sector can be inferred from the study conducted by Koh and Prybutok (2003). Indeed, the functions, features and facilities built into the four transaction phases of electronic markets, and the Community Component of EWAM also align with the Three-Ring Model of generic e-Government functions to certain extents. Specific to the context of implementing G2B systems, it is also expected that details on the four transaction phases of electronic markets, the Community Component together with their associated services (Schubert and Selz, 1999; Schubert and Leimstoll, 2001; Schubert, 2003a), and the corresponding use of the Internet (Liu, 2001; Koh and Prybutok, 2003) can be merged as follows, thereby demonstrating the equivalences of both models:

- (1) *Information Services.* These services refer to the informational use of the Internet. In the information phase, businesses collect price and other relevant information on the demanded products or services. The information being collected should achieve a business's expectations or needs as to meeting its satisfaction with the offer of the products or services.

- (2) *Agreement Services.* These services refer to the transactional use of the Internet. In the agreement phase, negotiations between businesses and the government actually take place, serving to confirm the required product specifications or service request, the price information and the delivery details that eventually lead to building the formal contractual relationship between businesses and the government. Additionally, agreement services would be delivered as additional services or business specific services.
- (3) *Settlement Services.* These services refer to both the transactional and operational use of the Internet. In the settlement phase, the physical or virtual delivery of the product ordered or service requested will be fulfilled.
- (4) *Communication Services.* These services refer to the operational use of the Internet. With community components built into the G2B website concerned, the communications between businesses and the government will be widely opened up, allowing them to share common interests, preferences and knowledge. In certain extents, the built of virtual community in cyberspace will lead to the creation of trusted electronic market environment because the market participants will become more identifiable among each other, empowered with exchangeable information as well as knowledge, and traceable electronic transactions.

Thus, by fusing the constructs of both EWAM and the Three-Ring Model together, EWAM is suitable for adaptation with regard to the evaluation of G2B systems in the context of e-Government, that is, the revised EWAM used in the current research.

In addition to its pertinence discussed so far, substantial evidences indicate that because of the most applications of EWAM in the evaluations of B2C and B2B systems as mentioned in Section 2.5.2, and additionally, the similarity between B2B and G2B systems as presented in Section 2.4.1 and Table 2.5 respectively, it is thus envisaged to adopt and adapt the constructs of EWAM accordingly for evaluating G2B systems in the current research. To this end, Huang, D'Ambra and Bhalla (2002) also supported the use of EWAM. The authors carried out a study on the adoption of e-Government based on the TAM theory, which has been extensively used to research the adoption of IT in the private sector. Therefore, it is noted from this study that since EWAM also embraces the theoretical rationales of TAM, it can be

applied in the public sector to fulfill the objectives of both implementation and evaluation of e-Government systems.

As mentioned earlier, EWAM was adopted and revised to adapt to the evaluation of G2B systems, thereby working out the theoretical G2B success model for the purposes of the current research. However, in addition to this first dimension of adaptation, more relevant works are needed especially in the aspect of transformations for the new form of public administration as discussed in previous studies. As described in Section 2.3.3, the definition of e-Government given for the current study reveals the importance of transformation in modernizing traditional governance. However, SIBIS (2001), Koh and Prybutok (2003), Carbo, Williams and Emeritus (2004), and even EWAM did not intensify the need for the transformational model of e-Government, and they did not expend considerable efforts in identifying the measurement indicators for transformation.

On the contrary, Kunstelj and Vintar (2004) strongly advocated the evaluation of the impacts of e-Government with regard to the provision of integrated e-Government services, which always calls for concomitant changes in the relevant public service delivery processes. Other studies such as Teicher and Dow (2002), Kunstelj and Vintar (2004) also discussed various levels of sophistication of e-Government services, and hence the corresponding level of changes in the public administrative structures and processes concerned. According to the studies, the highest level of sophistication of e-Government services, that is, the transformation will be attained only if related electronic services are clustered and integrated following a “one-stop” principle, meaning that a single entry point is offered for access to the cluster and integrated electronic services concerned. However, Devadoss, Pan and Huang (2002), and Reddick (2004) argued that transformational capabilities have not been fully exploited in establishing the basic infrastructure, and changing existing government business models and processes for a comprehensive e-Government. As such, e-Government has not been fully developed to reach a more mature stage, at which both a government and its various user communities will realize the impacts of e-Government in terms of value creations.

Having identified the aforementioned essential requirements for modernizing traditional public service delivery models and related processes, which actually become the imperatives to be undertaken for the successful implementation of e-Government initiatives, it is perceived that a high-order focus has to be clearly delineated to shape the substantial efforts

spent on transforming conventional public administration. To this end, the current study added a fourth ring, which indicates the transformational use of the Internet in the context of e-Government, to the Three-Ring Model of Koh and Prybutok (2003), thus serving to fill existing research gap by pursuing the most important element that contributes to the success in implementing e-Government and its affiliated systems.

While deriving the potential Four-Ring Model of G2B functions, the current research specifically adopted and revised new potential main constructs and sub-constructs, or collectively constructs as the second dimension in accordance with the literature of similar or related disciplines in order to adapt to the evaluation of G2B systems under the four primary categories of use of the Internet. Indeed, Kurnia, Leimstoll and Schubert (2005) mentioned that EWAM itself actually determines the success of an e-Commerce website in some extents by means of the measurements in the aspect of transformation or integration of related information systems at the back-end, which also suggested that non-substantial adaptation would be required to derive the theoretical G2B success model.

2.7 Theoretical research model and research hypotheses

This section presents the theoretical framework for developing the theoretical research model of the current study in the aspects of (1) theoretical background in Section 2.7.1, (2) central tenets of the theoretical research model in Section 2.7.2, and (3) research hypotheses in Section 2.7.3. For the theoretical background concerned, it discusses the value creation framework (VCF) in Section 2.7.1.1, and additionally, main constructs as well as sub-constructs of the theoretical research model in Section 2.7.1.2.

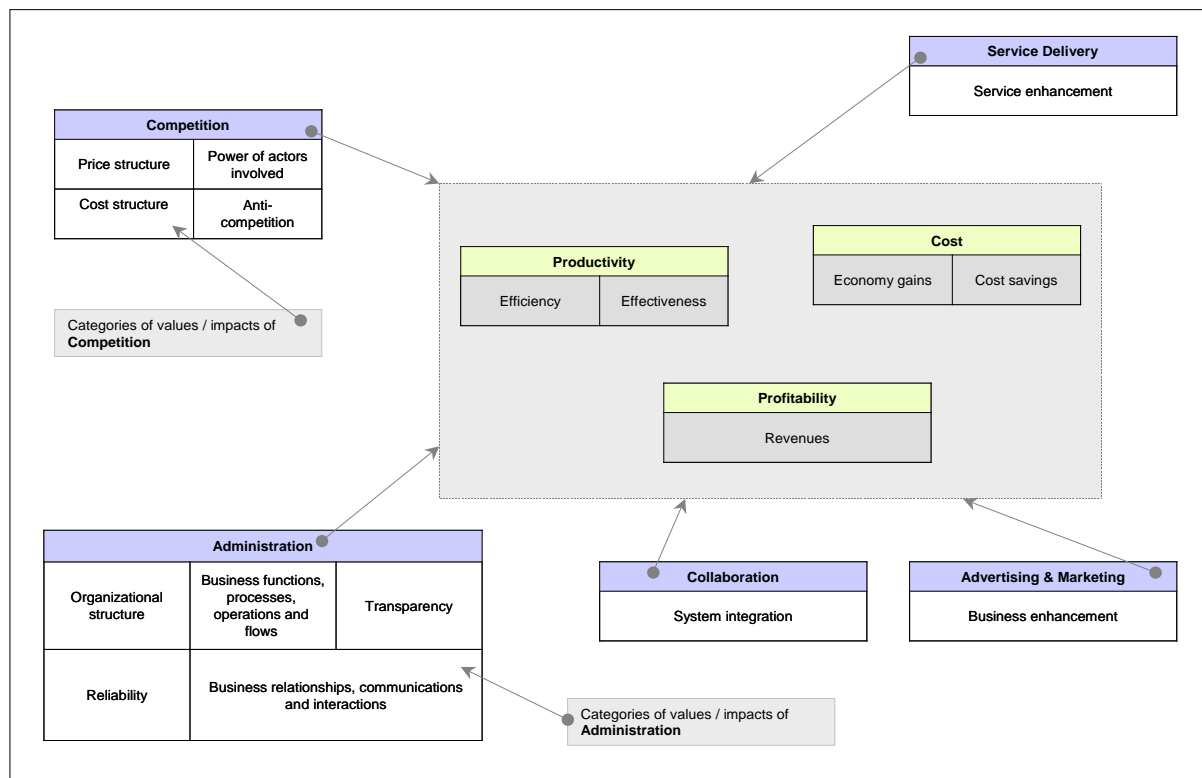
2.7.1 Theoretical background

2.7.1.1 *Value creation framework*

The theoretical background is discussed accompanying with the actual course of adoption, revision and adaptation at the levels of main constructs and sub-constructs of the theoretical G2B success model, mainly based on the corresponding constructs of EWAM and non-EWAM constructs as presented in Section 2.7.1.2. In this connection, the value creation framework is also introduced hereunder to delineate its essential concepts and rationales for the purposes of the current research, thereby revealing the benefits and impacts in relation to implementing successful G2B systems. Figure 2.4 explains the underlying mechanisms developed for the creation of potential benefits and impacts, together with examples of value

perspectives and categories of values as well as impacts. These examples partially reflect what discussed in Section 2.4.2 regarding the comparison on the importance of e-Commerce / B2B and e-Government / G2B systems.

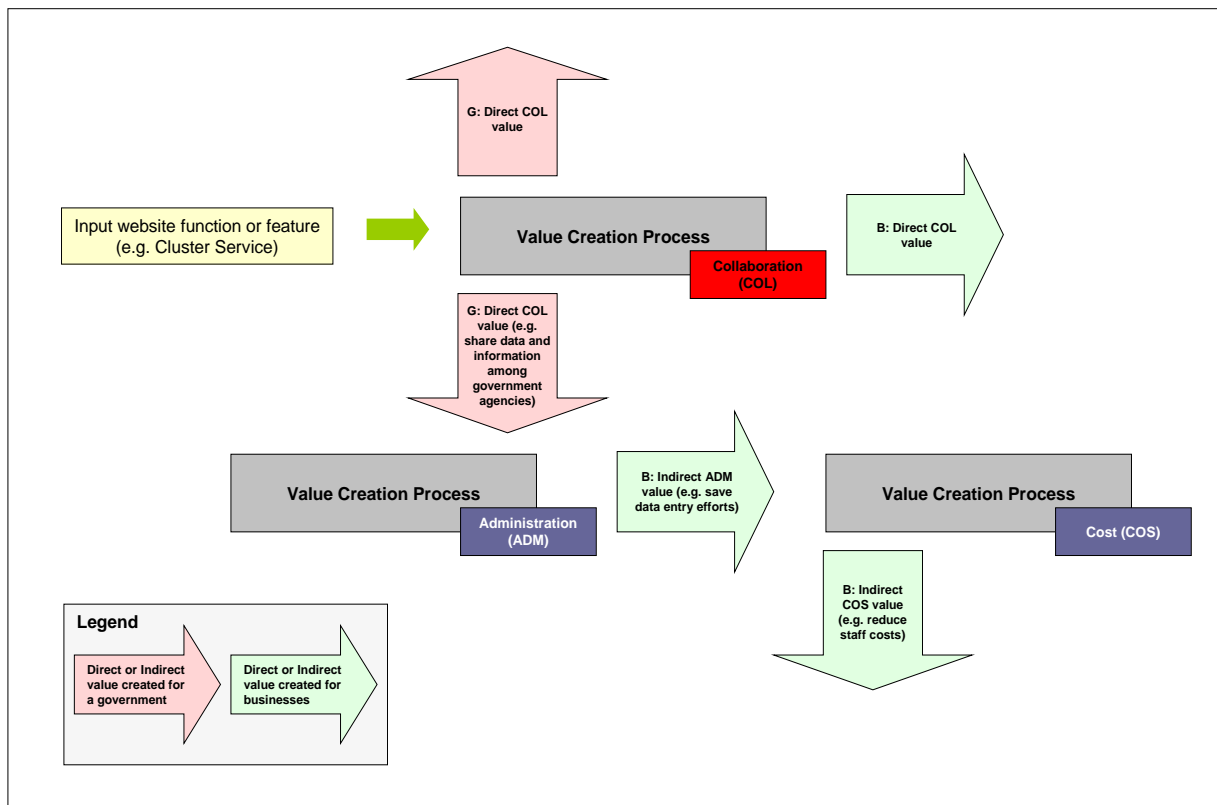
Figure 2.4 Value creation framework



As illustrated in Figure 2.4, a VCP is defined as a process developed in the specified field or taken from a particular value perspective for the purpose of creating values and impacts. In achieving so, each VCP exhibits its own specific attributes, components, and means or mechanisms, serving to create values and impacts either directly or indirectly for both the service providers and service consumers involved. To this end, the notion of parallel benefits collectively acknowledges what mentioned by OECD Observer (2003). While parallel benefits are important, it is also noted that some values and impacts are created directly from the VCP of the dedicated field or value perspective, whereas some values and impacts are created indirectly revolving around the originating VCP, and through the multiplier effects of chains of value creations of other related VCPs. As an example, Figure 2.5 shows that a website function, feature or facility, that is, the provision of a cluster of e-Government services by multiple government agencies, serves to be the input to the VCP of “Collaboration” initially in the creation of direct benefits for both a government and its business community, that is, a service provider and its service consumers respectively.

Thereafter, the multiplier effects come into the actual play such that indirect benefits are also generated for the parties involved along the chain of related VCPs. It is thus expected that businesses are able to reap the indirect benefit of saving data entry efforts in the front-line functions of a G2B website that are used for business license renewal application, reorder processing, etc. because the government agencies involved efficiently and effectively share data and information such as business license number, addresses, etc. in their back-end information systems under such a collaborative public service regime.

Figure 2.5 Multiplier effects of value creations



Overall, the purposes of VCPs are twofold. First, the provision of a G2B website function, feature or facility is perceived as a sub-construct of the theoretical G2B success model. The importance of each sub-construct concerned will be revealed from the affiliated VCPs and value creations according to the literature as presented in Section 2.7.1.2, whereas the values created are also perceived as equivalent to fulfilling particular or certain user expectations or needs when accessing the G2B website concerned. Second, while having recognized the importance of sub-constructs as mentioned in the first objective above, it is also necessary to know the underlying details from the literature. In this regard, the details attached to the importance of each sub-construct can be given in terms of what values and impacts can be

delivered actually, and how they are created to the affiliated VCPs through the implementation of a sub-construct.

2.7.1.2 Main constructs and sub-constructs of the theoretical research model

Main construct: Comprehensibility (COMP)

The literature has discussed the comprehensibility of Internet-based systems. Accordingly, Devadoss, Pan and Huang (2002), Swedberg and Douglas (2003), Carbo, Williams and Emeritus (2004), and Reddick (2004) mentioned about the contemporary needs for the convergence of electronic services that are to be provided by both the public and private sectors with the use of single and seamless user interface. Based on these studies, the comprehensibility of an Internet-based system can be enriched as far as practicable, whilst also meaning the intention to make the transformational use of the Internet, thus serving to induce the network and hence partnering effects in both sectors. Overall, “Comprehensibility” is a non-EWAM main construct, whereas the following sub-constructs are most relevant to evaluate the comprehensibility of the Internet-based system concerned according to the literature given hereunder, which mainly discusses the values and impacts in various aspects of value creations.

Sub-construct: Business-centric Cluster Services (COMP01)

Business-centric cluster services, or alternatively, “one-stop” business-oriented cluster and integrated G2B electronic services are collectively the non-EWAM sub-construct that would play a role in determining the comprehensibility of Internet-based systems according to the literature. However, there is the EWAM sub-construct, “Good combination possibilities for products or services”, which examines the breadth of the product or service range defined with various products or services that can be combined and offered for cross-selling or cross-access within a B2B system domain (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct is in close proximity and relevancy with the notion of “one-stop” business-oriented cluster and integrated G2B electronic services, and therefore, based on which the derivation result was obtained although it was mostly used in Schubert’s previous works to evaluate the usefulness of B2B systems.

(i) Business-centric Cluster Services pertaining to e-Commerce / B2B initiatives

Administration. For the business-centric integrated electronic services provided to the business community, it can be summarized from the literature (OECD, 1999a; Steward, Callaghan and Rea, 1999; Phan and Stata, 2002) that the networks of companies and partners

involved in B2B e-Commerce are required to carry out BPR activities for facilitating the development of new information sharing mechanisms in the first place, and consequently, to break down different information system boundary and hence physical proximity of business firms by means of both internal and external system integrations in the aspects of communications, data exchanges, etc. for transcending conventional organizational boundaries. A specific example was given in this regard by Koch (2004), demonstrating that a B2B initiative was successfully implemented to fusion and integrate existing individual procurement processes as well as activities together, thereby delivering aggregated e-Procurement services and furnishing the new form of business administration on behalf of its service consumers.

According to this study, although certain service consumers, that is, a critical mass of other suppliers in affiliated industries do not directly use the integrated electronic services provided, they still enjoy the benefits of accessing to and interacting with the expanded networks of potential customers on such B2B e-Commerce platform. Collectively, Chen, Themistocleous and Chiu (2004), and Koch (2004) emphasized the importance of integrated supply chains in terms of the benefits created for the service consumers, including wider order opportunity, lower pricing in collaborative sourcing, improved order processing time, shorten production time, reduced unused stocks, faster payment settlement, reduced delivery time, etc.

Service Delivery. It is summarized from the literature that the business models of companies or firms engaged in B2B e-Commerce have been changing in a dynamic way especially for the provision of “one-stop” business-centric cluster electronic services (Steward, Callaghan and Rea, 1999; Turban, Lee, King and Chung, 2000; OECD, 2001; Phan and Stata, 2002; Koch, 2004). As noted from these studies, businesses pursue the network effects of B2B e-Commerce to achieve globalization in the broadest sense on the one hand, whereas to foster both intra- and inter-organizational collaborations on the other hand through providing such business-centric cluster electronic services. Achieving the latter business acumen requires the business and/or service delivery processes concerned to be restructured to support both internal and external levels of information system integrations, whilst also meaning that the provision of such business-centric cluster electronic services takes its real effect of integrated information systems to facilitate hooking up the corresponding value chain nodes or processes, and hence integrating the full, partial or selected facets of both internal and external value chains of original business models to develop new business models of business alliances or joint ventures, etc.

OECD (1999a) supported accordingly and stated that collaborative business models are widely found in the two main types of digital intermediaries including information and functional intermediaries, which can even be converged to create a new form of digital intermediary, the so-called integrators or aggregators that mediate and bundle a combination of “one-stop” business-centric cluster electronic services accompanying with the use of single or consolidated user interface. As an example given in this regard, the old service provider-centric business model has been replaced by customer-centric one at Intel, which aggregates different mix of information as required according to the specific needs of each customer or trading partner (Phan and Stata, 2002).

With the provision of “one-stop” business-centric cluster electronic services, it is highly expected to increase the efficiency and effectiveness of business activities such that it is possible for the service consumers to reduce the burdens of making either physical visits to the brick-and-mortar premises or multiple virtual visits to existing websites of their trading partners when dealing with B2B affairs (OECD, 2000b; Koch, 2004). Although having such high expectation, Koch (2004) did mention in his study that few B2B electronic markets succeeded.

Collaboration. In close alignment with what mentioned in the preceding sub-sections that deal with the VCPs of “Administration” and “Service Delivery”, it is already known that the provision of “one-stop” business-centric cluster electronic services on a B2B system platform genuinely reveals different extents of BPR and hence different levels of both internal and external system integrations. As such, the network effects of B2B initiatives are affirmative than ever, whereas the electronic bonding among business firms are getting stronger along the integrated value chains of the newly developed business models (Steward, Callaghan and Rea, 1999; Phan and Stata, 2002; Krooman, 2004). The greatest advantages that will be taken from the perspective of service providers mainly include the transfers or exchanges of less redundancy, wider and immediate availability of data as well as information among the parties concerned in a non-fragmented way via a virtual common data and information pipeline (Voss and Schubert, 2004).

However, Voss and Schubert (2004) discussed some technical issues and approaches in terms of Enterprise Application Integration (EAI), integrated application software packages, etc. used during the course of system integrations, whereas they also pinpointed the possible

advantages of system disintegration including autonomous organizational structure and flexible business operations. Based on this study, it is perceived that both pros and cons of system integration and disintegration take their respective effects in a counter-balance manner. Schubert, Kummer and Leimstoll (2002) also emphasized the technical difficulties that the large majority of SMEs have always encountered in accomplishing the system integration tasks because of their heterogeneous IT infrastructure and information systems.

Competition. The literature has been dealing with various issues of competition in B2B e-Commerce as presented in Section 2.4.2. In this connection, OECD (2001) discussed the joint venture formed between General Motors and Ford in 1999, which developed a single global Internet-based trading portal to facilitate procurement, thereby moving away from the pursuance of traditional autonomous business models and hence the rivalry between separate B2B systems. Swedberg and Douglas (2003) have described such form of partnerships with the use of new term “co-opetition”, which refers to the fusion of both cooperation and competition among competitive businesses in contemporary B2B electronic markets, whilst also instilling a sense of imperfect competition as opposed to the real competition in traditional business operating environment.

OECD (2000b) summarized that such collaborations in the form of converging their electronic services either in partnerships, or by creation of new digital intermediaries among principal players or service providers are harnessed with the network capabilities of the B2B systems involved, thus developing a few consolidated networks of large dominant and affiliated players to reinforce their anti-competitive power, and also resulting the low contestability of other less competitive players in the same dedicated B2B electronic market. The anti-competition actually takes its real effects in terms of enhancing interconnectivity and interactions among the business partners involved such that the number of participants and hence market liquidity are significantly increased. Overall, the competitive dynamics are complicated and varied with the anti-competitive effects, and the electronic market competition is even more intense than supposed.

To the service consumers, as long as they get into the network loops of businesses, they would directly take competitive advantages to expand business potentials as far as practicable. Additionally, Wescott (2001) mentioned that they share the indirect benefits of cutting costs, increasing efficiency, etc. having used the business-centric cluster electronic services provided by B2B integrators, aggregators or co-opetitors.

(ii) *Business-centric Cluster Services pertaining to e-Government / G2B initiatives*

Administration. The provision of “one-stop” and seamless e-Government services generally refers to the paradigm that various user communities deal with different government organizations through the respective single contact as far as practicable. In the light of this basic concept, the related business operations that facilitate the dealings with various government organizations are integrated in a customer-orientation, thus fulfilling a diversified range of customer needs. To achieve this objective of public administration reform, a radical approach to reengineering classical fragmented business and/or service delivery processes in an electronic orientation is taken, which eventually brings about significant changes in conventional government organizational structure for fostering the seamless cooperation among the government agencies involved (Aichholzer and Schmutzer, 1998; Bellamy and Taylor, 1998; Ho, 2002; PRISMA, 2002c; Beynon-Davies and Williams, 2003; Vintar, Kunstelj, Decman and Bercic, 2003; Haldenwang, 2004; Kunstelj and Vintar, 2004; Beynon-Davies, 2005).

It is thus noted from the aforementioned studies that these significant changes genuinely reflect the imperatives, which should be undertaken for integrated public service provision in both internal / vertical and external / horizontal dimensions of system integrations under the realm of various e-Government initiatives. Such integrated public service provision plays the vital role in modernizing traditional public administrative processes, thereby achieving networked governance and hence new public management in the context of e-Government. According to Bellamy and Taylor (1998), and Chadwick (2003), the actual benefits mainly include the empowerment on decision-makings of government employee, the efficient use of the data once captured and hence the reduction in public service delivery costs, and the improvements on the overall public service quality from the perspective of a government, that is, the service provider.

From the perspective of service consumers, greater convenience and efficiency will be found in using the aforementioned e-Government services provided in the new public management domain (Cabinet Office, 2001; OECD, 2003b). Such integrated e-Government services are so-called high priority “killer” electronic services, which intend to address the common interests and demands, or alternatively, the predefined and structured life events specifically for the critical mass of the public community and business sector (Cabinet Office, 2001).

Service Delivery. Similar to B2B initiatives, there are substantial amounts of studies that emphasized the importance of “one-stop” business-centric cluster electronic services in the context of e-Government although having variability in terms of terminologies used and aspects (Bellamy and Taylor, 1998; Wu and Chua, 2001; Ho, 2002; Lenk, 2002; PRISMA, 2002c; PRISMA, 2002d; Teicher and Dow, 2002; Beynon-Davies and Williams, 2003; Cabinet Office, 2003; OECD, 2003a; OECD, 2003b; OECD Observer, 2003; Vintar, Kunstelj, Decman and Bercic, 2003; Westholm and Archholzer, 2003; Bakry, 2004; Kunstelj and Vintar, 2004; Beynon-Davies, 2005). Representative cases can be found from a few service clusters deployed for businesses along the dimension of integration of different government departments and agencies, and additionally, the dimension of integration of informational, interactive, and transactional G2B electronic services. Typical examples included “Tax Returns”, “Permits and Licenses”, “Human Services”, “Business Services”, etc. deployed to serve the specific business life events (PRISMA, 2002b; PRISMA, 2002d; Bakry, 2004). In addition to these integrative approaches, there has the dimension of integration of both public and private service providers, that is, public-private partnerships formed to formalize another type of public service delivery mechanisms. The latter integrative approach is even more innovative among all, and in particular, found in some cases of digital intermediaries created through the external or horizontal system integrations among private business firms and public agencies (PRISMA, 2002c; Cabinet Office, 2003).

Regardless of which integrative approach will be taking, it is recognized that traditional government agency-centric business or public service delivery models no longer prevail for delivering public services to the business community as usual, whereas a responsive government will do so according to life event principle, that is, business life events for enhancing the overall public service quality in the context of e-Government (Wu and Chua, 2001; OECD, 2003a; Seifert and Bonham, 2004). However, transforming the nature and approach to delivering electronic services to various user communities genuinely requires establishing common ICT infrastructure in the context of e-Government (Bakry, 2004). As well, the current research perceives that the service realm of G2B initiatives in general is so broad that issues such as exactly defining service cluster requirements, demarcating the boundary of each service cluster, etc. have to be dealt with because of the public sector’s wide-ranging roles and responsibilities as compared with those in the private sector.

As compared with conventional government agency-centric business models, the new business-centric one allows the service consumers using “one-stop” business-centric cluster

G2B electronic services such that they alleviate the burdens of making physical visits to various government offices, or in other case, searching around, initiating repeated communications, re-keying duplicate data, etc. as in the case of accessing across different websites. Therefore, business firms are enabled to quickly effect electronic transactions, and to easily gain accesses to other required G2B electronic services for the smooth completion of various business life events (Budhiraja, 2002; Lenk, 2002; PRISMA, 2002b; PRISMA, 2002c; Seifert and Bonham, 2004).

Collaboration. Unquestionably, the collaboration mechanisms are similar to those found in B2B initiatives as evidenced in studies done by Bellamy and Taylor (1998), PRISMA (2002c), Vintar, Kunstelj, Decman and Bercic (2003), Westholm and Aichholzer (2003), and Reddick (2004). In this regard, Moon (2002) also gave some good examples of “one-stop” e-Government initiatives implemented in Australia, Singapore and the U.S., which unify the required data, online information and services among both the public and private service providers involved on the one hand, whereas the efficiency and effectiveness of government business processes are also substantially increased while taking the view of service providers on the other hand.

Based on these studies, the new breed of “one-stop” cluster electronic services are to be pursued by leading governments worldwide when they go through the transformation stage of e-Government development, whereas they are to be highly regarded by most service consumers including the business sector. Although having said this, Accenture (2002), Poon and Huang (2002), PRISMA (2002c), Chadwick (2003), and Reddick (2004) did mention in their studies that both intra- and inter-organizational collaborations described above are yet to be completely proven in concept and practice in various e-Government initiatives. These challenges mainly include (1) recasting the roles and responsibilities of conventional excessive departmentalism, (2) removing the heterogeneity of IT infrastructure, information systems, databases, etc. that have been using in both the public and private sectors, and (3) just automating existing government business processes with the adoption and application of IT.

Notwithstanding, OECD (2003b) gave a typical example of “one-stop” e-Government portals to disclose the greatest collaboration efforts behind the scene and hence the benefits realized by the service consumers, stating that the Spanish tourism portal aggregates the online information and services such as the common reservation system, etc. provided by both the

public and private sectors, including the Spanish government, local government agencies, travel agencies, individual hotels, restaurants, etc.

Competition. As recapped from Section 2.4.2, Adhanda Enterprises (2000), Symonds (2000b), and Bakry (2004) emphasized that a local government is actually a monopoly supplier of public services, who does not have concerns for the competitive issues as always found in the commercial sector. Besides, it is recognized that even though the channel management of e-Government has been introduced as a new concept of public service delivery, it is still not regarded as a significant competition to conventional government services. However, PRISMA (2002c) argued that there are true competitions among the governments worldwide, meaning that they strive to compete with each other in terms of providing favorable trading conditions and operating platforms to the business community, and more importantly, enhancing the image of a premier business locality in the world through the implementation of G2B initiatives. Based on this study, it is noted that the competitive dynamics should not be described and confined to a country or nation level only and it is too simplified to make a conclusion like that.

Aichholzer and Schmutzer (1998), and PRISMA (2002d) also supported the argument tendered by PRISMA (2002c) mentioned above, stating that it is crucial for businesses, that is, the service consumers to smooth out their dealings with government organizations with the use of integrated G2B electronic services, thus leading to the increased competitiveness of the local and hence global economy.

(iii) Summary for Business-centric Cluster Services

Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Business or Transaction Steps (COMP02)

Simplified business or transaction steps are collectively the non-EWAM sub-construct that would play a role in determining the comprehensibility of Internet-based systems according to the literature. However, there is the EWAM sub-construct, “Good integration of generic services”, which examines the availability of unified, converged and hence simplified electronic services that can be offered for use within a B2B system domain. These simplified electronic services are also common or generic in nature, and include online shopping carts as well as payment services, one single billing statement created for multiple shopping lists, etc.

(Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct is in close proximity and relevancy with the notion of simplified business or transaction steps, and therefore, based on which the derivation result was obtained although it was mostly used in Schubert's previous works to evaluate the ease of use of B2B systems.

(i) Business or Transaction Steps pertaining to e-Commerce / B2B initiatives

Administration. There exists some other forms of digital intermediation, including disintermediation and reintermediation as discussed in Section 2.4.2 regarding the value perspective of service delivery. In this regard, Javalgi and Ramsey (2001) discussed that traditional intermediation has featured the participation of many intermediaries or agencies along various value chains. As the number of participants increases, the overall value chain length is also getting longer, thus making the business processes more complicated, and additionally, the costs of delivering products or services much higher. However, according to the authors, efficiency is increased and costs are reduced significantly on the service provider side if traditional intermediation is replaced with digital one, which enforces the network effects of B2B initiatives in order to effectively eliminate or minimize some value chain nodes of intermediaries or agencies. Other relevant studies such as Steward, Callaghan and Rea (1999), Dunt and Harper (2001), OECD (2001), Griffin and Halpin (2002) also supported what mentioned by Javalgi and Ramsey (2001).

OECD (2000a) expressed the viewpoint that businesses will realize the potential benefits of disintermediation, or alternatively, merging, skipping or streamlining existing business processes through using B2B electronic services. Because of the immediate and free flow of information, streamlined and simplified business operations among the business parties involved, the new business model of disintermediation definitely brings the advantages such as increasing efficiency, lowering search, purchasing, inventory and ultimately transaction costs to the service consumers.

(ii) Business or Transaction Steps pertaining to e-Government / G2B initiatives

Administration. The literature reveals the importance of simplification in government business processes. In this regard, Interpretech (2002) discussed "harmonization" in the context of e-Government, referring to the imperative that bureaucratic processes and practices, which have long been carried out and applied accompanying with the support of a diversified range of technologies in traditional public management domain, should be made interconnected and interoperable as far as practicable. While this is totally desirable from the

perspective of new public management, it is also true that unification or convergence, and hence simplification of government business processes can then be accomplished. In conjunction with what mentioned by Interpretech (2002), Khoong (2001), Schubert and Hausler (2001), and Chadwick (2003) also emphasized the same level of importance although the authors elaborated the meaning together with the concept of the “zero-touch” or “zero-stop” public administrative processing in the joined-up governance setting or environment. In particular, Chadwick (2003) stated that joined-up government plays its vital role in modernizing or reengineering traditional public administration through reducing duplicate information and repeated government business processes across various government agencies, thereby delivering more streamlined and disintermediation functions, features as well as facilities in various e-Government systems, reducing the costs of public service delivery, and enhancing the overall quality of public services.

Westholm and Aichholzer (2003) mentioned about the Flemish Business Services Center on the Internet in Belgium, and stated that dedicated G2B websites have been successfully implemented, whereas each of them provides single-window access for all potential investors. Additionally, the functions, features and facilities of such G2B websites are collectively a reflection of the streamlined government business processes and simplified government business steps established for processing applications of various types of licenses such as building and environmental permits, etc., which are mandatory requirements to be fulfilled by investors, that is, the service consumers before making business investments, thus allowing them to increase efficiency when setting up businesses in the region.

(iii) Summary for Business or Transaction Steps

In summary, the studies concerned generally depicted the importance of simplified government business processes, and hence smooth as well as user friendly e-Government services, but not many specific to the business sector. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Main construct: Ease of Use (EOU)

There is ample literature that has discussed the ease of use of Internet-based systems. Among all the studies concerned, the work of Schubert (2003a) is one of most representative one, which actually adopted “Ease of Use” as one of the motivational variables that would directly affect the actual use of an Internet-based system. Overall, “Ease of Use” is an EWAM main

construct, whereas the following sub-constructs are most relevant to evaluate the ease of use of the Internet-based system concerned according to the literature given hereunder, which mainly discusses the values and impacts in various aspects of value creations.

Sub-construct: Organization of Web Content (EOU01)

Organization of web content is one of the potential sub-constructs that would play a role in determining the ease of use of Internet-based systems according to the literature. There is the EWAM sub-construct, “Good structure of content”, which examines the organization and structure set in place within a B2B system domain, facilitating easy accesses to and navigation around various types of web content (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the ease of use of B2B systems, is in close proximity and relevancy with the notion of organization of web content, and therefore, based on which the derivation result was obtained.

(i) Organization of Web Content pertaining to e-Commerce / B2B initiatives

Administration. According to Schubert and Hausler (2001), Madeja and Schoder (2003), Internet-based portals, in particular, generally provide a single point of entry for accesses to a diversified range of information and services, which are mostly grouped together according to the preferences of the portal owner, designer or operator, or alternatively, based on business, functional or topical needs. The authors also stated that the service providers are required to arrange the diversification of web content in an optimum way in order to improve the information delivery processes and make an Internet-based portal successful.

Voss and Schubert (2004) also supported the importance of well-organized web content but in a more implicit sense. In the study, the authors discussed a combined B2C and B2B initiative launched in Germany, which allows for easy and continuous accesses to a wealth of ubiquitously gathered information posted onto a travel management portal. Substantial amounts of values can be created on behalf of the service consumers in terms of the increase in convenience and efficiency while managing the overall business travel activities started from planning business trips and to carrying out some post-trip activities.

(ii) Organization of Web Content pertaining to e-Government / G2B initiatives

Administration. In the context of e-Government, there exists the literature that supports the importance of well-organized web content on the relevant Internet-based systems (American City & County, 2000; Ho, 2002; Teicher and Dow (2002); Chadwick and May, 2003;

Choudrie, Ghinea and Weerakkody, 2004; Haldenwang, 2004; Reddick, 2004). These studies mainly emphasized the system capability for placing aggregated information on any single e-Government portals, through which enhancing the public service quality by overcoming the service consumers' hurdles of navigating different information sources among multiple e-Government websites. An even more enhanced option can be offered to customize online information provision organizing and tailoring to the user's profile, interests and preferences. It is thus appreciated the advantages of streamlining information delivery processes, saving staff of front-line information or counter services, reducing paper consumptions and relevant costs accompanying with the delivery of online information services.

But according to Bellamy and Taylor (1998), Wescott (2001), and OECD (2003b), the organization and structure of information have been aggregated or arranged on any e-Government websites or portals in a government agency-centric, but rather than a customer-centric way, whilst also meaning that visits to multiple e-Government websites are still required. To address the specific issue mentioned above, Fountain (2001), Schubert and Hausler (2001), Wu and Chua (2001), Budhiraja (2002), PRISMA (2002d), OECD (2003b), Westholm and Aichholzer (2003) suggested implementing new G2B initiatives to provide businesses with a whole wealth of information in accordance with topic-related or information theme links, which are organized based on the requirements of businesses for problem-, situational or business-oriented structuring, rather than institutional or administrative structuring of web content. As can be seen from these studies, value creations are expected to ground in putting information into context rather than just by making them available. In making all these happen, according to Pollard (2000), it appears that the information providers within the networks of information-mediated governance should adapt to the growing demands of different user segments or market forces.

The phenomenon of disparate physical information sources has been prevalent in traditional public administration as what mentioned by Bellamy and Taylor (1998). Notwithstanding, according to American City & County (2000), Budhiraja (2002), and PRISMA (2002d), the consumers of e-Government services will be able to reap the significant benefits of eliminating physical trips and repeated telephone calls made to multiple government offices for getting the required information, thus increasing the overall convenience and efficiency when dealing with government-related business.

(iii) Summary for Organization of Web Content

Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Quantity of Web Content (EOU02)

Quantity of web content is one of the potential sub-constructs that would play a role in determining the ease of use of Internet-based systems according to the literature. There is the EWAM sub-construct, “Reasonable information quantity”, which examines the quantity of web content delivered within a B2B system domain, focusing on the range of information as given in relation to the products or services provided (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the ease of use of B2B systems, is in close proximity and relevancy with the notion of quantity of web content, and therefore, based on which the derivation result was obtained.

(i) Quantity of Web Content pertaining to e-Commerce / B2B initiatives

Administration. Determining the quantity of web content posted onto a B2B website means streamlining information delivery processes and hence conveying the essential company branding, product or service messages from the perspective of service providers (Accenture, 2006b). As Kearney (2000) mentioned, the quantity and proportion of commerce as well as value-added content should be mixed in an optimum way. Based on this study, it is thus perceived that the quantity of web content should be reasonable enough for not providing cheap or overload information. In another respect, OECD (2000b) argued that some search engines do not always work perfectly to scale down the amount of web content being exposed. Although having said this, “meta-information” or “metadata”, that is, information about information can still be used to help find the rightful amount of information.

On the service consumer side, reasonable amount of web content should really help them get the information as needed, reduce search costs and time, and increase the overall efficiency when dealing with business affairs in a general sense. As stated by Dearstyne (2001), the success of e-Business relies on the provision of intelligent information to customers based upon their ever-changing information needs, whilst also revealing the close relationship and hence the alignment between the practices of customer relationship management and those of information management.

(ii) Quantity of Web Content pertaining to e-Government / G2B initiatives

Administration. Based on the study of Satyanarayana (2001), it is perceived that the notion of content delivery should be more valuable as well apart from just tangible. In achieving so, the quantity of web content should be confined or made available to what are really required from the perspective of consumers of e-Government services. Dearstyne (2001), Hoenig (2001), and Chadwick (2003) generally supported what mentioned by Satyanarayana (2001), arguing that the large majority of Internet users are not enabled to make good and effective use of existing large amounts of information although they are just available. The authors also articulated that information proficient organizations, that is, the service providers should induce the optimal and intelligent use as well as delivery of the information in the context of e-Commerce and e-Government respectively, thereby realizing both business strategic and operational values revolving around the key areas of business environments, customers, products and services. In another respect, Hoenig (2001), Vintar, Kunstelj, Decman and Bercic (2003), Choudrie, Ghinea and Weerakkody (2004) stated that digital guides and intelligent search engines can help solve the problems of information overloading.

To the business community, there are advantages of accessing reasonable amount of information through using the corresponding G2B information services. PRISMA (2002d) gave some examples in this regard, stating that advanced searching tools such as “Public Tenders for Businesses” have been provided in eVienna, a “one-stop” e-Government portal, to facilitate businesses getting the required public tender information by means of a range of searching option. With such delimited and highly focused information source, businesses are enabled to reduce search costs and time, and to deal with government business more efficiently. As another example, “Register of Businesses” with online searching capabilities was also launched by the government of Slovakia to provide businesses with the information such as the history and size of business counterparts, etc., which are suffice enough to build the trust and increase the transparency of business contacts.

(iii) Summary for Quantity of Web Content

Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Guidance in Online Interactions (EOU03)

Guidance in online interactions is one of the potential sub-constructs that would play a role in determining the ease of use of Internet-based systems according to the literature. There is the EWAM sub-construct, “Transparent, interactive integration of business rules”, which

examines the provision of guidance or other help facilities on the usage of electronic services, and additionally, on business rules including general terms and conditions for compliance when being engaged in online interactions for completing an electronic transaction within a B2B system domain (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert's previous works to evaluate the ease of use of B2B systems, is in close proximity and relevancy with the notion of guidance in online interactions, and therefore, based on which the derivation result was obtained.

(i) *Guidance in Online Interactions pertaining to e-Commerce / B2B initiatives*

Administration. The provision of online guidance is one of the most typical and important functions, features or facilities of any e-Commerce websites. OECD (2000b, 2001) briefly discussed the benefits concerned for the service providers, and stated that they will likely increase their efficiency in processing the inputted data since the latter data are already validated and corrected at time of inputting by the transaction originators. To the service providers, this actually means reducing the data entry errors and hence the associated costs of re-keying or correcting data on behalf of the transaction originators.

On the service consumer side, they will firstly realize the reduction in data entry errors, then the increase in efficiency when interacting with an e-Procurement website, that is, a B2B website, and consequently, the completion of accurate and reliable electronic transactions, and also the reduction in transaction costs (OECD, 2000b). Although having realized such benefits of online help facilities, Porter (2001) put forward a counter argument and stated that human contacts in traditional business administration have been very effective in advising how to conduct and close the business deals, negotiating terms and conditions, etc.

(ii) *Guidance in Online Interactions pertaining to e-Government / G2B initiatives*

Administration. There have been substantial amounts of the literature that support the importance of online guidance or help facilities on e-Government websites. Hoenig (2001) is one of them that mainly discussed the provision of digital guides together with business solution-based e-Government services. Cabinet Office (2003) also discussed a similar online help facility provided on a problem-oriented or situational basis, which is a self-help stepwise and easy-to-use guide put in place on NHS Direct Online website in England to facilitate individuals accessing a host of online health information and advices. Nevertheless, Fountain (2001), and PRISMA (2002d) pointed out that the efficiency and costs of processing routine transactions will be improved and reduced respectively on the government side because of the

reduction in creation and hence corrections of data entry errors if the delivery of e-Government services is harnessed with good user interfaces and intuitive online guidance. Symonds (2000b), and Beynon-Davies (2005) supported accordingly, whereas Beynon-Davies (2005) identified the reduction in government staff resources allocated for the usual front-line public enquiry services, and instead, the redeployment to other value-added public services.

Likewise, the service consumers who need to interact and deal with government agencies will find the significant benefits of using some e-Government communication and transaction services especially when comparing with the offline help services previously provided by some government agencies or intermediaries, which usually prolong the overall public service fulfillment or processing time (Symonds, 2000b; Hoenig, 2001). This is contradictory to what mentioned by Porter (2001) regarding the importance of human contacts in traditional business administration. In another respect, PRISMA (2002d) mentioned that data entry errors will be reduced, whereas efficiency will be increased and the costs incurred on re-input of data reduced consequently if the service consumers are aware of the system facilities such as automatic validations on various data fields of web forms, etc., which increase user-friendliness when they effect online transactions with government agencies.

(iii) Summary for Guidance in Online Interactions

Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Selection of Routine Services (EOU04)

Selection of routine services is one of the potential sub-constructs that would play a role in determining the ease of use of Internet-based systems according to the literature. There is the EWAM sub-construct, “Easy selection of generic services”, which examines the provision of common electronic services for payment settlement, logistics arrangement, etc. within a B2B system domain. These routine services have generic user interfaces, whereas their service delivery options are multiple and flexible enough to allow for customers’ selection subject to their business needs (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the ease of use of B2B systems, is in close proximity and relevancy with the notion of selection of routine services, and therefore, based on which the derivation result was obtained.

(i) *Selection of Routine Services pertaining to e-Commerce / B2B initiatives*

Competition. First of all, the flexibility in making payment online will definitely improve the international trade under the realm of globalization (Steward, Callaghan and Rea, 1999). Likewise, OECD (1999a, 2006) discussed various payment options such as paper cheques, digital intermediary services of banks for direct credits or debits, mobile payment, digital cash, etc. In conjunction with this, Porter (2001) also discussed multiple service delivery channels offered for a routine service such as distributing product or service catalogues, settling payment, etc. Regardless of what types of service delivery channels or media that are going to be used, individual e-Commerce company or service provider is able to strengthen its competitive advantages through introducing a sense of product or service differentiation among other e-Commerce rivalries at the bottom line. Notwithstanding, the current research supposes that flexible routine services are necessarily provided by means of alternative service delivery options in the context of implementing B2B systems. Overall, each of the service delivery options augments each other option's deficiencies so that those identified anti-competitive issues raised from pure electronic payment means can be mitigated indirectly at the least, and consequently, the service providers will realize the substantial benefits of enhanced service quality in the aspect of competition.

Along traditional ways of doing business, it has been noted that secure proper redress in the event of disputes over the payment, logistics affairs, etc. related to the sales and purchases of products or services can be ensured (OECD, 2000b). Nevertheless, the service consumers will receive added convenience and efficiency if they engage in flexible routine B2B business processes as compared with traditional ways of doing business.

(ii) *Selection of Routine Services pertaining to e-Government / G2B initiatives*

Administration. It is perceived that the corresponding complexity of service delivery for routine services related to procurement, receipts, payments, information, public complaints, application lodgments, public records and archives in the public sector is as high as that of commercial services regardless of what service delivery platforms are being used, either manual- or web-based ones (Carbo, Williams and Emeritus, 2004). According to Lenk (2002), the author advocated a multiple channels approach to delivering public services, which is one of the facets of public administration modernization. In achieving so, there also exists the opportunity to fulfill the objectives of another important facet of public administration modernization, which focuses on delivering customer-centric public services. In principle, multiple channels approach means that physical accesses to conventional public services,

Internet-based accesses to and other access means for e-Government services in general should coexist and complement with each other in order to enhance the overall public service quality. As well, according to Teo and Lim (1998), and Wescott (2001), online accesses to some routine services such as payment services, in particular, really bring benefits to governments in terms of the savings in manpower resources, increased efficiency, reduced paperwork and costs in processing paper cheque and cash payment transactions. As an example, AGIMO (2005) stated that the Australian Taxation Office (ATO) allows business firms making government-related payments via different means including the Business Portal of the ATO, the ATO's direct debit facility, postal mail of paper cheques, etc.

American City & County (2000), and Budhiraja (2002) discussed the advantages of putting payment services online with the adoption of credit cards, electronic bank transfers, etc. in e-Government systems. Serving as one of the public service delivery options, governments seek to offer the optimal level of convenience and efficiency to the public when they deal with government business.

(iii) Summary for Selection of Routine Services

Based on all the aforementioned studies, the current research finds that there has been limited literature discussing the flexible selection of routine services and the related benefits within a G2B system domain. However, it is still consented that the literature does reveal the values and impacts of flexible routine services created in the area of public administration, but not competition because competitive dynamics and issues have not been so intensified in the public sector as discussed. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Online Business Support (EOU05)

Online business support is one of the potential sub-constructs that would play a role in determining the ease of use of Internet-based systems according to the literature. There is the EWAM sub-construct, "Convenient after-sales support", which examines the provision of convenient after-sales support services by means of electronic guarantee forms, feedback forms, etc. within a B2B system domain (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert's previous works to evaluate the ease of use of B2B systems, is in close proximity and relevancy with the notion of online business support, and therefore, based on which the derivation result was obtained.

(i) *Online Business Support pertaining to e-Commerce / B2B initiatives*

Administration. There have been substantial amounts of the literature that discuss the provision of online business support in e-Commerce systems. Of these studies, Madeja and Schoder (2003) employed eight salient web features to evaluate the success of corporate websites. Specifically, “Interactivity” measures the system capability built for offering various feedback channels with the application of telephone, paper faxes, emails and Internet-related technologies, thereby fostering bi-directional communications, and hence implying strong interactions as well as relationships between the service providers and service consumers. The study concluded that one of the key success factors for B2B websites is the interactive character mentioned above. Steward, Callaghan and Rea (1999), Kearney (2000), Turban, Lee, King and Chung (2000), and OECD (2001) also emphasized the importance of convenient customer or business support.

To the extent that online interaction functions, features and facilities of e-Commerce systems seamlessly help foster affiliated relationships and communications among the participants involved on the one hand, it is also realized that the functions, features and facilities concerned empower the service consumers in such aspects as making right purchasing decisions, regulating or monitoring the performance of the service providers, etc. on the other hand through unfolding and sharing their individual viewpoints, opinions, problems as well as experiences on a particular product or service being offered, thereby effectively dampening traditional slow, non-instantaneous and even non-responsive ways of customer support channels (Steward, Callaghan and Rea, 1999; Business2000, 2006).

Service Delivery. OECD (2004) generally discussed the application of IT by SMEs to improve their responsiveness to customers’ feedback or complaints on existing or new products or services offered. More essential implications are carried from the perspective of service providers, meaning that the overall service delivery arrangement will be refined and the associated quality enhanced revolving around the actual customer needs in the e-Commerce domain.

Steward, Callaghan and Rea (1999) articulated the benefits of provision of online customer support in the context of e-Commerce, though not specific to the business community. Through offering online discussion or interaction facilities, the groups of users or service consumers themselves pose questions and tender corresponding answers, thereby accumulating and creating well-informed collective intelligence. The latter collective

intelligence is innovative enough and it is usually in the form of electronic user guides, help desk logs, knowledge base, etc., facilitating the service consumers to help each other in the problem-solving or decision-making processes with regard to using the e-Commerce products or services concerned. Therefore, members of the user base themselves will be able to keep pace with the use of efficient and effective e-Commerce services.

(ii) Online Business Support pertaining to e-Government / G2B initiatives

Administration. Accompanying with the use of ranked web diagnostic tools, Choudrie, Ghinea and Weerakkody (2004) adopted “Interactivity” as one of the key criteria to evaluate global e-Government websites as mentioned before. But the study did not relate the criterion much with the provision of online business support as what investigated by Madeja and Schoder (2003). Notwithstanding, according to Wescott (2001), online interaction channels are often furnished via websites and emails at the initial stages of e-Government development to facilitate the public giving their feedback and opinions on affairs related to public administration, government policy formulation, political campaigning for voting, etc. To this end, it is well perceived that conventional ways of public consultations can be easily accomplished in an electronic orientation, that is, e-Consultation, by which existing spectrum of contact media will be widen, whereas closer and stronger interactions as well as relationships with the public community will be fostered than ever (American City & County, 2000; Ho, 2002; Carbo, Williams and Emeritus, 2004). However, the current research supposes that the aforementioned studies did not put emphasizes on online customer or business support channels. Again, despite of this observation, the notion of e-Consultation as discussed by American City & County (2000), and Ho (2002) still refers to a designated e-Government system capability, which facilitates individuals helping each other in their self-intuitive or awareness processes with regard to pursuing high standard of public services and hence living in a place.

Likewise to the consumers of e-Government services, they will realize the benefits of having more frequent online direct communications, and hence increasing the opportunities of creating intimate interactions as well as relationships with the service delivery counterparts, that is, the government organizations or agencies. The new kind of relationships is actually spawned with shared views, feedback and usage experiences on accessed e-Government services in the support domain (PRISMA, 2002d).

Service Delivery. As OECD (2003b) mentioned, short online questionnaires and convenient contact channels furnished on e-Government websites should help collect qualitative information about the user enquiries, feedback and experiences on using the products or services currently offered. If the collected information can be analyzed effectively, possible improvements on existing e-Government service delivery arrangement or mechanisms will be definitely achieved. Haldenwang (2004) supported accordingly and even stressed that contact channels should be built on e-Government websites with multiple media, including traditional form of media as mentioned by Budhiraja (2002), McNeal, Tolbert, Mossberger and Dotterweich (2003), and Beynon-Davies (2005), that is, face-to-face, paper-based ones, etc. in addition to those electronic ones. Given various interaction channels that respond to the public's demands quickly and flexibly, it is envisaged enhancing the overall public service quality and undergoing real transformations in traditional public administration.

PRISMA (2002d) acknowledged what discussed by OECD (2003b), and Haldenwang (2004), stating that specific online interaction functions like guest book and feedback link on the home page, have been provided in eVienna to facilitate the service consumers' active participation in the enhancement activities for the longer-term development of the e-Government portal.

(iii) Summary for Online Business Support

In summary, it is noted from all the aforementioned studies that while various online customer support channels have been established in e-Government systems to achieve the innate objectives of helping customers in their use of the products or services being offered, associated benefits have been identified as well in the aspects of public administration and service delivery. However, there not exists an adequate amount of the literature specific to the G2B sector, and connected to the importance of online business support. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Online Business Communities (EOU06)

Online business communities are collectively one of the potential sub-constructs that would play a role in determining the ease of use of Internet-based systems according to the literature. There is the EWAM sub-construct, "Good access to community", which examines the provision of virtual communities within a B2B system domain for exchanging and sharing common values and interests among the participants involved regardless of time and location

constraints (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert's previous works to evaluate the ease of use of B2B systems, is in close proximity and relevancy with the notion of online business communities, and therefore, based on which the derivation result was obtained.

(i) Online Business Communities pertaining to e-Commerce / B2B initiatives

Administration. Of the eight web features adopted by Madeja and Schoder (2003), "Connectivity" measures the system capability built for fostering cooperation and collaborations among the participants involved. However, the study concluded that "Connectivity" is not the key success factor of B2B websites. In another respect, OECD (2003c) discussed the notion of IT-mediated communication facilities in the context of e-Commerce, which is also in association with added interactivity for sharing tacit knowledge around the principles and requirements of knowledge management. As summarized from the studies of Madeja and Schoder (2003), Hampe, Schubert and Schneider (2004), it should be noted that such system capability has usually been built with the implementation of functions, features and facilities for online and/or real time discussion forums / boards, online communities and other equivalent means among the networks of the service provider, its service consumers and external parties within an e-Commerce system domain. In accordance with those studies of Hagel and Armstrong (1997) and others, Hampe, Schubert and Schneider (2004) particularly advocated the potential values created from the deployment of online business communities on B2B websites, which mean building more closer and loyal relationships with the participants involved.

To this end, the current research supposes that online business communities serve to strengthen B2B collaborations, and to achieve some other affiliated business objectives such as the ones mentioned by Kearney (2000), Madeja and Schoder (2003), Leimeister and Krcmar (2004), that is, posting and exchanging a wider variety of web content including common interests, business information and knowledge, etc. OECD (2001), Leimeister and Krcmar (2004) also supported the dissemination of such and other shared interest information to online community members, which will mainly facilitate (1) streamlining information as well as knowledge delivery processes, (2) developing mutual trusts as well as appealed loyalties within the intermeshed networks of cooperative and collaborative parties, and (3) increasing the transparency and reinforcing accountability of the underlying business actions and rationales taken, and affairs accomplished in response to a range of challenges derived

from the dedicated business environment, industry, economy, etc., whilst also fulfilling part of the improvements on corporate governance.

Other studies such as the ones done by Koffi N'Da (2001), Koch, Moeslein, Schubert and Lechner (2004) also realized the prevalent trend of online communities in the context of e-Commerce. Piller, Schubert, Koch and Moslein (2004) gave examples that the interactive personalization functions of online communities generally encompass the sharing of new product or service ideas as well as concepts among the members or the service consumers involved, and thereafter, the co-design and customization of new products or services.

Competition. OECD (2000b) discussed the issue of exclusivity in relation to strengthening the competitive competences of business firms in e-Commerce market places since the former issue will certainly raise the costs of switching from one merchant to another one. Exclusivity can be addressed and accomplished effectively by the service providers through fostering more frequent and direct communications, and consequently, accentuating the expansive network effects of, and hence reinforcing the interactions and relationships among the online community members involved in an e-Commerce system domain. Porter (2001) stated that an e-Commerce company has to make its online community functions, features and content more proprietary or unique enough in order to reap the real benefits of the network effects of e-Commerce systems as expected. For additional benefits in the aspect of competition, Hampe, Schubert and Schneider (2004) reiterated that substantial amounts of personal information of online community members can be collected, which will likely be converted into a wealth of essential marketing data and information, and based on which significant inroads into deepening the competitive competences among other rivalries can be made especially in consumption-related market places.

As discussed in the aforementioned studies, while the service providers will gain the greatest benefits in the aspect of competition from the provision of online communities in general, the service consumers, that is, the online community members participated will help contribute towards developing such competitive dynamics on a voluntary and ongoing basis.

(ii) Online Business Communities pertaining to e-Government / G2B initiatives

Administration. Beynon-Davies and Williams (2003), and Beynon-Davies (2005) advocated the delivery of more benefits along the value chains of supply and customer management, both internal and external virtual communities, etc. when implementing various e-

Government systems. There have been other studies that discussed in some details regarding the value creations. In the context of e-Government, Moon (2002), Poon and Huang (2002), and Bekkers (2003) were in favor of the provision of online communities, interactive bulletin boards, etc., which facilitate the ease of transfer, exchange and sharing of common interested information to and with external stakeholders including citizens, business firms, non-profit organizations, etc., thereby enriching the public relationships in a more expedited and affiliated manner from the perspective of service providers. On the other hand, Chadwick (2003) discussed the anatomy of virtual communities in the context of e-Government. Clear explication was given to the interactivity, apart from bandwidth, fast response, etc. of virtual communities offered on e-Government websites, as required for ensuring the quality of electronic democratic participation related to various government-related affairs. The study of Bekkers (2003) also highly focused on selected anatomic items, including (1) the coordination mechanisms, and (2) the degree of formalization of organization of virtual communities. Based on the elements of virtual communities mentioned by Bekkers (2003), and Chadwick (2003), the main benefit of pursuing better public administration governance is therefore created.

With the ease of exchanging and sharing information as well as knowledge on the online community platform of e-Government systems, the online community members, who may be the service consumers as well, will realize the obvious advantages of enhancing interactions and relationships, nurturing cooperative and collaborative culture over similar interests and concerns (Seifert and Bonham, 2004).

(iii) Summary for Online Business Communities

There not exists much literature that associates the provision of online business communities in G2B systems with its importance in terms of the benefits created in various aspects. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: User Interfaces (EOU07)

User Interfaces are collectively one of the potential sub-constructs that would play a role in determining the ease of use of Internet-based systems according to the literature. There is the EWAM sub-construct, “Good user interface”, which examines the provision of good user interfaces within a B2B system domain for increasing the ease of use of the electronic services provided (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct,

which was mostly used in Schubert's previous works to evaluate the ease of use of B2B systems, is in close proximity and relevancy with the notion of user interfaces, and therefore, based on which the derivation result was obtained.

(i) User Interfaces pertaining to e-Commerce / B2B initiatives

Administration. Madeja and Schoder (2003) employed "Ease of Use" as one essential web feature in their study to evaluate the success of e-Commerce websites. This web feature mainly examines the users' ability to browse multimedia web content, and to access a diversified range of information and services without expressing the concerns in relation to the underlying technical rationales. More specifically, the selected web feature is ultimately presented to the users, that is, the service consumers as the ease of website navigations all along simple and convenient access paths together with easy-to-understand web content. But the study did not conclude "Ease of Use" to be the main determinant as to the success of B2B websites despite of these salient functionalities. OECD (2000a) also emphasized that the overall information, product and service delivery processes will be streamlined with such e-Commerce system capability while taking the perspective of service providers. Although having said this, it is noted from this study that sophisticated user interfaces does not absolutely refer to offering simple website navigations and providing intuitive web content as mentioned by Madeja and Schoder (2003) because different degrees of sophistication may sometimes bring different levels of complexities and complications to a particular thing or substance in a general sense, and additionally, sophistication would mean proprietary paradigms to be followed.

As compared with proprietary networks including the human ones, together with what stated by Porter (2001), that is, conventional private networks and electronic data interchange (EDI) that always induce spending much time in accessing the required information and services, Internet-based systems certainly provide standard, simple and convenient means to use a dedicated range of electronic services in the information age. As Porter (2001) mentioned, the service consumers will realize the benefits of increasing efficiency and reducing costs of accessing various information, communication and transaction services within an e-Commerce system domain based on the condition that intuitive browser interfaces, ease of connectivity, etc. are set in place to minimize the usual delays found when undergoing website navigations and searching activities.

(ii) User Interfaces pertaining to e-Government / G2B initiatives

Administration. Choudrie, Ghinea and Weerakkody (2004) evaluated global e-Government websites having considered various criteria, including “Ease of Use” and related measurement areas such as web interface and search functionality. In the aspect of user interfaces of e-Government systems, PRISMA (2002d) delineated the design efforts to be spent on using interesting graphics, choosing appropriate font type and size of text for visually impaired users, arranging sufficient amount of textual information, and putting clear instructions on how to navigate among web pages. While taking the perspective of service providers, this study revealed the obvious benefits of streamlining information and public service delivery processes to be gained from the provision of good user interfaces in e-Government systems. In another respect, Riedl (2004) made the recommendations for the development of e-Government, suggesting that the e-Government websites concerned are better designed with easy-to-navigation functions, features and facilities in order to enhance the overall usability, which is one of the core values created from delivering e-Government services. After all, Fountain (2001), and Reddick (2004) also discussed the adverse impacts if e-Government websites are designed with poor user interfaces. The impacts concerned mainly encompass more front-office enquiries made and telephone calls received as found in the past, that is, manual-based and human-to-human user interfaces, which have been largely employed in traditional public service delivery to facilitate the service consumers making physical and multiple visits to various government offices, searching public service directories, enquiring government information, etc.

PRISMA (2002d) appraised the design of an e-Government initiative implemented in Germany. Easy navigation and searching functions have been provided to facilitate the service consumers accessing the most really wanted information by getting into the main “entrance-hall” firstly, and then going or clicking through the target “information door”, that is, the designated information base, which consists of a comprehensive range of static information and electronic documents. Based on this study, it is perceived that the service consumers will be able to increase efficiency with regard to reducing the time spent on traveling to different government offices and hence the costs associated with searching the required information.

(iii) Summary for User Interfaces

The aforementioned studies have not intensively discussed the issue of user interfaces in connection with the business sector of e-Government services. However, the importance of provision of good user interfaces in e-Government systems as revealed from the literature

would be applicable in the context of implementing G2B systems. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: System Availability (EOU08)

System availability is one of the potential sub-constructs that would play a role in determining the ease of use of Internet-based systems according to the literature. There is the EWAM sub-construct, “Good availability of the system”, which measures the availability of a B2B system concerned regardless of any time constraints and location boundaries, whilst also meaning that the overall accessibility of the electronic services can be enhanced (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the ease of use of B2B systems, is in close proximity and relevancy with the notion of system availability, and therefore, based on which the derivation result was obtained.

(i) System Availability pertaining to e-Commerce / B2B initiatives

Competition. Madeja and Schoder (2003) incorporated “Availability” as one of the potential web features to evaluate the success of e-Commerce websites. Specifically, this web feature assesses the omnipresence of the e-Commerce websites concerned regardless of any time and location constraints that would be imposed on the usage of electronic services provided. However, the study did not conclude “Availability” to be the key success factor of B2B websites. In another respect, OECD (2003c) mentioned about the imperative undertaken for the internationalization of business services, one of the key characteristics of business services actually, for which local brick-and-mortar shops or affiliates are required to be set up. Although the study did not directly build any linkages between e-Commerce systems and their availability, it is still envisaged maintaining the high availability of e-Commerce systems in order to stay competitive in globalization and international trade. In the study of adoption issues of B2B e-Commerce in European SMEs, Scupola (2002) supported the argument claimed above, and concluded that flexible and round-the-clock serviceability is of paramount importance for the promotion of international business from the perspective of service providers.

Phan (2003) discussed the Intel business case and disclosed the fact that the B2B system provides Intel’s 200 distribution and other business customers in around 30 countries worldwide with the flexibility of placing orders for Intel products, checking product

availability and inventory status, searching relevant marketing and sales information, and getting the required business support on a 24x7 online serviceability platform. To the service consumers, significant savings in costs that have previously been incurred on sending paper faxes to and making international long distance telephone calls with Intel will be realized as well. Porter (2001) also supported accordingly with emphasizes put on traditional high costs of producing physical and non-real time information. As inferred from these studies, such online and high available serviceability platform appeals to the service consumers, that is, the business customers since their competitive competences will be equally strengthened under the realm of globalization and international trade.

(ii) System Availability pertaining to e-Government / G2B initiatives

Administration. According to Teicher and Dow (2002), 24x7 availability of online integrated public services has been highlighted as one of the transformational potentials to be exploited for the longer-term development of e-Government. Based on this study, it is noted that such potential is a grandiose expectation rather than just a web presence only, and it genuinely requires concerted efforts to be spent by different government agencies for the actual fulfillment. Reddick (2004) supported accordingly, and even stated that the high availability of e-Government services will definitely decrease the workload of government employees because a range of typical government services are delivered for public accesses via the Internet, whilst also meaning that conventional government serviceability is enhanced in terms of service time and locations. Wu and Chua (2001), Lindskog and Wennberg (2002), Beynon-Davies and Williams (2003), OECD (2003b), and Bakry (2004) shared the same viewpoint, and particularly, embodied such expectation and internalize its basic concepts in the implementation of e-Government and G2B initiatives.

Irrespective of time and geographical locations, greater efficiency will be gained when using the electronic services of ServiceArizona, an e-Government initiative implemented in the U.S. From the perspective of service consumers, they will no longer be required to stand in long queues, and to engage in time consuming activities for dealing with the motor vehicle department in relation to renewing car registrations, ordering personalized number plates, etc. Additionally, they will gain a perspective of new public management from the high availability of e-Government systems (Symonds, 2000b).

(iii) Summary for System Availability

With regard to system availability, the literature has been diverted to the value perspective of public administration, whereas there still have not been so many studies and research that were specific to the business sector of e-Government services. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: System Performance (EOU09)

System performance is one of the potential sub-constructs that would play a role in determining the ease of use of Internet-based systems according to the literature. There is the EWAM sub-construct, “Good performance of the system”, which measures the performance of a B2B system concerned with respect to the loading times of web content, whilst also meaning to enrich the user experiences when they access the electronic services provided (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the ease of use of B2B systems, is in close proximity and relevancy with the notion of system performance, and therefore, based on which the derivation result was obtained.

(i) System Performance pertaining to e-Commerce / B2B initiatives

Administration. Madeja and Schoder (2003) employed “Immediacy” as one of the web features in their research model to evaluate the success of e-Commerce websites. This web feature measures the e-Commerce system capability built for the instantaneous retrieval, tendering and updating of various types of web content. From the perspective of service providers, such system capability is symptomatic of not imposing any significant delays in the single directed transmissions of web content during non-peak and peak Internet traffic hours at the bottom line. Additionally, it is required that e-Commerce systems should accommodate both fast and slow Internet connections in order to increase user satisfaction with using the electronic services provided. Although having such expectation, “Immediacy” is not the key success factor of B2B websites in the conclusion of the study. Notwithstanding, Leimeister and Krcmar (2004) tendered a case study of wallstreet-online.de, which is an e-Commerce initiative implemented in Germany, stating that it is of paramount importance to facilitate the quick exchanges of information and hence the immediate accesses to most updated information especially on electronic stock exchange or trading platform. On the other hand, Phan and Stata (2002), and Phan (2003) discussed various technical solutions to the critical problem with the prolonged download times of web content, including the reduction of data

packet loss rate during transmissions, the data compression and redesign of web pages, and the increase in network bandwidth.

To the service consumers, the current research supposes that they would realize the significant benefit of increasing efficiency when using the available fast tracking e-Commerce services, otherwise, they would find the same experience in spending too much time to physically and manually access the required information and services as in the old days that without the Internet.

(ii) System Performance pertaining to e-Government / G2B initiatives

Administration. Conceivably, there exists benefits of providing instantaneous and immediate accesses to information and services from the perspective of service providers. According to Lodge (2003), the best paradigms of openness and transparency of new public management can be pursued from the implementation of various e-Government initiatives that have high system performance. Choudrie, Ghinea and Weerakkody (2004) considered “Speed” in the evaluation of global e-Government websites, and mentioned that it is one of the important measurement indicators defining the success of such e-Government systems although not having mentioned any values to be created accordingly. As concluded at time of the study, the selected e-Government portals of Australia, Canada, Finland, Hong Kong and Singapore have not been producing desirable results along the dimension of quality, in particular, whereas more improvements should be done on the e-Government portal design in future in the aspects of download times of web content on a designated network connection, availability of metadata, use of style sheets, etc.

At the bottom line, the service consumers have been highly expecting good performance of e-Government systems as originally claimed. However, PRISMA (2002d) argued that frequent and prolonged online service delivery media breaks have also discouraged the public community from using e-Government services especially for downloading electronic forms and documents. Overall, according to Thompson (2000), and PRISMA (2002d), just using download functions of e-Government websites in such IT media break situation will certainly not create any efficiency, and even not supercede traditional manual lookup of government-related forms and documents at government premises.

(iii) Summary for System Performance

The literature of e-Government has not revealed many details that tie to the business sector's expectations for the performance of related e-Government systems. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Main construct: Usefulness (USEF)

Based on the work of Schubert (2003a), "Usefulness" is one of the motivational variables that would directly affect the actual use of an Internet-based system. Overall, "Usefulness" is an EWAM main construct, whereas the following sub-constructs are most relevant to evaluate the usefulness of the Internet-based system concerned according to the literature given hereunder, which mainly discusses the values and impacts in various aspects of value creations. Among the underlying sub-constructs to be discussed, some are non-EWAM sub-constructs and they are adopted in the current research to evaluate the usefulness of G2B systems examined because of their relevancy with the research scope and relationships with the EWAM main construct, that is, "Usefulness" according to the literature. But some EWAM sub-constructs that were originally adopted in the aspect of "Usefulness" are not adopted in the current study having considered their irrelevancy with the research agendas.

Sub-construct: Quality of Web Content (USEF01)

Quality of web content is one of the potential sub-constructs that would play a role in determining the usefulness of Internet-based systems according to the literature. There is the EWAM sub-construct, "Quality of content meets user expectations", which assesses the quality of web content within a B2B system domain. The quality aspect generally encompasses a range of quality factors that need to be addressed in order to meet user expectations with respect to using the online information services provided (Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert's previous works to evaluate the usefulness of B2B systems, is in close proximity and relevancy with the notion of quality of web content, and therefore, based on which the derivation result was obtained.

(i) Quality of Web Content pertaining to e-Commerce / B2B initiatives

Administration. Once again, in the work of Madeja and Schoder (2003), "Information Richness" was employed as one of the web features in their research model to evaluate the success of e-Commerce websites. This web feature typically assesses the e-Commerce system capability built for providing different types of web content and ensuring the quality required. In this regard, the study also clearly defined the quality aspect, which generally refers to

keeping the web content updated, and the provision of additional as well as detailed information related to a particular product or service. The study concluded that “Information Richness” is the main determinant for the successful implementation of B2B websites. OECD (2000a) also supported the importance of frequent and timely updates of web content, which is one of the defined quality metrics of e-Commerce information services. While taking the perspective of service providers, as mentioned by Kearney (2000), the best combination of commerce and value-added content of e-Commerce websites will help increase the quality of information delivery processes, thereby developing customer relationships as well as loyalties and attaining critical mass of customers. However, it is inspired by this study that the high quality of web content as expected should not jeopardize the reasonable information quantity as discussed in the preceding sub-section related to “Quantity of Web Content”.

As stated by Cabinet Office (2003), paper-based information has been frustrating the information seekers, that is, the consumers of conventional information services because they have always experienced a number of difficulties in comparing, looking for and obtaining useful as well as updated information on products, services, prices, etc. merely with manual-intensive efforts. Based on this study, it is noted that ensuring the quality of information, or alternatively, web content is more feasible in the context of e-Commerce when comparing with that of paper-based information in traditional business administration.

(ii) Quality of Web Content pertaining to e-Government / G2B initiatives

Administration. As recapped from the study of Choudrie, Ghinea and Weerakkody (2004), the availability of last updated timestamps, which demonstrates the timeliness of web content, is one of the quality factors used for the evaluation of the selected e-Government portals. In another respect, Carbo, Williams and Emeritus (2004) defined the overall quality of e-Government information services as producing and disseminating a comprehensive range of information about citizens, businesses, government-related research and development, activities, etc., whereas enabling the respective user sector such as individuals, business firms, institutions, organizations, etc. to readily access the online information produced. It is noted from this study that the quality aspect neatly ties to the comprehensibility of the online information provided. Ho (2002) shared the same viewpoint as mentioned by the two studies above, and reiterated the importance of providing both timely and broader accesses to online government, that is, streamlining information delivery processes for the service consumers. The latter facilitation actually indirectly supports developing new public service delivery mechanisms, thus serving to be one aspect of modernizing public administrative processes on

the service provider side. As well, PRISMA (2002d) stated that the quality of web content can also be enhanced through providing customized information to target user groups, thereby creating the obvious benefit of reaching a critical mass of users of e-Government information services.

The current research believes that the quality aspect discussed above, if achieved, would certainly deliver values to the consumers of e-Government information services. In this regard, the service consumers would perceive the significant benefits as what mentioned by Seifert (2003), that is, waiving the previous practices of making frequent telephone calls to government officials, or in other case, multiple visits to different government offices for getting complete and updated verbal or paper-based information.

(iii) Summary for Quality of Web Content

Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Price Information (USEF02)

Price information is one of the potential sub-constructs that would play a role in determining the usefulness of Internet-based systems according to the literature. There is the EWAM sub-construct, “Fair and individual prices”, which assesses the provision of clear and updated price information of the products or services offered within a B2B system domain (Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the usefulness of B2B systems, is in close proximity and relevancy with the notion of price information, and therefore, based on which the derivation result was obtained.

(i) Price Information pertaining to e-Commerce / B2B initiatives

Competition. Posting price information online is really antithetical to traditional ways of printing and distributing paper catalogues together with charging information of products or services offered, whereas the former new practice genuinely reduces the costs incurred on the service provider side (Turban, Lee, King and Chung, 2000). On the other hand, price information has been a topic related with the aspect of competition in the context of e-Commerce. Accordingly, Koch (2004) discussed a case study of Pegasus, which is a B2B electronic market created for the North America utility industry. Specifically, the B2B system discloses different utility suppliers’ prices to the networks of potential buyers in the same open electronic market place. Such increased openness and transparency of online price

information virtually facilitate easy price dissemination and comparison of products or services being offered, and consequently, strengthen the competition in particular on lower prices among utility suppliers. Regarding the latter competition, OECD (2000b), and Porter (2001) supported accordingly, whereas the latter study even stated that there have been limited competitive dynamics created in B2B e-Commerce, which is typically characterized with the lack of differentiations among the players involved with regard to the provision of showroom facilities, personal dealings and electronic services, etc.

While reverting the discussion to the study of Koch (2004) again, which also put forward an argument that the price competition concerned certainly overcasts traditional and predominant practice of price discrimination among utility suppliers, that is, offering different prices to different buyers with hidden or implicit agendas. As well, the competition on lower prices only does not appeal to the buyers, that is, the service consumers at all in the context of B2B e-Commerce because the former competition incentive also jeopardizes the usual long-term relationships that have been built with conventional procurement practices. In conjunction with what mentioned by Porter (2001) regarding the lack of differentiations, the long-term relationships have been important, and additionally, have exhibited trusts and other non-contractible agreements including the delivery as well as quality of products or services offered, warehousing and innovation services, etc. To this end, the current research supposes that there have been different and even complicated debates on the approach to dealing with the price affairs for the successful implementation of e-Commerce initiatives in a particular industry.

To the service consumers of e-Commerce systems, they would not concern too much about the underlying rationales for providing the aforementioned price information. According to Kearney (2000), Dunt and Harper (2001), and Porter (2001), as long as they are able to obtain available, complete, timely and unbiased information on prices, they will realize the increased transparency in particular on prices of information-intensive products or services. Based on these studies, it is noted that the service consumers' bargaining power will also be increased.

(ii) Price Information pertaining to e-Government / G2B initiatives

Administration. Previous studies and research have already mentioned that the dissemination of price information in the context of e-Government is not as sensitive and even critical as that within an e-Commerce system domain. As discussed in Section 2.4.2, government business is largely different from commercial business in such aspects as generating high

profits, conducting advertising campaigns, and increasing market liquidity. Therefore, the current research believes that the controversial issues of price information raised in the context of e-Commerce will not likely deserve a great deal of attentions under the realm of e-Government. As described by Schubert and Hausler (2001), NOIE (2003), and OECD (2003b), the large majority of e-Government portals and websites generally offer products or services to the public community with lower and free of charges. Based on these studies, it is noted that online price information appears to be quite irrelevant in the context of e-Government. Although having said all these, it is still noted from Satyanarayana (2001) that some charges for electronic services are not waived due to the needs to recover the ongoing operational costs or recurrent costs of running e-Government systems. And because of such cost concern, the service providers are also necessary to fix and clearly post the relevant electronic service charges onto any appropriate media for streamlining the dissemination of price information.

The current research supposes that the user segments of e-Government services would realize the main benefits of increased convenience and efficiency when they deal with government-related business if they are able to gain accesses to clear and updated services charging information.

(iii) Summary for Price Information

In accordance with the aforementioned studies, it is well perceived that online price information has not been a highly regarded agenda to be addressed in the context of implementing e-Government systems, and additionally, the associated competitive issues have not been gaining increasing importance therein. Furthermore, the literature has not placed substantial focuses on the relationship between electronic services charging information and the business sector of e-Government services. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Value-added Services (USEF03)

The notion of value-added services was not adopted in EWAM for the evaluation of B2B systems. However, value-added services are collectively one of the potential sub-constructs that would play a role in determining the usefulness of Internet-based systems according to the literature as presented below, and therefore, based on which the derivation result was obtained.

(i) *Value-added Services pertaining to e-Commerce / B2B initiatives*

Competition. Porter (2001) did pinpoint in his study that an e-Commerce player, that is, the service provider is able to develop unique niches or values through engaging in a range of tailored value chain activities as necessary to produce products or deliver services for its customers. Although this study did not directly build the relationship between the provision of value-added services with the fulfillment of exceeding customers' expectations in the e-Commerce domain, the notion of value-added services can still be fostered in some sense since the new breed of e-Commerce services concerned likely delivers additional values and creates radical impacts along the dimension of service delivery and from the perspective of service providers. OECD (2003c) also acknowledged that there exists the increased complexity of business services in terms of scale, regulation, internationalization, etc. In this regard, the current research believes that more complex business operations and tasks have to be dealt with, whilst also referring to the fact that additional or even sophisticated business requirements should be identified accordingly and incorporated into the implementation scope of e-Commerce systems. In another respect, the provision of value-added services is exerting considerable influences on the competitive dynamics in e-Commerce market places. According to Porter (2001), e-Commerce companies will gain greater and true competitive advantages among rivalries on the dedicated electronic market provided that they are able to carry out business operations in a much better way, and additionally, to create unique types of benefits to their customers by means of making more explicit and non-imitable differentiations in product features or service delivery mechanisms than their competitors.

The literature does not explicitly reveal so much about the benefits to be reaped from the provision of value-added services in e-Commerce systems as per the viewpoints of service consumers. However, the current research attempts to put forward the benefits of increased convenience and efficiency, which would be brought about along the value chains involved accompanying with the provision of such value-added services.

(ii) *Value-added Services pertaining to e-Government / G2B initiatives*

Service Delivery. Beynon-Davies and Williams (2003), and Beynon-Davies (2005) discussed the notion of added values in the context of e-Government accompanying with the case study of the Inland Revenue in the U.K. The authors emphasized the changes required to be addressed in order to relieve some performance concerns with the electronic services currently offered by the Inland Revenue. Among all the changes initiated, delivering added

values such as automatically filling out data on web forms, etc. on behalf of the service consumers is of paramount importance for the pursuance of effective public service delivery in the context of e-Government. These added values can be easily interpreted with other examples of e-Government implementation for school enrollment as mentioned by Griffin and Halpin (2002), including the provision of access links or URLs to the school calendar, train timetable, route plan for car travelers, other educational links, etc. Other examples were found in the study of Wu and Chua (2001), and even specific to the business sector of e-Government services provided by the government of Singapore. The auxiliary electronic services to existing ones for registering companies of the G2B portal, namely, Business Town, have some similarities to those mentioned by Griffin and Halpin (2002) in terms of the initiatives to deliver added values or additional benefits to businesses, including the provision of 10-steps guide to business planning, financing services, access links or URLs to websites of the private sector for finding business premises, and other issues in relation to hiring local staff and filing taxations.

From the perspective of service consumers, the current research supposes that they would realize the benefits of using unique or value-added services when they deal with government business. This supposition would become a reality according to AGIMO (2005), which stated the case of the Business Portal of the ATO, wherein business users are able to use value-added services such as online calculators, personalization of website preferences, automatic alerts on new products or services, etc.

(iii) Summary for Value-added Services

With respect to the provision of value-added services, once again, the aspects of value creations are different between e-Commerce and e-Government, meaning that the concerns of both public and private organizations are not reconciled at all. In particular for government organizations, their management imperatives have been mainly undertaken with superior priorities in the areas of public administration and service delivery. Based on the aforementioned discussions, the non-EWAM sub-construct concerned was therefore adopted based on the literature on G2B systems and revised with refinements.

Sub-construct: Reuse of Data (USEF04)

Reuse of data is one of the potential sub-constructs that would play a role in determining the usefulness of Internet-based systems according to the literature. There is the EWAM sub-construct, “Effective use of customer profile”, which examines the capabilities for capturing

and storing basic personal, payment and transaction data within a B2B system domain, wherein the data are to be effectively reused in subsequent electronic transaction sessions (Schubert and Selz, 1999). This EWAM sub-construct, which was mostly used in Schubert's previous works to evaluate B2B systems with regard to the settlement phase of electronic transactions, is in close proximity and relevancy with the notion of reuse of data, and therefore, based on which the derivation result was obtained.

(i) Reuse of Data pertaining to e-Commerce / B2B initiatives

Administration. With regard to the reuse of data across different functions and even different systems in the context of e-Commerce, Porter (2001) supported accordingly and stated the important role played by the Internet in achieving so. With the open and standardized infrastructure in terms of data exchange and communication protocols provided by the Internet, the sharing of online data or making them available among the parties involved is highly facilitated along both the internal and external value chains concerned. This study carried meanings about the advantages to be gained from the perspective of service providers, whereas the current research also believes that values would be created in the aspect of increased efficiency when processing the electronic transactions concerned due to the reduction of data entry errors and hence the reduction of the costs incurred on corrections of the inputted data.

Symmetrical to the value creation mechanisms of the service providers, the current research expects that the service consumers would likewise realize the same stream of benefits as those of their service provider counterparts because they are not going to easily make errors at time of effecting electronic transactions if previously inputted data are available for reuse. Such reduction of data entry errors also means increasing efficiency and reducing the costs concerned when interacting with e-Commerce systems in a general sense.

(ii) Reuse of Data pertaining to e-Government / G2B initiatives

Administration. As described in the work of Beynon-Davies (2005), it is necessary to integrate front-end web-based data capturing systems with back-end information systems in order to deliver customer-centric integrated e-Government services. Such system integrations also mean facilitating the reuse of standard data such as unique tax reference number, name, contact details, etc. while an individual service consumer is effecting various electronic transactions under the service realm of a suite of e-Revenue services provided by the Inland Revenue in the U.K. According to the study, efficiency gains will be increased from the

perspective of service providers as compared in the past since the inputted data are more accurate and automatically transferred among the information system processes as well as web forms involved, and therefore, there not exists the needs to spend considerable efforts on checking and verifications all along the information chains. OECD (2003b) also discussed the potential values to be created in relation to the reuse of data in the context of e-Government, including the increase in efficiency in terms of the reduction of multiple collections of data from the same segment of service consumers, and consequently, taking together the benefits mentioned by Beynon-Davies (2005).

According to American City & County (2000), and Fountain (2001), both citizens and business firms will certainly realize the greatest benefit of reducing the costs incurred on repetitive entry of data and corrections of input errors. As recapped from Beynon-Davies (2005), taxpayers in the U.K. are not required to re-key the data concerned each time they interact with the Inland Revenue for filing tax returns. Overall, it is well perceived from these studies that online data should be captured once and reused as far as practicable across different and consecutive electronic transactions as effected within the domain of the same e-Government system.

(iii) Summary for Reuse of Data

Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Tracking of Transaction Status (USEF05)

Tracking of transaction status is one of the potential sub-constructs that would play a role in determining the usefulness of Internet-based systems according to the literature. There is the EWAM sub-construct, “Good tracing and tracking”, which examines the capabilities for integrating with external affiliated parties in the aspect of information systems, thereby providing the functions that facilitate customers tracing and tracking order status as well as transaction progress within a B2B system domain, or alternatively, in other related system domains (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the usefulness of B2B systems, is in close proximity and relevancy with the notion of tracking of transaction status, and therefore, based on which the derivation result was obtained.

(i) Tracking of Transaction Status pertaining to e-Commerce / B2B initiatives

Administration. Irrespective of whichever deployment methods that e-Commerce service providers will be using, either granting business counterparts direct accesses to the transaction status tracking services, or in other case, building a separate and affiliated website, their respective initiative saliently signals the opportunity of integrating the overall information, product or service delivery processes (OECD, 2001). Furthermore, the study even asserted the positive impact of such e-Commerce system functions by stating that the U.S. business firms had generally put a high importance rating of 8.6 on tracking order status, which was out of a measurement scale of 1 to 10 used in a survey on B2B electronic services.

The benefits mentioned above are also found in other business cases, as discussed by Slocum (1998), Turban, Lee, King and Chung (2000). Slocum (1998) discussed the business website of Federal Express (FedEx), which virtually facilitates its customers tracking their own packages in a self-served manner, thereby minimizing the overhead previously incurred on running the company call centres that deal with substantial amounts of telephone call enquiries, improving customer services, and more importantly, building good customer relationships. According to Turban, Lee, King and Chung (2000), the service scope concerned likewise remains within the provision of self-served system functions, meaning that Cisco allows its customers checking order status themselves on Cisco's business website. Additional benefits will also be realized by the service providers in terms of service enhancements, and the reduction of operational costs, which include the costs incurred on allocating support staff resources to answer a huge amount of order status enquiries made externally on a daily basis.

With the use of transaction status checking services, the service consumers generally are able to check account balance, shipping status, goods delivery status, etc. at their own convenience anytime and anywhere (Turban, Lee, King and Chung, 2000). These benefits become significant in B2B e-Commerce and they also align with what mentioned by Chen, Themistocleous and Chiu (2004), which discussed the previous practices together with the drawbacks of conventional telephone or offline person enquiries on goods delivery status, including the lack of provision of real time and accurate goods delivery status information, and additionally, fragmentations or discontinuities in fostering the collaborative relationships among all of them.

(ii) Tracking of Transaction Status pertaining to e-Government / G2B initiatives

Administration. According to PRISMA (2002d), delivering online public services that facilitate tracking and tracing government-related transaction status, application progress, etc.

has been identified as an essential outcome achieved. To the service providers, the current research envisages the reduction of the costs incurred on handling the public enquiries largely made by telephone or at front-line information counters, and additionally, other potential improvements to be made on integrating the overall public service delivery processes.

Beynon-Davies (2005) generally discussed the web-based functions provided by the Inland Revenue department in the U.K. to help taxpayers submit online tax returns and track the progress of their tax assessment. It is thus expected to deliver more efficient and effective e-Revenue services to the large majority of service consumers. American City & County (2000) also discussed the benefits of using the G2B system functions provided by a local government agency of California in the U.S., which allows business owners, building contractors, architects, etc. to instantly and effectively submit various types of building permit applications and make enquires about the corresponding status. To this end, both American City & County (2000), and Budhiraja (2002) compared the previous practices, which have always been time consuming ones of making physical visits to government offices, making telephone enquiries, waiting in long queues, etc. taken for such permit applications, whereas the studies concluded that the service consumers concerned will reap the main benefits of increased convenience and efficiency.

(iii) Summary for Tracking of Transaction Status

Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Responses to Business Support (USEF06)

Responses to business support are collectively one of the potential sub-constructs that would play a role in determining the usefulness of Internet-based systems according to the literature. There is the EWAM sub-construct, “Satisfying customer support”, which examines the capabilities for satisfying customer support in various degrees and strengths including fast response times, quality of responses, etc. within a B2B system domain (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the usefulness of B2B systems, is in close proximity and relevancy with the notion of responses to business support, and therefore, based on which the derivation result was obtained.

(i) Responses to Business Support pertaining to e-Commerce / B2B initiatives

Administration. The literature such as Phan (2003) did mention about the online business support services currently provided by Intel, including a separate case study website, online training facilities, etc. in the best interests of its value chain partners or business counterparts worldwide. Based on this study, it is noted that the service realm defined for Intel's business support has been so broad and comprehensive, serving to streamline business support processes, and to reduce the handling of support calls and hence the costs incurred. And consequently, the company, that is, the service provider has effectively satisfied a diversified range of requirements for business support. In another respect, Porter (2001) discussed the efficiency aspect of various online customer support channels such as email response management system, voice over Internet protocol (VOIP), video streaming, etc., whereas all of these instill a certain sense of fast responses to the requests for after-sales customer support.

Turban, Lee, King and Chung (2000) emphasized that it is necessary to meet the ever-evolving expectations for enhanced customer support services. Hence, more powerful and sophisticated hardware and software are needed to be deployed in place within an e-Commerce system domain. Typical examples of the solutions included using email and the related automated reply systems, and establishing integrated web-based call centres that are equipped with both automatic and human-intervened customer service options. As noted from this study, the solutions' prevalence is realized by the service consumers as increased convenience and efficiency even in after-sales business activities.

(ii) Responses to Business Support pertaining to e-Government / G2B initiatives

Administration. PRISMA (2002d) also discussed the online customer support services currently available in the context of e-Government, wherein the Central Complaint Management (CCM) of eVienna is a representative example of scaleable implementation. CCM was launched in 2001 and has been implemented leveraging electronic document and workflow technologies, whilst also taking together Oracle database. Having harnessed with flexible and interoperable system infrastructure, CCM serves to develop the citywide capability for processing all incoming complaints. To the service providers, the current research supposes that CCM of eVienna has already successfully made the optimal and even innovative use of prevalent IT in fulfilling the wide variety and tremendous amounts of customer support requests.

According to PRISMA (2002d), the advantages of deploying the flexible and interoperable system infrastructure mentioned above have been inevitably transformed into the substantial benefits from the perspective of service consumers, including single point of contact for complaint or support requests, processing of requests or cases at a decentralized level, collaborative handling of requests or cases among different government departments depending on the case nature, coordinated feedback, etc. Based on this study, it is noted that the overall customer support processes have been completely and effectively streamlined all along the way towards satisfying the requests by means of delivering timely, efficient and useful responses to the service consumers.

(iii) Summary for Responses to Business Support

The literature has not revealed so many details about the values and impacts, which would be created from satisfying business support within a G2B system domain. However, as inspired by the aforementioned study of PRISMA (2002d), it is still aware that the benefits addressed, would be likewise created in the context of implementing G2B systems based upon the depth and breadth of capabilities already built in existing e-Government systems. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Business Relationships (USEF07)

Business relationships in online communities are collectively one of the potential sub-constructs that would play a role in determining the usefulness of Internet-based systems according to the literature. There is the EWAM sub-construct, “Good quantity and quality of relationships in community”, which assesses the number of community members that should be adequate enough to enrich the overall community experience on the one hand, whereas the value of memberships or relationships that mean sharing specific and rich experiences on the other hand within a B2B system domain (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the usefulness of B2B systems, is in close proximity and relevancy with the notion of business relationships in online communities, and therefore, based on which the derivation result was obtained.

(i) Business Relationships pertaining to e-Commerce / B2B initiatives

Administration. As an extension of previous studies that discussed the provision of “Online Business Communities” in a B2B system domain, discussion focus is now put on both the

quantity and quality of business relationships that can be fostered within the networks of businesses in B2B e-Commerce. Apart from just creating online business communities, according to Schubert and Ginsburg (1999), and OECD (2001), their formation should be best harnessed in terms of acquiring an adequate number of the prescribed members, that is, the quantity of business relationships in B2B e-Commerce. For the functions that promote the improvements on the quality of business relationships on the same B2B system platform, Schubert and Ginsburg (1999) stressed that the online business community members involved should be allowed for active participations together with the clear presentation and accurate verification of their identities in various online business community events or activities, thus serving to reinforce building stronger and trustworthy relationships among all, whereas consequently, to collaboratively garner and filter the useful and reliable information needed.

Hampe, Schubert and Schneider (2004) also stated that the quality concerned can be easily strengthened by means of making the border of an online community space more permeable and elastic within an e-Commerce system domain, thus serving to invite more members to join and hence more participations in qualified and collaborative exchanges and accumulation of more useful, trustworthy and extensive common interested information as well as knowledge. In another respect, the study of Schubert (2003b), Schoder and Madeja (2004) discussed the driving forces behind the fulfillment of e-Commerce personalization, including the functions, features as well as facilities of virtual communities and customer relationship management (CRM) systems. To the service providers, the latter CRM systems help gather a range of customer profile information about identification, preference, transaction, interaction, etc., thereby enhancing the quality of customer relationships, and eventually, building good as well as affiliated relationships with customers.

It is noted from Steward, Callaghan and Rea (1999) that e-Commerce community functions achieve good quality of customer relationships, enabling online community members, that is, the service consumers to take the real synergy effects among each other for making the right purchasing decisions and getting the best deals based upon those precedent and informed buying advices and experiences. Furthermore, Koch, Moesiein, Schubert and Lechner (2004) even elaborated the accumulated buying power just mentioned, and stated that the broader economic activities carried out through the synergy effects will in turn generate a wealth of precedent and informed product and buying information on behalf of other online community members, thus serving to be used in subsequent rounds of e-Procurement transactions whenever necessary. As summarized from Steward, Callaghan and Rea (1999), OECD

(2001), Porter (2001), OECD (2003c), and Schubert (2003b), the functions of virtual communities will exert their powerful influences on extending the reach of interactions as well as communications, and creating more richer customer relationships than in conventional business administration, which has been employing conventional human and paper-based contacts, etc. in closed physical proximities.

Overall, the current research supposes that while comparing with the old practices that achieved limited quantity and constrained quality of customer relationships only, it should be noted that these constraints do not effectively facilitate autonomous creations of customer relationships on a continuous basis. In recognition of the prevalent paradigms in building customer relationships in the information age, e-Commerce community facilities such as the provision of related sufficient connection or business links on a hosting e-Commerce website, etc. are more superior than traditional ways of human filtering and distilling face-to-face and telephone interactions, communications as well as connections. These human interventions have always been deliberated, and in effect, they do not likely increase the quantity and hardly achieve the quality of customer relationships.

Advertising and Marketing. It is recapped from the study of Schoder and Madeja (2004) that additional benefits will be created from the two mainstream e-Commerce community functions, which pertain to enhancing both the quantity and quality of customer or business relationships. From the perspective of service providers, the benefits concerned mainly include increased business visibility and opportunities of the online business community participants involved. In the context of e-Commerce, these benefits will be created in ongoing online and/or offline marketing activities carried out afterwards based upon various types of CRM information collected. In another respect, Leimeister and Krcmar (2004) emphasized that the revenues of a virtual community website, namely, wallstreet-online.de, that is, the service provider or online business community organizer will be mainly increased from companies or its online business community members that place advertisements on the website concerned, or in other case, participate in relationship building activities therein, apart from reaping the main benefit of seeking new business opportunities, which are to be sought through providing the virtual community functions of enhancing the quality of business relationships.

OECD (2001) also discussed the notion of contextual marketing, which facilitates enhancing both the quantity and quality of business relationships in the context of B2B e-Commerce. In

essence, this marketing strategy is particularly useful from the perspective of SMEs or service consumers because they will be able to show their presence by posting the access links or URLs to their company websites onto other related websites at the least, which are in close association with their products or services currently offered, thereby fostering substantial amounts of affiliated relationships with the hosting company as well as other online business community members, and hence creating more new business opportunities.

(ii) Business Relationships pertaining to e-Government / G2B initiatives

Administration. Swedberg and Douglas (2003) put forward a peculiar discussion about a staged-strategy, which is to be a transformational approach to implementing e-Government systems. According to the study, while transformation by design appears to be important and also prevalent in the e-Government domain, the current research supposes that the fourth stage, that is, the final stage of implementing e-Government innovation initiatives mainly intends to enhance the overall quantity and quality of customer relationships. In particular for the business users of e-Government services, the study mentioned that longer-term direct interactions and close relationships can be fostered substantially following the case of dedicated business webs formed on B2B websites as found in the commercial sector. As such, it is perceived from this study that an online business community organizer or enabler, that is, a government will show a special and leading dedication to the communities of strong and trustworthy business relationships, cooperation and partnerships, thus enriching the overall online business community experiences for itself and the business members involved.

To the consumers of online business community services provided under the realm of e-Government systems, the current research supposes that they would realize the likewise benefits as manifested above. For the benefits concerned, some evidences can be found in the study on e-Government carried out by Teicher and Dow (2002), who stated that good and sufficient amounts of connection links to local business organizations and other commercial institutions have already been provided on the public website of a city council in Australia.

Advertising and Marketing. Discussions can also be placed in the aspect of advertising and marketing regarding the benefits generated from the e-Government community facilities that enhance both the quantity and quality of business relationships. According to Holliday and Kwok (2004), the Government has already launched InvestHK since July 2000, which is a G2B website or business web designed and implemented to promote the image of HKSAR as an investment and business hub in Asia. With the delivery of a diversified range of G2B

electronic services that facilitate carrying out various business promotional activities such as answering online queries, organizing investment forums, conducting online and/or offline advertising and marketing events, etc., the Government has already shown its strong inclination to exploit business potentials with local and foreign businesses as well as investors along the dimension of advertising and marketing.

Once again, according to the aforementioned study, the current research perceives that businesses and investors, that is, the service consumers would see a new perspective of the increased quantity of business relationships that triggers the considerable amount of business contacts to be initiated on the one hand, whereas the improved quality of business relationships that initiates the frequent and intensive engagements in various online business promotional activities, and consequently, range of new business opportunities to be gained on the other hand.

(iii) Summary for Business Relationships

Based on the aforementioned, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Information Sharing (USEF08)

Information sharing in online communities is one of the potential sub-constructs that would play a role in determining the usefulness of Internet-based systems according to the literature. There is the EWAM sub-construct, “Good quantity and quality of content generated by community”, which examines the capabilities for achieving good quantity and quality of online community information generated, accompanying with push and pull mechanisms as well as strengths exploited within a B2B system domain (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the usefulness of B2B systems, is in close proximity and relevancy with the notion of information sharing in online communities, and therefore, based on which the derivation result was obtained.

(i) Information Sharing pertaining to e-Commerce / B2B initiatives

Administration. To enhance both the quantity and quality of online community information, Hampe, Schubert and Schneider (2004) indicated that online community members generally rely on the underlying advanced technical infrastructure settings, whereas they are enabled to efficiently initiate more frequent, and also, to effectively instantiate asynchronous and

synchronous interactions, communications as well as information disseminations. To this end, the current research further elaborates that online community functions of enhancing both the quantity and quality of customer relationships as presented in the preceding sub-section related to “Business Relationships”, will spontaneously trigger the functions of achieving the corresponding good quantity and high quality of online community information disseminations, which are useful and reliable to the participants involved.

In another respect, Schmitt, Fischbach and Schoder (2006) also stressed the importance of adoption of sophisticated IT and related information infrastructure, and stated that there have been new forms of CRM such as customer integration, which requires accumulating and maintaining substantial amounts of customer relationship information including profiles, ideas preferences, etc., and also, customers’ business sector specific knowledge contributed for common sharing on the new operating platform of CRM. In effect, apart from enhancing both the quantity and quality of customer relationships, the repository of rich information established for customer integration will also be highly regarded since its industry specific information virtually contributes towards developing collaborative business among different business partners in different value chain nodes of an e-Commerce service provider.

Leimeister and Krcmar (2004) identified the benefits that will be accrued from the quantity and quality of information generated in virtual communities. Since online community information is an essential product of virtual communities, which should be made widely available to the organizer and members involved, who will then make good use of the valuable information generated to yield profits. Based on this study, while the online community functions that enhance both the quantity and quality of customer or business relationships are essential, the ones that improve both the quantity and quality of online community information are inherently important. Stated another way, the quantity of the online community information concerned is usually improved and centrally provided by the online community organizer, or in other case, is self-generated by the increasing number of participating online community members on an autonomous basis on the one hand. The quality of the same information concerned is always fulfilled through the enhancement on the quality of customer or business relationships as mentioned before, meaning that useful, trustworthy and extensive information can be exchanged and accumulated to furnish the qualified and collaborative sharing among all the service consumers involved on the other hand. To this end, although the quality of customer or business relationships is just

maintained in a virtual sense, the quality of online community information generated can be readily and amply achieved in the information age.

Advertising and Marketing. The current research supposes that having triggered by the main online marketing activities, which intend to promote business visibility and opportunities of the online community participants involved as mentioned in the preceding sub-section related to “Business Relationships”, then enhancing both the quantity and quality of online community information would also be deployed as auxiliary functions. According to Schubert (2003b), virtual marketing activities facilitate sending electronic marketing messages to the participants within an online community network for delivering the intended benefit of increased visibility just mentioned. Based on the increased visibility in such online marketing activity, the quantity of online community or marketing information will be substantially increased by means of the auxiliary functions concerned taking the perspective of service providers, whilst also meaning to rely on the multiplied chaining effects of each subsequent forward action taken by each message recipient to further route the messages to other related customer contacts within or not within the same e-Commerce system domain. However, the scope of this study did not relate the qualities of customer relationships and online community information at all.

To the service consumers, that is, the online community members, the current research perceives that they would equally realize the aforementioned benefits because they themselves are always required to directly get engaged in information generation, delivery and utilization processes.

(ii) Information Sharing pertaining to e-Government / G2B initiatives

Administration. The literature reveals the importance of both the quantity and quality of online community information, that is, the two typical functions of e-Government communities, although not in an extensive manner. OECD (2003b) suggested the formation of online communities of interest around publicly concerned issues and topics in e-Government initiatives, whilst also serving to streamline the delivery of native language-oriented information to specific groups of the public community taking the perspective of service providers. However, this study did not explicitly mention how to achieve the intended benefits, but just inferring the importance of the two functional aspects of e-Government communities. Furthermore, this study did not relate the quantity and quality of customer

relationships with the corresponding quantity and quality of online community information generated in e-Government communities.

While comparing with traditional ways of forming offline and specially purposed communities groups, which mainly exchange paper-based and outdated information for collaborative sharing, the current research believes that e-Government community facilities should appeal to the majority of the service consumers involved because they would realize the main benefit of streamlined information delivery processes.

(iii) Summary for Information Sharing

Regardless of whether both the quantity and quality of customer relationships in e-Government communities would have influences on the corresponding quantity and quality of online community information generated, the literature dealing with the topics concerned has not been very specific to the business sector of e-Government services at all. Inevitably, these e-Government community facilities may have not been so crucial as to the successful implementation of e-Government initiatives. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Productivity Gains (USEF09)

Productivity is one of the potential sub-constructs that would play a role in determining the usefulness of Internet-based systems according to the literature. There is the EWAM sub-construct, “Improvement in productivity / time gained”, which examines the capabilities for increasing the overall efficiency and effectiveness in new business administration accompanying with the use of the electronic services provided within a B2B system domain (Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the usefulness of B2B systems, is in close proximity and relevancy with the notion of productivity gains, and therefore, based on which the derivation result was obtained.

(i) Productivity Gains pertaining to e-Commerce / B2B initiatives

Productivity. Amalgamating all the benefits identified so far, productivity will always and additionally be gained by the service providers in terms of the efficiency and effectiveness achieved, which in turn are usually described in relation to reducing business operations time, production time, product or service delivery time, the number of visits customers made to office premises, etc. As stated by Chen, Themistocleous and Chiu (2004), such productivity gains will be realized particularly when standardizing and improving several typical supply

chain processes for production, purchasing, inventory, payment, distribution, etc. in the context of B2B e-Commerce. Other studies such as OECD (2000a), OECD (2001), Scupola (2002), Cabinet Office (2003), and OECD (2004) also supported accordingly although not very specific to B2B e-Commerce. It is thus summarized from these studies that e-Commerce initiatives have been transforming conventional business administration at the micro level to bolster advanced business performance and drive the motivation of increasing productivity in various business operation domains, and more importantly, they have been transforming economic activities as well all through the extents to which efficiency and effectiveness can be greatly exposed at the macro level. Overall, there has been widespread sentiment that the main benefit of productivity gains is tangible, and more importantly, the benefit concerned also induces the delivery of other intangible benefits such as improving the quality of customer services, and expediting new product development processes in the e-Commerce domain (Dunt and Harper, 2001).

To the consumers of e-Commerce services, the current research believes that they would likewise realize the obvious benefits of increased efficiency and effectiveness mentioned above because productivity gains should be bi-directional from both the perspectives of service providers and service consumers.

(ii) Productivity Gains pertaining to e-Government / G2B initiatives

Productivity. Wu and Chua (2001) mentioned about this government-wide vision with specific focus placed into the G2B sector, whilst also articulating that e-Government services should bring high level of convenience, and ultimately, pursue greater efficiency and effectiveness for businesses when they deal with government-related matters or affairs. Realizing such a common and broad vision in the development of e-Government requires the delivery of customer-centric and integrated e-Government services as discussed in the preceding sub-sections related to “Business-centric Cluster Services”. Budhiraja (2002), and Bakry (2004) clearly acknowledged the importance of e-Government services with regard to the increased efficiency and effectiveness in public service delivery. According to Bakry (2004), similar to what mentioned by Chen, Themistocleous and Chiu (2004), savings in time, paper consumptions, manpower resources required, etc. will be significantly realized when processing and dealing with various types of government-related applications and affairs respectively on the government side. OECD (2003b), and Seifert (2003) also advocated that e-Government services are efficient and effective in diversified forms, serving to simplify and streamline existing business processes, to automate and accomplish massive amounts of

routine processing tasks, to reduce errors and produce consistent and standardized results, and to distribute public service delivery channels.

Cabinet Office (2003) gave a typical example of a G2B initiative launched by the U.K. government in 2000, namely, UK Online for Business, which has been designed and implemented to help U.K. businesses including SMEs conduct online trading, ordering, etc. The number of business firms that used the electronic services concerned had been growing at a spectacular rate of up to 54% in 2003. Based on this study, it should be noted that the remarkable results achieved virtually reflect the underlying productivity gains.

(iii) Summary for Productivity Gains

Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Costs (USEF10)

Costs is one of the potential sub-constructs that would play a role in determining the usefulness of Internet-based systems according to the literature. There is the EWAM sub-construct, “Cost benefits passed on to the client”, which examines the capabilities for reducing the costs incurred in new business administration accompanying with the use of the electronic services provided within a B2B system domain (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the usefulness of B2B systems, is in close proximity and relevancy with the notion of costs, and therefore, based on which the derivation result was obtained.

(i) Costs pertaining to e-Commerce / B2B initiatives

Cost. Costs reduction can be perceived as a common and generic benefit that is to be gained along with the creation of other core benefits from the development of e-Commerce. As summarized from relevant studies, the main benefit concerned encompasses both local and global economy gains, and cost savings in different disciplines taking the perspective of service providers. These studies included OECD (2000a), Dunt and Harper (2001), whereas OECD (2001), and Scupola (2002) mentioned about the cost savings that will be realized in the new business administration domain, including the costs incurred on traditional paper fax and postal mailing services, processing routine transactions, etc. For a specific example of costs reduction in the context of B2B e-Commerce, Koch (2004) discussed a B2B service provider, which has made conscious efforts to streamline supply chain processes through

standardizing different product specifications for its customers, thereby reducing supplier production costs, and consequently, lowering the prices fixed by the customers.

To the consumers of e-Commerce services, the current research supposes that they will equally share the obvious benefit of costs reduction through pursuing their respective value creation mechanisms. As described by Dunt and Harper (2001), Porter (2001), and OECD (2004), conventional approaches to furnishing communications, gathering information, conducting transactions in manual- or labor-intensive and even semi-automated manner have been entailing significant limitations when carrying out business activities on the one hand, whilst also incurring high costs in achieving so on the other hand. Therefore, it should be noted from these studies that costs reduction in different areas are collectively an important incentive to embrace the overall development of e-Commerce.

(ii) Costs pertaining to e-Government / G2B initiatives

Cost. In a similar vein, costs reduction has been identified as one of the important benefits to be reaped from the implementation of e-Government initiatives according to the substantial amounts of the literature. These studies included Budhiraja (2002), OECD (2003b), and Bakry (2004), which emphasized that cheaper electronic services can be delivered along with considerable savings in various essential aspects of public service delivery processes under the realm of e-Government initiatives. According to Symonds (2000b), McNeal, Tolbert, Mossberger and Dotterweich (2003), and NOIE (2003), the widely commentary aspects of online public service delivery processes mainly encompass the reduction in public administration costs, size and hence the costs incurred on affording a government's staff force, etc. especially when comparing with conventional counterparts. Based on the aforementioned studies, it is noted that the aggregated benefit of costs reduction is of paramount importance, serving as a greater incentive to drive the overall development of e-Government.

NOIE (2003) likewise reported the substantial cost savings on the service consumer side. According to the study, various user sectors of e-Government services clearly indicated that they have been gaining real cost savings from the use of such electronic services. Specifically, the study also reported that business users have already realized different ranges of cost savings at time of the study, whereas a maximum of 33% of businesses have been able to save less than AUD\$10.00 at the least per online interaction with using e-Government services.

(iii) Summary for Costs

Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Main construct: Adaptability (ADPT)

The literature has discussed the adaptability of Internet-based systems. Studies such as PRISMA (2002b), Janssen and Wagenaar (2004) mentioned about the contemporary needs for the adaptability of e-Government services, which are to be provided with the principle of modularity in SOA. Stated simply, e-Government systems in general facilitate delivering modular-based e-Government services accompanying with greater ease of adaptability to individual customer's needs or interests. In addition to the notion of modularity, highly adaptable e-Government services actually require adaptation efforts to be spent when integrating various business processes and technical system constructs of different parties involved into an overall virtual and unified system context. As such, both the service providers and service consumers are enabled to seamlessly use the electronic services concerned, whilst not having experienced any service breakages or fragmentations. Based on these studies, the overall adaptability of an Internet-based system can be enhanced as far as practicable, serving to make the transformational use of the Internet. Overall, "Adaptability" is a non-EWAM main construct, whereas the following sub-constructs are most relevant to evaluate the adaptability of the Internet-based system concerned according to the literature given hereunder, which mainly discusses the values and impacts in various aspects of value creations.

Sub-construct: Customized Information (ADPT01)

Customized information is the non-EWAM sub-construct that would play a role in determining the adaptability of Internet-based systems according to the literature. However, there is the EWAM sub-construct, "Adjustable customer profile", which examines the system capability developed within a B2B system domain, requiring customers to reveal some basic customer profile information. The information collected is then stored and will be reused in subsequent initiatives that are to be undertaken adaptable to individual customer's needs (Schubert and Selz, 1999). This EWAM sub-construct is in close proximity and relevancy with the notion of customized information, and therefore, based on which the derivation result was obtained although it was mostly used in Schubert's previous works to evaluate B2B systems with regard to the agreement phase of electronic transactions.

(i) *Customized Information pertaining to e-Commerce / B2B initiatives*

Administration. OECD (2003c) emphasized the importance of delivering customized information to customers in order to overcome any hurdles they may face, in particular for the case of accessing to such overly intensive information and knowledge provided on various types of Internet-based systems including e-Commerce systems. To this end, the overall information delivery processes will be streamlined within an e-Commerce system domain at the least, meaning that customers are enabled to access their wanted information efficiently and effectively. Other studies acknowledged the importance of e-Commerce systems' adaptability to customers' needs with regard to the delivery of customized information. Madeja and Schoder (2003) adopted "Individualization and Customization" as one of the eight web features in their study to evaluate the success of company websites. The web feature, in particular, measures the system capability built for compiling both online and offline information according to the interests or preferences of customer profiles. But the study concluded that the web feature concerned is not the key factor to the success of B2B websites. On the other hand, Schubert, Kummer and Leimstoll (2002) stressed the viability of personalization services provided in e-Commerce systems in the light of SMEs' or service providers' obligations to offer information, products or services tailoring to the needs of their customers.

In addition to the aforementioned studies, Schubert and Ginsburg (1999), Schubert (2003b), Koch, Moeslein, Schubert and Lechner (2004) acknowledged the importance of personalization services as well. Schubert and Ginsburg (1999) even discussed the extensive notion of personalization services, stating that there have been different degrees of personalization as carried by an e-Commerce website. The e-Commerce system concerned seamlessly adapts to a customer's interests or preferences based on the customer profile information collected in previous online interactions or transactions with the service consumers. In recognition of the adaptable e-Commerce system capabilities, and accordingly, Koch and Schubert (2002), Schubert (2003b), Koch, Moeslein, Schubert and Lechner (2004) elaborated the virtues with more details on the advanced functions, features and facilities, including content-based filtering, collaborative filtering, etc., provided for web content or information filtering and hence customizing the information delivery. In spite of the merits shown by customized information services, it should be noted from Schoder and Madeja (2004) that CRM systems, data warehouse systems, etc., which support and enable the delivery of such customized information services, may be too costly for implementation. Schubert, Kummer and Leimstoll (2002) shared the same viewpoint, and also suggested that

low end version of hardware and software packages for customization has to be adopted in particular for SMEs because they have been running short of financial and IT skill resources.

Nevertheless, new customized information products have been developed and produced for the service consumers, including (1) individualized printed online newspapers (Schmitt, Fischbach and Schoder, 2006), (2) content-consolidation tools that allow customers to build customized web pages (Porter, 2001), and (3) customized information delivered by Intel (Phan and Stata, 2002; Phan, 2003), which collectively meet various levels of information needs of business users. As opposed to forging customer relationships in the past, when a shopkeeper has been doing so simply with his / her personal best dealings with and knowledge about the customers, the prevalent and even sophisticated e-Commerce system capabilities are developed to launch a single shopping website for mass production of products or services, or in other case, personalized shopping website for individual production of products or services, thereby substituting and even enhancing the old ways of doing similar things (Koch and Schubert, 2002; Schubert, 2003b).

Advertising and Marketing. Steward, Callaghan and Rea (1999) emphasized the importance of acquiring and storing customer profile information, which serves as a valuable information-based commodity to learn more about customers, thus making significant contributions towards advertising, marketing and selling products or services to customers in a much easier and cheaper way from the perspective of service providers. Koch and Schubert (2002), and Schubert (2003b) also advocated the delivery of customized information to support one-to-one marketing, whereas the latter study even discussed permission marketing, which is an innovative idea of giving customers the chance to select the kind of marketing messages that they actually want. Lastly, Schubert (2003b) also stressed that SMEs will gain the benefits in their marketing and sales processes from the delivery of customized information to their customers within e-Commerce system domain.

To the service consumers of e-Commerce systems, they will likewise realize the obvious benefits of receiving customized information since they are able to acquire their interested products, or to use preferred services that are newly explored pertaining to meeting their actual needs thereafter (OECD, 2001). According to the study, while there are clear benefits identified with regard to promoting customer loyalty in a number of advertising and marketing activities as just mentioned, however, it should be noteworthy that the protection of individual privacy is an issue, which has been gaining importance because there exists the

obtrusive, abusive or even illegal use of the customer profile information collected in the hand of e-Commerce service providers.

(ii) Customized Information pertaining to e-Government / G2B initiatives

Administration. Lenk (2002) criticized existing so-called generic or “hurdle” e-Government services such as registration of people, lands, etc., which are all not delivered specific to individual user’s needs or interests. As such, the author strongly advocated delivering customized electronic services in contemporary e-Government ventures. On the other hand, the work of Choudrie, Ghinea and Weerakkody (2004) included the criterion, customization, in their evaluation study of global e-Government websites, but the authors did not conclude that such criterion is importance in defining the success of e-Government websites. Ho (2002) mentioned the customization of e-Government services based on personal preferences and needs, but the author did not focus on the delivery of customized information services in particular, and even not giving clear details about how to achieve so. In another respect, Haldenwang (2004) stressed the needs to launch e-Government websites tailoring to target groups’ specific interests with regard to the promotion of democratization. Despite some existing knowledge deficiencies, OECD (2003b) gave several implementation examples at the bottom line, including (1) the use of email listings to provide customized statistical information to specific groups of customers by government statistical agencies, (2) the Spain tourism portal that delivers updated information tailoring to each tourist’s information needs.

The current research believes that customized e-Government information services would create values in terms of streamlining information delivery processes for the service consumers. To this end, previous practices can be compared for one case that customized information has been provided by means of labor or manual intensive works, or in other case, no customized information was provided to the public community at all because of the mass delivery of public services. Notwithstanding, delivering customized information has already been declared as one of the essential customer-centric e-Government services based on the literature.

(iii) Summary for Customized Information

Although having realized the potential benefits of delivering customized information in the aspect of public administration, the literature has not revealed so many details about the values and impacts that would be created within a G2B system domain. Based on the

aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Mediating Services (ADPT02)

The notion of mediating services was not adopted in EWAM for the evaluation of B2B systems. However, mediating services are collectively one of the potential sub-constructs that would play a role in determining the adaptability of Internet-based systems according to the literature as presented below, and therefore, based on which the derivation result was obtained.

(i) Mediating Services pertaining to e-Commerce / B2B initiatives

Service Delivery. Mediating services are small- to medium-scale auxiliary services delivered by an e-Commerce service provider with high adaptation to the service consumers' legacy systems, or existing business processes and flows that may still be paper-based or manual-intensive. Examples of these mediating services, which are always provided with free or minimal service charges, include (1) conversion services that convert the submitted paper documents to electronic ones on behalf of the service consumers, and (2) special software download services that facilitate the service consumers preparing online data in the required format before the actual submission or upload to the e-Commerce website.

In this connection, Porter (2001) emphasized the needs to complement between e-Commerce functions and conventional business functions, or in other case, between e-Commerce functions and legacy system functions. It is thus summarized from the study that the complementarities actually necessitate new or enhanced electronic or physical business activities or services to be set in place in between the two streams of functions. To this end, the current research perceives that e-Commerce functions are not just standalone ones, but they have to be interacted, integrated or combined with conventional business processes and legacy systems by means of mediating services, thus making e-Commerce functions highly usable by the service consumers, and also, producing the most desired synergy effects along the whole value chain. Other studies such as Scupola (2002), Phan (2003), Chen, Themistocleous and Chiu (2004) also supported accordingly. As such, B2B service providers will realize the benefits of enhancing the overall quality of electronic services, and more importantly, strengthening their competitive advantages and strategic position in the dedicated market.

The current research supposes that mediating services are of paramount importance to SMEs in particular because the sector, which is the large majority of B2B service consumers, does not always have sufficient financial and IT resources to reengineer conventional business processes and revitalize aging legacy systems. Hence, SMEs will definitely realize the obvious benefit of using integrated and enhanced B2B electronic services as opposed to using those non-integrated or fragmented ones. Although having said these, according to Chen, Themistocleous and Chiu (2004), the rate of adoption of mediating services has been rather slow in the SME sector.

(ii) Mediating Services pertaining to e-Government / G2B initiatives

Service Delivery. The literature does not reveal so many details about the mediating services that are to be provided in the context of e-Government and in adherence to what mentioned specific to the context of e-Commerce. However, Devadoss, Pan and Huang (2002) did briefly discuss the issue, and state that businesses including SMEs in particular, will have to adapt their business structures and processes, ICT infrastructure and legacy systems to the government requirements when doing business with local government agencies electronically. Based on this study, it is noted that the adaptation imperative appears to be deliberately and proactively undertaken by the business sector. However, it is aware that the likewise initiative should also be undertaken on the government side in order to realize the mutual benefits, whereas local government agencies will gain the specific benefit of enhancing the quality of G2B electronic services.

The current research supposes that the service consumers including SMEs would be readily and effectively using G2B electronic services whilst also in close alignment with their existing business and ICT infrastructure together with the underlying components.

(iii) Summary for Mediating Services

The current research finds that there has been limited literature discussing the provision of mediating services within a G2B system domain. Based on the aforementioned discussions, the non-EWAM sub-construct concerned was therefore adopted based on the literature on G2B systems and revised with refinements.

Sub-construct: Collaborations among Business Partners for Data Sharing (ADPT03)

The notion of collaborations among business partners for data sharing was not adopted in EWAM for the evaluation of B2B systems. However, this kind of collaborations is one of the

potential sub-constructs that would play a role in determining the adaptability of Internet-based systems according to the literature as presented below, and therefore, based on which the derivation result was obtained.

(i) *Collaborations among Business Partners for Data Sharing pertaining to e-Commerce / B2B initiatives*

Collaboration. Adaptation efforts are collectively a portion of the system integration efforts to be spent among various parties involved for sharing commonly used data among multiple e-Commerce websites. Typical examples of such electronically submitted data include customer name, address, contact numbers, etc., which are always automatically transferred across different e-Commerce system boundaries for the purpose of shared accesses in processing a single submitted electronic transaction. To this end, adaptation efforts are spent for reconciling the common data exchange formats to be used by the information systems involved from the technical point of view on the one hand, whereas the likewise efforts may also have to be spent on related business processes and practices of various parties involved on the other hand.

Chen, Themistocleous and Chiu (2004) addressed the aforementioned topic in details, stating that enterprises including SMEs have been pursuing effective strategies to integrate their back-end information systems at both intra- and inter-organizational levels for the major reason that each existing back-end information system genuinely brings about the problem with storing data for use by the system itself only, thereby imposing practical difficulties such as systems incompatibility, asynchronous communications, etc. among each other. On the service provider side, if concerted adaptation efforts can be made among the back-end information systems of the parties involved including suppliers, distributors, etc. along the whole supply chain, then it is highly expected to gain the benefits of integrating the business operations involved through increasing the accuracy of transaction processing, shortening the overall transaction processing time, improving their performance and efficiency, and hence preserving greater competitive advantages.

To the service consumers, the current research believes that they would realize the benefits of increased convenience and efficiency when using the shared B2B electronic services. As a typical example, a B2B service consumer just inputs the common data once for an electronic transaction or application that needs to be processed by multiple B2B service providers,

whilst also meaning that the shared data services are transparent from the end user point of view.

(ii) Collaborations among Business Partners for Data Sharing pertaining to e-Government / G2B initiatives

Collaboration. In the context of e-Government, Wescott (2001) discussed the importance of joined-up government in delivering seamless electronic public services such that the service consumers do not necessarily know which government agencies are actually responsible for such joined-up government services. According to the study, vertical integration of back-end information systems of various government agencies towards the joined-up government, and additionally, horizontal integration of the information systems concerned of both government agencies and private businesses are furnished to facilitate sharing commonly used data, and hence delivering integrated electronic services. To this end, the current research particularly perceives the latter joined-up government services and integrated electronic services as “one-stop” business-centric integrated G2B electronic services, that is, integrated G2B electronic services, and hence constituting “one-stop” business-centric cluster G2B electronic services as described in the preceding sub-section related to “Business-centric Cluster Services”. Therefore, the current research also realizes that substantial adaptation efforts revolving around the formats for common data exchanges, other system interoperability issues, etc. have to be sought from the participating service providers while achieving the goals and hence creating the benefits concerned.

OECD (2003b) supported the importance of seamless e-Government services, stating that a number of benefits will be created in terms of reducing the needs for multiple collections of the same set of data from a service consumer, duplicate data checking and reconciliation, thereby reducing the costs incurred on repetitive data collection and processing, and accumulating micro-efficiencies whilst also increasing the overall efficiency in processing government-related electronic transactions or applications. In particular for the business sector, Van Wert (2002) also emphasized that government agencies should reduce the businesses’ burden when dealing with government-related affairs such as facilitating trade, getting permits or licenses, etc. by enabling electronically submitted data to be reused across multiple government agencies as far as practicable.

Wescott (2001) gave a specific example in this regard, stating that a service consumer, that is, a citizen just needs to submit an electronic application for change of address once for his / her

driving license, then the change request will be automatically applied to other government-related business such as filing for elections, tax returns, etc. These joined-up electronic public services certainly eliminate the needs for multiple filings, thus increasing the service consumers' convenience and efficiency when dealing with various government agencies.

(iii) Summary for Collaborations among Business Partners for Data Sharing

Based on the aforementioned, the non-EWAM sub-construct concerned was therefore adopted based on the literature on G2B systems and revised with refinements.

Sub-construct: Collaborations among Business Partners for Status Checking (ADPT04)

The notion of collaborations among business partners for status checking was not adopted in EWAM for the evaluation of B2B systems. However, this kind of collaborations is one of the potential sub-constructs that would play a role in determining the adaptability of Internet-based systems according to the literature as presented below, and therefore, based on which the derivation result was obtained.

(i) Collaborations among Business Partners for Status Checking pertaining to e-Commerce / B2B initiatives

Collaboration. OECD (2001) discussed that B2B systems allow customers to have authorized and shared accesses to their order status through using online enquiry functions. Other studies such as Chen, Themistocleous and Chiu (2004), and Koch (2004) also acknowledged that B2B service providers have been working with their business partners in a collaborative way to provide online and even real time inventory status as well as other essential information for customers' checking, thereby integrating the overall information delivery process. All these studies did not put many details on how the values are actually created, however, the current research supposes that the rationales behind the scene are the integration of back-end information systems both vertically and horizontally, whilst also by virtue of the adaptation efforts made in working out the common data exchange formats at a minimum.

With the provision of such integrated B2B electronic services mentioned above, the current research believes that a service consumer would no longer make substantial amounts of telephone calls, email enquiries, etc. to different service providers, who are necessarily involved to process a submitted electronic transaction for e-Procurement, trade document declarations, etc., and to update the latest status concerned.

(ii) *Collaborations among Business Partners for Status Checking pertaining to e-Government / G2B initiatives*

Collaboration. Specific examples were found in OECD (2003b) about the collaborations that can be fostered among various government agencies and the private sector in a horizontal manner. Of all of them, the Nordic Green Corridor System has been launched by the Swedish customs accompanying with the strengthened collaborations among the Swedish trade, Finnish trade and customs, and Russian customs. Specifically, the Internet-based system facilitates exchanging and sharing a full range of electronic information related to traders' online submitted customs declarations, thereby performing better cross-border controls. The benefits of such integrated information delivery processes can also be found in the study of Accela (2002), which highlighted the salient G2B system capability for widening the extent of vertical system integrations among all the parties involved in processing an electronically submitted permit application. To this end, it is noted from the study that contractors, architects, permit approvers, etc. participate in online real time interactions and communications concurrently to access a common set of electronically submitted documents, and to process the application with broad collaborations as well as cooperation and hence greater efficiency.

From the technical point of view, the aforementioned adaptation efforts made at either intra- or inter-organizational level also depend on whether common interoperability framework and shared IT infrastructure have been in place in order to facilitate the collaborations and cooperation among the service providers involved in the delivery of integrated G2B electronic services (Isaacs, 2002; OECD Observer, 2003). In another respect, Accenture (2006b) emphasized leveraging Web services implementation to support the integration of data and information among various government agencies in Australia.

Studies such as Symonds (2000b), Wu and Chua (2001) supported accordingly, whereas Wu and Chua (2001) even stated that a business firm or service consumer will realize the benefits of increased convenience and efficiency by just using a G2B electronic service to fill out one online form only for business license application, for which various government agencies involved will jointly process and approve the issuance of the operating business license. While during the course of application processing, the business firm is allowed to enquire its application status on the same G2B website without requiring making multiple logins to different government agencies' websites.

(iii) *Summary for Collaborations among Business Partners for Status Checking*

Based on the aforementioned discussions, the non-EWAM sub-construct concerned was therefore adopted based on the literature on G2B systems and revised with refinements.

Sub-construct: Collaborations with the Service Consumers (ADPT05)

Collaborations with the service consumers is one of the potential sub-constructs that would play a role in determining the adaptability of Internet-based systems according to the literature. There is the EWAM sub-construct, “Good integration in customer’s IT infrastructure”, which examines the capabilities developed within a B2B system domain to integrate with its customers’ back-end information systems, legacy systems and IT infrastructure, thereby furnishing the exchanges or transfers of electronic transaction data for the customers’ reuse under their custody and control (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the usefulness of B2B systems, is in close proximity and relevancy with the notion of collaborations with the service consumers, and therefore, based on which the derivation result was obtained.

(i) *Collaborations with the Service Consumers pertaining to e-Commerce / B2B initiatives*

Collaboration. There have been substantial amounts of the literature that deal the adaptation efforts made between the back-end information systems of a B2B service provider and those of its service consumers. Ideally, the B2B website and its affiliated back-end information system are expected to transfer relevant electronic transaction data to the legacy systems of the service consumers so that they will be able to effectively reuse the data concerned under their full data custody and control. Again, common data exchange formats and other related IT interoperability issues should be addressed while undertaking the IT integration initiatives with various service consumers involved. Studies such as Porter (2001), Scupola (2002), Phan (2003), Walter, Leimeister and Krcmar (2003), and Schubert (2004) advocated this specific kind of collaborations with the service consumers. To this end, the downsides of traditional heterogeneity of the information systems concerned such as repetitive data entry, etc. will be readily removed by prevalent IT integration technologies, thereby transcending different system boundaries and streamlining information delivery processes. In this connection, OECD (2004) also supported the adoption of technology neutrality for enabling the aforementioned information system integrations.

In spite of the merits shown by the potential IT integration initiatives mentioned above, it should be noteworthy that the goodwill of system connectivity may bring about the leakage of sensitive business data and information to outsiders (Scupola, 2002). Chen, Themistocleous and Chiu (2004) also raised similar concerns, and stated that some SMEs are still reluctant to making such information system integration efforts because of the fear for critical data loss. In another respect, OECD (2004) criticized that SMEs generally do not have incentives to undertake the IT integration initiatives with larger e-Commerce service providers, and they would likely run the risks of changing existing business as well as management processes and hence incurring high costs when doing so. Notwithstanding, the current research supposes that such information system integrations are collectively not an imperative for the service consumers to comply with, meaning that the B2B service provider actually brings the adaptation incentive to pertinently satisfy the information needs of its service consumers as much as possible.

(ii) Collaborations with the Service Consumers pertaining to e-Government / G2B initiatives

Collaboration. OECD (2004) gave an example of the Business Entry Point (BEP) launched in Australia, which serves to integrate G2B electronic services with conventional business processes of SMEs. But this study did not discuss in details about the underlying integration or adaptation mechanisms. On the other hand, as recapped from the study of Accenture (2006b), Web services have been effectively leveraged to implement the technical solutions for facilitating the IT integrations between the Australian Business Register, a G2B initiative, and the information systems or existing legacy systems of its business users. As such, direct and seamless data exchanges or transfers are furnished across different system boundaries, thereby making sufficient provisions for the information systems involved to highly reuse the data in question.

To the consumers of G2B electronic services in particular, it is envisaged to reuse the data transferred from the G2B system concerned, meaning that they would not re-input the electronic transaction data again within their legacy system domain as in the past. Notwithstanding, the current research still believes that the main benefit of pursuing such adaptation or equivalent integration endeavor would highly revolve around streamlining information delivery processes in the best interests of a G2B service provider and its business users.

(iii) Summary for Collaborations with the Service Consumers

The literature does reveal the association between the advantages taken by e-Government service providers and their collaborations with the service consumers. However, there exists some knowledge deficiencies about the same kind of association with the service consumers. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Selection of Business Contacts (ADPT06)

Selection of business contacts is one of the potential sub-constructs that would play a role in determining the adaptability of Internet-based systems according to the literature. There is the EWAM sub-construct, “Good contact possibilities”, which accesses the capabilities developed within a B2B system domain to provide flexible business contact channels such that business customers are able to freely interact and communicate with the B2B service provider, whilst also not bearing so many hurdles during the course of getting the wanted business support services (Schubert and Selz, 1999; Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the usefulness of B2B systems, is in close proximity and relevancy with the notion of selection of business contacts, and therefore, based on which the derivation result was obtained.

(i) Selection of Business Contacts pertaining to e-Commerce / B2B initiatives

Administration. Limited literature exists to support the association between the selection of business contacts with the notion of adaptability within a B2B system domain. Nonetheless, Phan and Stata (2002) observed that the old way of providing one-to-one face contact would no longer be feasible for dealing with a large number of business customers especially in the information-driven and fast pacing B2B electronic markets. Therefore, it is noted from this study that various means of business contacts will have to be offered by the service providers to adapt to different business needs, thereby streamlining the overall business support process.

With the provision of multi-tiered business contacts, the current research supposes that the service consumers would realize the benefits of increased convenience and efficiency when they engage in a diversified range of B2B businesses and associated activities.

(ii) Selection of Business Contacts pertaining to e-Government / G2B initiatives

Administration. For the public sector, the literature does reveal the importance of provision of multi-tiered customer support with regard to using e-Government services. In this regard,

Lenk (2002) agreed that providing various online channels of customer contacts in general within an e-Government system domain just helps prepare or facilitate the actual face-to-face contacts at later stages of customer support fulfillment processes. The author also argued that the Internet-based customer contacts, in particular, are offered to purely intake all online requests for customer support, and additionally, they do not actually finish as many functions as required to adapt to different customer needs for getting the support on using various e-Government services.

Based on this study, it is noted that the provision of face-to-face customer contact channels may appeal to e-Government service consumers when dealing with complicated customer support cases. Despite these possible downsides, there exists some studies such as PRISMA (2002d), and OECD Observer (2003), which held opposite viewpoint and advocated that e-Government service consumers should be offered different choices specific to their needs such that they are able to flexibly interact and deal with government-related business, thus demonstrating good evidences of streamlined customer support process on the service provider side.

In a similar vein, the current research perceives that e-Government service consumers would likely increase their convenience and efficiency when dealing with government agencies.

(iii) Summary for Selection of Business Contacts

It is well perceived from the literature that the propensity of providing multi-tiered customer contacts in the context of e-Government may not be hindered within a G2B system domain. Stated another way, it is highly expected to realize the likewise benefits from accessing the flexible business contact channels. However, large knowledge gaps do exist in the aspect just mentioned. Based on the aforementioned, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Main construct: Trust (TRUST)

Based on the work of Schubert (2003a), “Trust” is one of the motivational variables that would directly affect the actual use of an Internet-based system. Overall, “Trust” is an EWAM main construct, whereas the following sub-constructs are most relevant to evaluate the trustworthiness of the Internet-based system concerned according to the literature given hereunder, which mainly discusses the values and impacts in various aspects of value creations.

Sub-construct: Trustworthy Business Partners (TRUST01)

Trustworthy business partners are collectively one of the potential sub-constructs that would play a role in determining the trustworthiness of Internet-based systems according to the literature. There is the EWAM sub-construct, “Trustworthy business partners”, which assesses the capabilities for furnishing authentic electronic services within a B2B system domain such that electronic transactions are conducted among trusted business partners (Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the trustworthiness of B2B systems, is in close proximity and relevancy with the notion of trustworthy business partners, and therefore, based on which the derivation result was obtained.

(i) Trustworthy Business Partners pertaining to e-Commerce / B2B initiatives

Administration. There has been a substantial body of the literature detailing the importance of trustworthiness of e-Commerce systems. Riedl (2004) specifically discussed some theoretical trust models that are potentially built with several salient elements such as technical security, protection of privacy, trust properties, quality of e-Commerce websites, the individual IT skills and knowledge of the service consumers, etc. With reference to other studies, the author also mentioned the positive correlation between public reputation and the trustworthiness of e-Commerce systems.

Guerra, Zizzo, Dutton and Peltu (2003) also emphasized the importance of trust building in proliferating the development of e-Commerce, whereas the discussion focus has been placed again on the three main aspects of trust including identity, privacy and security. Based on this study, it is imperative to reinforce or enhance the aspect of identity by different means. But these means are not complementary to and even have conflicts with each other. As an instance, e-Commerce service providers need to establish the identity of the service consumers involved by collecting relevant identity data when they effect electronic payment, order fulfillment transactions, etc., or in other case, using browser-based user identity software. However, such incentive can create the problem with intrusions on privacy as a consequence. In another respect, Dempsey (2004) emphasized the adoption of electronic signature technologies as one of the means to establish the service consumers’ identity. But the author did point out that the approach to making legal stipulations in relation to the application of electronic signatures should not place huge and unreasonable burdens on the development of both e-Commerce and e-Government.

The consumers of e-Commerce services in general also need to establish the identity of the service providers bi-directionally, thereby gaining and even increasing the required certainty and hence trust when they are engaged in various e-Commerce transactions. In this regard, the current research believes that a typical way of achieving so is to recognize the long-standing reputation in term of various trust properties such as credibility, reliability, goodwill, etc. of e-Commerce websites through reviewing previous customer survey results and feedbacks, and participating in “word of mouth publicity activities.

(ii) Trustworthy Business Partners pertaining to e-Government / G2B initiatives

Administration. The literature also reveals the importance of established identity in relation to effecting e-Government transactions. In this connection, while Bakry (2004) acknowledged the benefit of furnishing secure e-Government transactions in terms of ensuring the authentication or non-repudiation of source and destination identities, Budhiraja (2002) suggested the development of e-Authentication framework for the implementation of e-Government systems. From the technical perspective, e-Authentication provides a secure IT infrastructure that facilitates the verification of service consumers’ identity information in an integrated manner, but not by separate electronic authentication processes. However, this proposal had not yet been investigated and tested in the study. In another respect, electronic signature technologies other than traditional handwritten signatures can be adopted and applied in establishing the identity of the consumers of e-Government services as mentioned by Vintar, Kunstelj, Decman and Bercic (2003) and recapped from Dempsey (2004). Additionally, it is noted from Dempsey (2004) that the authenticity of the service consumers’ electronic signature has to be assured by government organizations or government-approved service providers in order to effectively validate their identity especially when they effect various e-Government transactions.

It is highly envisaged that authentic e-Government services should be used from the perspective of service consumers. This also means that they expect to equally assure the authenticity of the service providers, that is, government agencies or organizations with whom they are effecting e-Government transactions, thus increasing their trust when doing so. However, the literature does not reveal the exact details about the value creations pertaining to the business sector of e-Government services, in particular.

(iii) Summary for Trustworthy Business Partners

Although it is perceived that authentic e-Government services should be furnished in order to attain the required level of trust from both the perspectives of government organizations and its service consumers, the literature has not been tendering so many details about how the values are actually created in the best interests of the parties involved including the business sector. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Sub-construct: Trusted Electronic Commerce Environment (TRUST02)

Trusted electronic commerce environment is one of the potential sub-constructs that would play a role in determining the trustworthiness of Internet-based systems according to the literature. There is the EWAM sub-construct, “Trust in Internet as platform and legal situation”, which assesses the capabilities for creating trusted e-Commerce environment in terms of securing both electronic transactions as well as data, and complying with the legal stipulations about the protection of data privacy and against the crimes on e-Commerce within a B2B system domain (Schubert, 2003a). This EWAM sub-construct, which was mostly used in Schubert’s previous works to evaluate the trustworthiness of B2B systems, is in close proximity and relevancy with the notion of trusted electronic commerce environment, and therefore, based on which the derivation result was obtained.

(i) *Trusted Electronic Commerce Environment pertaining to e-Commerce / B2B initiatives Administration.* The discussion focus is also placed in the importance of various security measures and legal principles that should be taken in order to establish trusted e-Commerce environment. In this regard, Dempsey (2004) stated that both individuals and businesses may be hesitated to use electronic means for effecting business transactions if they are insecure and not legally bound, for which the parties involved would refute or deny having originated, authorized or signed the electronic transactions concerned. Steward, Callaghan and Rea (1999) also stated that e-Commerce service providers should ensure building trusted environment in order to facilitate effecting secure and reliable electronic transactions with their customers. However, the authors just described the needs to give the details about how to store, use or share the collected customer information, and they did not focus on discussing any security measures, legal terms as well as conditions that are to be taken and provided respectively while creating trusted e-Commerce environment.

As recapped from the study of Guerra, Zizzo, Dutton and Peltu (2003) again, building trusted e-Commerce environment closely associates with the aspects of security and privacy. In

particular for the aspect of security, the study stated that third party certification does indeed contribute to building trusted e-Commerce environment in terms of providing external approval for e-Commerce websites from VeriSign, TRUSTe, etc., and additionally, providing customers' rating on e-Commerce websites, thus making the reputation information of the former websites concerned publicly available. While in the aspect of privacy, the study stated that it is largely protected by means of the development of online website guidelines and relevant legislations or ordinances, but rather than just relying on technical-oriented approaches. Examples of the latter legal frameworks included the OECD Guidelines on Privacy, or in other case, the legal legislations related to the crimes on e-Commerce.

If e-Commerce services are provided more securely and bounded by relevant legal stipulations as mentioned in the preceding paragraph, the current research supposes that the service consumers would certainly increase their trust when they engage in online business in trusted e-Commerce environment.

(ii) Trusted Electronic Commerce Environment pertaining to e-Government / G2B initiatives

Administration. For e-Government systems, the importance of creating trusted environment has been discussed by Riedl (2004), which compared the differences between e-Commerce and e-Government, thus serving to develop the trust model and hence the trusted environment as required because of the fact that the consumers of e-Government services are largely compulsory to submit personal or company data when they deal with wide-ranging government-related business. Notwithstanding, the concerns may not be as significant as expected since e-Government service providers should have more structural obligations than e-Commerce service providers to build trusted e-Government environment in the broadest sense, thereby providing the required assurance in terms of securing electronic transactions and data with the use of advanced IT facilities, and protecting data privacy based on the well-established legal stipulations. In this connection, Bakry (2004) advocated that secure e-Government services should be delivered in order to protect the integrity and confidentiality of both electronic transactions and data involved from unauthorized modifications and non-legitimate disclosures. Although having said this, Choudrie, Ghinea and Weerakkody (2004) showed in their study that exemplars of e-Government websites have largely neglected the assurance of website security and data privacy of the service consumers.

In addition to what discussed by Riedl (2004), Seifert and Bonham (2004) discussed the same security and privacy issues. According to the study, technical efforts should be spent on various aspects such as securing the data collected from the public, protecting against a diversified range of security threats, ensuring the continuity of e-Government services through setting in place reliable backup systems. In another respect, e-Government service providers, like e-Commerce counterparts, need to share and disclose both citizens' and businesses' data in a prudent way by both legal and policy means, thereby creating the most trustworthy environment to facilitate the public conducting government-related electronic transactions. Budhiraja (2002) also acknowledged the importance of the issues concerned, stating that PKI can be adopted and applied to secure the integrity or non-repudiation of electronic transactions conducted within a G2B system domain.

Based on the aforementioned studies, the current research believes that the service consumers would realize the benefit of increased trust when they deal with government agencies electronically in trustworthy e-Government environment.

(iii) Summary for Trusted Electronic Commerce Environment

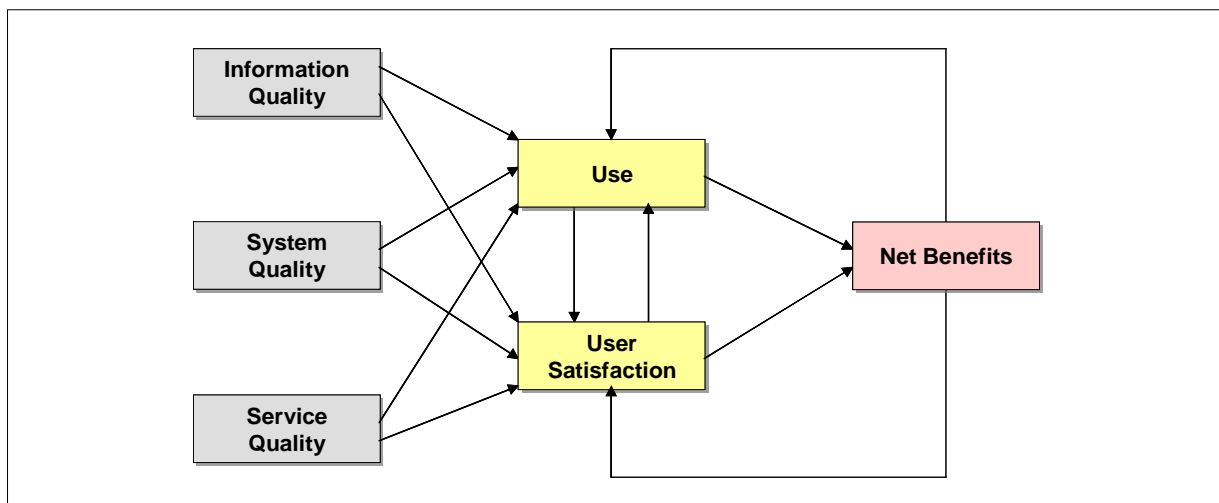
In summary, the aforementioned studies mainly discussed both security and privacy issues emerged, and additionally, their notable impacts as carried in the context of implementing e-Government systems. However, they are virtually not so specific to the business sector of e-Government services. Based on the aforementioned discussions, the EWAM sub-construct concerned was therefore adopted and revised with refinements.

Main construct: Use Satisfaction (USESAT)

As recapped from Section 2.5.2, EWAM was derived from TAM, from which it is noted that “Perceived Usefulness” and “Perceived Ease of Use” pertaining to the respective area of system functions, features and facilities, in turn determine an individual's attitude towards and hence behavioral intentions to using the functions, features and facilities of IT systems, thus leading to the actual system use. To this end, it should be noted that EWAM should have been derived accompanying with the potential main construct of “Actual System Use”. However, the EWAM components as presented in Figure 2.2 do not reflect such main construct by themselves. This also means that EWAM should be adapted and revised accordingly in order to achieve the research objective of measuring the satisfaction with using G2B electronic services from the perspective of SMEs. Hence, a new main construct of “Use Satisfaction” was developed in the theoretical research model of the current study.

The literature has discussed the overall use satisfaction of Internet-based systems in relation to measuring the success of information systems in general. Along with these efforts, Jennex and Olfman (2003) adopted and extended the updated DeLone and McLean's information systems (IS) success model to develop the knowledge management success model in their study. Another study of Boon, Wilkin and Corbitt (2003) also adopted the updated DeLone and McLean's IS success model, and integrated it with the emergent set of critical success factors identified for IS implementation in order to develop a broader IS success model. Examples of such critical success factors assessed in the study included top management support, project champion and vendor support. In another respect, Rai (2000) adopted and adapted the original DeLone and McLean's IS success model (DeLone and McLean, 2002) to measure the success of an online learning system. In addition to these studies, DeLone and McLean themselves applied the updated model and conducted a study to measure the success of e-Commerce systems (DeLone and McLean, 2004). To this end, it is noted that the DeLone and McLean's IS success model has been widely adopted, applied and cited in a diversified range of IS evaluations and international journals. Figure 2.6 presents the updated DeLone and McLean's IS success model with adaptation to e-Commerce systems.

Figure 2.6 Updated DeLone and McLean's IS success model
(Adapted from DeLone and McLean, 2004)



While measuring the success of e-Commerce systems with the use of the updated DeLone and McLean's IS success model, DeLone and McLean (2004) discussed various success measures categorized under "Information Quality", "System Quality", "Service Quality", "Use", "User Satisfaction" and "Net Benefits". In brief, the updated DeLone and McLean's IS success model depicts that the three categories of quality will affect "Use", that is, the subsequent use

of e-Commerce services. As can be seen from Figure 2.6, “Use” and “User Satisfaction” are interrelated in the sense that “Use” must precede “User Satisfaction”, whilst also meaning that “Use” will initially lead to “User Satisfaction”, that is, the satisfaction with using e-Commerce services as a process norm. However, this casual link can be developed in the reverse direction, referring to the case that increased user satisfaction will lead to increased use of the electronic services concerned. Furthermore, “Net Benefits”, serves to be the most accurate and important metric of the final success variable for measurement. This also means that net benefits will be created as a result of the actual use of e-Commerce services and hence user satisfaction with using the electronic services in question, thereby taking the created net benefits collectively as a measurement indicator for the success of the e-Commerce system being assessed. Certainly, net positive benefits will therefore reinforce increasing the subsequent use and user satisfaction on a continuous basis.

Overall, the updated DeLone and McLean’s IS success model resembles EWAM in terms of the three categories of quality. Stated another way, “Information Quality”, “System Quality” and “Service Quality” of the updated DeLone and McLean’s IS success model have near equivalences with the three criteria categories of “Ease of Use”, “Usefulness” and “Trust” of EWAM only. However, the causal link paths of “Use” and “User Satisfaction” and “Net Benefits” of the former IS success model were not similarly or completely developed in EWAM. Since EWAM was originally derived from TAM as illustrated in Figure 2.1, the current research did not intend to adopt the causal links of “Use”, “User Satisfaction” and “Net Benefits” of the updated DeLone and McLean’s IS success model because of their non-conformity to the scope and irrelevancy with the objectives of the current research.

Although having said this, the updated DeLone and McLean’s IS success model still supports building the new main construct of “Use Satisfaction” of the theoretical G2B success model of the current study in certain extents because of the importance of the two main success metrics of the former IS success model, including both “Use” and “User Satisfaction” (DeLone and McLean, 2004). The new main construct concerned, which serves to be the final success and dependent variable instead, should be used for measuring the success of the G2B systems under examination in terms of equivalent services usage and services satisfaction from the perspective of service consumers in the current research context even though not establishing those relevant causations of the updated DeLone and McLean’s IS success model. In summary, “Use Satisfaction” is a non-EWAM main construct, whereas the

following sub-constructs are most relevant to evaluate the overall use satisfaction of the Internet-based system concerned according to the literature given hereunder.

Sub-construct: Services Usage (USESAT01)

The notion of services usage was not adopted in EWAM for the evaluation of B2B systems. However, services usage is one of the potential sub-constructs that would play a role in determining the overall use satisfaction of Internet-based systems according to the literature as presented hereunder, and therefore, based on which the derivation result was obtained.

(i) Services Usage pertaining to e-Commerce / B2B initiatives

First of all, as recapped from Section 2.5.1 regarding the study of OECD (1999b), it is already perceived that the usage of e-Commerce systems, whilst taking the perspective of service consumers, is generally used as a typical measurement indicator to evaluate the related performance. However, this study did not correlate the measurement on the usage of e-Commerce systems, that is, the measurement on e-Commerce readiness with the success of e-Commerce systems directly. Second, TAM and hence EWAM delineates the fact that perceived and hence realized values will have direct and significant effects, or in other case, indirect and non-significant effects on the actual use of e-Commerce services (Schubert, 2003a). In a similar vein, according to the updated DeLone and McLean's IS success model, it does deliver the essential message that various types of quality measures will virtually affect the use of e-Commerce services, from which the success of e-Commerce systems can be measured in general (DeLone and McLean, 2004). However, the latter IS success model does not depict any associated value creations pertaining to each quality measure at all in an explicit manner.

Nonetheless, the reference made to the updated DeLone and McLean's IS success model still helps build the sub-construct of "Services Usage" under the new main construct of "Use Satisfaction" because of its wide applicability in many studies of similar disciplines. In this connection, DeLone and McLean (2004) discussed both the nature and amount of use of e-Commerce services, and they are important indicators used for measuring the success of an e-Commerce system being assessed. For the purposes of the current research, the sub-construct of "Services Usage" is proposed based on the amount of use of e-Commerce services only because it is necessary to avoid developing the theoretical research model of the current study with the nature of use, which may be duplicated with those other success metrics of the same model.

(ii) Services Usage pertaining to e-Government / G2B initiatives

While for e-Government and its affiliated G2B systems, the literature has been reviewed in Section 2.6.1 to examine various indicators used for measuring their performance. Overall, the majority of the studies discussed in the section largely focused on the broadest concepts or notions of evaluation methods, which associate with the vision, acceptance and adoption of e-Government services on the one hand, whereas they deal with the breadth and depth of e-Government services on the other hand. In this connection, both qualitative and quantitative measures have been included in different evaluation approaches or methods.

Among all the studies concerned, the works of Cabinet Office (2002), Kunstelj and Vintar (2004) specifically addressed the quantitative measure on the amount of use of e-Government services although likewise not in close conjunction with any value creations. On a concluding note, existing studies do support building the sub-construct of “Services Usage” under the new main construct of “Use Satisfaction” of the theoretical research model of the current study in certain extents, thus serving to evaluate the performance and measure the success of e-Government systems in the current research context.

(iii) Summary for Services Usage

Based on the aforementioned discussions, the non-EWAM sub-construct concerned was therefore adopted based on the literature on G2B systems and revised with refinements.

Sub-construct: Services Satisfaction (USESAT02)

The notion of services satisfaction, or alternatively, satisfaction with using electronic services was not adopted in EWAM for the evaluation of B2B systems. However, satisfaction with using electronic services is one of the potential sub-constructs that would play a role in determining the overall use satisfaction of Internet-based systems according to the literature as presented hereunder, and therefore, based on which the derivation result was obtained.

(i) Services Satisfaction pertaining to e-Commerce / B2B initiatives

The discussions that associate with measuring the satisfaction with using e-Commerce services have been placed in Sections 2.5.1 and 2.5.2 in the broadest sense. Notwithstanding, vigorous attempts are still made herein to build the sub-construct of “Services Satisfaction” under the new main construct of “Use Satisfaction” of the theoretical research model of the current study. First of all, user satisfaction is the service consumer’s response to the actual use

of e-Commerce services (DeLone and McLean, 2004). According to this study, the success metric “User Satisfaction” is important in measuring the success of e-Commerce systems in a general sense. Specifically, various types of quality measures will have direct and significant influences, or in other case, indirect and non-significant influences on the satisfaction with using e-Commerce services, although not suggesting any specific measurement instruments, and not having addressed any associations with the value creations as delineated in particular for the actual use of e-Commerce services in TAM, from which EWAM was derived. Nevertheless, this study strongly supported building the sub-construct of “Services Satisfaction” concerned due to the wide application of the updated DeLone and McLean’s IS success model in studies of related nature.

While DeLone and McLean (2004) discussed the first causal link between measuring user satisfaction and determining the success of e-Commerce systems on the one hand, other studies such as Schubert and Selz (1999) and Phan (2003) supported such causal relationship on the other hand. According to the studies, it is summarized that the success of the e-Commerce system under examination has to be determined by the degree of fulfillment of user expectations or needs according to the set of success criteria or quality features. As inspired by these studies, the current research believes that different extents of satisfying user requirements can be seen equivalently as measuring from various levels of user satisfaction.

In another respect, the notions of benefits or value creations have been adopted in measuring the success of e-Commerce websites as found in the works of Madeja and Schoder (2003), Schoder and Madeja (2004), and accordingly, the second causal link between assessing the benefits of using e-Commerce services and determining the success of e-Commerce systems can be established. However, the two causal links discussed still do not completely manifest themselves as having any direct relationships with each other.

In the light of the merits shown by the two aforementioned causal links, other studies also supported accordingly although taking hold different extents. As recapped from Section 2.5.1 again, user satisfaction has been extensively used as an important indicator in measuring the value creations or impacts of the e-Commerce system concerned. This actually means that having used the electronic services concerned, user satisfaction tends to be a reflection or an indication of the service consumers’ opinions and hence degree of realization of benefits or values created, which are the results of additional and multiplier effects of value creations that the e-Commerce system under examination delivers to business and production processes,

workplaces, and even society at large (OECD, 1999b). Based on this study, the third causal link can thus be established between the notions of value creations and user satisfaction. Subject to the three causal links discussed so far, it is thus concluded that value creations and hence realizations are largely measured by means of different levels of user satisfaction, which in turn can properly and effectively measure the success of e-Commerce systems.

(ii) Services Satisfaction pertaining to e-Government / G2B initiatives

Likewise, similar discussions have been placed in Section 2.6.1, serving to make initial attempts to examine the potential contributions of the notion of user satisfaction that would make towards building the theoretical research model of the current study. However, no significant findings have been identified accordingly since the scope of discussions therein has been rather broad. Despite these drawbacks, some studies did facilitate achieving the objective of developing the theoretical research model of the current study, accompanying with the following discussions that seamlessly align with the three causal chains pertaining to e-Commerce systems as presented in the preceding sub-section.

In this regard, Shutter and Graffenreid (2000) firmly established the first causal link between measuring user satisfaction and determining the success of e-Government systems, whilst also articulating the fact that both citizen and business satisfactions are collectively an accurate measure of fulfillment of their expectations or requirements after using e-Government services. While it is so clear to establish the first causal link, the second causal link between the benefits of using e-Government services and the success of e-Government systems can be equally established. To this end, Choudrie, Ghinea and Weerakkody (2004) also recognized the success of e-Government websites, which largely depends on the substantial benefits that will be realized by the service consumers on a sustainable basis. Lastly, the third causal link between the notions of value creations and user satisfaction is established according to some studies. In this connection, Shutter and Graffenreid (2000) emphasized that user satisfaction genuinely means the different extents to which both individuals and businesses are able to extol the numerous benefits of using e-Government services as those of using e-Commerce services. As well, Kunstelj and Vintar (2004) stated that the consumers express their feedback or make comments on the quality of e-Government services through assessing the benefits of the service use such as saving costs and time, retrieving updated and useful information, getting faster and convenient services, etc.

In a similar vein, while amalgamating the three causal links discussed so far, it is perceived that the majority of value creations are realized and hence reflected from different levels of user satisfaction, thereby measuring the success of e-Government systems in the current research context.

(iii) Summary for Services Satisfaction

Based on the aforementioned discussions, the non-EWAM sub-construct concerned was therefore adopted based on the literature on G2B systems and revised with refinements.

2.7.2 Central tenets of the theoretical research model

This section summarizes the proposed main constructs and associated sub-constructs of the theoretical G2B success model based on the theoretical background as given in Sections 2.7.1.1 – 2.7.1.2. On the other hand, Figure 2.7 presents the high level theoretical G2B success model, and Table 2.9 presents the theoretical research model of the current study in details, whilst also mapping with the corresponding main constructs and sub-constructs of EWAM as given in Appendix A for easy reference. In addition, Appendix D lists out all reference sources used for developing the theoretical G2B success model.

Figure 2.7 The high level theoretical G2B success model

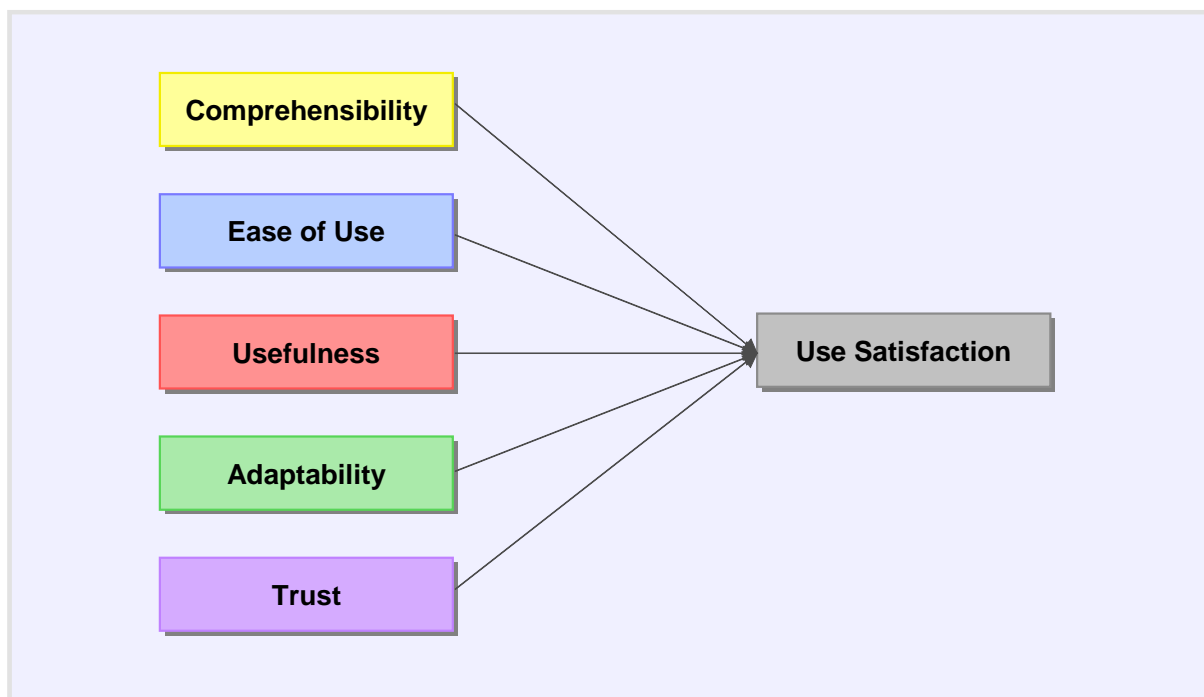


Table 2.9 The theoretical G2B success model mapped with the constructs of EWAM

	Theoretical G2B Success Model			EWAM		
Item	Main Construct / Sub-construct	Description	Ref.	Description	Ref.	Remarks
1	Main construct	Comprehensibility	COMP	N/A	N/A	New main construct
1.1	Sub-construct	Business-centric Cluster Services	COMP01	Good combination possibilities for products or services	USEF3	EWAM construct
1.2	Sub-construct	Business or Transaction Steps	COMP02	Good integration of generic services	EOU5	EWAM construct
2	Main construct	Ease of Use	EOU	Ease of Use	EOU	EWAM construct
2.1	Sub-construct	Organization of Web Content	EOU01	Good structure of content	EOU2	EWAM construct
2.2	Sub-construct	Quantity of Web Content	EOU02	Reasonable information quantity	EOU3	EWAM construct
2.3	Sub-construct	Guidance in Online Interactions	EOU03	Transparent, interactive integration of business rules	EOU4	EWAM construct
2.4	Sub-construct	Selection of Routine Services	EOU04	Easy selection of generic services	EOU5	EWAM construct
2.5	Sub-construct	Online Business Support	EOU05	Convenient after-sales support	EOU6	EWAM construct
2.6	Sub-construct	Online Business Communities	EOU06	Good access to community	EOU7	EWAM construct
2.7	Sub-construct	User Interfaces	EOU07	Good user interface	EOU9	EWAM construct
2.8	Sub-construct	System Availability	EOU08	Good availability of the system	EOU8	EWAM construct
2.9	Sub-construct	System Performance	EOU09	Good performance of the system	EOU8	EWAM construct
3	Main construct	Usefulness	USEF	Usefulness	USEF	EWAM construct
3.1	Sub-construct	Quality of Web Content	USEF01	Quality of content meets user expectations	USEF1	EWAM construct
3.2	Sub-construct	Price Information	USEF02	Fair and individual prices	USEF6	EWAM construct
3.3	Sub-construct	Value-added Services	USEF03	N/A	N/A	New sub-construct
3.4	Sub-construct	Reuse of Data	USEF04	Effective use of customer profile	N/A	EWAM construct
3.5	Sub-construct	Tracking of Transaction Status	USEF05	Good tracing and tracking	USEF8	EWAM construct

	Theoretical G2B Success Model			EWAM		
Item	Main Construct / Sub-construct	Description	Ref.	Description	Ref.	Remarks
3.6	Sub-construct	Responses to Business Support	USEF06	Satisfying customer support	USEF9	EWAM construct
3.7	Sub-construct	Business Relationships	USEF07	Good quantity and quality of relationships in community	USEF10	EWAM construct
3.8	Sub-construct	Information Sharing	USEF08	Good quantity and quality of content generated by community	USEF11	EWAM construct
3.9	Sub-construct	Productivity Gains	USEF09	Improvement in productivity / time gained	USEF13	EWAM construct
3.10	Sub-construct	Costs	USEF10	Cost benefits passed on to the client	USEF2	EWAM construct
4	Main construct	Adaptability	ADPT	N/A	N/A	New main construct
4.1	Sub-construct	Customized Information	ADPT01	Adjustable customer profile	N/A	EWAM construct
4.2	Sub-construct	Mediating Services	ADPT02	N/A	N/A	New sub-construct
4.3	Sub-construct	Collaborations among Business Partners for Data Sharing	ADPT03	N/A	N/A	New sub-construct
4.4	Sub-construct	Collaborations among Business Partners for Status Checking	ADPT04	N/A	N/A	New sub-construct
4.5	Sub-construct	Collaborations with the Service Consumers	ADPT05	Good integration in customer's IT infrastructure	USEF7	EWAM construct
4.6	Sub-construct	Selection of Business Contacts	ADPT06	Good contact possibilities	USEF15	EWAM construct
5	Main construct	Trust	TRUST	Trust	TRUST	EWAM construct
5.1	Sub-construct	Trustworthy Business Partners	TRUST 01	Trustworthy business partners	TRUST1	EWAM construct
5.2	Sub-construct	Trusted Electronic Commerce Environment	TRUST 02	Trust in Internet as platform and legal situation	TRUST2	EWAM construct
6	Main construct	Use Satisfaction	USESAT	N/A	N/A	New main construct
6.1	Sub-construct	Services Usage	USESAT 01	N/A	N/A	New sub-construct
6.2	Sub-construct	Services Satisfaction	USESAT 02	N/A	N/A	New sub-construct

The theoretical G2B success model has two central tenets. The first tenet refers to ensuring the generality of implementation practices and value creations of the theoretical G2B success model. This actually means that the theoretical G2B success model does not prescribe (1) any specific, unique or proprietary implementation approaches to delivering the corresponding G2B electronic services, and (2) any distinct sets of values created for particular stakeholder(s) although having realized that a government should be the mandatory one for incorporation in the G2B initiatives concerned. To this end, the first tenet manifests itself as a ubiquitous paradigm for value creations irrespective of the underlying implementation practices such that it can be taken by the Government for the successful implementation of different G2B initiatives the HKSAR. As well, such a localized implementation framework is expected to be referenced in a wider extent by other governments when they undertake and implement the likewise G2B initiatives although it is noted that the underlying implementation approaches and value creation mechanisms would be different from the ones concluded in the current research.

The second tenet refers to ensuring the equality of value realizations of the theoretical G2B success model. This actually means that both the usage of and satisfaction with using a G2B electronic service are likewise increased from the perspective of service consumers after having realized any particular and same set of values created.

2.7.3 Research hypotheses

The literature review and discussions in this chapter have raised a series of research questions:

- Q1. Does comprehensibility affect the overall use satisfaction with using G2B electronic services?*
- Q2. Does ease of use affect the overall use satisfaction with using G2B electronic services?*
- Q3. Does usefulness affect the overall use satisfaction with using G2B electronic services?*
- Q4. Does adaptability affect the overall use satisfaction with using G2B electronic services?*
- Q5. Does trust affect the overall use satisfaction with using G2B electronic services?*

The above five research questions formed the basis for formulating the research hypotheses as outlined in Table 2.10. These research hypotheses could act as the building blocks of a coherent body of new theories if generalization could be made thereafter in subsequent research, thereby reaching the highest level of abstraction (Zikmund, 1994). It was thus

expected that the research hypotheses developed for the current research would explain how the performance of G2B initiatives is to be influenced in the business sector under the electronic market phenomena, and specifically, would reveal the magnitude of the influences of each G2B success factor.

Table 2.10 Research hypotheses

Hypothesis	Description	Main Construct
H1	Higher levels of comprehensibility of functions, features and facilities of G2B electronic services will be positively related to higher levels of the overall use satisfaction with using G2B electronic services in terms of services usage and services satisfaction.	Comprehensibility (COMP)
H2	Higher levels of ease of use of functions, features and facilities of G2B electronic services will be positively related to higher levels of the overall use satisfaction with using G2B electronic services in terms of services usage and services satisfaction.	Ease of Use (EOU)
H3	Higher levels of usefulness of functions, features and facilities of G2B electronic services will be positively related to higher levels of the overall use satisfaction with using G2B electronic services in terms of services usage and services satisfaction.	Usefulness (USEF)
H4	Higher levels of adaptability of functions, features and facilities of G2B electronic services will be positively related to higher levels of the overall use satisfaction with using G2B electronic services in terms of services usage and services satisfaction.	Adaptability (ADPT)
H5	Higher levels of trust or security of functions, features and facilities of G2B electronic services will be positively related to higher levels of the overall use satisfaction with using G2B electronic services in terms of services usage and services satisfaction.	Trust (TRUST)

Overall, the theoretical G2B success model was developed to identify potential success factors that differentiate one G2B website from others in the same electronic market. More importantly, with the adoption of the theoretical G2B success model, the performance and hence success of the G2B systems under examination can be evaluated in a congruent manner along different dimensions of success criteria or quality features and from the perspective of the SME sector. While achieving so, it was expected that the findings of the current research would prove the theoretical G2B success model to be viable.

2.8 Summary

According to the literature review done so far, e-Commerce and e-Government are closely aligned in terms of functions, features and facilities because they deliver comparable electronic services to individuals and organizations. The context of the current research – the

implementation of G2B initiatives for SMEs under the realm of e-Government, in particular – was therefore established based on comparisons with B2B initiatives for SMEs under the realm of e-Commerce.

However, it is also learned from the literature that thorough understanding of a transformational model for e-Government development has not been evoked among various government agencies involved, whereas enthusiasm has not been built to reform conventional public administration in large scale and full strength. Overall, such deficiencies are found in view of the fact that no existing reference models have been well developed for accomplishing more advanced public service delivery processes, and also, no joined-up or cooperative efforts have been substantially made to modernize a government's highly fragmented agency-centric public service provision. Although having said all these, EWAM was identified from the literature to the extent that it enacts an important role to help derive and build the theoretical G2B success model in the current research context, thus serving to be the potential reference model taken for the successful implementation of G2B initiatives.

Chapter 3 Research Methodology

3.1 Introduction

The current study used quantitative research methods to investigate SMEs' attitudes, behaviours and preferences towards using G2B electronic services. A positivist paradigm was adopted, an approach that is ideal for identifying the facts and causes of the phenomenon being studied, and also for examining any relationships or correlations between the variables with the aim of generalizing a deductive or integrated theory (Hussey, 1997).

Two common types of quantitative research include descriptive and correlation research. Descriptive research involves studying the preferences, practices or interests of the selected groups, whereas correlation research particularly seeks to identify and/or even determine any relationships among the variables involved. The current study utilized a survey to facilitate investigations that were both descriptive and correlation-oriented. The survey was theory-grounded because it was based on the literature review. The survey questions therefore incorporated the theoretical focus essential for investigating potential relationships among the variables and for testing the research hypotheses, which were outlined in Chapter 2.

The remainder of this chapter discusses the unit of analysis in Section 3.2, the development of online survey in Section 3.3, the pilot study in Section 3.4 and the main study in Section 3.5. Finally, Section 3.6 summarizes the chapter.

3.2 Unit of analysis

The unit of analysis was SMEs in Hong Kong. SMEs are significant because collectively they are the primary driving force of Hong Kong's economic development as mentioned in Section 1.4.1. These SMEs have been developing their business with low start-up and operating costs, and have tended to embrace dynamic changes in the economy with greater adaptation and quicker adjustments and responses than larger firms. This capability and flexibility allows them to compete with, and even become strategic partners of, large companies.

3.3 Development of online survey

Questions in the online survey were developed according to the theoretical G2B success model, that is, the proposed G2B website evaluation method derived from EWAM as discussed in Chapter 2. The survey questions were modified to be more pertinent to the

trading industry. Each question was asked in the context of the relevant G2B electronic service. In this way, the responses captured the importance rating of that specific electronic service to the trading sector, and the performance rating of the service in fulfilling users' expectations and needs. The online survey instrument consisted of three main sections:

- (1) Covering letter that included background information, purposes of the current research and a consent statement for the survey participants to sign.
- (2) Section 1 with 15 questions about the survey participants' employment profile, the business profile of their company and its IT capabilities.
- (3) Section 2 with 31 questions addressing the importance and performance of each G2B electronic service in terms of its function, feature or facility.

During the course of the development of online survey instrument, the English version of the paper-based survey instrument was originally drafted and vetted. For the Traditional Chinese version, the translation protocol was developed by the researcher of the current study, who played the dual role of translation coordinator as well as translator, and carried out the translation process directly. The researcher of the current study is a bilingual person, exhibiting characteristics of a native speaker of the target Traditional Chinese, mastering English as working language, and also, understanding IT, e-Commerce as well as e-Government concepts. Specifically, the translation process proceeded with simple, non-technical, semantic and conceptual translations so as to keep the meanings of words and phrases originally used in the English version of the paper-based survey instrument.

Next, the English and Traditional Chinese versions after translation of the paper-based survey instrument were used in the pilot study, which actually facilitated conducting the target audience review for the purpose of assessing the suitability of the survey questions for the intended audience. After completing the pilot study as mentioned in Section 3.4, the revised English and Traditional Chinese versions, that is, the final quality-assured translated versions, were then passed to a software service provider to design and develop the online survey website for conducting the main study as mentioned in Section 3.5, which operated from May to August 2006. Appendix B presents the final online survey instrument, together with reasons for asking the survey questions, and Appendix C shows the screen captures of the online survey website.

To make the overall data collection process as straightforward and time-efficient, the paper-based survey instrument used in the pilot study was limited to four pages for both the English and Traditional Chinese versions. Similarly, the English and Traditional Chinese online versions used in the main study were designed with only a few web pages. The URL (<http://www.onlinesurvey.html>) is no longer accessible because the website was developed and hosted solely at the time of data collection. The survey participants could choose to answer the paper-based or online survey in either English or Traditional Chinese, and they rated their responses using a seven-point Likert scale.

Interval-scaled quantitative data were collected in both the pilot and main studies. The quantitative data from the main study were subject to different data analysis techniques to derive the research results. The empirical data collected met the current research objectives because interval variables are particularly suitable for ranking the order of the measurement items, for quantifying and comparing the sizes of differences among them (Statsoft, 2011), and for conducting studies with descriptive statistics in terms of means, standard deviations and variances (Zikmund, 1994).

3.4 Pilot study

A pilot study was conducted to test the appropriateness of the survey questions using the paper-based survey instrument, thereby indicating how the survey questions were perceived and understood by the respondents (survey participants) in terms of their suitability, and more importantly, reinforcing the appropriateness of the analytical survey method adopted for the purposes of the current research. SMEs, who were the native speakers of the target Traditional Chinese, were selected and invited to participate in the pilot study by convenience sampling. Invitations were randomly made to SMEs in direct or indirect association with the researcher of the current study, which had been trading in the HKSAR for between two and fifteen years. The SMEs selected were registered users of either or both of the two G2B websites under examination – *Tradelink-eBiz* and *Ge-TS*, and therefore, they played the role of checker during the course of translation process by offering comments on the survey instrument. Eight SMEs were available to participate in the pilot study.

Pilot study participants completed the paper-based survey instrument, some in the presence of the researcher of the current study, and others alone at a place of their choosing. Participants were provided with both the English and Traditional Chinese versions of the survey so they

could thoroughly evaluate the appropriateness of the survey questions and compare the two language versions as much as possible. They were free to make queries of the researcher of the current study at any time.

Since the pilot study aimed to reveal any possible misunderstandings or misinterpretations on the survey questions, it was not intended to conclude any research findings for the purposes of the current study, and therefore, no formal data analysis was done at all on the collected data. Pilot study participants finished the questionnaire within the expected time. Because of considerable efforts that had been initially spent on developing the paper-based survey instrument, there were just a few minor comments received from the checkers involved, and therefore, minor changes were made to some survey questions only in terms of rearranging some sentence structures, and correcting some texts as well as wordings used for the English and/or Traditional Chinese versions whichever necessary. As the pilot study positively suggested, these few survey questions were revised to become more clear and easier to read and understand as much as possible, thereby removing any ambiguities for enhancing the reliability and validity of the measurements to be made in the main study.

3.5 Main study

3.5.1 Sample selection

The sample size of the current research was determined to select a small sample size for several reasons. First, the total population of SMEs had been approximately 280,000 as in 2005, and of which 34.5%, that is, around 96,602 SMEs had engaged in import and export businesses in the HKSAR as recapped from Section 1.4.1. The latter figure would refer to the potential subscribers of the two G2B website(s) under examination. *Tradelink-eBiz*, in particular, had a customer base of more than 50,000 subscribed SMEs as in January 2004 as mentioned in Section 1.4.3. This customer base figure accounted to nearly half of the total SME population in 2005, whilst also meaning that the sample of the subscribers of the selected G2B website(s) could be estimated by random sampling.

Second, according to Zikmund (1994) and Hopkins (2000), using a less heterogeneous sample of subjects will likely reduce the effects of differences in subject characteristics. Therefore, it was justified to use a small sample for the purposes of the current study because of the homogeneity of the total population of SMEs in terms of company size, business capacity, profits attained, etc.

Finally, Hopkins (2000) mentioned that the measurement precision also has potential impacts on the selection of sample size, which may be small as long as the reliability and validity of the intended measurements are assured. In the current research context, it was tentatively to select a relatively small but representative sample size because the online survey instrument was developed from the well-established theoretical concepts of EWAM, which had long-reputed history of evaluation of the success of e-Commerce websites as described in Chapter 2. Based on the aforementioned reasons, it was determined to directly approach the planned random sample of 195 SMEs and invite them to participate in the main study.

Figure 3.1 shows the breakdown of Hong Kong's imports and exports by principal commodity or industry sector for 2005. In order for the target sample of 195 SMEs to be invited and random, far more and approximately equal numbers of SMEs were initially identified by industry sector as presented in Figure 3.1 and business nature from the sourcing website of the Hong Kong Trade Development Council (HKTDC). This also means that far more direct telephone contacts were made until the target sample of 195 SMEs was successfully contacted and gave their consensus on the participation in the main study. In achieving so, potential participants were first contacted by telephone calls to confirm whether they subscribed to the electronic services provided by *Tradelink-eBiz* and/or *Ge-TS*. Those SMEs who did subscribe to either one or both of the two G2B websites under examination and who also agreed to participate in the survey were informed of the study's objectives, the nature and extent of the survey questions, whereas the researcher of the current study also obtained the respondent's email address for further communications.

Next, the target 195 SMEs were sent an email that reiterated the study's background information and gave the URLs to both the English and Traditional Chinese versions of the online survey instrument. All invitation emails were sent out in the first week of May 2006, which also marked the beginning of the data collection process. In this regard, Figure 3.2 illustrates the industry sector and business nature of the invited 195 SMEs.

Figure 3.1 Values and shares of Hong Kong's imports and exports by principal commodity in 2005
(Adapted from TID of Hong Kong Government, 2005e; TID of Hong Kong Government, 2005f)

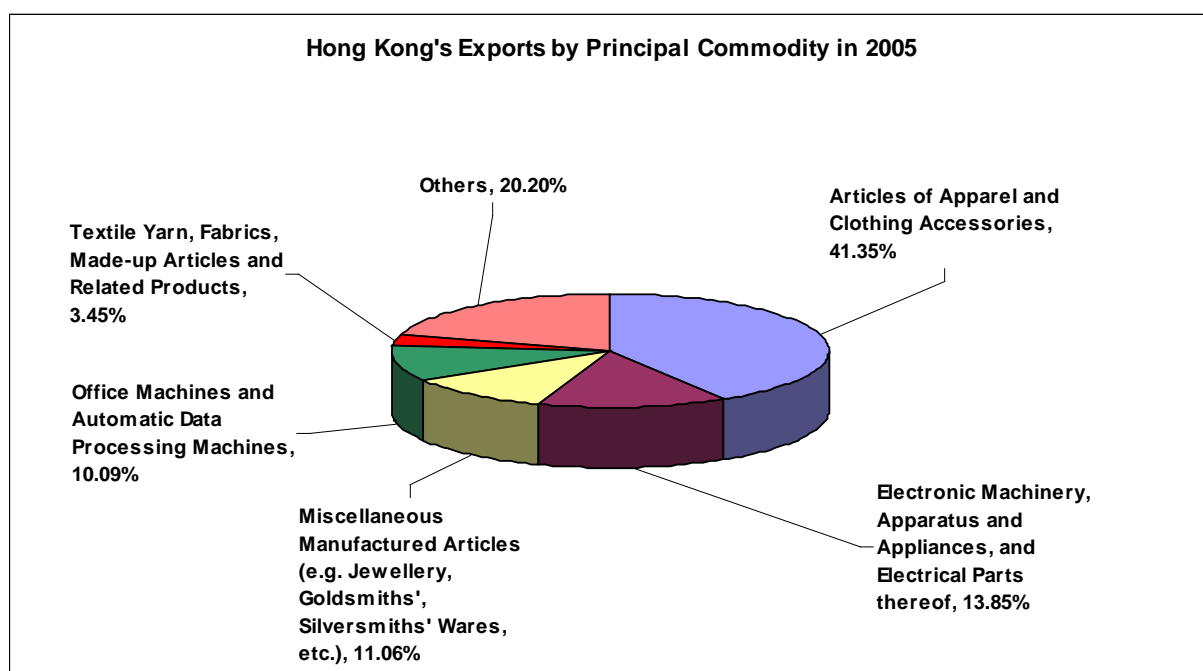
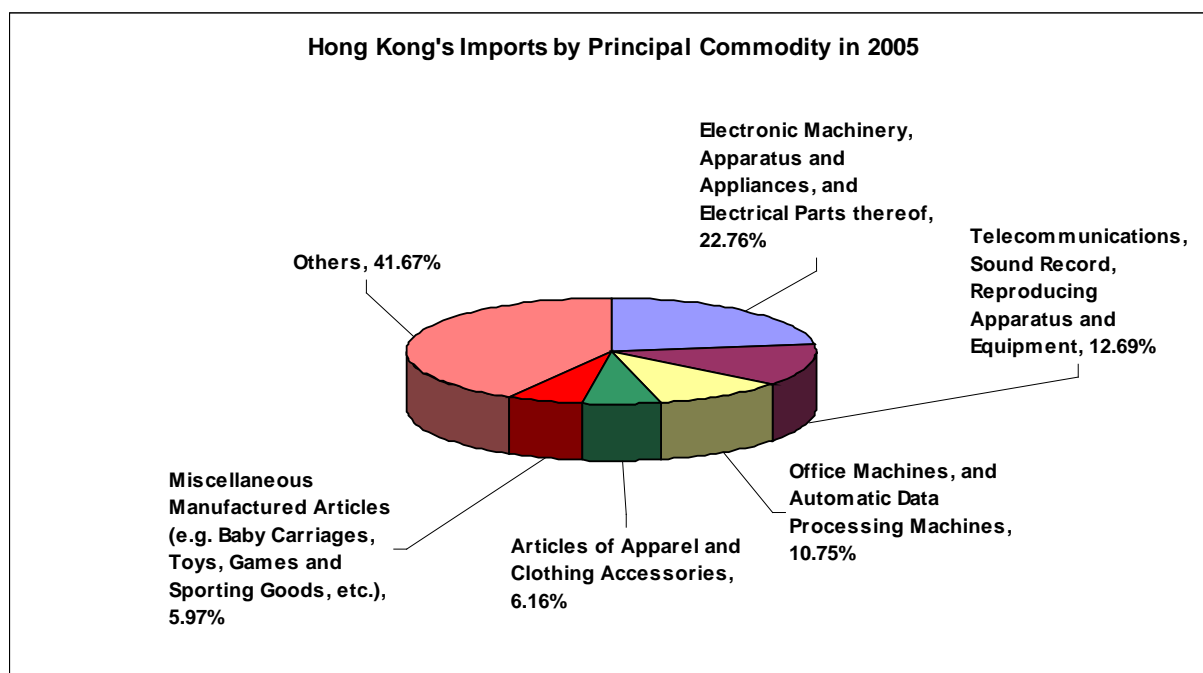
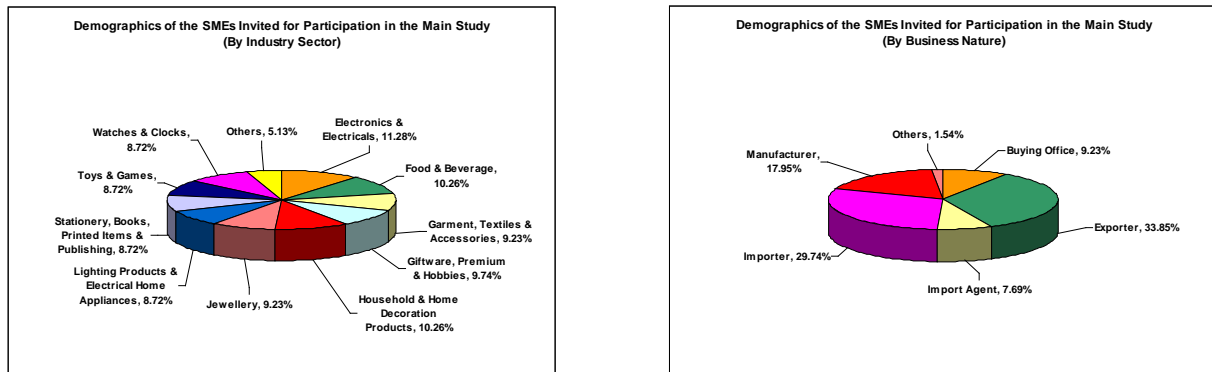


Figure 3.2 Industry sector and business nature of SMEs invited to participate in the main study

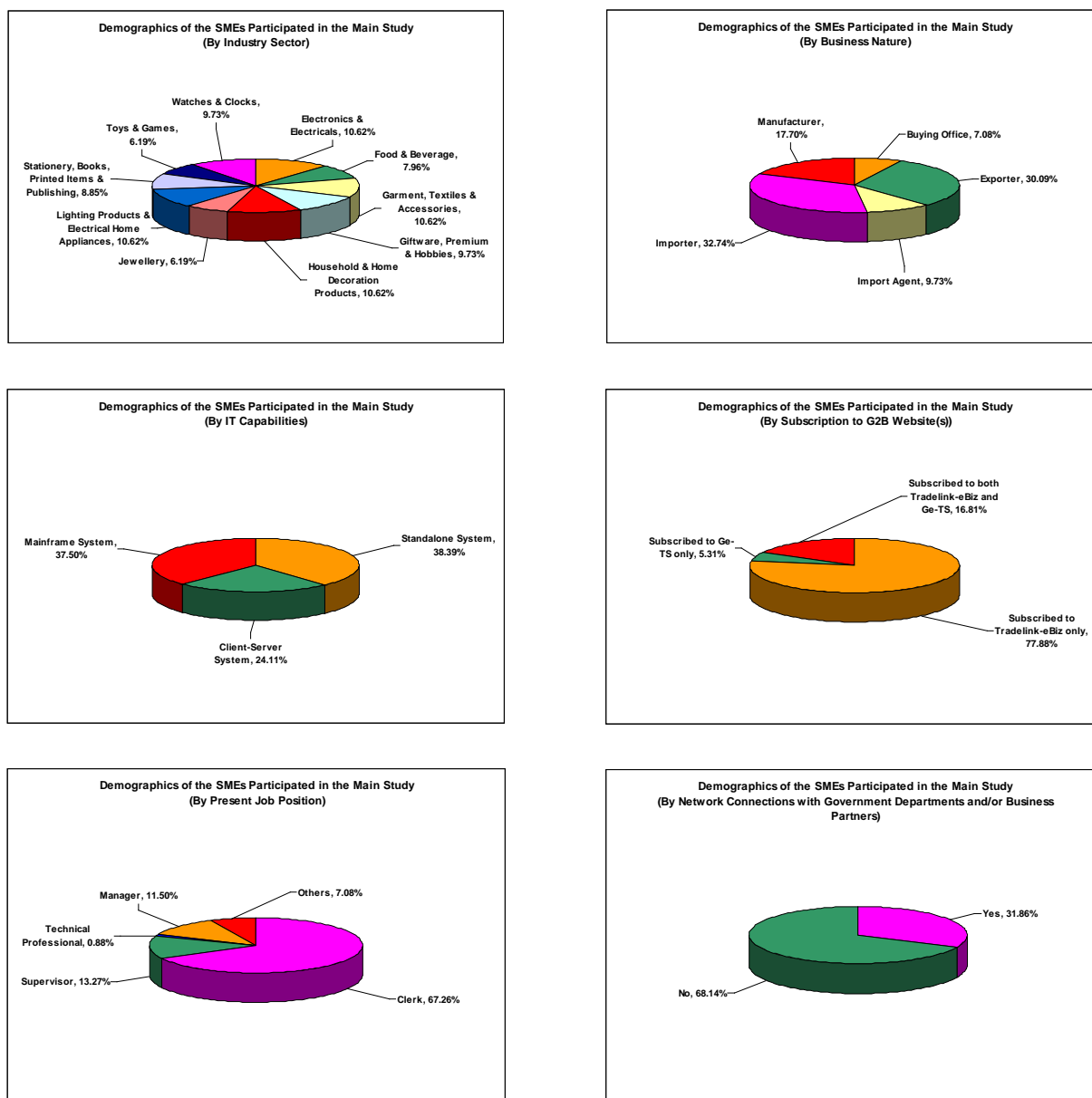


3.5.2 Data collection

The online survey website was hosted from May until August 2006 and data were collected during this time. Follow-up telephone calls or emails were sent to those respondents who had not returned their questionnaire within the data collection period, asking them to complete the survey.

123 SMEs responded to the survey, representing a 63% response rate, whilst also indicating that since individual telephone call(s) were made to each invited SME directly for getting their consensus on the participation in the main study as mentioned in Section 3.5.1, and therefore, the response rate was reliable and quite satisfactory. Of these, 113 of the responses were answered in full, and Figure 3.3 summarizes the demographic features of these 113 SMEs. As well as industry sector and nature of business, other demographic profile information was incorporated into the data analysis to control for any possible effects of particular company and individual differences. The figure shows that the majority of SMEs subscribed to Tradelink-eBiz, had a standalone computing system, did not have network connections with government departments and/or their business partners, and additionally, most respondents were employed as a clerk or shipping clerk.

Figure 3.3 Demographics of SMEs participating in the main study



3.5.3 Data analysis

The data were analyzed from different perspectives in order to cross-verify the findings, minimize the potential for any biases that might result from a single type of data analysis, and so ultimately gain greater insight into the nature of use of G2B electronic services by SMEs in the HKSAR. Five data analyses were conducted, including the (1) situation analysis, (2) EWAM analysis, (3) reliability analysis, (4) factor analysis, and (5) multiple regression analysis. The goal of the reliability, factor and multiple regressions analyses was to confirm the structure of the theoretical G2B success model in terms of construct reliability and validity, and to test the research hypotheses. The situation and EWAM analyses were expected to augment or support the findings of the other three data analyses. This section discusses the five data analysis techniques and related tasks actually carried out in the main study, whereas the interpretations of the current research findings based on the corresponding results are thoroughly discussed in Chapter 4.

3.5.3.1 Situation analysis

The data had been automatically verified and captured in a Microsoft Excel file, which were subsequently used to perform the situation analysis. The situation analysis examined various types of demographic profile data, and the information about the usage of and satisfaction with using the G2B electronic services. The situation analysis used the sorting, graphical and statistical functions of Microsoft Excel to rearrange, sort and present the original data in tabular and graphical formats.

3.5.3.2 EWAM analysis

The nature of the EWAM analysis was described in Chapter 2. The EWAM analysis for the main study addressed three comparisons:

- (1) Mean performance ratings of each G2B electronic service, or each sub-construct of the theoretical G2B success model at the level of company / G2B website profile.
- (2) Mean performance ratings of each category of G2B electronic services, or each main construct of the theoretical G2B success model at the levels of company / G2B website profile, and also, the trading sector profile / sector profile.

- (3) Mean importance rating versus the mean performance rating of each category of G2B electronic services, or each main construct of the theoretical G2B success model at the levels of company / G2B website and sector profile.

The aim of the EWAM analysis was to evaluate the current performance and strategic position of both *Tradelink-eBiz* and *Ge-TS*. Following the multiple regression analysis, the EWAM strategy evaluation results were reviewed to work with the multiple regression analysis results for determining whether the proposed strategy would specifically entail any further improvements on each main category of G2B electronic services under examination as discussed in Chapter 4. Again, the graphical and statistical functions of Microsoft Excel were employed in the EWAM analysis.

3.5.3.3 Reliability analysis

The reliability analysis was conducted to assess the construct reliability or internal consistency of the survey questions or items, or observed variables using Cronbach's alpha (Grandon and Pearson, 2004) for each main construct or concept of the theoretical G2B success model. If the survey questions were internally consistent and highly intercorrelated, then they would collectively form a scale that was reliable enough to measure a single concept or factor (Rodeghier, 2003), whereas the scale also served to be a reliable measurement of the concept in question (Zikmund, 1994). In this context, the words 'construct', 'concept', 'scale' and 'factor' are used interchangeably in the remaining chapters of this thesis. A Cronbach's alpha value of 0.7 or greater would give confidence in accepting the overall reliability of the theoretical research model being addressed.

The Cronbach's alpha of each main construct of the theoretical G2B success model was observed while conducting the reliability analysis. In achieving so, the SMEs' answers to each survey question, that is, the performance rating data of each G2B electronic service being evaluated, were analyzed using Statistical Package for the Social Sciences (SPSS) Base 14.0 for Windows. The performance rating data of the survey questions or items of each main construct were fed into the respective run of the reliability analysis. Thus the reliability analysis was run six times for the five main IVs and one DV involved and, consequently, six Cronbach's alpha values were generated to facilitate assessing the construct reliability of the theoretical research model.

3.5.3.4 Factor analysis

The factor analysis was conducted to assess the construct validity for each main construct or concept of the theoretical G2B success model. Factor analysis is designed to group survey questions or items, or observed variables that ask about a similar concept. The clustering of survey questions or items into a single concept or factor is based on either correlations or covariance between the survey questions or items involved. However, assessing the construct validity of the theoretical research model also required evaluating the convergent validity and discriminant validity of the intended measurements, thereby determining the accurate measurement of the concepts in question (Zikmund, 1994). In summary, factor analysis is a typical multivariate data analysis technique used to analyse the interdependence of sets of independent observed variables. Since factor analysis is able to group these observed variables together under a specific factor, and to give descriptive meaning accordingly (Zikmund, 1994), the method was primarily used in the current study to demonstrate the overall validity of the theoretical G2B success model, if appropriate.

The factor analysis was conducted in two steps, again using SPSS Base 14.0 for Windows with the use of the performance rating data of the survey questions or items of each main construct or IV. First, principal components analysis (PCA) was used for data reduction, achieved by extracting a small number of factors from the collected data. PCA was ideal because this extraction method can be used even when the responses to the items are highly correlated (Rimarcik, 2005). For the purposes of the current research, it was thus highly envisaged to have fewer factors in place for the revised research model eventually. Therefore, each successively extracted factor with eigenvalue or variance greater than one, and the last cumulative variance in all the observed variables accounted for by all the extracted factors, were carefully examined while conducting different runs of the factor analysis.

The second step involved rotating the principal components or factors using varimax rotation in order to facilitate the easy interpretation of the observed variables of each extracted factor (Rodeghier, 2003). Observed variables with a factor loading greater than or equal to 0.5 were accepted as strong enough to load on their intended factor rather than on others, thus achieving the convergent validity and discriminant validity of the intended measurements (Grandon and Pearson, 2004).

3.5.3.5 Multiple regression analysis

Finally, the multiple regression analysis was conducted to test the research hypotheses that had been generated from the theoretical concepts revealed in the literature review. Multiple

regression is a type of linear regression because it always manifests itself as having a linear relationship between the predictors, that is, the IVs and DV (Rodeghier, 2003), where multiple regression analysis is a typical multivariate data analysis technique used for analyzing the dependence of sets of independent and dependent observed variables (Zikmund, 1994).

Multiple regression analysis provides a number of benefits in correlation-oriented research, such as delivering tangible values in the prediction of the DV, and determining which predictor(s) have the most significant effects on the DV from the functional point of view (Rodeghier, 2003). Additionally, the benefits of assessing the magnitude and reliability of a multivariate relationship through examining (1) the coefficient of multiple determination (R^2) of the revised research model being addressed, (2) the coefficients of partial regression of the IVs under inspection, and (3) the collinearity of the IVs in question, from a statistical point of view are particularly relevant and useful to the current study.

The theoretical G2B success model required modification after completing the reliability and factor analyses as described in the preceding two sections, whilst also meaning that the research hypotheses were then tested after confirming the overall structure of the revised research model. In achieving so, the related performance rating data of the revised research model were then entered into SPSS Base 14.0 for Windows to run the multiple regression analysis.

3.6 Summary

The main investigations that were carried out in the current research were both descriptive- and correlation-oriented, through which SMEs' attitudes, behaviors and preferences about using G2B electronic services were determined or measured in an appropriate way. The analytical survey used in the current research was theory-grounded because it genuinely reflected the body of theories based on the literature, whilst also meaning that essential theoretical focuses were incorporated and hypothesized into the survey method itself and hence research design in order to facilitate carrying out the main investigations in the current research context. Accompanying with the use of the survey method concerned, it was thus expected to answer the research questions by determining whether there were any possible relationships among the variables, that is, IV and DV under examination.

The survey questions were refined wherever necessary after completing the pilot study, thereby removing any ambiguities, and enhancing the reliability and validity of the measurements to be made in the main study. For the main study, five data analyses, including the (1) situation analysis, (2) EWAM analysis, (3) reliability analysis, (4) factor analysis, and (5) multiple regression analysis were conducted to compile and interpret the current research findings.

Chapter 4 Results and Discussion

4.1 Introduction

This chapter presents the findings of the main study, discussing in turn the outcomes of the five different data analyses, including the (1) situation analysis in Section 4.2, (2) EWAM analysis in Section 4.3, (3) reliability analysis in Section 4.4, (4) factor analysis in Section 4.5, and (5) multiple regression analysis in Section 4.6. Finally, Section 4.7 summarizes the chapter.

Any responses of ‘Not Applicable’ to survey questions were excluded from the EWAM analysis. Such responses were initially allocated a value of zero in the reliability analysis, factor analysis and multiple regression analysis, which was then replaced by the series mean of the observed variable. The reason for this substitution was to minimize any possible inaccuracy in these three data analyses.

As described in Chapter 3, 113 SMEs gave appropriate answers to all survey questions. Of these, 88 SMEs evaluated only *Tradelink-eBiz*, 6 SMEs evaluated only *Ge-TS*, and 19 SMEs evaluated both *Tradelink-eBiz* and *Ge-TS*. The 19 SMEs who rated both G2B services were included twice in the data analyses, once for their evaluation of *Tradelink-eBiz* and once for *Ge-TS*. In this connection, the set of data collected from the respective group of respondents – the 107 respondents who subscribed to *Tradelink-eBiz* and the 25 respondents who subscribed to *Ge-TS*, were homogenous with slight differences in terms of the mean performance ratings of each G2B electronic service obtained and presented in Table 4.2. As a consequence, the reliability analysis, factor analysis and multiple regression analysis included 132 subjects altogether.

The main reason for doing so was to combine together all online survey responses in one single data analysis context even though some responses were provided specifically for each of the two G2B websites. Subject to testing the overall structure of the theoretical research model and the associated network of hypotheses in the most accurate way, it was necessary to employ all the captured and validated online survey responses because the primary purpose of carrying out the main investigations is to establish all the potential relations between the main IVs and DV involved irrespective of the specific G2B system context in which such kinds of relationships would be affirmed. This also means that the main focal point of the current study

should be placed to develop a viable and even generic G2B success model for application such that the same possible multivariate relationships would always be observed even in different G2B system contexts but designed with similar and comparable system functions, features as well as facilities.

4.2 Situation analysis results

The situation analysis results were generated from the answers to all questions in Section 1 and the last two questions of Section 2 of the online survey instrument. The number and percentage of the respondents who chose each answer option are presented in Table 4.1.

Table 4.1 Demographic features of the survey participants

Item	Survey Question		
	Answer Options	No. of Subjects (n)	No. of Subjects (%)
1	Years with present company		
	1–5 years	57	43
	6–10 years	38	29
	11–15 years	11	8
	16–20 years	5	4
	More than 20 years	1	1
	No response	16	12
	Total	132	100
2	Years of experience using Internet and/or information technologies (IT)		
	Less than 1 year	0	0
	1–5 years	53	40
	6–10 years	47	36
	11–15 years	7	5
	16–20 years	1	1
	More than 20 years	0	0
	No response	24	18
	Total	132	100
3	Present position*		
	Clerk	90	68
	Supervisor	16	12
	Technical Professional	1	1
	Manager	14	11
	Others	11	8
	Total	132	100
4	Business nature*		

Item	Survey Question		
	Answer Options	No. of Subjects (n)	No. of Subjects (%)
	Buying office	8	6
	Exporter	40	30
	Import agent	13	10
	Importer	44	33
	Manufacturer	22	17
	Others	5	4
	Total	132	100
5	Main products*		
	Electronics & Electricals	14	11
	Food & Beverage	9	7
	Garment, Textiles & Accessories	13	10
	Giftware, Premium & Hobbies	13	10
	Household & Home Decoration Products	15	11
	Jewellery	11	8
	Lighting Products & Electrical Home Appliances	13	10
	Stationery, Books, Printed Items & Publishing	18	14
	Toys & Games	9	7
	Watches & Clocks	12	9
	Others	5	4
	Total	132	100
6	Number of staff in Hong Kong*		
	1–20	101	77
	21–40	16	12
	41–60	7	5
	61–80	4	3
	81–100 staff	4	3
	Total	132	100
7	Target market*		
	PRC	34	26
	U.S.	23	17
	Europe	32	24
	Others	43	33
	Total	132	100
8	SME has computing equipment and system*		
	Yes	131	99
	No	1	1
	Total	132	100
9	Number of personal computers (PCs)		

Item	Survey Question		
	Answer Options	No. of Subjects (n)	No. of Subjects (%)
	None	1	1
	1–20	104	79
	21–40	17	13
	41–60	3	2
	61–80	7	5
	81–100 PCs	0	0
	Total	132	100
10	Category of computing equipment and system that SME is using		
	None	1	1
	Standalone System	48	36
	Client-Server System	31	23
	Mainframe System	52	39
	Total	132	100
11	SME has network connections with government departments and/or business partners[*]		
	Yes	43	33
	No	89	67
	Total	132	100
12	SME has a website[*]		
	Yes	95	72
	No	37	28
	Total	132	100
13	SME subscribes to <i>Tradelink-eBiz</i>[*]		
	Yes	107	81
	No	25	19
	Total	132	100
14	SME subscribes to <i>Ge-TS</i>[*]		
	Yes	25	19
	No	107	81
	Total	132	100

^{*} Compulsory question

Almost three-quarters (72%) of the respondents had worked for their present company for 1–10 years, and so they were likely to be familiar with the company’s trading business. Over three-quarters (76%) of the respondents had used IT for 1–10 years, and used it daily at work, so they were likely to be IT-savvy service consumers. Over two-thirds (68%) of the respondents were clerical staff, including shipping clerks, import and export document clerks, etc., and they were likely to be frequent users of the G2B electronic services being examined.

To this end, the current research realizes that they have engaged in day-to-day and full business life cycles such as submitting electronic applications pertaining to different types of trading documents including TDEC, DCP, shipping orders, cargo information, etc., which actually involve the use of most and different facets of functions and features of *Tradelink-eBiz* and/or *Ge-TS*. Within this wide spectrum of G2B electronic services being used, the clerical staff although being front-line staff, are therefore heavy users of the G2B websites being examined, whilst also demonstrating the suitability of these respondents to participate in the main study on behalf of their company.

Around one-third of the respondent companies were either exporters (30%) or importers (33%). 77% of the subject companies had 1–20 staff. The target market of the subject companies reflected the current trend of Hong Kong's trading industry, exhibiting similar proportions of companies engaged in trading business with the markets in PRC (26%), Europe (24%) and the U.S. (17%).

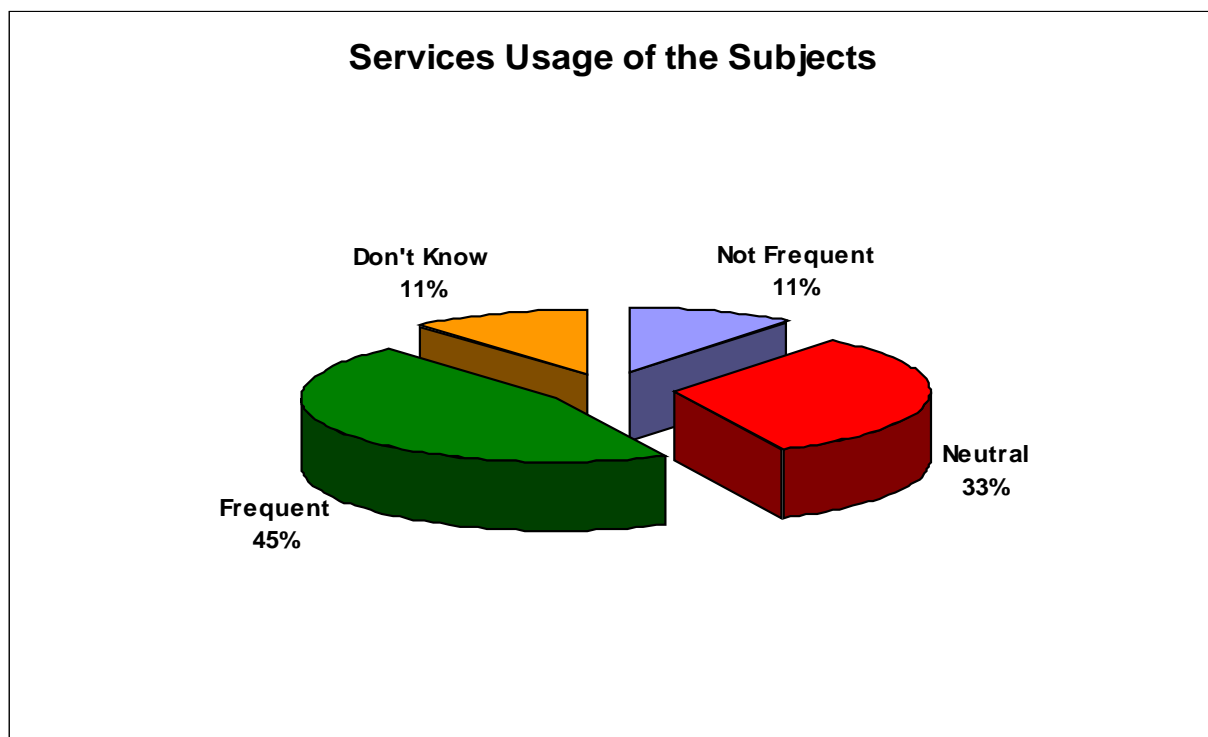
All but 1% of the respondent companies maintained their own computing equipment and system, with 79% of these companies operating 1–20 PCs. Over one-third of the subject companies operated either a standalone computing system (36%) or a mainframe (39%), and fewer operated a client-server system (23%). The result for mainframe system was unexpected, since it was considered unlikely that many SMEs in Hong Kong could afford the high maintenance costs of such a system. It is possible that the respondents misunderstood or misinterpreted the term 'Mainframe System' in the online survey. If this is the case, then it is suggested to add more narrative notes about the special wordings used in online survey instrument in future research.

Two-thirds (67%) of the respondent companies had no dedicated and direct network connections with government departments and/or business partners, indicating that most SMEs in Hong Kong maintained legacy systems only. The respondent companies with network connections (33%), which were probably existing subscribers to the electronic services of *Tradelink-eBiz*, had possibly installed special software packages onto their own computing platform to set up a dedicated and direct data communication channel for transferring the required data to *Tradelink-eBiz* in order to use the electronic services provided. Almost three-quarters (72%) of the respondent companies maintained their own website, which was used in most cases to present product information for advertising and marketing purposes. Finally, the electronic services of *Tradelink-eBiz* were used by 81% of

the respondent companies, whereas 19% subscribed to *Ge-TS*. The preference shown for *Tradelink-eBiz* could reflect the more recent entry of *Ge-TS* into the market as described in Chapter 1.

In addition to presenting a demographic profile of the respondent companies, the aim of the situation analysis was to identify the usage of and satisfaction with the electronic services offered by the two G2B websites. Figure 4.1 shows the respondents' usage of these services. The relevant survey question was 'Overall, considering the most recent experience in visiting the website, our company frequently uses the electronic services provided'. Those who answered 'fairly agree', 'agree' or 'strongly agree' are categorized in Figure 4.1 as frequent users. Those who answered 'fairly disagree', 'disagree' or 'strongly disagree' are termed 'not frequent' users in Figure 4.1. Those who provided a 'neutral' response are termed 'neutral' in the figure, and those who answered 'don't know' are defined as 'not applicable'.

Figure 4.1 Respondents' usage of G2B electronic services

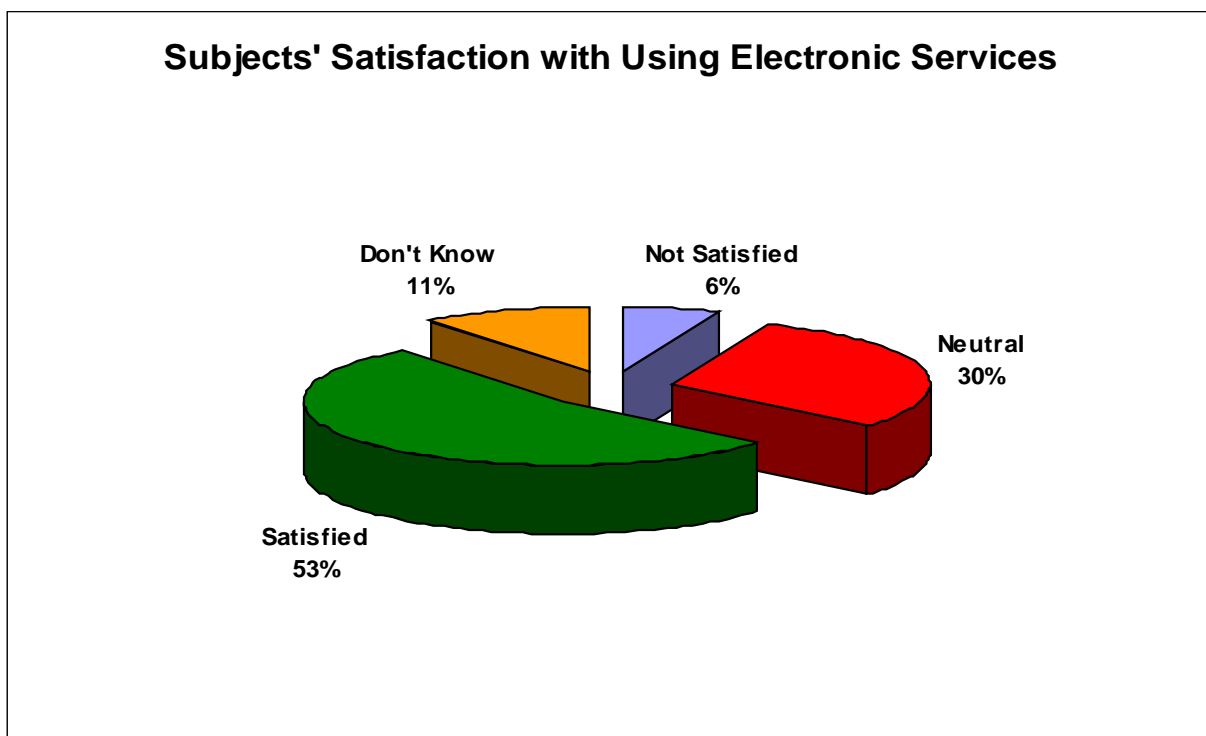


As shown in Figure 4.1, almost half (45%) of the respondents were frequent users of the two G2B systems. The respondents who were neither frequent nor infrequent users (33% who gave a 'neutral' response) probably reflected the substantial number of the survey participants, who indicated in the initial telephone conversations when they were invited to participate in the main study that they would use the G2B electronic services in question only

when they really needed to do so, such as to submit applications for import and/or export declarations or to fulfill other business needs.

The respondents' satisfaction with using *Tradelink-eBiz* and *Ge-TS* is presented in Figure 4.2. The survey question was 'Overall, considering the most recent experience in visiting the website, our company is satisfied with the electronic services provided'. A 'satisfied' respondent answered 'fairly agree', 'agree' or 'strongly agree'; a 'not satisfied' user answered 'fairly disagree', 'disagree' or 'strongly disagree'; 'neutral' and 'not applicable' ratings were similar to those counterparts defined in Figure 4.1.

Figure 4.2 Respondents' satisfaction with using G2B electronic services



Over half of the respondents (53%) were satisfied with the electronic services provided by the two G2B websites, whereas those subjects (30%) gave a 'neutral' response to the survey question in question. To this end, it was anticipated that the subsequent multiple regression analysis would help identify which aspects of the G2B electronic services concerned would contribute to the respondents' satisfaction, and these results are discussed below in Section 4.6.

4.3 EWAM analysis results

The main aim of the EWAM analysis was to evaluate the performance and strategic position of *Tradelink-eBiz* and *Ge-TS* in close adherence to what EWAM was originally designed to achieve, thereby compiling the current research findings together with the multiple regression analysis results. In achieving so, the EWAM analysis results are presented herein and preceding the multiple regression analysis results to portray the actual implementation in the two G2B system contexts, thus serving to delineate some background information and details about the two G2B systems for facilitating the discussions on the multiple regression analysis results in Section 4.6.

The respondents were divided into two groups for the EWAM analysis – the 107 respondents who subscribed to *Tradelink-eBiz* and the 25 respondents who subscribed to *Ge-TS*. This apportionment of the subjects involved virtually facilitated conducting the comparisons in Sections 4.3.1 – 4.3.2, and additionally, the strategy evaluation for each selected G2B website as well as the trading sector in Section 4.3.3 for the purposes of the current research.

The EWAM analysis contained three parts, including (1) comparison of the mean performance ratings of the electronic services provided by *Tradelink-eBiz* and *Ge-TS* as discussed in Section 4.3.1, (2) comparison of the mean performance ratings of the five categories of electronic services provided by the two G2B websites and the trading sector as discussed in Section 4.3.2, and (3) comparison of the mean importance ratings and mean performance ratings of the five categories of electronic services provided by the two G2B websites and the trading sector for the purpose of conducting the strategy evaluation as discussed in Section 4.3.3.

4.3.1 Comparison of electronic services provided by *Tradelink-eBiz* and *Ge-TS*

The first part of the EWAM analysis involved comparing the mean performance ratings of each G2B electronic service at the level of the company / G2B website as presented in Table 4.2. These G2B electronic services exhibited negligible or otherwise slight differences in the mean performance ratings. Since the latter results were obtained and in alignment with the actual user experiences on using the G2B electronic services concerned, the current research realizes that they should be examined and interpreted in a deeper context based on the observable functions, features and facilities of such G2B electronic services. Although having said this, the following discussions focus on the most saliently performed electronic services of *Tradelink-eBiz* and *Ge-TS*.

On the other hand, the current research also notices that the aforementioned mean performance ratings were quite clustered around the ‘neutral’ response. This might be attributed to placing the ‘neutral’ response in the central position of the seven-point Likert scale used in the online survey instrument. Associated with this concern, it could be discussed in the part related to research limitations in Chapter 5.

Table 4.2 Comparison of the mean performance ratings of each G2B electronic service for *Tradelink-eBiz* and *Ge-TS*

G2B Electronic Service (Website Functions and Features)	<i>Tradelink-eBiz</i>	<i>Ge-TS</i>
Business-centric Cluster Services (COMP01)	4.77	4.80
Business or Transaction Steps (COMP02)	5.19	4.72
Organization of Web Content (EOU01)	4.80	4.68
Quantity of Web Content (EOU02)	4.52	4.50
Guidance in Online Interactions (EOU03)	4.73	4.75
Selection of Routine Services (EOU04)	4.95	5.08
Online Business Support (EOU05)	4.62	4.54
Online Business Communities (EOU06)	4.31	4.04
User Interfaces (EOU07)	4.79	4.36
System Availability (EOU08)	5.20	4.63
System Performance (EOU09)	5.28	4.96
Quality of Web Content (USEF01)	4.79	4.44
Price Information (USEF02)	4.69	4.79
Value-added Services (USEF03)	4.24	4.50
Reuse of Data (USEF04)	4.91	4.78
Tracking of Transaction Status (USEF05)	5.12	4.87
Responses to Business Support (USEF06)	4.75	4.43
Business Relationships (USEF07)	4.49	4.32
Information Sharing (USEF08)	4.32	4.10
Productivity Gains (USEF09)	4.76	4.35
Costs (USEF10)	4.90	4.35
Customized Information (ADPT01)	4.32	4.59

G2B Electronic Service (Website Functions and Features)	<i>Tradelink-eBiz</i>	<i>Ge-TS</i>
Mediating Services (ADPT02)	4.72	4.57
Collaborations among Business Partners for Data Sharing (ADPT03)	4.77	4.52
Collaborations among Business Partners for Status Tracking (ADPT04)	4.43	4.26
Collaborations with the Service Consumers (ADPT05)	4.58	4.52
Selection of Business Contacts (ADPT06)	4.63	4.59
Trustworthy Business Partners (TRUST01)	5.16	5.00
Trusted Electronic Commerce Environment (TRUST02)	5.16	4.63
Services Usage (USESAT01)	4.56	4.65
Services Satisfaction (USESAT02)	4.81	4.70

As shown in Table 4.2, *Tradelink-eBiz* received higher mean performance ratings than *Ge-TS* for the following features as discussed in Section 4.3.1.1, including Business or Transaction Steps (COMP02), User Interfaces (EOU07), System Availability (EOU08), System Performance (EOU09), Quality of Web Content (USEF01), Responses to Business Support (USEF06), Productivity Gains (USEF09), Costs (USEF10) and Trusted Electronic Commerce Environment (TRUST02).

Ge-TS had higher mean performance ratings than *Tradelink-eBiz* for the following features as discussed in Section 4.3.1.2, including Business-centric Cluster Services (COMP01), Guidance in Online Interactions (EOU03), Selection of Routine Services (EOU04), Price Information (USEF02), Value-added Services (USEF03) and Customized Information (ADPT01).

4.3.1.1 Performance of *Tradelink-eBiz*

Business or Transaction Steps (COMP02): mean performance rating *Tradelink-eBiz* = 5.19; *Ge-TS* = 4.72

This feature allows customers to complete an electronic transaction with just a few simple steps. Both *Tradelink-eBiz* and *Ge-TS* provide such facilities. For example, with both systems the most recent electronically submitted TDEC data can be temporarily stored until resumption of service the following day, when the system will automatically transmit the stored data to the government departments or agencies involved (Tradelink, 2005; Ge-TS, 2011d). Similarly, the subscribed companies may submit Electronic Cargo Manifests

(EMAN) only once to *Tradelink-eBiz* or *Ge-TS*, which then transmits the “once-for-all” electronic document to the relevant government departments or agencies, including C&ED, C&SD and TID, for further processing (Tradelink, 2008; Ge-TS, 2011e).

Fierce competition between the two G2B systems in different aspects of service provision has led to their delivering near-equivalent electronic services. However, *Tradelink-eBiz* has excelled in streamlining the submission of various trade-related documents to the Government. Facilities such as receiving email alerts about error messages, reminders from the Government about electronically submitted trade-related documents, simple filing of electronic notifications under the Textiles Trader Registration Scheme (TTRS) and simple electronic applications for Certificate of Origin (CO) and Certificate of Hong Kong Processing from TID, which are essential for exporting textiles to Europe (Tradelink, 2005), all contributed towards a higher mean performance rating for *Tradelink-eBiz*, particularly from the publishing and textile industry sectors.

User Interfaces (EOU07): mean performance rating Tradelink-eBiz = 4.79; Ge-TS = 4.36

This feature involves simple website navigations and easy-to-understand web content. *Tradelink-eBiz* outperformed *Ge-TS* by deploying a clear, explicit and easy-to-use homepage, thus minimizing the navigations needed to reach particular web pages. In contrast, *Ge-TS* provides traditional drop-down and mouse-over menus to select options, which collectively are more time-consuming.

System Availability (EOU08): mean performance rating Tradelink-eBiz = 5.20; Ge-TS = 4.63

System availability refers, first, to whether the G2B website offers flexible or round-the-clock service hours. Both G2B systems offer identical service time from 7 am to 11 pm daily, and they have temporary data storage capabilities so that electronic trade-related documents can be submitted the following day (Tradelink, 2005; Ge-TS, 2011f).

System availability also refers to the available service locations. Ideally, multiple public service delivery channels should be offered for conducting electronic transactions. In this regard, both G2B websites also provide a paper-to-electronic conversion service that would collect paper-based trade-related documents from subscribers via pick-up, drop-in-box or a service counter, convert each received paper document into electronic format and then submit it to the designated government department or agency for processing. *Ge-TS* has 10 drop-in-

box and 59 service counter locations throughout Hong Kong (Ge-TS, 2011b; Ge-TS, 2011g), whereas *Tradelink-eBiz*'s conversion service comprises only 21 locations for collecting paper documents (Tradelink-eBiz, 2011c). However, despite the difference in number of collection points, *Tradelink-eBiz* performed better for this feature than *Ge-TS*. This unexpected finding could be a result of *Ge-TS*'s sub-standard service performance, which could be investigated as discussed in the part related to research limitations in Chapter 5.

System Performance (EOU09): mean performance rating Tradelink-eBiz = 5.28; Ge-TS = 4.96

The assessment investigated the time taken to load web pages and electronic documents, and update electronic transaction status, etc. *Tradelink-eBiz*'s system performance scored higher than *Ge-TS*'s, possibly because *Tradelink-eBiz* has developed and deployed a scalable and reliable system architecture (CCGO of Hong Kong Government, 2006) for both hardware and software platforms, which seems to appeal to users more than *Ge-TS*'s multi-tier system architecture and multi-thread processing (Ge-TS, 2011f).

Quality of Web Content (USEF01): mean performance rating Tradelink-eBiz = 4.79; Ge-TS = 4.44

This assessment evaluated whether the two G2B systems provide updated and complete web content that should generally meet the information needs of the subscribed companies. Again, *Tradelink-eBiz* performed better than *Ge-TS*. *Tradelink-eBiz* provides its customers a suite of online information services, such as "eBiz-Highlights", "eBiz Pulse", "e-Post" and "eBiz Magazine" (Tradelink-eBiz, 2011b). These services provide customers with accessible, comprehensive, timely and accurate information about tangible aspects of their trading business. In contrast, *Ge-TS* provides only limited trade-related information through links to other websites (Ge-TS, 2011h), whilst not putting and synthesizing the information concerned into the actual trading business context for practical uses by businesses.

Responses to Business Support (USEF06): mean performance rating Tradelink-eBiz = 4.75; Ge-TS = 4.43

This feature refers to system capabilities that provide business support with fast response times and online help facilities. Again, the performance of *Tradelink-eBiz* was better than that of *Ge-TS*. This result was unexpected, because *Ge-TS* provides diverse and proactive business support services such as dedicated customer and technical support, specialist advice on existing business processes and the use of system functions (Ge-TS, 2011i). Probable reasons

for the observed low performance of these business support services would be captured as discussed in the part related to research limitations in Chapter 5.

Productivity Gains (USEF09): mean performance rating Tradelink-eBiz = 4.76; Ge-TS = 4.35

Dealing with the government-related trading business is complicated, and G2B systems that can bridge gaps between businesses' existing operational processes or mesh with businesses' legacy IT capabilities will create tangible benefits for service consumers in a general sense. Both G2B websites have therefore invested in appropriate computerization. They cover the spectrum of electronic services required along the processing chain of different types of trade-related documents. Such services include checking electronic transaction and billing statement statuses, providing paper-to-electronic conversion services, offering customized and instantaneous support to serve urgent or immediate requests for customer services or solving technical problems encountered, and delivering a range of value-added services for processing different types of electronically submitted trading documents.

Despite similar efforts spent in this regard by both G2B systems, *Tradelink-eBiz* performed better than *Ge-TS* in increasing businesses' overall productivity in terms of more electronic submissions of trade-related documents and shorter processing time. A possible reason for *Tradelink-eBiz*'s higher performance is that it has dynamically and aggressively changed its business model and implemented the corresponding system enhancements in recent years. To increase businesses' overall productivity, *Tradelink-eBiz* has launched "Integration Services" that seamlessly integrate with its subscribers' in-house application systems and into which previously submitted data are automatically fed, thus reducing repetitive data entry efforts on the subscriber side. It has also introduced a suite of mediating services by providing subscribers special software packages that are built with a range of mainstream database and functional capabilities, and also, bilingual (English and Traditional Chinese) facilities for the electronic submission of trade-related documents (Tradelink, 2005), thereby adapting to their respective existing IT capabilities and operations as far as practicable. Examples of such special software packages include "ValuNet Deluxe", "WebForm", "LogiNet" and "TradeConsole" (Tradelink-eBiz, 2011d).

Costs (USEF10): mean performance rating Tradelink-eBiz = 4.90; Ge-TS = 4.35

The respondents rated *Tradelink-eBiz* higher than *Ge-TS* in terms of the overall cost. *Ge-TS* does not charge initial registration or annual subscription fees, while *Tradelink-eBiz* does.

However, *Ge-TS*'s ongoing service fees are higher than those of *Tradelink-eBiz*. In addition, *Tradelink-eBiz* periodically promotes seasonal discounts and special discounts for the bulk submission of electronic trading documents.

It is likely that the respondents' perception of cost savings depends on the pricing scheme of the two G2B websites. In practice, however, any savings would also include savings in SME staff costs gained from automatic transmission of data of previously submitted electronic trading documents. Using the "Integration Services" of *Tradelink-eBiz* is an example of how costs could be reduced in this way.

***Trusted Electronic Commerce Environment (TRUST02): mean performance rating
Tradelink-eBiz = 5.16; Ge-TS = 4.63***

This feature refers to system capabilities that include security measures and hence create a trusted G2B environment. For the online security services concerned, both G2B websites adopt the prevalent Public Key Infrastructure (PKI)-based digital signature solutions to assure the integrity or non-repudiation of electronic transactions in compliance with the ETO.

However, *Tradelink-eBiz* rated higher than *Ge-TS* in this aspect of service provision probably because of the development of other additional security measures and mechanisms. For example, *Tradelink-eBiz* is deployed with "Computer Security Services" that deliver round-the-clock application and network monitoring and security services (Tradelink-eBiz, 2006). After all, *Tradelink-eBiz* does charge rather high extra fees for the provision of security services in question.

Tradelink-eBiz also deals proactively with privacy issues by complying with the Personal Data (Privacy) Ordinance (PDPO) of Hong Kong. While *Tradelink-eBiz* clearly stipulates its privacy policy in terms of the storage, access, use, correction and protection of all personal data collected, *Ge-TS* does not clearly reveal such stipulations and practices.

4.3.1.2 Performance of Ge-TS

Business-centric Cluster Services (COMP01): mean performance rating Tradelink-eBiz = 4.77; Ge-TS = 4.80

Ge-TS performed slightly better than *Tradelink-eBiz* in terms of offering groups of related government and commercial services according to the trading business life events. A possible explanation for this unexpected result is the consolidated user interface provided for the

electronic submission of each type of trade-related document. For example, *Ge-TS* clusters related system function links into a single user interface for facilitating the electronic submission of TDEC, including preparing and submitting electronic TDEC, communicating with the relevant government departments or agencies, checking the status and printing reports related to the electronic submission, and printing a bar-coded fax cover for the submission of other supporting documents (Ge-TS, 2011d).

Tradelink-eBiz has responded aggressively by joining with its strategic partners such as Alibaba, government departments or agencies like C&ED, C&SD and TID, and the Government-endorsed community-wide information infrastructure platform Digital Trade and Transportation Network (DTTN) (HK-DTTN, 2006), thereby enriching its overall comprehensibility. In this way *Tradelink-eBiz* has become a well-established G2B website with enhanced and reliable system capabilities in terms of network, application and data architectures for providing business-centric cluster services and facilitating seamless system integrations among the parties involved.

Guidance in Online Interactions (EOU03): mean performance rating Tradelink-eBiz = 4.73; Ge-TS = 4.75

This feature refers to the provision of clear online instructions, terms and conditions for using the G2B electronic services provided. The respondents rated *Ge-TS* higher than *Tradelink-eBiz*. *Ge-TS* provides its customers the terms and conditions specific to each type of electronic services on the corresponding web page. In contrast, *Tradelink-eBiz* merely provides questions and tips in the form of static service guides to help its customers whenever they encounter problems.

Selection of Routine Services (EOU04): mean performance rating Tradelink-eBiz = 4.95; Ge-TS = 5.08

Both G2B systems offer multiple channels for submitting trade-related documents or fulfilling payments. However, *Ge-TS* obtained a higher mean performance rating, possibly because *Tradelink-eBiz* imposes extra service charges for non-electronic payments.

Price Information (USEF02): mean performance rating Tradelink-eBiz = 4.69; Ge-TS = 4.79

Both G2B systems display clear and updated details of their prices on web pages. However, *Ge-TS* was rated slightly higher by the survey participants, possibly because *Tradelink-eBiz*'s

pricing structure is more complex and the G2B website therefore adds more footnotes, special terms and conditions to the pricing information of each type of its electronic services.

Value-added Services (USEF03): mean performance rating Tradelink-eBiz = 4.24; Ge-TS = 4.50

This feature consists of the system's capability for providing other useful electronic services. *Ge-TS* appears to deliver more value-added services than *Tradelink-eBiz*. Examples include "e-Tendering", "e-Procurement", "e-Quotation", "TDEC Calculator", "Biz-Schedule" and "Web Hosting", which all supplement and reinforce the overall value creation of the *Ge-TS* business model. *Tradelink-eBiz* has similar system capabilities, but it has endeavoured to deliver large-scale auxiliary electronic services instead, such as "Operations Training on Special Software" and "Executive Training Program", the benefits of which would not be easily realized by front-line operational staff in their day-to-day work.

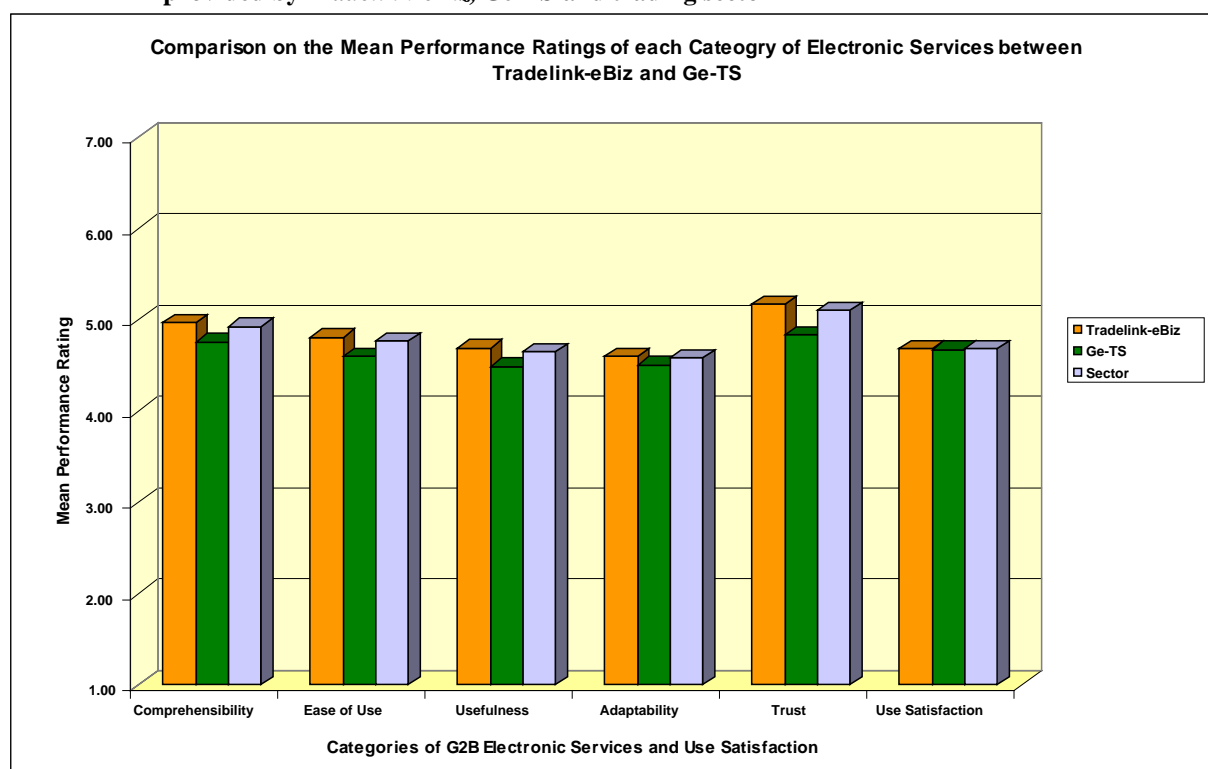
Customized Information (ADPT01): mean performance rating Tradelink-eBiz = 4.32; Ge-TS = 4.59

This feature is concerned with the G2B system's ability to provide customized information to its subscribers based on their previously submitted individual business profile. Surprisingly, *Ge-TS* outperformed *Tradelink-eBiz*, yet *Ge-TS* provides less information. The main reason for this result probably stems from *Tradelink-eBiz*'s long establishment in the dedicated trading industry; its comprehensive range of information from diverse sources – commercial advertisements, latest news, training materials, strategic alliances and partnerships – could be viewed by subscribers as information overload, despite such a wealth of information ensuring high-quality web content.

4.3.2 Comparison of each category of electronic services provided by *Tradelink-eBiz*, *Ge-TS* and the trading sector

The second part of the EWAM analysis involved comparing the mean performance ratings of each category of electronic services and the overall use satisfaction at the levels of company / G2B website, and also, the trading sector / sector profile that comprises both *Tradelink-eBiz* and *Ge-TS* evaluated in the current study. The results obtained for the trading sector, in particular, are also presented in this section, thus serving to allow for the relative or benchmark comparison on the mean performance ratings of each category of G2B electronic services, and additionally, the overall use satisfaction between each of the two G2B websites and the trading sector. The results are shown in Figure 4.3.

Figure 4.3 Comparison of the mean performance ratings of each category of G2B electronic services provided by *Tradelink-eBiz*, *Ge-TS* and trading sector



Ratings for each category of electronic services provided by *Tradelink-eBiz* and *Ge-TS* indicate moderate differences between the two G2B websites. Indeed, both *Tradelink-eBiz* and *Ge-TS* have been pursuing new electronic services to develop their own niches and broaden their share of the dedicated G2B electronic market. *Ge-TS*, in particular, has been a new appointee of GETS, is proving a strong competitor to *Tradelink-eBiz* in the same import and export trading service domain, even though at the time of the current study *Tradelink-eBiz* is managing to hold its own and still provides superior performances in most aspects of service provision. The following discussion about the five service aspects of both G2B systems is given based on Sections 4.3.1.1 – 4.3.1.2.

Tradelink-eBiz achieved a higher mean performance rating than *Ge-TS* in the service aspect of Comprehensibility (COMP) [*Tradelink-eBiz* = 4.97; *Ge-TS* = 4.76]. This result was obtained by *Tradelink-eBiz*'s higher mean performance rating in Business or Transaction Steps (COMP02), although *Ge-TS* had a negligible higher mean performance rating in Business-centric Cluster Services (COMP01).

Tradelink-eBiz performed better than *Ge-TS* in the service aspect of Ease of Use (EOU) [*Tradelink-eBiz* = 4.81; *Ge-TS* = 4.60], probably because *Tradelink-eBiz* achieved

significantly higher performance than *Ge-TS* in the assessment items related to User Interfaces (EOU07), System Availability (EOU08) and System Performance (EOU09), whilst falling marginally behind *Ge-TS* in relation to Guidance in Online Interactions (EOU03) and Selection of Routine Services (EOU04).

In the service aspect of Usefulness (USEF) [*Tradelink-eBiz* = 4.69; *Ge-TS* = 4.49], *Tradelink-eBiz* still appealed more to its customers in terms of Quality of Web Content (USEF01), Responses to Business Support (USEF06), Productivity Gains (USEF09) and Costs (USEF10), while *Ge-TS* gained higher mean performance ratings in the assessment items related to Price Information (USEF02) and Value-added Services (USEF03).

In the service aspect of Adaptability (ADPT) [*Tradelink-eBiz* = 4.60; *Ge-TS* = 4.51], *Tradelink-eBiz* performed better than *Ge-TS* in terms of Mediating Services (ADPT02) and Collaborations with the Service Consumers (ADPT05). *Ge-TS* obtained a higher mean performance rating in the assessment item related to Customized Information (ADPT01).

Tradelink-eBiz achieved a higher mean performance rating than *Ge-TS* in the service aspect of Trust (TRUST) [*Tradelink-eBiz* = 5.17; *Ge-TS* = 4.83] as it was rated much higher in terms of Trusted Electronic Commerce Environment (TRUST02), and slightly higher in Trustworthy Business Partners (TRUST01).

Finally, the overall use satisfaction was measured by Use Satisfaction (USESAT) [*Tradelink-eBiz* = 4.68; *Ge-TS* = 4.67]. *Ge-TS* obtained a higher mean performance rating than *Tradelink-eBiz* for services usage, that is, Services Usage (USESAT01) [*Tradelink-eBiz* = 4.56; *Ge-TS* = 4.65], whereas *Tradelink-eBiz* rated higher than *Ge-TS* with regard to satisfaction with using the electronic services provided, that is, Services Satisfaction (USESAT02) [*Tradelink-eBiz* = 4.81; *Ge-TS* = 4.70]. These results demonstrated moderate differences between the two G2B systems. This outcome is not surprising; both G2B websites were appointed sequentially by the Government as service providers of GETS, and they have been intensely competitive to implement their own distinctive system functions, features and facilities to meet customers' specific business needs, whilst also delivering similar electronic services having quickly referenced each other's business model.

The above findings notwithstanding, the survey participants appeared more likely to use the electronic services of *Ge-TS*. Despite *Tradelink-eBiz* having a strong reputation as a long-

established G2B platform with more powerful and sophisticated system functions and features than *Ge-TS*, the overall use satisfaction with *Tradelink-eBiz* was only moderately higher than with *Ge-TS*. It is likely that the pricing scheme could eventually differentiate between the two G2B websites, or lead to a decrease in the overall use satisfaction. In particular, *Tradelink-eBiz*'s pricing scheme is formulated towards incremental pricing, involving extra service fees for accessing and using each subscribed electronic service. The underlying reasons would be collected as discussed in the part related to research limitations in Chapter 5.

4.3.3 Strategy evaluation of each category of electronic services of *Tradelink-eBiz*, *Ge-TS* and the trading sector

The third part of the EWAM analysis involved comparing the mean importance ratings and mean performance ratings of each category of electronic services at the levels of company / G2B website, and also, the trading sector / sector profile that comprises both *Tradelink-eBiz* and *Ge-TS* evaluated in the current study. The main purpose of performing the strategy evaluation of the two G2B websites was to follow the basic tenets of EWAM to evaluate the business strategies respectively on the one hand, and more importantly, to compile the current research findings together with the multiple regression analysis results. In addition, the likewise strategy evaluation was also conducted for the trading sector, serving to facilitate the relative or benchmark comparison of the business strategies concerned between each of the two G2B websites and the trading sector. The results of the strategy evaluations are summarized in Table 4.3, and shown graphically in Figure 4.4 for the two G2B websites, Figure 4.5 for the trading sector.

Table 4.3 Strategy evaluation of each category of G2B electronic services provided by *Tradelink-eBiz*, *Ge-TS* and the trading sector

	<i>Tradelink-eBiz</i>		<i>Ge-TS</i>		Sector	
Category of G2B Electronic Services	Mean Importance Rating	Mean Performance Rating	Mean Importance Rating	Mean Performance Rating	Mean Importance Rating	Mean Performance Rating
Comprehensibility (COMP)	5.19	4.97	5.18	4.76	5.19	4.93
Ease of Use (EOU)	5.01	4.81	4.98	4.60	5.01	4.77
Usefulness (USEF)	4.94	4.69	5.03	4.49	4.96	4.65
Adaptability (ADPT)	4.91	4.60	5.03	4.51	4.94	4.58
Trust (TRUST)	5.47	5.17	5.28	4.83	5.43	5.10

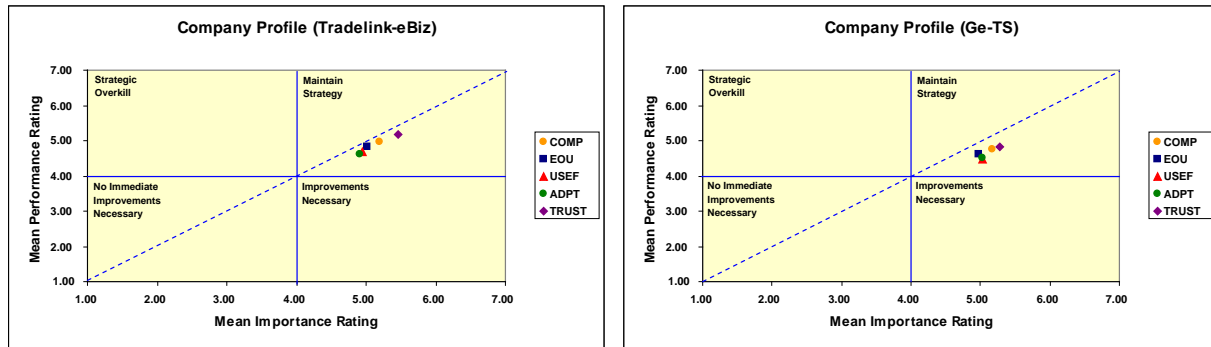
Figure 4.4 presents two-dimensional representations of (1) the mean importance rating of each category of electronic services of (a) *Tradelink-eBiz* and (b) *Ge-TS* along the x-axis, and (2) the mean performance rating of each category of electronic services along the y-axis. Figure 4.5 presents the trading sector in two-dimensional view, showing (1) the mean importance ratings of each category of electronic services of both *Tradelink-eBiz* and *Ge-TS* on the x-axis, and (2) the mean performance ratings of each category of electronic services for the two companies on the y-axis.

Based on the central tenets of EWAM, the strategy evaluations revolved around four types of recommendations for business strategies, including (1) “Strategic Overkill”, which refers to good performance achieved in a rather unimportant category of electronic services (upper left zone), (2) “Maintain Strategy”, which refers to good performance achieved in a rather important category of electronic services (upper right zone), (3) “No Immediate Improvements Necessary”, which refers to poor performance achieved in a rather unimportant category of electronic services (lower left zone), and (4) “Improvements Necessary”, which refers to poor performance achieved in a rather important category of electronic services (lower right zone) (Kurnia and Schubert, 2004). In EWAM, each of these four types of recommendations occupies a profile zone once the mean importance ratings and mean performance ratings of each category of G2B electronic services have been compared. The single diagonal line across the profile zones indicates the line on or above which it is desirable to have all points representing the categories of G2B electronic services. Having all points on or above this line is the ideal strategy evaluation result, meaning that the user expectations of importance match the actual user assessment of performance with regard to a particular category of G2B electronic services.

4.3.3.1 Strategy evaluation of *Tradelink-eBiz* and *Ge-TS*

As shown in Figure 4.4(a), user expectations for *Tradelink-eBiz* were fairly high along the five dimensions of service provision. In addition, the performance achieved in each category of electronic services nearly fulfilled the corresponding user expectations as indicated by all points that were not very far below the diagonal line. Of all the electronic services offered by *Tradelink-eBiz*, the points demonstrate that the G2B website had a higher performance than *Ge-TS* in all the service aspects of Comprehensibility (COMP), Ease of Use (EOU), Usefulness (USEF), Adaptability (ADPT) and Trust (TRUST).

Figure 4.4 Strategy evaluation of each category of G2B electronic services provided by *Tradelink-eBiz* (a) and *Ge-TS* (b)



All points representing categories of *Tradelink-eBiz*'s electronic services fell into the “Maintain Strategy” zone in Figure 4.4(a). However, the recommendation for the G2B website's business strategy is possibly to pursue the range of system enhancements deemed necessary in each electronic service area on an ongoing basis. With respect to these system enhancements as discussed in Section 4.3.1.2, the efficient electronic services of *Ge-TS* are likely to reveal the corresponding weaknesses of *Tradelink-eBiz*, which in turn will trigger further improvements. In addition to these improvements, *Tradelink-eBiz* is likely to focus on improving those electronic services with the lowest mean performance ratings, including Online Business Communities (EOU06), Business Relationships (USEF07), Information Sharing (USEF08) and Collaborations among Business Partners for Status Checking (ADPT04).

Figure 4.4(b) shows that users also had fairly high expectations in each main category of electronic services provided by *Ge-TS*, but the performance did not quite meet users' expectations. To this end, all points shown in the figure representing categories of electronic services of *Ge-TS* were further away from the diagonal line. In addition, the points were lower than those of *Tradelink-eBiz*, indicating that *Ge-TS* had a lower performance in all five service aspects (Comprehensibility (COMP), Ease of Use (EOU), Usefulness (USEF), Adaptability (ADPT) and Trust (TRUST)).

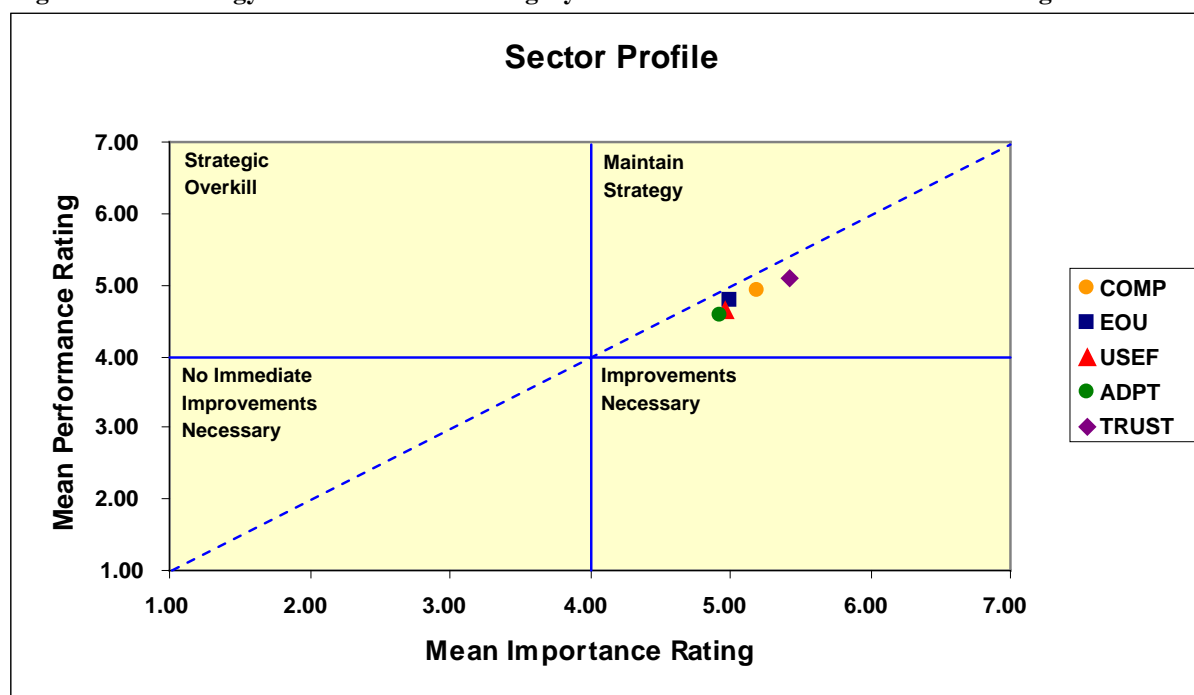
Points representing all the service aspects for *Ge-TS* in Figure 4.4(b) were situated in the “Maintain Strategy” zone. However, the recommendation for *Ge-TS*'s business strategy is also that it adopts the range of system enhancements needed to accomplish in each service aspect on a continuous basis. As discussed in Section 4.3.1.1, those electronic services of *Tradelink-eBiz* that performed well are likely to entail significant improvements in the corresponding electronic service area of *Ge-TS*. *Ge-TS* is also likely to undertake

improvements in those electronic services with the lowest mean performance ratings, including Online Business Communities (EOU06), Business Relationships (USEF07), Information Sharing (USEF08) and Collaborations among Business Partners for Status Checking (ADPT04).

4.3.3.2 Strategy evaluation of the trading sector

Overall, users had fairly high expectations of the electronic services offered by both *Tradelink-eBiz* and *Ge-TS*, and these user expectations were generally matched by rather satisfactory performances achieved in all five categories of electronic services. Figure 4.5 plots the results for the strategy evaluation of the trading sector. In the figure, all points representing categories of electronic services of the two G2B websites fall into the “Maintain Strategy” zone, and none were far from the diagonal line. But as shown in Table 4.3, users had moderately high expectations in terms of importance for two of the service aspects, but the corresponding performance was not reasonably good. For these two service aspects, Usefulness (USEF) and Adaptability (ADPT), the two G2B websites still have rooms for improvement in the broadest sense.

Figure 4.5 Strategy evaluation of each category of G2B electronic services for the trading sector



However, while further examining the results to a more narrow extent, four of the electronic services of both *Tradelink-eBiz* and *Ge-TS* had lower user expectations and unsatisfactory performances, including Online Business Communities (EOU06), Business Relationships

(USEF07), Information Sharing (USEF08) and Collaborations among Business Partners for Status Checking (ADPT04).

Two of these electronic services received a low mean rating for importance, including Online Business Communities (EOU06) [*Tradelink-eBiz* = 4.28; *Ge-TS* = 4.29], which assessed ease of sharing common interests or business knowledge online, and Information Sharing (USEF08) [*Tradelink-eBiz* = 4.27; *Ge-TS* = 4.52], which evaluated the system capabilities of providing online community members updated information on business knowledge and practices. These two areas of service provision also received a low mean rating for performance, including Online Business Communities (EOU06) [*Tradelink-eBiz* = 4.31; *Ge-TS* = 4.04], and Information Sharing (USEF08) [*Tradelink-eBiz* = 4.32; *Ge-TS* = 4.10]. Since users place little importance on these electronic services, in particular, no immediate improvements are necessary to increase performance. As noted by Kurnia and Schubert (2004), the lower the importance rating given to an assessment criterion, the smaller the impact of that criterion would be on any significant improvements to the electronic service in question. This observation can be found from the fact that both G2B websites have just been developed with the following alternative or limited system capabilities, which merely offer substitutions for simulating or replacing the functionality of online communities instead:

- (1) *Tradelink-eBiz* just offers “Advertise with Us” and “BizCentral”, which facilitate the subscribed companies advertising on both the G2B website itself as well as paper-based quarterly magazines (*Tradelink-eBiz*, 2011e), and also, the dedicated China-based B2B information portal, namely, China International Electronic Commerce Center (CIECC) respectively (*Tradelink-eBiz*, 2011f).
- (2) *Ge-TS* offers “Supplier Reference Services” jointly with the HKTDC, which furnish the substantial exposures of *Ge-TS*’s subscribers on the HKTDC’s Internet-based sourcing platform if they want to subscribe to use the specific services (*Ge-TS*, 2011j), and “e-Jetso Club Newspaper” together with “e-Jetso Club”, which indeed is a small online community established to provide the static information in relation to giving special bonuses and coupons to the community members only (*Ge-TS*, 2011k).

For the other two electronic services, they received a fairly high mean rating for importance, including Business Relationships (USEF07) [*Tradelink-eBiz* = 4.54; *Ge-TS* = 4.75], which assessed the system capabilities of providing online community members good and sufficient

connection links to help create business relationships and opportunities, and Collaborations among Business Partners for Status Checking (ADPT04) [*Tradelink-eBiz* = 4.96; *Ge-TS* = 4.96], which evaluated the system capabilities developed to allow the subscribed companies checking the status without doing separate logons to the websites of the authorities or parties involved in jointly processing a single submitted electronic application. A low mean rating for performance was likewise received in these two areas of service provision, including Business Relationships (USEF07) [*Tradelink-eBiz* = 4.49; *Ge-TS* = 4.32], and Collaborations among Business Partners for Status Checking (ADPT04) [*Tradelink-eBiz* = 4.43; *Ge-TS* = 4.26].

It was already mentioned earlier that both *Tradelink-eBiz* and *Ge-TS* do not necessarily provide significant impetus to deploying essential functions, features and facilities of online communities. Although having said this, both G2B websites should still be developed to facilitate creating business relationships and opportunities among online community members at the bottom line, thereby fulfilling the user expectations pertaining to Business Relationships (USEF07) mentioned in the preceding paragraph.

For the later assessment related to Collaborations among Business Partners for Status Checking (ADPT04), *Tradelink-eBiz*'s "e-Connect" and "Transaction Status Check" offer minimal integrated electronic services using a consolidated user interface in collaboration with the websites of affiliated partners including carriers, travel agencies, etc. in order to facilitate the booking of cargo, checking of various electronic transaction statuses, air, rail and shipment schedules, etc. Although different websites are involved, no separate logon to each of them is required in order to facilitate easy status checking (*Tradelink-eBiz*, 2011g). However, *Ge-TS* does not provide such equivalent integrated electronic services at time of conducting the current study. Consequently, this assessment virtually reflects the needs to undertake immediate improvements in both *Tradelink-eBiz* and *Ge-TS* because of such fairly strong perceptions of the importance of service provision.

4.4 Reliability analysis results

The reliability analysis techniques used were discussed in Chapter 3. Table 4.4 shows the reliability analysis results for the five main IVs and the single DV used in the theoretical research model. All relevant results were interpreted and explained in the aspects of Cronbach's alpha based on standardized items and number of items of the SPSS reliability analysis output. Specifically, the number of items is the number of survey questions or items

used to collect all 132 subjects' responses for each main construct of the theoretical research model.

Table 4.4 Reliability analysis results

Main Construct	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
Comprehensibility (COMP)	0.747	0.750	2
Ease of Use (EOU)	0.858	0.860	9
Usefulness (USEF)	0.862	0.864	10
Adaptability (ADPT)	0.803	0.804	6
Trust (TRUST)	0.782	0.782	2
Use Satisfaction (USESAT)	0.794	0.799	2

The results in Table 4.4 confirmed that the theoretical research model largely demonstrates acceptable reliabilities for all main constructs, with standardized item alpha values varying from 0.750 to 0.864. The results also showed the internal consistency of the survey questions or items used in each main construct.

4.5 Factor analysis results

The factor analysis techniques used were described in Chapter 3. Specifically, the exploratory factor analysis (EFA), or alternatively, the factor analysis was conducted mainly because there were new or otherwise non-EWAM main constructs and sub-constructs identified as presented in Table 2.9, including Comprehensibility (COMP), Usefulness (USEF), Adaptability (ADPT) and Use Satisfaction (USESAT) during the course of derivation of the theoretical research model. Furthermore, there was not any precedent and similar studies to the current study carried out in the e-Government context of Hong Kong. As well, the current research also realizes that the well-known EWAM together with its suite of well-defined construct measurements would not be simply adopted without any adaptations in the current research context, which actually fostered aspects of Hong Kong SME cultures that were different from those counterparts found in previous Schubert's studies such as Kurnia and Schubert (2004), Kurnia, Leimstoll and Schubert (2005), etc. Given all such concerns, the current research intends to conduct EFA accordingly as a fundamental base in developing the theoretical research model.

The factor analysis was conducted in two steps using all 132 subjects' responses to the survey questions or items of each main construct of the theoretical research model. The first step, PCA, extracted the factor(s) for each main construct of the theoretical research model. In the second step, varimax rotation was run to interpret the observed variables of each extracted factor in the rotated component matrix since it was expected to have as few factors as possible in the revised research model. All relevant results were interpreted and explained in the aspects of rotated component matrix and component plot in rotated space of the SPSS factor analysis output, if applicable. In this regard, individual observed variable was thus accepted to load on its intended factor than on others if the corresponding factor loading was 0.5 or greater as presented in the component matrix of each set of final factor analysis results in Tables 4.5, 4.7, 4.9 – 4.12.

4.5.1 Comprehensibility

The initial PCA run for the main construct Comprehensibility (COMP) achieved the expected results as shown in Table 4.5. As only one factor was extracted, it was not necessary to adjust the initial factor structure of the main construct under examination, whilst also meaning that no rotation component matrix was produced in the SPSS factor analysis output.

Table 4.5 Final factor analysis results for the main construct Comprehensibility (COMP)

Communalities

	Initial	Extraction
COMP01	1.000	.800
COMP02	1.000	.800

Extraction Method: Principal Component Analysis.

Component Matrix

	Component
	1
COMP01	.895
COMP02	.895

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.600	80.020	80.020	1.600	80.020	80.020
2	.400	19.980	100.000			

Extraction Method: Principal Component Analysis.

4.5.2 Ease of Use

In the initial PCA run of the main construct Ease of Use (EOU), two factors were extracted as shown in Table 4.6, that is, the Rotated Component Matrix of the SPSS factor analysis output. Fewer factors were expected in the revised research model and so wherever possible attempts

were made to remove certain variables for running the subsequent multiple regression analysis. The items System Availability (EOU08) and System Performance (EOU09) properly loaded together. In contrast, it did not matter on which factor the items Organization of Web Content (EOU01), Quantity of Web Content (EOU02), Guidance in Online Interactions (EOU03) and Selection of Routine Services (EOU04) should load, mainly because the four items loaded equally on both factor 1 and factor 2. Therefore it was decided to remove the items EOU08 and EOU09.

Table 4.6 Rotated component matrix for the main construct Ease of Use (EOU)

Item	Component	
	1	2
EOU01	0.537	0.517
EOU02	0.412	0.555
EOU03	0.562	0.494
EOU04	0.391	0.620
EOU05	0.713	0.219
EOU06	0.751	0.183
EOU07	0.824	0.100
EOU08	0.056	0.805
EOU09	0.157	0.839
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a Rotation converged in 3 iterations.		

The second round of PCA was run without the items EOU08 and EOU09, and the final factor analysis results are shown in Table 4.7. Only one factor was extracted in this PCA run whilst also achieving the required results. However, the extraction communalities of the remaining seven observed variables were moderately high, and so it is clear that the items EOU08 and EOU09 were closely related from the system or technical point of view. The survey participants apparently did not view the two items collectively as a concept related to the ease of use of the G2B websites under examination, although they are conceptually identical and categorized under Ease of Use in EWAM as presented in Table 2.9. The reliability analysis of the final seven observed variables was run again, producing a standardized item alpha value

of 0.842, and demonstrating the internal consistency of the remaining items used in the main construct Ease of Use (EOU).

The final factor analysis results did not match with the EWAM analysis results discussed in Section 4.3.1.1, where *Tradelink-eBiz*'s system availability and performance (the items EOU08 and EOU09) were found to appeal to the survey participants in terms of the performance achieved, and additionally, these two items could potentially influence the overall use satisfaction of the two G2B systems under examination because of fairly high mean importance ratings obtained (System Availability (EOU08) [5.25] and System Performance (EOU09) [5.42]). However, the final factor analysis results demonstrated the construct validity of the revised research model and formed the basis for the hypothesis testing using the remaining seven observed variables of EOU in the multiple regression analysis. Any apparent contradiction between the EWAM and final factor analysis results was used to emphasize building the revised research model and testing its viability for the purposes of the current research only. This aspect of the factor analysis and the benefits of repeating the research using a larger sample are discussed in the part related to research limitations in Chapter 5.

Table 4.7 Final factor analysis results for the main construct Ease of Use (EOU)

Communalities			Component Matrix ^a	
	Initial	Extraction		Component
				1
EOU01	1.000	.589	EOU01	.767
EOU02	1.000	.474	EOU02	.688
EOU03	1.000	.575	EOU03	.758
EOU04	1.000	.493	EOU04	.702
EOU05	1.000	.494	EOU05	.703
EOU06	1.000	.458	EOU06	.677
EOU07	1.000	.515	EOU07	.718

Extraction Method: Principal Component Analysis.

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.597	51.390	51.390	3.597	51.390	51.390
2	.965	13.782	65.172			
3	.725	10.352	75.524			
4	.587	8.393	83.917			
5	.439	6.273	90.189			
6	.354	5.058	95.247			
7	.333	4.753	100.000			

Extraction Method: Principal Component Analysis.

4.5.3 Usefulness

The initial PCA results conducted for the main construct Usefulness (USEF) were used to extract three factors as shown in Table 4.8. Because fewer factors were expected in the revised research model, it was necessary to eliminate certain variables before running the multiple regression analysis. The results showed that the items Value-added Services (USEF03), Business Relationships (USEF07) and Information Sharing (USEF08) significantly loaded on factor 2, whereas the items Reuse of Data (USEF04) and Tracking of Transaction Status (USEF05) loaded cleanly on factor 3. However, the item Productivity Gains (USEF09) loaded rather equally on both factor 1 and factor 2. Separate attempts were made to eliminate the items loaded on factor 2 and factor 3 respectively. Based on the interim factor analysis results the items USEF03, USEF07 and USEF08 were dropped in order to maintain the simple factor structure of the revised research model.

Table 4.8 Rotated component matrix for the main construct Usefulness (USEF)

Item	Component		
	1	2	3
USEF01	0.625	0.184	0.275
USEF02	0.696	-0.001	0.434
USEF03	-0.066	0.571	0.506
USEF04	0.179	0.195	0.790
USEF05	0.506	0.136	0.671
USEF06	0.533	0.344	0.433
USEF07	0.118	0.768	0.342
USEF08	0.285	0.809	0.176
USEF09	0.489	0.705	-0.149
USEF10	0.795	0.255	-0.029
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a Rotation converged in 5 iterations.			

A second round of PCA was run without the items USEF03, USEF07 and USEF08, and the final factor analysis results are shown in Table 4.9. Only one factor was extracted in this PCA run, whilst also achieving the required results. However, the extraction communalities of the remaining seven observed variables were not significantly high. The items USEF07 and USEF08 were clustered around the concept of online communities, and the item USEF03 was a new sub-construct defined under the main construct Usefulness (USEF). Indeed, all three items appeared to be a new concept other than the usefulness of the G2B websites under examination, although the items USEF07 and USEF08 were conceptually identical and were grouped under Usefulness in EWAM as presented in Table 2.9. It is possible that the survey participants viewed these three items as completely new electronic services that would create a new range of benefits, thus challenging traditional views of the two G2B websites' usefulness. The reliability analysis of the final seven observed variables was run again; the resulting standardized item alpha value of 0.827 confirmed the internal consistency of the remaining items used in the main construct Usefulness (USEF).

The final factor analysis results partly confirmed the EWAM analysis results as presented in Sections 4.3.1.2 and 4.3.3.2. The EWAM analysis results showed that *Ge-TS*'s value-added

services (the item USEF03) appealed to the survey participants in Section 4.3.1.2, whereas the items USEF07 and USEF08 did not do so in terms of the performance achieved by both *Tradelink-eBiz* and *Ge-TS* in Section 4.3.3.2. The mean importance ratings (Value-added Services (USEF03) [4.62], Business Relationships (USEF07) [4.58] and Information Sharing (USEF08) [4.32]) were moderately low, and so these three items were unlikely to significantly influence the overall use satisfaction of the G2B websites being examined. Thus the construct validity of the revised research model was demonstrated, and these results were used as a basis for the hypothesis testing using the remaining seven observed variables of USEF in the multiple regression analysis.

Table 4.9 Final factor analysis results for the main construct Usefulness (USEF)

Communalities			Component Matrix ^a		
	Initial	Extraction		Component	
				1	
USEF01	1.000	.468	USEF01	.684	
USEF02	1.000	.556	USEF02	.745	
USEF04	1.000	.405	USEF04	.637	
USEF05	1.000	.633	USEF05	.796	
USEF06	1.000	.575	USEF06	.758	
USEF09	1.000	.342	USEF09	.584	
USEF10	1.000	.482	USEF10	.694	

Extraction Method: Principal Component Analysis.

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.462	49.456	49.456	3.462	49.456	49.456
2	.972	13.890	63.346			
3	.722	10.318	73.664			
4	.638	9.119	82.783			
5	.485	6.936	89.719			
6	.413	5.895	95.614			
7	.307	4.386	100.000			

Extraction Method: Principal Component Analysis.

4.5.4 Adaptability

The initial PCA run for the main construct Adaptability (ADPT) achieved the expected results. Only one factor was extracted as shown in Table 4.10. Therefore it was not necessary to adjust the initial factor structure of the main construct under examination, and no rotation component matrix was produced in the SPSS factor analysis output.

Table 4.10 Final factor analysis results for the main construct Adaptability (ADPT)

Communalities			Component Matrix ^a		
	Initial	Extraction		Component	
ADPT01	1.000	.451		1	
ADPT02	1.000	.434	ADPT01		.672
ADPT03	1.000	.454	ADPT02		.659
ADPT04	1.000	.617	ADPT03		.673
ADPT05	1.000	.519	ADPT04		.785
ADPT06	1.000	.565	ADPT05		.720
			ADPT06		.752

Extraction Method: Principal Component Analysis.

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.039	50.653	50.653	3.039	50.653	50.653
2	.859	14.318	64.972			
3	.689	11.476	76.448			
4	.645	10.756	87.204			
5	.422	7.027	94.230			
6	.346	5.770	100.000			

Extraction Method: Principal Component Analysis.

4.5.5 Trust

The initial PCA run for the main construct Trust (TRUST) achieved the expected results. As shown in Table 4.11, it was not necessary to adjust the initial factor structure of the main construct under examination, and no rotation component matrix was produced in the SPSS factor analysis output because only one factor was extracted.

Table 4.11 Final factor analysis results for the main construct Trust (TRUST)

Communalities			Component Matrix ^a		
	Initial	Extraction		Component	
TRUST01	1.000	.821		1	
TRUST02	1.000	.821	TRUST01		.906
			TRUST02		.906

Extraction Method: Principal Component Analysis.

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.642	82.093	82.093	1.642	82.093	82.093
2	.358	17.907	100.000			

Extraction Method: Principal Component Analysis.

4.5.6 Use Satisfaction

The initial PCA run for the main construct Use Satisfaction (USESAT) achieved the expected results. As shown in Table 4.12, it was not necessary to adjust the initial factor structure of the main construct under examination, and no rotation component matrix was produced in the SPSS factor analysis output because only one factor was extracted.

Table 4.12 Final factor analysis results for the main construct Use Satisfaction (USESAT)

Communalities			Component Matrix ^a	
	Initial	Extraction		Component
USESAT01	1.000	.833		1
USESAT02	1.000	.833	USESAT01	.913
			USESAT02	.913

Extraction Method: Principal Component Analysis.

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.666	83.287	83.287	1.666	83.287	83.287
2	.334	16.713	100.000			

Extraction Method: Principal Component Analysis.

4.6 Multiple regression analysis results

The multiple regression analysis techniques used were discussed in Chapter 3, whereas the final factor analysis results derived the revised research model, which comprises the final regression variables as presented in Table 4.13. Based on all 132 subjects' responses to the survey questions or items of each main construct of the revised research model, the multiple regression analysis results were obtained in terms of the two multivariate relationships between (1) the performance ratings of the main IVs and usage of the G2B electronic services

under examination (Services Usage (USESAT01)), and (2) the performance ratings of the main IVs and satisfaction with using the G2B electronic services under examination (Services Satisfaction (USESAT02)). All relevant results were interpreted and explained in the aspects of Pearson correlations, R^2 , analysis of variances (ANOVA) at the 0.05 level of significance, coefficients of partial regression or β at the 0.05 level of significance, and collinearity diagnostics of the SPSS multiple regression analysis output.

Table 4.13 Final regression variables

Main Construct / Explanatory Variable	No. of Items	Mean	Standard Deviation
Comprehensibility (COMP)	2	4.4697	1.8227
Ease of Use (EOU)	7	4.2294	1.7459
Usefulness (USEF)	7	4.2890	1.8285
Adaptability (ADPT)	6	3.9545	1.9089
Trust (TRUST)	2	4.6098	1.8691
Use Satisfaction (USESAT)	2	4.1705	1.8533

4.6.1 Overview of multiple regression analysis

The multiple regression analysis results presented so far do not discuss the multivariate relationship between the main IVs and DV, that is, the single main or aggregated construct Use Satisfaction (USESAT), because the R^2 was just 36.7% after completing the initial run of the multiple regression analysis. Instead, two multivariate relationships mentioned in Section 4.6 were tested in order to have better results, thereby clearly anatomizing the different influences of the main IVs on the respective item of USESAT.

In achieving so, the current research diverted the testing of the original multivariate relation between the main IVs and USESAT to the multivariate relation between the main IVs and the item USESAT01 as presented in Table 4.14, and the one between the main IVs and the item USESAT02 as presented in Table 4.16 respectively. Based on such results obtained, it was thus expected to feasibly and distinguishably examine and study the different influences as mentioned above in the current research context at the bottom line, thereby facilitating the identification of the most pertinent improvements and potential value creations that may be materialized in the corresponding service aspect whichever appropriate of the two G2B systems under examination. To this end, the current research supposes that this approach to

running multiple regression analysis twice genuinely introduced certain level of complication concerning discussion (Sections 4.6.2 – 4.6.6.3) and conclusions (Sections 5.2.1 – 5.2.4.2) of the results obtained. Although having said this, the agility of the current research findings should be increased indeed as delineated in the sections just mentioned.

The multiple regression analysis was thus conducted in two rounds. Before doing so, the performance rating data of the item USESAT02 were square-root-transformed and saved to a new variable as a result of the regression standardized residuals not being normally distributed after the trial run of the multiple regression analysis. Then the first run of the multiple regression analysis was conducted, and the resulting standardized residuals were explored for any extreme or significant outliers. At this stage, the two multivariate relationships being tested produced nine and eight significant outlier cases respectively. All outliers were removed before conducting the second run of the multiple regression analysis, which then produced another set of results. Again, the standardized residuals were explored for outlier cases, but no more outliers were identified.

4.6.1.1 *Multivariate relationship between the explanatory variables and item USESAT01*

For the first multivariate relationship, the final results of the multiple regression analysis are presented in Table 4.14.

Table 4.14 Final multiple regression analysis results for the multivariate relationship between the explanatory variables and item USESAT01

Correlations							
		USESAT01	COMP	EOU	USEF	ADPT	TRUST
Pearson Correlation	USESAT01	1.000	.536	.547	.542	.387	.508
	COMP	.536	1.000	.666	.578	.316	.499
	EOU	.547	.666	1.000	.647	.451	.582
	USEF	.542	.578	.647	1.000	.648	.631
	ADPT	.387	.316	.451	.648	1.000	.527
	TRUST	.508	.499	.582	.631	.527	1.000
Sig. (1-tailed)	USESAT01	.	.000	.000	.000	.000	.000
	COMP	.000	.	.000	.000	.000	.000
	EOU	.000	.000	.	.000	.000	.000
	USEF	.000	.000	.000	.	.000	.000
	ADPT	.000	.000	.000	.000	.	.000
	TRUST	.000	.000	.000	.000	.000	.
N	USESAT01	123	123	123	123	123	123
	COMP	123	123	123	123	123	123
	EOU	123	123	123	123	123	123
	USEF	123	123	123	123	123	123
	ADPT	123	123	123	123	123	123
	TRUST	123	123	123	123	123	123

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.639 ^a	.408	.382	.805	1.766

a. Predictors: (Constant), TRUST, COMP, ADPT, EOU, USEF

b. Dependent Variable: USESAT01

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.167	5	10.433	16.112	.000 ^a
	Residual	75.762	117	.648		
	Total	127.929	122			

a. Predictors: (Constant), TRUST, COMP, ADPT, EOU, USEF

b. Dependent Variable: USESAT01

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	4.684	.073		64.306	.000	4.540	4.829					
	COMP	.239	.105	.229	2.278	.025	.031	.448	.536	.206	.162	.503	1.989
	EOU	.181	.115	.171	1.570	.119	-.047	.409	.547	.144	.112	.429	2.333
	USEF	.177	.124	.167	1.421	.158	-.070	.423	.542	.130	.101	.365	2.741
	ADPT	.043	.100	.041	.427	.670	-.156	.242	.387	.039	.030	.543	1.841
	TRUST	.178	.104	.168	1.703	.091	-.029	.384	.508	.155	.121	.522	1.914

a. Dependent Variable: USESAT01

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	COMP	EOU	USEF	ADPT	TRUST
1	1	3.232	1.000	.00	.03	.03	.03	.03	.03
	2	1.004	1.794	.97	.00	.00	.00	.00	.01
	3	.749	2.078	.01	.25	.06	.01	.35	.01
	4	.429	2.744	.02	.06	.01	.04	.16	.93
	5	.315	3.204	.00	.48	.89	.04	.00	.01
	6	.271	3.456	.00	.18	.01	.88	.46	.01

a. Dependent Variable: USESAT01

The Pearson correlations indicated that the linear relationship between the explanatory variable concerned and the item USESAT01 was positive but not strong. The explanatory variables COMP, EOU, USEF and TRUST had moderately high positive correlation with the item USESAT01. The R^2 value explained 40.8% of the variance in USESAT01. The ANOVA values [$F = 16.112$; $p = 0.000 < 0.05$] indicated that the null hypothesis could be rejected, whilst also meaning that at least one of the explanatory variables was related to the item USESAT01, that is, the usage of the G2B electronic services under examination.

The β -coefficients indicated the relative importance of each explanatory variable. As shown in Table 4.14, the results for COMP [$\beta = 0.229$; $t = 2.278$; $p = 0.025 < 0.05$] and TRUST [$\beta =$

0.168; $t = 1.703$; $p = 0.091 > 0.05$] indicated that the null hypothesis could be rejected, and there was a significant relationship between COMP and the item USESAT01, whilst taking into account the effects of other explanatory variables. The results also showed that TRUST was a rather significant explanatory variable based on the corresponding set of results. Finally, the collinearity of each explanatory variable was measured using the variance inflationary factor (VIF). The range of VIF values was 1–2.7, which showed that the set of explanatory variables was not closely correlated. The collinearity diagnostics confirmed that multicollinearity was not a problem, because no eigenvalues were close to zero, and the explanatory variables were not highly intercorrelated, because no condition indexes were greater than 15. Based on the final multiple regression analysis results, the hypothesis testing results are presented in Table 4.15.

Table 4.15 Final hypothesis testing results for the multivariate relationship between the explanatory variables and item USESAT01

Item	Main Construct / Explanatory Variable	Standardized Coefficient	t-value	p-value	Supported
H1	Comprehensibility (COMP)	0.229	2.278	0.025	Yes
H2	Ease of Use (EOU)	0.171	1.570	0.119	No
H3	Usefulness (USEF)	0.167	1.421	0.158	No
H4	Adaptability (ADPT)	0.041	0.427	0.670	No
H5	Trust (TRUST)	0.168	1.703	0.091	(Yes)

4.6.1.2 *Multivariate relationship between the explanatory variables and item USESAT02*

For the second multivariate relationship, the final results of the multiple regression analysis are presented in Table 4.16.

Table 4.16 Final multiple regression analysis results for the multivariate relationship between the explanatory variables and item USESAT02

Correlations							
		USESAT02	COMP	EOU	USEF	ADPT	TRUST
Pearson Correlation	USESAT02	1.000	.413	.609	.477	.303	.332
	COMP	.413	1.000	.683	.587	.320	.444
	EOU	.609	.683	1.000	.634	.476	.541
	USEF	.477	.587	.634	1.000	.675	.589
	ADPT	.303	.320	.476	.675	1.000	.483
	TRUST	.332	.444	.541	.589	.483	1.000
Sig. (1-tailed)	USESAT02	.	.000	.000	.000	.000	.000
	COMP	.000	.	.000	.000	.000	.000
	EOU	.000	.000	.	.000	.000	.000
	USEF	.000	.000	.000	.	.000	.000
	ADPT	.000	.000	.000	.000	.	.000
	TRUST	.000	.000	.000	.000	.000	.
N	USESAT02	124	124	124	124	124	124
	COMP	124	124	124	124	124	124
	EOU	124	124	124	124	124	124
	USEF	124	124	124	124	124	124
	ADPT	124	124	124	124	124	124
	TRUST	124	124	124	124	124	124

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.626 ^a	.392	.366	.15617	1.630

a. Predictors: (Constant), TRUST, COMP, ADPT, EOU, USEF

b. Dependent Variable: USESAT02

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.854	5	.371	15.206	.000 ^a
	Residual	2.878	118	.024		
	Total	4.732	123			

a. Predictors: (Constant), TRUST, COMP, ADPT, EOU, USEF

b. Dependent Variable: USESAT02

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	2.202	.014		156.631	.000	2.174	2.230					
	COMP	-.014	.020	-.070	-.675	.501	-.054	.027	.413	-.062	-.048	.474	2.110
	EOU	.115	.022	.569	5.131	.000	.070	.159	.609	.427	.368	.419	2.385
	USEF	.049	.024	.244	2.011	.047	.001	.098	.477	.182	.144	.351	2.851
	ADPT	-.018	.020	-.087	-.867	.388	-.058	.023	.303	-.080	-.062	.511	1.957
	TRUST	-.009	.019	-.047	-.500	.618	-.046	.027	.332	-.046	-.036	.595	1.681

a. Dependent Variable: USESAT02

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	COMP	EOU	USEF	ADPT	TRUST
1	1	3.193	1.000	.00	.03	.03	.03	.03	.03
	2	.998	1.789	.99	.00	.00	.00	.00	.00
	3	.750	2.063	.00	.25	.06	.01	.29	.02
	4	.508	2.506	.00	.03	.01	.03	.15	.90
	5	.312	3.197	.00	.26	.80	.23	.03	.00
	6	.239	3.659	.00	.44	.10	.70	.50	.04

a. Dependent Variable: USESAT02

The Pearson correlations indicated that the linear relationship between the explanatory variable concerned and the item USESAT02 was positive but not strong enough. The explanatory variables EOU and USEF had moderately high positive correlation with the item USESAT02. The R^2 value explained 39.2% of the variance in USESAT02. The ANOVA values [$F = 15.206$; $p = 0.000 < 0.05$] indicated that the null hypothesis could be rejected, whilst also meaning that at least one of the explanatory variables was related to the item USESAT02, that is, the satisfaction with using the G2B electronic services under examination.

The β -coefficients indicated the relative importance of each explanatory variable. As shown in Table 4.16, the results for EOU [$\beta = 0.569$; $t = 5.131$; $p = 0.000 < 0.05$] and USEF [$\beta = 0.244$; $t = 2.011$; $p = 0.047 < 0.05$] indicated that the null hypotheses could be rejected, and there was a significant relationship between EOU and the item USESAT02, and between USEF and the item USESAT02, whilst taking into account the effects of other explanatory variables. Finally, the collinearity of each explanatory variable was measured using the VIF. The VIF values in the range 1–2.85 showed that the set of explanatory variables was not closely correlated. The collinearity diagnostics confirmed that multicollinearity was not a problem, because no eigenvalues were close to zero, and the explanatory variables were not highly intercorrelated, because no condition indexes were greater than 15. Based on the final multiple regression analysis results, the hypothesis testing results are presented in Table 4.17.

Table 4.17 Final hypothesis testing results for the multivariate relationship between the explanatory variables and item USESAT02

Item	Main Construct / Explanatory Variable	Standardized Coefficient	t-value	p-value	Supported
H1	Comprehensibility (COMP)	-0.070	-0.675	0.501	No
H2	Ease of Use (EOU)	0.569	5.131	0.000	Yes
H3	Usefulness (USEF)	0.244	2.011	0.047	Yes
H4	Adaptability (ADPT)	-0.087	-0.867	0.388	No
H5	Trust (TRUST)	-0.047	-0.500	0.618	No

4.6.1.3 *Combination of the results from multiple regression and EWAM analyses*

As presented in Table 4.3, the EWAM analysis results showed that users gave moderately high mean importance ratings on COMP, EOU, USEF, ADPT and TRUST at the level of sector profile, thus serving to be a reflection of their level of sector-specific and subjective

higher user expectations for value creations. On the other hand, the multiple regression analysis suggested that the four explanatory variables other than ADPT were significant predictors of a reliable relationship with the items USESAT01 and USESAT02 respectively. COMP and TRUST predicted the relationship with the item USESAT01, whereas EOU and USEF predicted the relationship with the item USESAT02.

The combined results from the two types of analysis can be interpreted in two ways. First, the improved performance of the G2B electronic services pertaining to the refined structure of COMP and TRUST, EOU and USEF leads to a positive relationship with the items USESAT01 and USESAT02 respectively. Second as a consequence of getting these multiple regression analysis results, the extent of improvements that would be done on the pertaining COMP, TRUST, EOU and USEF, if necessary, is also inferred by the corresponding mean importance rating of each of these main constructs according to Table 4.3. Stated another way, with the comparatively lower mean performance ratings collected, such moderately high mean importance ratings actually indicated the subjects' strong preference for improved performance of the G2B electronic services being assessed in order to meet or exceed such level of user expectations accordingly. After all, an increased rating would be obtained in the usage of and satisfaction with using the G2B electronic services concerned respectively.

4.6.2 Comprehensibility

The main construct Comprehensibility (COMP) of the two G2B websites showed inconsistent significance as an explanatory variable in Tables 4.15 and 4.17. COMP was identified as a significant explanatory variable with regard to the usage of the G2B electronic services being examined, meaning that it had a significant relationship with the item USESAT01. In contrast, COMP was identified as a non-significant explanatory variable with regard to the satisfaction with using the G2B electronic services being examined, meaning that it did not have a significant relationship with the item USESAT02.

The suite of G2B electronic services delivered under the realm of COMP included the items Business-centric Cluster Services (COMP01) and Business or Transaction Steps (COMP02). Satisfactory performance was achieved in COMP at the level of sector profile as presented in Table 4.3. The following sections discuss the salient system capabilities of *Tradelink-eBiz* and *Ge-TS* in terms of the items COMP01 and COMP02 as described in Sections 4.3.1.1 – 4.3.1.2 and in association with the aforementioned services usage and services satisfaction.

4.6.2.1 Website functions, features and facilities

Both *Tradelink-eBiz* and *Ge-TS* deliver “one-stop” business-centric cluster and integrated electronic services. *Ge-TS*, in particular, does so by grouping the access links or URLs to related system functions in the corresponding consolidated user interface tailoring to SMEs’ existing business process flows as far as practicable, thereby facilitating the trouble-free electronic submission of each type of trade-related documents to the relevant government departments or agencies. In this way *Ge-TS* achieved satisfactory performance in the item COMP01.

Both G2B websites have also been developing simple business or transaction processes and steps for SMEs. With achievements in the item COMP02, SMEs are able to complete electronic transactions in the most efficient and effective way, such as by storing and forwarding the data of late submissions of TDEC on a continuous service basis, and sending “once-for-all” electronic documents such as EMAN to all partnering government departments or agencies for collaborative processing. As well, *Tradelink-eBiz* establishes seamless business process flows to facilitate electronic applications from TID for Certificate of Origin (CO) and Certificate of Hong Kong Processing.

4.6.2.2 Services usage

This result is interpreted in terms of how the higher level of comprehensibility is related to increased usage of the G2B electronic services concerned. A number of reasons that possibly explain the result obtained are explored in the aspects of service delivery and public administration, whilst also taken into account that the items COMP01 and COMP02 have been implemented at different levels of provision or sophistication within the domain of the two G2B systems as described in Section 4.6.2.1.

Influence of Business-centric Cluster Services in relation to service delivery

The item COMP01 has been implemented in the system contexts of both *Tradelink-eBiz* and *Ge-TS* with the new approach to public service delivery, that is, delivering “one-stop” business-centric cluster electronic services, which are used by SMEs to deal with miscellaneous statutory affairs in the context of effecting government electronic trading transactions.

Since the Government strictly regulates the trading business domain, SMEs must follow the prescribed mandatory government electronic trading requirements. In achieving so, the two

G2B websites have been providing a pseudo “one-stop” shop with a predetermined range of G2B transaction services. These electronic services are deployed within predefined and static service clusters only, which intend to expedite SMEs’ electronic submissions of trade-related documents and the handling of other related trading business matters or affairs. While fulfilling these mandatory requirements, SMEs also tend to ensure their business processes and legacy systems – either existing or future – are compatible with the established government counterparts. Overall, these moderately comprehensive G2B electronic services fulfill SMEs’ needs and government electronic trading requirements at the bottom line, meaning that SMEs are enabled to use them frequently on an ongoing basis. In this way the item COMP01 has a positive influence on the usage of the G2B electronic services being studied.

Influence of Business-centric Cluster Services in relation to public administration

For the item COMP01, both *Tradelink-eBiz* and *Ge-TS* currently establish predefined business and system process flows to deliver “one-stop” business-centric integrated electronic services, thereby addressing the structured or routine trading business life events of the G2B sector as much as possible.

In this regard, a certain predetermined level of integrations in the aspect of information systems among different affiliated service providers, that is, the relevant government departments or agencies has been achieved to deliver such electronic services within the domain of the two G2B systems, which are always collectively advocated as the main discipline of new public management. Since the item COMP01 has achieved rather satisfactory performance in this particular aspect of service provision, SMEs also likely get acquainted with the improved public service products developed in the new public management domain, and they may even be confident to adopt the facility concerned than ever. As such, they are enabled to frequently use the electronic services concerned for proceeding routine trading business operations with the relevant government departments or agencies. In this way the item COMP01 has a positive influence on the usage of the G2B electronic services under examination.

Influence of Business or Transaction Steps in relation to public administration

In terms of the item COMP02, both *Tradelink-eBiz* and *Ge-TS* have achieved to some extent of simplifying the business or transaction processes and steps involved as they modernize and

re-engineer various aspects of traditional public administration for the delivery of well conceived combination of GETS.

In this regard, although the two G2B websites have not yet delivered true “zero-stop” electronic services, which are collectively one of the disciplines of new public management as discussed in Chapter 2, SMEs can still realize some benefits of simplified and streamlined business or transaction processes and steps when dealing with the Government based on existing moderately high level of comprehensibility of the two G2B websites. These benefits are more salient when compared with conventional paradigms of public administration in the same areas. In the light of the explication given above, the item COMP02 has a positive influence on the usage of the G2B electronic services being studied.

Summary of services usage

The positive correlation between comprehensibility and the item USESAT01 was supported. In other words, the usage of the G2B electronic services under examination increases with an increase in the level of performance achieved in COMP.

4.6.2.3 Services satisfaction

The result showed that comprehensibility is not associated with the level of satisfaction with using the G2B electronic services under examination. A number of possible reasons that would explain the result obtained in the aspects of service delivery and public administration, whilst also having recognized that the two G2B systems have implemented the items COMP01 and COMP02 at different levels of provision or sophistication as described in Section 4.6.2.1.

Influence of Business-centric Cluster Services in relation to service delivery

For the implementation of the item COMP01, both *Tradelink-eBiz* and *Ge-TS* provide limited “one-stop” business-oriented cluster electronic services for SMEs to follow a range of trading business life events as prescribed by the government.

In this connection, neither of the two G2B websites currently group and deliver electronic services in a sufficiently flexible or dynamic way to meet SMEs’ specific business needs. Similarly, they do not satisfactorily encapsulate related G2B electronic services, that is, related functions, features and facilities in a comprehensive way as described in the literature. Based on such moderately high level of comprehensibility achieved in terms of providing

pseudo “one-stop” business-centric cluster electronic services, some SMEs may perceive the present public service quality of the two G2B websites as a business norm or conformity, which will be perpetuated with the current development of GETS. These SMEs appear to be comfortable with existing status quo as long as they successfully effect the required government electronic trading transactions, whereas they still provide rather positive feedback about the services satisfaction concerned even though using such limited electronic services.

On the other hand, some other SMEs realize that the current implementation of the two G2B websites mainly incorporates traditional government agency-centric business and/or public service delivery models as mandated by the relevant government departments or agencies. Based on such models, SMEs are required to meet the prerequisite of developing the IT capabilities as required in order to get their business processes and legacy systems fully compatible with the government counterparts, before they can actually use the electronic services being studied. But many SMEs also have insufficient resources to do so. Consequently, SMEs do not likely make their response to the services satisfaction concerned to the extent that may reach or exceed their own expectations, and they merely show a sign of depreciation of the values created from the provision of the G2B electronic services under examination. In this way the item COMP01 does not exert its influence in a direct and significant manner on the satisfaction with using the G2B electronic services being addressed.

Influence of Business-centric Cluster Services in relation to public administration

In terms of the item COMP01, existing “one-stop” business-oriented integrated electronic services provided by both *Tradelink-eBiz* and *Ge-TS* are confined to the vertical dimension only, that is, just across the relevant government departments or agencies.

Revising public management policy to incorporate e-Governance systems has not been fully exploited within the two G2B websites, which also means that they do not meet the stringent requirements for the new approach to public management. Stated another way, the item COMP01 is supposed to be delivered with both vertical and horizontal integrations of different information systems involved, but is turned out to be rather limited instead. This also means that existing vertical dimension of system integrations is not suffice enough to fulfill the full range of requirements for achieving new public management. Consequently, modernizing the public administrative processes has not completely achieved the goal of customer-oriented and seamless e-Government services.

Notwithstanding, in certain cases, SMEs may not be overwhelmed so much by the issues as mentioned in the preceding paragraph under the prescribed use conditions for effecting the necessary government electronic trading transactions, and consequently, the services satisfaction concerned is likely increased. In some other cases, by the very nature of existing rather satisfactory performance achieved by the item COMP01, SMEs would even regard existing vertical system integrations as the accomplishment of classical fragmented government business processes and steps only. Because of this, they appear to be rather conservative in giving their response to the satisfaction with using the G2B electronic services being addressed, which does not likely reach or exceed their expectations. Based on the explication given above, the item COMP01 does not exert its influence in a direct and significant manner on the satisfaction with using the G2B electronic services under examination.

Influence of Business or Transaction Steps in relation to public administration

For the item COMP02, both *Tradelink-eBiz* and *Ge-TS* have not been fully harnessed with the greatest potentials of ICT and BPR yet in order to pursue “zero-touch” public administrative processing for various types of trade-related documents, through which more simplified business or transaction processes and steps should have been introduced.

The two G2B systems just appear to take their initiatives to offer minimal unifications or convergences and hence simplifications that are suffice enough for certain predetermined business or transaction processes and steps instead at the bottom line. This also means that they have not been substantially broadening and increasing the breadth and depth of BPR as always expected in the networked governance setting or environment.

Notwithstanding, both *Tradelink-eBiz* and *Ge-TS* have still attained the current moderately high level of comprehensibility with the aforementioned BPR efforts, whereas the extent of BPR commissioned and done should also help formulate the corresponding government electronic trading requirements in a general sense. Therefore, on the one hand, the apparently simplified business or transaction processes and steps may be regarded by some SMEs as the likewise apparently simple but mandatory government electronic trading requirements that they have to fulfill when effecting the necessary government electronic trading transactions. But as long as they are able to do so in a reasonably simplified manner, the services satisfaction concerned is likely increased. While on the other hand, the current sub-optimal BPR efforts also likely bring about the decrease in the services satisfaction concerned. In the

light of the aforementioned explication, the item COMP02 does not exert its influence in a direct and significant manner on the satisfaction with using the G2B electronic services being addressed.

Summary of services satisfaction

No correlation between comprehensibility and the item USESAT02 was supported due to the non-significance or unreliability of the performance rating data of the item USESAT02 for a positive correlation. In other words, the level of satisfaction with using the G2B electronic services under examination is not directly and significantly associated with the level of performance achieved in COMP.

4.6.3 Ease of Use

The main construct Ease of Use (EOU) of the two G2B websites showed inconsistent significance as an explanatory variable in Tables 4.15 and 4.17. EOU was identified as a non-significant explanatory variable with regard to the usage of the G2B electronic services being examined, meaning that it did not have a significant relationship with the item USESAT01. In contrast, EOU was identified as a significant explanatory variable with regard to the satisfaction with using the G2B electronic services being examined, meaning that it had a significant relationship with the item USESAT02.

The suite of G2B electronic services delivered under the realm of the revised EOU encompasses the items Organization of Web Content (EOU01), Quantity of Web Content (EOU02), Guidance in Online Interactions (EOU03), Selection of Routine Services (EOU04), Online Business Support (EOU05), Online Business Communities (EOU06) and User Interfaces (EOU07). Satisfactory performance was achieved in EOU at the level of sector profile as presented in Table 4.3. As described in Sections 4.3.1.1 – 4.3.1.2 and in association with the aforementioned services usage and services satisfaction, the following sections discuss the salient system capabilities of *Tradelink-eBiz* and *Ge-TS* in terms of the items EOU03, EOU04 and EOU07. In addition to these items, the item EOU01 similarly demonstrated satisfactory performance, whereas the item EOU06 was the worst performed item among all.

4.6.3.1 Website functions, features and facilities

First of all, *Tradelink-eBiz* achieved rather high performance in the item EOU01, that is, the assessment item related to the organization and structure of web content. While comparing

with the same counterpart services of *Ge-TS*, it is noted that *Tradelink-eBiz* appealed to most of its service consumers because of its topic- or theme-oriented web content, which is well-organized on the home page for easy searching and navigation. However, *Ge-TS* still adopts conventional drop-down menus to provide its range of online information services.

Ge-TS, in particular, provides clear terms and conditions on the respective web page developed to facilitate the electronic submission of each type of trade-related documents. Also, customized online help services are delivered for guiding the efficient and effective use of the wanted G2B electronic services. In this respect, *Tradelink-eBiz* even provides static service guidelines through posting a range of questions and tips. It is thus observed that the two G2B websites achieved rather satisfactory performance in the item EOU03.

For the item EOU04, both G2B systems provide its subscribers various paper-to-electronic conversion services if they choose to submit paper-based trade-related documents manually, and additionally, offer multiple channels for settling payments. While for the item EOU07, *Tradelink-eBiz* even develops a unified and intuitive electronic user interface strategy to create direct and convenient user experiences. Lastly, for the item EOU06 that had lower mean importance rating specific to the trading sector, the two G2B systems are not built with the exact functions, features and facilities of online business communities at all.

4.6.3.2 Services usage

The result showed that ease of use is not associated with the level of usage of the G2B electronic services concerned. A number of possible reasons that would explain the result obtained in the aspect of public administration, whilst also having recognized that the two G2B systems have implemented the items EOU01, EOU03, EOU04 and EOU07 at different levels of provision or sophistication as described in Section 4.6.3.1.

Influence of EOU Items in relation to public administration

Both *Tradelink-eBiz* and *Ge-TS* have been pursuing their excellence in some specific aspects of service provision, that is, the items EOU01, EOU03, EOU04 and EOU07 to respectively (1) streamline information delivery processes as manifested by the organization and structure of web content, (2) retard the delivery of usual manual-based front-line public enquiry services, (3) adopt a multiple channels approach to delivering public services, and also, (4) replace manual- or paper-intensive user interfaces with electronic, simple and intuitive ones, thereby moving away from the operational processes and practices of traditional public

administration as far as practicable. Overall, the aforementioned aspects of service provision thus genuinely serve to transform conventional ways of delivering public services in the new public management domain.

However, the large majority of SMEs, that is, the subscribers of the G2B websites concerned have been imperative to be engaged in their daily routine trading business-related works, whereas they do not likely increase using the electronic services other than those necessary ones while dealing with the relevant government departments or agencies even though the two G2B websites have attained moderately high level of ease of use. Moreover, some rigorous SMEs would probably dissatisfy with existing performance of the EOU items concerned in spite of the current moderately high level of ease of use of the two G2B websites attained, for which they do not likely increase the services usage concerned.

Despite having such an argument, certain amount of SMEs are also likely to reap the substantial amounts of benefits created for them in the particular aspect of system quality (DeLone and McLean, 2004) and other related value perspectives based on existing moderately high level of ease of use of the two G2B websites. These are always prerequisite conditions built in the respective G2B system context to instantiate the increase in the usage of the electronic services concerned. Based on the explication given above, the items concerned do not exert their influence in a direct and significant manner on the usage of the G2B electronic services under examination.

Summary of services usage

No correlation between ease of use and the item USESAT01 was supported due to the non-significance or unreliability of the performance rating data of the item USESAT01 for a positive correlation. In other words, the level of usage of the G2B electronic services under examination is not directly and significantly associated with the level of performance achieved in EOU.

4.6.3.3 Services satisfaction

This result is interpreted in terms of how the higher level of ease of use is related to increased satisfaction with using the G2B electronic services concerned. A number of reasons that possibly explain the result obtained are explored in the aspect of public administration, whilst also taken into account that the items EOU01, EOU03, EOU04 and EOU07 have been

implemented at different levels of provision or sophistication within the domain of the two G2B systems as described in Section 4.6.3.1.

Influence of Organization of Web Content in relation to public administration

The item EOU01 has been addressed by both *Tradelink-eBiz* and *Ge-TS* to streamline information delivery processes subject to the appropriateness of the trading business context.

Tradelink-eBiz, in particular, specifically organizes its web content by trading business-oriented themes or subjects. These theme or subject links are actually organized in the taxonomic structure as required for practical uses by SMEs in the trading business context. Notwithstanding, the theme or subject links that have been provided for facilitating the accesses to the necessary information are still not structured in a problem- or situational-oriented and synthesized way within the domain of both *Tradelink-eBiz* and *Ge-TS*. In spite of the latter shortcoming, SMEs are enabled to make decisions exactly and readily in mainstream business situations in the information age because the two G2B service providers do not put constraints on SMEs' acquisition of the required information by solely delivering and making online information services available in the usual institutional or public administrative structure, or even in the worst case, conventional segregated brick-and-mortar information services. Since fragmented information is not organized as usual, SMEs are also not likely to heavily rely on doing repetitive searching at various levels, infinite and redundant navigations to master the whole wealth of information provided, in particular.

The new full swing of public administration mentioned above is completely different from traditional one, which has been characterized by the pursuance of government-agency centric convenience and speed only, but not embracing the same counterpart requirements of SMEs instead. Overall, the G2B systems concerned maintain such moderately high level of ease of use, and they are perceived to streamline information delivery processes in terms of increasing SMEs' convenience and efficiency in a more significant way when dealing with government-related trading business, thus serving to be part of the revamped actions that should be taken in adherence to the disciplines of new public management. In this way the item EOU01 has a positive influence on the satisfaction with using the G2B electronic services under examination.

Influence of Guidance in Online Interactions in relation to public administration

In terms of the item EOU03, both *Tradelink-eBiz* and *Ge-TS* provide SMEs intuitive online guidance such that they do not need to solicit help or assistances directly from the government representatives in most business cases.

With the current moderately high level of ease of use of the two G2B websites, SMEs do not likely count on traditional front-line public enquiry services or offline help services provided by government departments or agencies in general when they deal with government-related trading business in the information age. As a possible consequence, SMEs are likely to effect online transactions with the designated government departments or agencies in an autonomous way, whilst also meaning that they are allowed to take certain levels of control to solve the problems themselves during the course. To exert some more controls over the conduct of G2B electronic transactions, SMEs are able to reduce the chances of creating and correcting data entry errors, and also, to expedite the G2B electronic transaction processes at their own pace. Hence, the usual front-line public enquiry services delivered in traditional public administration domain are collectively perceived to be reshuffled in the new public management domain. In view of the aforementioned explication, the item EOU03 has a positive influence on the satisfaction with using the G2B electronic services being studied.

Influence of Selection of Routine Services in relation to public administration

For the item EOU04, multiple channels to delivering electronic services or otherwise routine services like application lodgements and payment settlements are currently adopted by both *Tradelink-eBiz* and *Ge-TS* to fulfill a range of SMEs' specific requirements.

In this regard, multiple access channels are required to be offered to the service consumers of the two G2B websites in the aspect of carrying out routine business operations such as submitting trade-related documents and settling payments respectively. As a matter of fact, SMEs' requirements have not been so diversified in this regard and they are generally categorized into several main streams only, for which the corresponding public service delivery channel has been in turn established to mesh with SME's existing business process flows as far as practicable. With the current moderately high level of ease of use of the two G2B websites, heterogeneity of conventional and new ways of delivering public services is therefore perceived as prevalent practice emerged in the new public management domain.

Although having said all these, it is observed that multiple public service delivery channels certainly increase the complexity of the business processes and information systems involved,

for which pertinent business acumens and technical solutions should be developed accordingly. To alleviate the problem concerned, considerable efforts should be put into integrating the related business processes and system functions of each different public service delivery channel in a seamless manner in order to make all the available channels involved compatible or augmentable with each other as far as practicable. In the light of the aforementioned explication, the item EOU04 has a positive influence on the satisfaction with using the G2B electronic services under examination.

Influence of User Interfaces in relation to public administration

In terms of the item EOU07, both *Tradelink-eBiz* and *Ge-TS* have been designed and developed with human-to-computer user interfaces, which are collectively perceived as an intrinsic attribute of Internet-based systems, to streamline the overall information and public service delivery processes.

Simple, converged and intuitive electronic user interfaces certainly play an important role in modernizing public administration although conventional manual- and paper-intensive user interfaces have been prevalent as found in public enquiry, government information directory and register search services, etc. of traditional public administration, which are all characterized by human-to-human user interactions. As such, the new bleed of human-to-computer user interfaces is likely innovative or largely effective in the aspect of facilitating the carrying out of information and public service delivery processes in the new public management domain.

In this connection, the two G2B websites achieve such objectives as can be seen from existing moderately high level of ease of use attained. In particular for *Tradelink-eBiz*, the G2B website even provides more direct and unified human-to-computer user interactions, thus serving to emulate the conventional way of one-to-one human interactions with human-to-computer but “embracing all” user interactions as far as practicable. However, various issues of prevalent human-to-computer user interfaces are still required to be addressed in order to further enhance or enrich the user experiences while comparing with the human-to-human ones. Nevertheless, based on the explication given above, the item EOU07 has a positive influence on the satisfaction with using the G2B electronic services under examination.

Summary of services satisfaction

The positive correlation between ease of use and the item USESAT02 was supported. In other words, the satisfaction with using the G2B electronic services under examination increases with an increase in the level of performance achieved in EOU.

4.6.4 Usefulness

The main construct Usefulness (USEF) of the two G2B websites showed inconsistent significance as an explanatory variable in Tables 4.15 and 4.17. USEF was identified as a non-significant explanatory variable with regard to the usage of the G2B electronic services being examined, meaning that it did not have a significant relationship with the item USESAT01. In contrast, USEF was identified as a significant explanatory variable with regard to the satisfaction with using the G2B electronic services being examined, meaning that it had a significant relationship with the item USESAT02.

The suite of G2B electronic services delivered under the realm of the revised USEF encompasses the items Quality of Web Content (USEF01), Price Information (USEF02), Reuse of Data (USEF04), Tracking of Transaction Status (USEF05), Responses to Business Support (USEF06), Productivity Gains (USEF09) and Costs (USEF10). Rather satisfactory performance was achieved in USEF at the level of sector profile as presented in Table 4.3. As described in Sections 4.3.1.1 – 4.3.1.2 and in association with the aforementioned services usage and services satisfaction, the following sections discuss the salient system capabilities of *Tradelink-eBiz* and *Ge-TS* in terms of the items USEF01, USEF02, USEF06, USEF09 and USEF10. In addition to these items, the items USEF04 and USEF05 similarly demonstrated rather satisfactory performance among all.

4.6.4.1 Website functions, features and facilities

Among all the assessment items, *Tradelink-eBiz* achieved rather high performance in the item USEF01, that is, the one related to the quality of web content. In this regard, *Tradelink-eBiz* always maintains its quality of web content in good standard by providing SMEs comprehensive, updated and accurate information, which is also of higher contextual value for practical uses than that of *Ge-TS* in relation to carrying out various trading business activities.

For the item USEF02 on the other hand, *Ge-TS* provides clear and updated service charging information specific to each service provision on the dedicated web page. Hence, SMEs are able to pay the exact service fees as far as practicable, but not being overloaded with so much

online price information as observed in *Tradelink-eBiz*, which does not pertain to their business context and hence the wanted electronic services at all.

While for the item USEF04, both *Tradelink-eBiz* and *Ge-TS* support capturing data once and reusing them all along the chain of different information system processes involved as far as practicable while effecting various transactions within the domain of the respective G2B system. However, the referred data domain is currently confined to maintaining the static business profile of the subscribed SMEs only, but not to keeping the dynamic application and/or transaction information in the respective G2B system.

For the item USEF05, the two G2B systems achieved rather satisfactory performance by allowing their subscribers, that is, SMEs to make online enquiries on the status of various applications and/or transactions that they previously effected on the electronic trading platforms. To this end, checking application progress and/or transaction status online becomes a typical function provided for emulating one of the prevalent practices that is to be taken for the implementation of e-Government systems. By taking some specific examples in this regard, both G2B systems do provide functions that facilitate checking online status regarding the electronically submitted applications and/or transactions related to TDEC, shipping orders and other types of trading documents in screen interfaces.

The two G2B websites obtained rather high performance ratings in the item USEF06 with regard to the provision of business support services, which are characterized by fast response times and online help facilities. In particular for *Tradelink-eBiz*, the G2B website is more superior to *Ge-TS* in terms of the performance rating obtained although the latter one even delivers more enhanced, professional- and consultancy-based business support services on the electronic platform.

On the other hand, the same referred section also depicts that both *Tradelink-eBiz* and *Ge-TS*, in particular, has been successful in launching a range of computerizations and hence delivering a suite of electronic services in the best interests of their subscriber segment for the past years, whilst also meaning that the two G2B systems did achieve rather satisfactory performance in the item USEF09. These computerizations are realized in the eventual G2B electronic service products and the related service pledges as presented to the subscribed SMEs in the underlying service layer, thereby genuinely increasing the overall productivity of their business in various facets. In particular for *Tradelink-eBiz*, the latter facets generally

encompass the increased productivity in terms of facilitating more electronic submissions of trade-related documents, smoothing out and committing shorter processing time for the submitted documents, etc. through (1) offering IT integrations specifically with the legacy systems of SMEs to facilitate the transfer and reuse of previously inputted data as instantiated by SMEs, (2) providing IT mediating services in terms of special software packages to seamlessly adapt to SMEs' respective existing IT platforms, capabilities as well as operations.

Lastly, for the item USEF10 as mentioned in the same section, *Tradelink-eBiz* achieved better performance than *Ge-TS* in the aspect of cost savings. Notwithstanding, the differences in the pricing schemes currently offered by the two G2B websites are perceived collectively as one of the salient features that likely determines such performance. However, other cost savings components or attributes such as staff cost savings, etc. may possibly exert potential influences as well.

4.6.4.2 Services usage

The result showed that usefulness is not associated with the level of usage of the G2B electronic services concerned. A number of possible reasons that would explain the result obtained in the aspects of public administration, productivity and cost, whilst also having recognized that the two G2B systems have implemented the items USEF01, USEF02, USEF04, USEF05, USEF06, USEF09 and USEF10 at different levels of provision or sophistication as described in Section 4.6.4.1.

Influence of USEF items in relation to public administration, productivity and cost

Both *Tradelink-eBiz* and *Ge-TS* have been excellent in some specific areas of service provision, including the items USEF01, USEF02, USEF04, USEF05, USEF06, USEF09 and USEF10 that respectively (1) streamlines information delivery processes as manifested by the quality of web content, (2) streamlines the dissemination of price information of the use of the electronic services concerned, (3) reduces repetitive collections of the same set of data pertaining to each SME, (4) obsoletes conventional telephone and counter-based public services that were previously used for making application and/or transaction status enquiries, (5) streamlines the business support processes by providing timely, efficient and useful responses, (6) undergoes BPR activities and IT automations related to the revitalization of public service delivery on an ongoing basis, and also, (7) facilitates SMEs achieving different levels of cost savings pursuant to the delivery of electronic services.

Overall, the aforementioned aspects of service provision thus genuinely serve to transform conventional ways of delivering public services in the new public management domain on the one hand, whereas the entire suite of electronic services are launched within the domain of the two G2B systems as enhanced public service regimes such that SMEs are enabled to stay productive and reduce costs in relation to running their business on the other hand.

However, the large majority of SMEs, that is, the subscribers of the two G2B websites are required to intensively engage in their daily routine trading business-related works, whereas they do not likely increase the use of the electronic services other than the required ones for dealing with the relevant government departments or agencies. In conjunction with this specific usage pattern, the benefits that SMEs are able to realize from existing moderately high level of usefulness of the two G2B websites, will be limited in terms of breadth and depth although it is their intention to take such an approach to using the G2B electronic services provided. Furthermore, some SMEs do not likely increase the services usage concerned since they would not probably satisfy with existing performance of the USEF items concerned in spite of the current moderately high level of usefulness of the two G2B websites achieved.

Notwithstanding the aforementioned arguments, a substantial amount of encouraging user feedbacks is likely received in the light of the significant benefits, which have been created on behalf of the service consumers with existing moderately high level of usefulness of the two G2B websites. Specifically, the value creation mechanisms concerned are pursued pertaining to system quality, information quality as well as service quality (DeLone and McLean, 2004), and also, other related value perspectives as the collection of fundamental facilities provided in the respective G2B system context in a general sense, thereby simulating the usage of the G2B electronic services under examination. Based on the explication given above, the items concerned do not exert their influence in a direct and significant manner on the usage of the G2B electronic services under examination.

Summary of services usage

No correlation between usefulness and the item USESAT01 was supported due to the non-significance or unreliability of the performance rating data of the item USESAT01 for a positive correlation. In other words, the level of usage of the G2B electronic services under examination is not directly and significantly associated with the level of performance achieved in USEF.

4.6.4.3 Services satisfaction

This result is interpreted in terms of how the higher level of usefulness is related to increased satisfaction with using the G2B electronic services concerned. A number of reasons that possibly explain the result obtained are explored in the aspects of public administration, productivity and cost, whilst also taken into account that the items USEF01, USEF02, USEF04, USEF05, USEF06, USEF09 and USEF10 have been implemented at different levels of provision or sophistication within the domain of the two G2B systems as described in Section 4.6.4.1.

Influence of Quality of Web Content in relation to public administration

The item USEF01 has been dealt with by both *Tradelink-eBiz* and *Ge-TS* to streamline information delivery processes specifically for the appropriateness of the trading business context.

The two G2B systems have been streamlining information delivery processes as far as practicable even though they adopt their respective implementation approach. In particular for *Tradelink-eBiz*, the G2B website also provides SMEs broader, timely, accurate and useful web content, which facilitates carrying out their trading business activities in a streamlined and useful manner. The latter web content, that is, government and trade-related information is always provided with rich semantics or cohesive as well as useful meanings as necessary for practical uses by SMEs in the trading business context. But still, the two G2B systems have not taken the initiatives to spearhead the provision of customized web content to target users or user groups.

In spite of the system constraints mentioned above, streamlining information delivery processes is largely the representative and essential public service product, whilst also serving to indirectly support formalizing new public service delivery mechanisms in relation to modernizing public administrative processes. With the current moderately high level of usefulness of the two G2B websites, the service providers involved synthesize the complete, timely and accurate information on behalf of SMEs with great ease in terms of efficiency and effectiveness based on their resourceful experiences and expertise accumulated specifically for the trading business. Consequently, SMEs are enabled to acquire the tangibly valuable information assets in a rather time-saving, and more importantly, synthesized approach. In

this way the item USEF01 has a positive influence on the satisfaction with using the G2B electronic services under examination.

Influence of Price Information in relation to public administration

For the item USEF02, both *Tradelink-eBiz* and *Ge-TS* have been disseminating online price information to their subscribers. To this end, online price information is an important common interested information asset in the best interests of SMEs, who are frequent users of the G2B electronic services concerned.

The two G2B systems have already streamlined the dissemination of price information by posting online, clear, updated and unbiased service charging information in different extents onto the designated web pages, whilst also meaning to make such information delivery process as transparent as possible. But *Tradelink-eBiz* seemed to have streamlined in an excessive manner, or in other case, to have oversupplied too much or rather complicated online price information. While maintaining the current moderately high level of usefulness of the two G2B websites and comparing with traditional way of doing so, the latter public administrative practice is conceivably a revamped public service product delivered in the new public management domain. Although online price information is generally perceived as not sensitive and even irrelevant as always observed in the context of e-Commerce, contemporary public administrative practices should be employed to affirm conducting open and non-discriminated trading deals or transactions as necessarily commissioned in the context of e-Government. In view of the aforementioned explication, the item USEF02 has a positive influence on the satisfaction with using the G2B electronic services under examination.

Influence of Reuse of Data in relation to public administration

The item USEF04 has been implemented within the domain of both *Tradelink-eBiz* and *Ge-TS* to facilitate the reuse of previously captured data for the conduct of government electronic trading transactions with the relevant government departments or agencies on an ongoing basis.

The reuse of previously captured data is highly appreciated by both the service providers and service consumers in different aspects of value creations as reviewed in the literature. In this regard, it is already aware that standard or commonly used business profile data are stored in the two G2B systems as much as possible, thereby facilitating the auto-transfer and filling of the required data in the relevant web forms of the different information system processes

involved. When comparing with the previous public administrative practices in the same aspect, SMEs are often required to spend repetitive data entry efforts in different areas of concern. Reuse of data becomes a mandatory requirement or compulsory function that is necessarily implemented in contemporary G2B systems. After all, based on the explication given above, SMEs are likely relieved of most of the burdens based on existing moderately high level of usefulness of the two G2B websites when they deal with government-related trading business under the new paradigm of customer-oriented public services. In this way the item USEF04 has a positive influence on the satisfaction with using the G2B electronic services being studied.

Influence of Tracking of Transaction Status in relation to public administration

For the item USEF05, both *Tradelink-eBiz* and *Ge-TS* provide the tracking of transaction status to integrate the overall public service delivery processes.

Traditional public service delivery processes have been so diversified and complicated in nature because of the wide-ranging responsibilities that a government has to take on for dealing with the requirements of the likewise wider user base. Such natures are perceived as some of intrinsic attributes of the pertaining public service delivery models, whereas such attributes have also brought about different levels of inconvenience and inefficiency to the service consumers involved.

Although having said all these, the corresponding levels of IT automations have been introduced by the two G2B systems to attain the current moderately high level of usefulness, thereby integrating the overall public service delivery processes as far as practicable. Serving to be a salient and an important public service product in the new public management domain, SMEs are enabled to readily track the updated status regarding the processing of their electronically submitted trade-related applications and/or transactions. From the perspective of SMEs, this public service product is critical to carrying out various trading business activities devised with the corresponding operational status, thereby expediting the immediate and right decision-makings in relation to running their business at a fast moving pace and in the dedicated business environment that features intensified competitive dynamics. In the light of the aforementioned explication, the item USEF05 has a positive influence on the satisfaction with using the G2B electronic services under examination.

Influence of Responses to Business Support in relation to public administration

In terms of the item USEF06, both *Tradelink-eBiz* and *Ge-TS* have provided the responses to business support, thereby streamlining the overall business support processes.

In this regard, streamlining the overall business support processes is also a salient and an important public service product in the new public management domain. The two G2B websites have been spending their endeavors by taking different approaches in achieving so. On the one hand, *Tradelink-eBiz* focuses on providing SMEs self-services in the form of online help facilities, meaning that SMEs are able to solicit the business support as required in an autonomous manner, or in other case, delivering business support services with fast responses. On the other hand, *Ge-TS* provides more consultancy-based or humanized business support services, which also appear to stay aligned with the conventional ones.

As trading business is fast-tracking in nature, the likewise fast business support services are important by instinct and they should be delivered without incurring as much human intervention as possible as also perceived from achieving existing moderately high level of usefulness of the two G2B systems, thereby making compatible with SMEs' business lifestyle as far as practicable. In the light of the explication given above, the item USEF06 has a positive influence on the satisfaction with using the G2B electronic services being studied.

Influence of Productivity Gains in relation to productivity

For the item USEF09, both *Tradelink-eBiz* and *Ge-TS* have improved productivity in the best interests of SMEs in every possible aspect of running their business.

The two G2B systems have been very aggressive in spending the necessary BPR and computerization efforts towards continuous system enhancements and upgrades, which go into launching a variety of G2B electronic service products consequently. For the past years, new G2B electronic service products have been frequently launched by *Tradelink-eBiz*, in particular, referring to the fact that the pertaining number of products has been growing significantly, and additionally, the underlying service realm and the range of related attributes have been likewise diversified. Based on the diversified range of G2B electronic services, it is thus expected to increase SMEs' productivity in different aspects of running their business as much as possible. The productivity gains largely manifest themselves as the values that are to be created quantitatively and qualitatively specifically for SMEs in different aspects including the high accuracy and integrity of online data, the increased convenience, efficiency as well as

effectiveness of effecting government electronic trading transactions, etc. in relation to dealing with government-related trading business and the affiliated trading documents.

However, based on existing moderately high level of usefulness attained in terms of the productivity gains that are fostered by the two G2B systems, the value creations concerned should not be so nimble or distinct, whilst also meaning that the benefits created for SMEs should be concrete and generic for realization to the larger extent pertaining to mainstream and broader business cases, but not to specific or narrower niche of business scenarios. Although having said all these, the aforementioned explication would probably infer that the item USEF09 has a positive influence on the satisfaction with using the G2B electronic services under examination.

Influence of Costs in relation to cost

For the item USEF10, both *Tradelink-eBiz* and *Ge-TS* achieve cost savings in the best interests of SMEs in different dimensions of running their business.

The pricing schemes of the two G2B websites and other related factors should be taken into consideration while evaluating the greater potentials of cost savings that contribute towards achieving the desired results in services satisfaction. To this end, *Tradelink-eBiz* seemed to appeal to SMEs because the G2B website genuinely relieves the tension between the actual costs incurred and tangible cost savings realized by offering SMEs seasonal discounts and special discounts on the bulk submission of electronic trading documents. With the current moderately high level of usefulness of the two G2B websites, SMEs are able to reap the real direct cost savings when dealing with government-related trading business matters or affairs. Based on the aforementioned explication, the item USEF10 has a positive influence on the satisfaction with using the G2B electronic services being studied.

Summary of services satisfaction

The positive correlation between usefulness and the item USESAT02 was supported. In other words, the satisfaction with using the G2B electronic services under examination increases with an increase in the level of performance achieved in USEF.

4.6.5 Adaptability

The main construct Adaptability (ADPT) of the two G2B websites showed inconsistent significance as an explanatory variable in Tables 4.15 and 4.17. ADPT was identified as a

non-significant explanatory variable with regard to the usage of the G2B electronic services being examined, meaning that it did not have a significant relationship with the item USESAT01. In addition, USEF was identified as a non-significant explanatory variable with regard to the satisfaction with using the G2B electronic services being examined, meaning that it did not have a significant relationship with the item USESAT02.

The suite of G2B electronic services delivered under the realm of ADPT encompasses the items Customized Information (ADPT01), Mediating Services (ADPT02), Collaborations among Business Partners for Data Sharing (ADPT03), Collaborations among Business Partners for Status Checking (ADPT04), Collaborations with the Service Consumers (ADPT05) and Selection of Business Contacts (ADPT06). Moderately satisfactory performance was achieved in ADPT at the level of sector profile as presented in Table 4.3. As described in Sections 4.3.1.1 – 4.3.1.2 and in association with the aforementioned services usage and services satisfaction, the following sections discuss the salient system capabilities of *Tradelink-eBiz* and *Ge-TS* in terms of the items ADPT02 and ADPT03. In addition to these items, the item ADPT04 was however the worst performed item among all.

4.6.5.1 Website functions, features and facilities

The items EOU04, EOU08 and USEF09 have been evaluated in conjunction with the system capabilities developed by both *Tradelink-eBiz* and *Ge-TS* for providing SMEs paper-to-electronic conversion services to manually submit paper-based trade-related documents, and additionally, special software packages like “ValuNet Deluxe”, “WebForm”, etc. to support their submission of various types of electronic trading documents. All these capabilities of the two G2B systems were actually assessed by means of the item ADPT02, whereas *Tradelink-eBiz* achieved better performance than that of *Ge-TS*. Specifically, the system capabilities concerned are collectively perceived as a suite of auxiliary services or otherwise mediating services dedicatedly delivered to SMEs for closing existing gaps in the particular areas of system interoperability and data compatibility between the G2B systems concerned and their legacy systems in an adaptive approach, thereby facilitating their use of the G2B electronic services being addressed to the wider extent.

In another respect, *Tradelink-eBiz* performed better than *Ge-TS* in the item ADPT03, which refers to the adaptation efforts spent by the respective G2B system on integrating with the information systems of other government departments or agencies, and the business partners involved with regard to the delivery of integrated G2B electronic services. Stated another

way, the adaptation efforts just mentioned also mean fostering the collaborations among the parties involved for supporting the data sharing as required, which in turn serves to be a by-product of such integrated G2B electronic services. Hence, reuse or sharing of the relevant data among the parties involved is harnessed to facilitate the use of common data exchange services, or to instantiate the parallel processing of electronic applications and/or transactions pertaining to different types of trading documents including TDEC, DCP, shipping orders, cargo information, etc., thus serving to be some representative service attributes of integrated G2B electronic services.

Lastly, the item ADPT04 had lower performance rating. In this regard, *Tradelink-eBiz* had better performance than that of *Ge-TS* in the same comparison area of adaptation imperative based on its provision of integrated G2B electronic services, namely, “e-Connect” and “Transaction Status Check”, whereas *Ge-TS* does not provide such equivalent integrated G2B electronic services at all as any indications of the joint or concurrent collaborations fostered among other partnering service providers for facilitating the status checking of electronic applications and/or transactions as submitted for processing various types of trading documents.

4.6.5.2 Services usage

The result showed that adaptability is not associated with the level of usage of the G2B electronic services concerned. A number of possible reasons that would explain the result obtained in the aspects of service delivery and collaboration, whilst also having recognized that the two G2B systems have implemented the items ADPT02, ADPT03 and ADPT04 at different levels of provision or sophistication as described in Section 4.6.5.1.

Influence of ADPT Items in relation to service delivery and collaboration

Both *Tradelink-eBiz* and *Ge-TS* have been excellent in some specific areas of service provision, including the items ADPT02 and ADPT03 that respectively (1) delivers mediating services in the form of auxiliary services to fusion together the G2B system concerned and the legacy systems of SMEs, and also, (2) strengthens the coordination of work with data sharing among the parties involved in facilitating the use of common data exchange services, and also, in processing electronically submitted trade-related applications and/or transactions. However, the two G2B systems did not perform well in the item ADPT04, which is expected to foster the joint or concurrent collaborations among the parties involved for facilitating the necessary status checking in relation to processing the electronic applications and/or

transactions mentioned above. Overall, the aforementioned aspects of service provision thus genuinely serve to transform conventional ways of public service delivery, and additionally, both inter- as well as extra-governmental collaborations among the government departments or agencies, and business partners involved in delivering integrated G2B electronic services.

Regardless of the current moderately high or low level of adaptability attained by the two G2B websites, the large majority of SMEs do not likely increase the services usage concerned because they usually use those necessary G2B electronic services as a business norm in order to deal with government-related trading business matters or affairs in an electronic orientation. Besides, some SMEs appear to be keen on pursuing their expectations, meaning that they may not satisfy with existing performance of the referring ADPT items, and they do not likely increase the usage of the G2B electronic services under examination.

Although having recognized the aforementioned issues in relation to increasing the services usage concerned, positive user responses are also likely returned regardless of existing moderately high or low level of adaptability of the two G2B websites. In this connection, in spite of the fact that different extents of benefits are generated accordingly in the aspect of system quality (DeLone and McLean, 2004) and other related value perspectives for the service consumers, they appear to be equally optimistic in terms of realizing the different values created in any case because they likely take into account such adaptation efforts while conceiving to increase the usage of the G2B electronic services under examination. In particular for the aspect of system quality, the system facilities provided by the referring ADPT items and hence the benefits involved are likely perceived by SMEs as the basic ones for adoption irrespective of the respective performance achieved. Based on the explication given above, the items concerned do not exert their influence in a direct and significant manner on the usage of the G2B electronic services under examination.

Summary of services usage

No correlation between adaptability and the item USESAT01 was supported due to the non-significance or unreliability of the performance rating data of the item USESAT01 for a positive correlation. In other words, the level of usage of the G2B electronic services under examination is not directly and significantly associated with the level of performance achieved in ADPT.

4.6.5.3 Services satisfaction

The result showed that adaptability is not associated with the level of satisfaction with using the G2B electronic services concerned. A number of possible reasons that would explain the result obtained in the aspects of service delivery and collaboration, whilst also having recognized that the two G2B systems have implemented the items ADPT02, ADPT03 and ADPT04 at different levels of provision or sophistication as described in Section 4.6.5.1.

Influence of Mediating Services in relation to service delivery

For the item ADPT02, both *Tradelink-eBiz* and *Ge-TS* provide mediation services to enhance the quality of the electronic services provided.

Both G2B systems have been designed and implemented to mesh with SMEs' existing business and system process flows as can be found in the typical example of paper-to-electronic conversion services for manually submitted paper-based trade-related documents. In this connection, such paper-to-electronic conversion services truly reveal the adaptation imperatives undertaken by the two G2B systems in the aspect of enhancing the public service quality. In another respect, the special software packages offered by *Tradelink-eBiz*, which facilitate the electronic submission of different types of trading documents to the G2B system, do not create the likewise benefits because SMEs just take the initiatives themselves to adapt to the mandatory government electronic trading requirements instead, that is, they deliberately and proactively undertake the adaptation imperatives instead for dealing with government-related trading business matters or affairs by having installed such software packages on their existing computing platform.

To this end, *Tradelink-eBiz* has been just apparently adapted to SME's existing IT capabilities and operations by solely making its software packages compatible with different mainstream computing platforms of SMEs as far as practicable while achieving the current moderately high level of adaptability. Specifically, this argument also helps reinforce the counterpart argument presented in Section 4.6.2.3, which explains the potential impacts of the item COMP01, that is, "one-stop" business-centric cluster and integrated G2B electronic services on the services satisfaction concerned. In other words as recapped from the section therein, the argument that SMEs would regard their current practices applied to closely align their existing business and legacy system processes with those already set in place on the government side for dealing with the mandatory government-related trading business matters or affairs, is further revitalized herein in terms of explication for the decrease in the satisfaction with the G2B electronic services under examination.

Notwithstanding the aforementioned arguments, some SMEs still highly appreciate the significant benefits generated from the provision of mediating services, and consequently, they are likely to increase the services satisfaction concerned. With the arguments concerned, the item ADPT02 does not exert its influence in a direct and significant manner on the satisfaction with using the G2B electronic services being addressed.

Influence of Collaborations among Business Partners for Data Sharing in relation to Collaboration

In terms of the item ADPT03, both *Tradelink-eBiz* and *Ge-TS* support the data sharing of previously captured data among the partnering service providers involved to facilitate the use of common data exchange services, and to process electronically submitted trade-related applications and/or transactions.

In this connection, data sharing of previously captured data among the parties involved is perceived as a further extension of reuse of data as discussed in Section 4.6.4.3. Stated another way, the reuse or sharing of business profile data, in particular, is further extended across different system domains of the service providers who are in collaboration with both *Tradelink-eBiz* and *Ge-TS*. This is genuinely true especially when multiple electronic service nodes, that is, multiple service providers make concerted adaptation efforts to deliver integrated G2B electronic services by integrating the information chains that pertain to the network of information systems involved in the aspects of data exchange formats and system interoperability.

In spite of the merits shown by the latter well-performed integrated G2B electronic services of *Tradelink-eBiz* as can be seen from existing moderately high level of adaptability achieved, in particular, OECD (2003a), and AGIMO (2006) pointed out that the corresponding adaptation imperative is connected to the larger security and privacy issue if business profile data are perpetually stored in non-legacy or third party information systems. As a consequence, the issue concerned likely becomes a deterrent of the satisfaction with using the G2B electronic services being addressed, and it should be duly addressed by the two G2B systems in future. In another respect, some SMEs reckon the fact that salient benefits have been generated subject to the moderately well-performed item ADPT03, whilst also meaning that they are likely to increase the services satisfaction concerned. Based on the aforementioned

explication, the item ADPT03 does not exert its influence in a direct and significant manner on the satisfaction with using the G2B electronic services under examination.

Influence of Collaborations among Business Partners for Status Checking in relation to Collaboration

For the item ADPT04, both *Tradelink-eBiz* and *Ge-TS* have fostered joint or concurrent collaborations among the parties involved to facilitate the necessary status checking in relation to processing electronically submitted trade-related applications and/or transactions.

Adaptation efforts have been made by the two G2B systems in the aspects of furnishing common interoperability framework and shared IT infrastructure at both inter- and extra-governmental levels to nurture the joint or concurrent collaborations and cooperation among the partnering service providers for the delivery of integrated G2B electronic services, and consequently, to make available the necessary processing status checking by SMEs about their electronically submitted trade-related applications and/or transactions. The latter status checking also means that SMEs are not required to do separate login to the website of the respective service provider involved.

From the perspective of SMEs, they realize that such adaptation imperative actually facilitates the tracking of transaction status, thereby further increasing the usefulness of the two G2B websites as discussed in Section 4.6.4.3. In the present situation, the two G2B systems attain moderately low level of adaptability specific to this specific service provision. In particular for *Tradelink-eBiz*, the G2B system currently provides SMEs “e-Connect” and “Transaction Status Check”, which aid the checking of single consolidated status assigned with value ‘Work in Progress’, ‘Completed’, etc. for each electronically submitted trade-related application and/or transaction only, but not the multiple statuses as should be updated by the information system of the respective service provider involved at different stages of processing such electronic trade-related application and/or transaction.

Although having said all these, SMEs would also know that the underlying synchronization mechanisms of different operational statuses involved is complicated in nature on the one hand, whereas they would not probably concern about the system-oriented adaptation issues at all on the other hand. The purpose of making such an argument is mainly to reveal the fact that SMEs do not likely decrease the satisfaction with using the G2B electronic services under examination because they may be so generous, whereas they still heavily rely on the

availability of the single status mentioned above at the bottom line for making the decisions as required in relation to running their business. Stated differently, the provision of such single status is sufficed to support carrying out their daily routine trading business operations. As another possible consequence, SMEs would even increase the services satisfaction concerned since they would not probably wait long for getting the final status result of processing a particular electronic trade-related application and/or transaction.

However, existing moderately low performance attained by the item ADPT04, in particular, likely brings about the decrease in the services satisfaction concerned as envisaged in a general sense. Based on the explication given above, the item ADPT04 does not exert its influence in a direct and significant manner on the satisfaction with using the G2B electronic services being studied.

Summary of services satisfaction

No correlation between adaptability and the item USESAT02 was supported due to the non-significance or unreliability of the performance rating data of the item USESAT02 for a positive correlation. In other words, the level of satisfaction with using the G2B electronic services under examination is not directly and significantly associated with the level of performance achieved in ADPT.

4.6.6 Trust

The main construct Trust (TRUST) of the two G2B websites showed inconsistent significance as an explanatory variable in Tables 4.15 and 4.17. TRUST was identified as a moderately significant explanatory variable with regard to the usage of the G2B electronic services being examined, meaning that it had a moderately significant relationship with the item USESAT01. In addition, USEF was identified as a non-significant explanatory variable with regard to the satisfaction with using the G2B electronic services being examined, meaning that it did not have a significant relationship with the item USESAT02.

The suite of G2B electronic services delivered under the realm of TRUST encompasses the items Trustworthy Business Partners (TRUST01) and Trusted Electronic Commerce Environment (TRUST02). Satisfactory performance was achieved in TRUST at the level of sector profile as presented in Table 4.3. As described in Sections 4.3.1.1 – 4.3.1.2 and in association with the aforementioned services usage and services satisfaction, the following sections discuss the salient system capabilities of *Tradelink-eBiz* and *Ge-TS* in terms of the

item TRUST02. In addition to this item, the item TRUST01 similarly demonstrated satisfactory performance among all.

4.6.6.1 Website functions, features and facilities

For the first assessment item, both *Tradelink-eBiz* and *Ge-TS* achieved rather high performance in the item TRUST01, that is, the assessment item related to the delivery of authentic electronic services over the Internet. With the adoption and application of cutting-edge technologies such as Hypertext Transfer Protocol Secure (HTTPS), PKI-based digital signature technology, etc., the two G2B systems have been excelled at delivering electronic services whilst also ensuring their authenticity and the authenticity of the service consumers. As such, non-repudiation of electronic identities has been secured pertaining to both the service providers and service consumers in compliance with the ETO as always pursued in contemporary Internet-based e-Commerce and e-Government systems. While having said all these, *Tradelink-eBiz* achieved higher performance than that of *Ge-TS* leveraging the dedicated, comprehensive and reliable online security services provided by Digi-Sign.

The two G2B systems achieved rather satisfactory performance in the item TRUST02, that is, creating the respective trusted G2B environment, wherein secured and reliable electronic transactions are conducted and effected without compromising the underlying repudiation, whilst also meaning to be in conformity to the ETO and PDPO set forth in Hong Kong. To this end, *Tradelink-eBiz* appealed to most SMEs in terms of Digi-Sign's PKI-based online security services, meaning that the G2B system performs better than *Ge-TS* in terms of the same equivalent online security services provided. In addition, *Tradelink-eBiz* clearly stipulates the relevant legal principles and policies that are to be enforced and taken with regard to the use and protection of the data collected from SMEs subject to the appropriateness of the business and system contexts concerned.

4.6.6.2 Services usage

This result is interpreted in terms of how the higher level of trust is related to increased usage of the G2B electronic services concerned. A number of reasons that possibly explain the result obtained are explored in the aspect of public administration, whilst also taken into account that the items TRUST01 and TRUST02 have been implemented at different levels of provision or sophistication within the domain of the two G2B systems as described in Section 4.6.6.1.

Influence of Trustworthy Business Partners in relation to public administration

The item TRUST01 has been implemented in the system contexts of both *Tradelink-eBiz* and *Ge-TS* with the use of advanced online security technologies to provide authentic electronic services for facilitating the conduct of authentic electronic transactions.

SMEs choose to fulfill the requirements as set forth on the government side in order to be able to engage in government-related trading business in an electronic orientation. As also mentioned in Section 4.6.2.2, it is therefore necessary for SMEs to keep up with the frequency of usage of the G2B electronic services under examination according to the mandatory government electronic trading requirements and their business needs. This also means that they are further enabled to achieve so even in a confident way if the trust of SMEs is increased under the new paradigms of public administration. For the latter trust level concerned, the two G2B systems have already attained moderately high level of trust by formalizing electronic authentication mechanisms pertaining to their production websites and each of their subscribed SMEs in accordance with the mandatory online security requirements and ETO imposed on contemporary Internet-based e-Government systems although also having brought about certain disadvantages of technological overheads or burdens concurrently. Accompanying with the use of Digi-Sign's dedicated, comprehensive and reliable online security services, *Tradelink-eBiz* achieved higher performance than that of *Ge-TS*. In this way the item TRUST01 has a moderately positive influence on the usage of the G2B electronic services being studied.

Influence of Trusted Electronic Commerce Environment in relation to public administration

For the item TRUST02, both *Tradelink-eBiz* and *Ge-TS* have been creating trusted G2B environment, thus serving to deliver the well conceived combination of GETS in the new public management domain.

The service providers of the two G2B websites have the structural obligations to build trusted G2B environment, wherein both security and privacy issues are prudently addressed by taking technical, legal and policy measures. Accordingly, non-repudiation of G2B electronic transactions is enforced and the related data are also encrypted wherever necessary, security threats are countered, etc. by technical measures on the one hand, whereas protection of the collected G2B electronic transaction data from non-legitimate disclosures is effected, etc. by legal and policy measures on the other hand in the trusted system environments concerned.

After all, both *Tradelink-eBiz* and *Ge-TS* deserve to achieve moderately high level of trust in the new public management domain having created their respective trusted system environment, thereby increasing SMEs' trust for sustaining their use of the electronic services under examination. As such, SMEs are likely enabled to maintain the prescribed level of usage of the G2B electronic services being examined as also discussed in Section 4.6.2.2 in spite of the fact that a minority of SMEs would still keep in mind the drawbacks of potential disputes on G2B electronic transactions effected over the Internet. Based on the explication given above, the item TRUST02 has a moderately positive influence on the usage of the G2B electronic services under examination.

Summary of services usage

The low positive correlation between trust and the item USESAT01 was supported. In other words, the usage of the G2B electronic services under examination moderately increases with an increase in the level of performance achieved in TRUST.

4.6.6.3 Services satisfaction

The result showed that trust is not associated with the level of satisfaction with using the G2B electronic services concerned. A number of possible reasons that would explain the result obtained in the aspect of public administration, whilst also having recognized that the two G2B systems have implemented the items TRUST01 and TRUST02 at different levels of provision or sophistication as described in Section 4.6.6.1.

Influence of Trustworthy Business Partners in relation to public administration

Both *Tradelink-eBiz* and *Ge-TS* provide authentic electronic services and facilitate conducting authentic G2B electronic transactions for the implementation of the item TRUST01 as described in Section 4.6.6.2.

SMEs always expect to have greater trust and confidence in using e-Government services in the new public management domain. In achieving so, prevalent online security technologies have been adopted and applied by the two G2B systems in formalizing their respective electronic authentication mechanisms. Although having said this, existing moderately high level of trust attained by the two G2B websites does not likely exert direct and significant influence on the level of the services satisfaction concerned as indicated from the corresponding multiple regression analysis result. In this regard, one possible explanation for the result obtained is that there would exist overheads or burdens in administering and

mastering the use of hardware security tokens and PKI-based digital signatures from the perspective of SMEs, and also, the prevalent online security technologies being in use would probably entail longer processing time for electronic transactions from the technical point of view as reported by AGIMO (2006). As a consequence, the satisfaction with using the G2B electronic services under examination is likely decreased.

Notwithstanding the aforementioned deficiencies, while having realized such well-performed online security facilities of both G2B websites and the pertaining benefits by their very nature on the one hand, the services satisfaction concerned is likely increased on the other hand. In the light of the explication given above, the item TRUST01 does not exert its influence in a direct and significant manner on the satisfaction with using the G2B electronic services being studied.

Influence of Trusted Electronic Commerce Environment in relation to public administration

Both *Tradelink-eBiz* and *Ge-TS* establish their respective trusted G2B environment or system environment for the implementation of the item TRUST02 as described in Section 4.6.6.2.

SMEs always expect to have greater trust and confidence in using e-Government services in the dedicated trusted system environment. To this end, they may also take it for granted that e-Government services should always be secured and reliable, thus serving as an indication of the good public image of a responsible government in the new public management domain. Although *Tradelink-eBiz* has performed better than *Ge-TS* in this service provision, SMEs likely reckon that the two G2B systems should have already achieved so as a conformity to the mandatory online security requirements accompanying with the adoption and application of prevalent online security technologies, and additionally, the legally- as well as policy-bound stipulations of the use and protection of the collected data.

In spite of the current moderately high level of trust attained by the two G2B websites, SMEs would not probably take this factor into consideration while conceiving to increase the satisfaction with using the G2B electronic services under examination. This also means that the level of the services satisfaction concerned is not likely affected directly and significantly at all. A possible explanation is given for the result obtained that SMEs would probably concern about any disputes, which would be possibly raised over electronic transactions even though comprehensive and reliable online security services have already been put in place

within the domain of the two G2B systems. Hence, building greater trust and confidence in the dedicated G2B environment would still be a hassle from the perspective of SMEs, for which they likely decrease the services satisfaction concerned.

Although having confronted with the aforementioned difficulties, it should be noted that SMEs likely increase the services satisfaction concerned when they are able to garner trust and confidence as always envisaged in the dedicated G2B environment. Based on the aforementioned explication, the item TRUST02 does not exert its influence in a direct and significant manner on the satisfaction with using the G2B electronic services being examined.

Summary of services satisfaction

No correlation between trust and the item USESAT02 was supported due to the non-significance or unreliability of the performance rating data of the item USESAT02 for a positive correlation. In other words, the level of satisfaction with using the G2B electronic services under examination is not directly and significantly associated with the level of performance achieved in TRUST.

4.7 Summary

Based on the EWAM strategy evaluation results presented in Figure 4.5, all points representing categories of electronic services of both *Tradelink-eBiz* and *Ge-TS* fall into the “Maintain Strategy” zone, and none were far from the diagonal line. This actually means that the G2B websites concerned should be further improved in different appropriate service aspects in order to pursue the business strategy “Maintain Strategy” on an ongoing basis. On the other hand, the multiple regression analysis results are summarized based on Tables 4.15 and 4.17 as follows:

- (1) The influences that COMP exerts on the usage of the G2B electronic services under examination are positive, meaning that such services usage is increased when higher level of performance is achieved in COMP.
- (2) The influences that EOU exerts on the satisfaction with using the G2B electronic services under examination are positive, meaning that such services satisfaction is increased when higher level of performance is achieved in EOU.

- (3) The influences that USEF exerts on the satisfaction with using the G2B electronic services under examination are positive, meaning that such services satisfaction is increased when higher level of performance is achieved in USEF.
- (4) The influences that ADPT exerts on the usage of and satisfaction with using the G2B electronic services under examination are negative, meaning that such services usage and satisfaction are not increased when higher level of performance is achieved in ADPT.
- (5) The influences that TRUST exerts on the usage of the G2B electronic services under examination are moderately positive, meaning that such services usage is increased when higher level of performance is achieved in TRUST.

Chapter 5 Conclusions

5.1 Introduction

This chapter places a well-delineated focus on the conclusions of the current research. The conclusions are addressed in the aspects of (1) presenting the important contributions made in terms of implications for practice and stakeholders in Section 5.2, (2) discussing the limitations of the current research in Section 5.3, (3) suggesting possible directions for carrying out future research in related or similar disciplines in Section 5.4, and (4) summarizing the conclusions developed upon the finalization of this thesis in Section 5.5.

5.2 Contributions

The current research was conducted along the research direction or objectives as set out in Section 1.5, thus serving to prudently address the statement of the research problem as presented in Section 1.3. Based on the research direction or objectives, the main achievements of the current research are given as follows:

- (1) To derive and build the theoretical G2B success model based on a proliferation of the literature on the development of e-Commerce and e-Government.
- (2) To test the revised G2B success model in accordance with the answers to the network of research questions or hypotheses, thereby affirming a potentially viable G2B success model.
- (3) To compile and present the research findings according to the interpretation of both the multiple regression analysis results and EWAM strategy evaluation results, thereby delineating in terms of implications for practice and stakeholders respectively, the necessary improvements and potential value creations that may be materialized in different service aspects whichever appropriate of the two G2B systems under examination.

Implications for practice

For the last aspect of contributions mentioned above, the current study puts forth in accordance with the current research findings, the recommendations, that is, the necessary or salient improvements in the form of the implications for practice from the implementation

point of view, and also, specific to both *Tradelink-eBiz* and *Ge-TS*. The recommendations concerned are also in conformity to the business strategy “Maintain Strategy” as presented in Figure 4.5. To this end, the current research does not intend to present distinct set of recommendations for each of the two G2B service providers because they have achieved moderately similar performance as reported in Table 4.3.

The ensuing Sections 5.2.1 – 5.2.4 discuss the ten recommendations in terms of best practices and guiding principles, which collectively mean improving the corresponding functions, features and facilities whichever applicable of the characteristics or qualities of the G2B websites concerned, including their (1) comprehensibility in Section 5.2.1, (2) ease of use in Section 5.2.2, (3) usefulness in Section 5.2.3, and (3) trust in Section 5.2.4, thus serving to improve the usage of and satisfaction with using the pertaining electronic services from the perspective of service consumers. Overall, although these implications for practice appear to be provided specifically for the two G2B websites, the current research still holds its neutral point of view that they are assumed to be congruent and representative at time of the study, and also, in other applicable implementation contexts to the larger extent.

Although having said all these, the current research assumes that positive implementation effects will always come into play based on certain prerequisite conditions, including (1) promotion or incentive programmes, which promote or encourage SMEs using the electronic channel to submit trade-related documents despite the fact that SMEs’ import and/or export trading business volume cannot be controlled on the service provider side, (2) fair pricing schemes, which do not impose incremental service charges for each type of G2B electronic services provided, and (3) IT training programmes, which provide SMEs the IT capabilities as required in order to be able to participate in G2B electronic markets, thereby not being fallen into the digital divide in the information age.

Implications for stakeholders

For the last aspect of contributions mentioned above, the current research elaborates in the form of the implications for stakeholders the substantial and positive values created in appropriate value perspectives having implemented the corresponding recommendation in the G2B system contexts concerned. The implications for stakeholders are provided along four dimensions of values, which should also be interpreted in such a way that all the stakeholders involved including the (1) service providers, that is, both *Tradelink-eBiz* and *Ge-TS*, (2)

service consumers, that is, SMEs, (3) government sector, and (4) trading community would be able to realize the intended benefits.

The four dimensions of values mainly correspond to direct, indirect, quantitative and qualitative benefits in whichever applicable combinations. While maximizing direct and substantial values on behalf of both the service providers and service consumers is essential for assessing the success of the G2B websites concerned on the one hand, the current research also envisages that such values to the extent of website success would be amplified, inferred and realized to the greater extent of values created for sector success, whilst taking the perspective of the government sector and trading community on the other hand.

5.2.1 Comprehensibility

The current research findings showed that COMP was a significant explanatory variable with regard to the usage of the G2B electronic services being examined, meaning that it has a significant relationship with the item USESAT01. However, COMP was a non-significant explanatory variable with regard to the satisfaction with using the G2B electronic services being examined, meaning that it does not have a significant relationship with the item USESAT02.

5.2.1.1 *Strengthening the depth and breadth of business orientation of service clusters* **(Recommendation 1)**

(i) Improvement on Business-centric Cluster Services in relation to service delivery

This recommendation associates with public service delivery mechanisms, which would be made in the item COMP01, that is, “one-stop” business-centric cluster and integrated electronic services to increase the comprehensibility of the two G2B websites, thereby possibly increasing the usage of the G2B electronic services under examination.

Findings. As recapped from Section 4.6.2.2, the current research reported that the G2B systems concerned have been feasible to deliver “one-stop” but moderately business-centric cluster electronic services for facilitating the fulfillment of the mandatory government electronic trading requirements. In this connection, SMEs likely need to make their existing business and legacy system processes closely aligned with those counterpart processes established on the government side while fulfilling these mandatory requirements. To the extent that such service clusters have been provided in a functional perspective, that is, merely

with a predetermined range of G2B transaction services, the current research supposes that the G2B websites concerned are not qualified as comprehensive or full-fledged yet.

Improvement. In response to such observations, a diversified range of G2B electronic services is suggested to be delivered in different combinations, and to employ consolidated user interface as to increasing the efficiency and effectiveness of service accesses within the domain of the two G2B systems. Stated another way, diversified G2B electronic services mentioned above would be grouped and delivered in the right mix of service types at a minimum in order to become genuine “one-stop” business-oriented cluster G2B electronic services from the perspective of service consumers, whilst also having retained their originality of satisfying the mandatory government electronic trading requirements. In achieving so, the current research believes that the underlying business orientation of a service cluster would be reinforced in terms of its depth, thus serving to be one of the facets of increasing the comprehensibility of the G2B websites concerned for pursuing a more successful implementation case.

Therefore, strengthening the depth of business orientation specifically for SMEs would be accomplished in the aspect of clustering G2B electronic services with the well conceived combination of pertaining information, communication and transaction services, thus serving for the mass delivery of high volume-based service clusters in a system-defined orientation. This actually means that the functional or transactional perspective of the trading business would not just solely be taken to provide the respective cluster of G2B transaction services for furnishing the electronic submission of each different type of trade-related documents. In other words, they would not stay with such single notion of service provision that leads to the solo mentality of existing usage of the G2B electronic services under examination as discussed in Section 4.6.2.2. Instead, to the service consumers, the depth of business orientation, that is, the diversity of each cluster of G2B electronic services is expected to be widened accompanying with the provision of various types of G2B electronic services pertaining to other perspectives of the trading business, thereby possibly increasing the opportunity of using even more varieties of G2B electronic services other than those statutory ones prescribed for dealing with government-related trading business matters or affairs.

In another respect, the current research suggests that existing public service delivery mechanisms would be enhanced as far as practicable in more varieties such as the use of consolidated user interface, service cluster navigator across different web pages of the

pertaining service cluster nodes, etc., whilst also having retained their originality of satisfying the mandatory government electronic trading requirements. In this regard, the current research observes that the underlying business orientation of a service cluster would be reinforced in terms of its breadth, thus serving to be one of the facets of enriching the comprehensibility of the G2B websites concerned for pursuing a more successful implementation case.

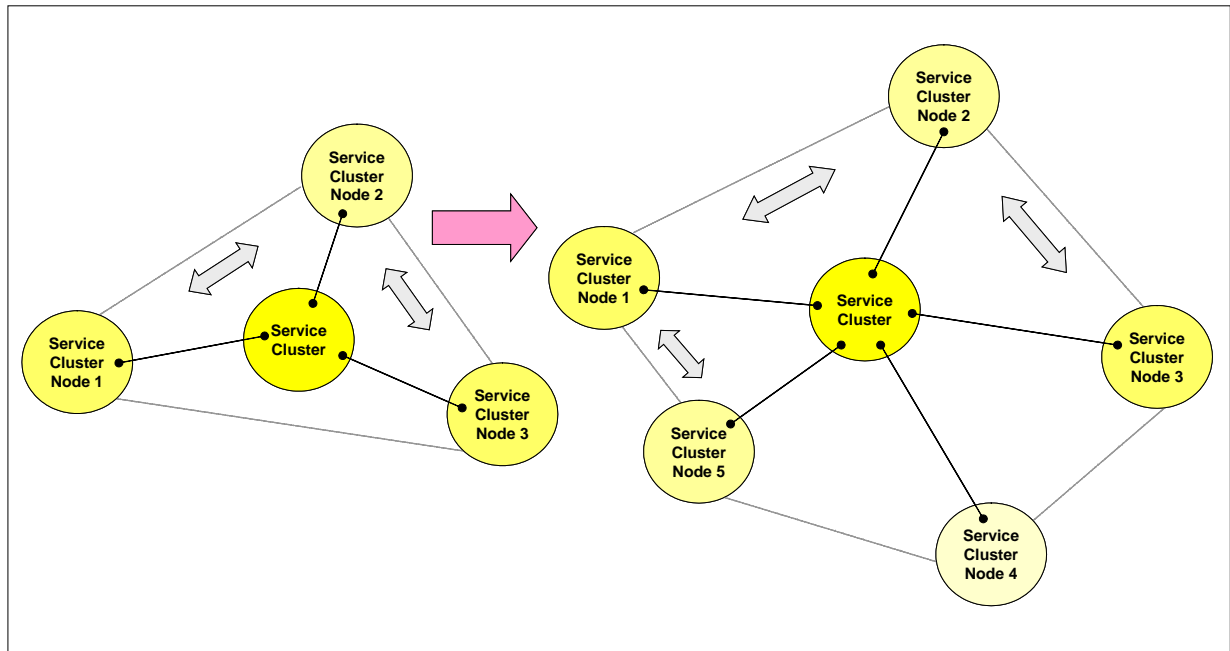
Hence, strengthening the breadth of business orientation specifically for SMEs would be achieved in two dimensions, including (1) the clustering of G2B electronic services revolving around the trading business life event flows in a continual manner, but not just confining to the particular discrete trading business life events only as currently found in each dedicated service cluster, which fulfills the high volume-based electronic submission of TDEC, DCP, EMAN, etc. respectively in a system-defined orientation, and more importantly, (2) the clustering of G2B electronic services based on the notion of “Business Suite”, which embodies the concept that the service consumers themselves would determine and deploy any available G2B electronic services in a service cluster based on their own preferences, that is, service cluster, or in other instance, information-intensive cluster in a user-defined or self-servicing orientation. To this end, this public service delivery option or attribute would be autonomous-based from the perspective of service consumers as opposed to existing one defined according to the notion of static trading business life events, topics or themes.

While addressing the recommendation concerned, the breadth of business orientation of service clusters would be broadened than ever. Along with such efforts, it is also expected to concurrently remove those burdensome requirements for SMEs to make their business and legacy system processes compatible with the counterpart processes of the relevant government departments or agencies. As an example, more loosely coupled web-based applications rather than standalone proprietary software packages would be developed in order to facilitate capturing the required data for the submission of electronic trading documents, and effecting other trade-related transactions in a common-wide and flexible approach. Amalgamating all the enhanced public service delivery attributes identified so far would possibly increase the usage of the G2B electronic services under examination taking the perspective of service consumers.

On the other hand, the virtue of making this recommendation a reality, in particular, would be contingent on the object-oriented (OO) approach to deploying G2B electronic services on the dedicated system platform, whilst also meaning that each G2B electronic service would be

instantiated as an instance of the pertaining G2B electronic service object, that is, the building block of available G2B electronic service by individual service consumer on an autonomous basis. From the technical point of view, the current research also supposes that prevalent IT such as service-oriented architecture (SOA) together with the related implementation approaches including Web services, etc. are able to support adjusting the perimeter or elasticity of each service cluster as presented in Figure 5.1, whilst also accommodating more flexibilities and sophistications in the aspects of service composition, service reusability and service relevance, in particular. However, the current research also draws the attentions to cluster service deployment controls that such building blocks of available G2B electronic services should be largely informational, but mildly interactive and transactional ones because of the their innate service complexity. Notwithstanding, with such a substantial amount of freedom to encapsulate component-based G2B electronic services in service clusters, the breadth of business orientation would be strengthened as expected subject to each service consumer's choices, thereby possibly revitalizing the “one-stop” cluster G2B electronic services to become more business-oriented and hence comprehensive than before, and also, potentially increasing the services usage concerned.

Figure 5.1 Increased elasticity of a service cluster^(a)



(a) In principle, each service cluster node would be instantiated as an integrated G2B electronic service node, or a non-integrated G2B / B2B electronic service node, meaning that it would be either an integrated G2B electronic service, or a non-integrated G2B / B2B electronic service clustered in a service cluster. However, each service cluster node is described intentionally as an electronic service clustered specifically for the business sector, or alternatively, a cluster G2B electronic service throughout this thesis just for the purpose of simple presentation.

(ii) *Implications for service providers and government sector*

Service providers. This recommendation includes (1) widening the diversity of each cluster of G2B electronic services through the provision of more service types pertaining to other perspectives of the trading business in order to strengthen the depth of business orientation of service clusters, and (2) clustering G2B electronic services according to the continual trading business life event flows, but not just confining to the particular discrete trading business life events in order to strengthen the breadth of business orientation of service clusters. Harnessed with the mass delivery of these additional prescribed and enhanced high volume-based service clusters, the first facet of value creations would then be realized by the service providers mainly through increasing existing and new subscribers' take-up of such high volume-based public service products, thereby enlarging existing user base of the G2B websites concerned and hence achieving a critical mass of service consumers in an expansive manner.

Government sector. To the government sector, the notable benefit of high penetration of G2B initiatives would be generated based on the increasing take-up of high volume-based service clusters by existing and new subscribers of the G2B websites concerned. This is important because the wide adoption of G2B initiatives should always be benchmarked for the successful development of e-Government in the HKSAR in a general sense.

Service providers. As well, the current research proposes rather agile public service delivery mechanisms to facilitate dealing with government-related trading business in an innovative way. This actually refers to the second facet of value creations through strengthening the breadth of business orientation of service clusters in another aspect. Specifically, the underlying public service design principles would be autonomous-based, whilst meaning to pursue the paradigm of shared or generically reusable public service provision. This public service provision actually refers to a wide array of building blocks of available and granular G2B electronic services, which decentralize the public service delivery capabilities from the perspective of service providers. Stated another way, the service providers would not go for the "design-for-all" public service delivery model in the sense that they would rationalize the public service delivery mechanisms through deliberately adjourning the provision of proprietary service clusters other than those frequently accessed high volume-based service clusters as mentioned in the preceding paragraph. As a possible consequence, it is thus anticipated that unplanned IT application development efforts and costs would be saved, thus serving to be the substantial values created for the service providers. After all, the current research further suggests that separate electronic notification mechanisms should be formalized so that the service consumers would be appropriately informed of the key changes

in the building blocks of G2B electronic services mentioned above for the purpose of effecting instantaneous synchronization with the affected service clusters.

Government sector. While leveraging autonomous-based public service delivery mechanisms as mentioned above, the value creations for the service providers are also realized as the values created for the government sector. In achieving so, amalgamating the common-wide and autonomous approaches would become a “not-design-for-all” approach to delivering e-Government services in the broadest sense. Specifically, while adopting a common-wide approach to delivering mainstream high-priority or high volume-based e-Government services would necessitate static end-to-end manpower, financial and time resources on the one hand, whereas an autonomous approach to delivering tailored ones would require the service consumers themselves to assume and reshuffle such manpower and time resources accordingly on the other hand. Consequently, the government sector would be able to redeem the remaining scarce resources mentioned above for developing more valuable and emergent e-Government services.

(iii) Implications for service consumers and trading community

Service consumers. The notion of this improvement, in particular, unleashes the affiliated value creations in two main aspects. The first aspect of value creations would be realized by the service consumers primarily from the mass delivery of more prescribed and enhanced public service products, that is, high volume-based service clusters, including those mentioned in Section 5.2.1.1(ii). Specifically, this aspect of value creations would not be fragmented as generally found in existing implementations, but instead they would be likewise continual surrounding the efficiency and effectiveness that are to be engendered for the service consumers.

The second aspect of value creations would generate a completely new array of benefits on behalf of the service consumers. Existing Internet-oriented public service delivery model has been prescribing the same ways of doing business with the relevant government departments or agencies as conventional ones, and this seems to be always true in terms of the mass delivery of public service products and cost implications from the perspective of service providers. Instead, the current research suggests that the aforementioned Internet-based public service delivery mechanisms would also be autonomous-based, meaning that the service consumers themselves would be allowed to pick up and cluster the types of G2B electronic services they really want to or frequently access. In view of the ever-demanding trading

business requirements, and also, the fact that no any single G2B service provider is able to fully devote user requirement identification and consultation efforts for tackling every ubiquitous and unique business-centric affair of G2B initiatives, or alternatively, every possible option for packaging G2B electronic services in a general sense, true “one-stop” business-centric cluster G2B electronic services would be delivered to individual SME.

After all, the values creation mechanisms would no longer be prescribed in the usual way as also found in existing implementations. From the perspective of service consumers, in addition to gaining the benefits of using those high volume-based service clusters started from the periphery, the value creation mechanisms just mentioned would be likewise autonomous, meaning that SMEs themselves would determine the values to be created from the deployment of user-defined information and service clusters. As an example of values that would be created in the course of accessing user-defined information clusters, in particular, such business-centric value creations would be highly appraised by the service consumers because of the greater and genuine autonomy given for eliminating the input of duplicate search data, or in other case, the browsing, repeated or redundant search of unnecessary or overloaded information.

Trading community. As inspired by the two areas of value creations mentioned above, it is thus envisaged to amplify their multiplier effects for the trading community. In particular for the second area of value creations that pertain to the deployment of user-defined information clusters, a knowledge-based trading community would be developed leveraging the multiplier effects of value creations. Conventional perception of the SME sector has been always in association with non-technically savvy, lack of sufficient IT, business and industrial knowledge. As such, the multiplier effects of autonomous-based and business-centric value creation mechanisms would manifest themselves in an even more expansive manner to help foster a knowledge-based SME sector in the HKSAR because each individual SME in its autonomy would be enabled to freely acquire the necessary information and hence the required knowledge based on its own preferences. As its knowledge intensity would be getting higher, the SME itself would become more capable to perpetually elicit even broader body of information and knowledge.

5.2.1.2 Adopting open and on-demand system integration approach (Recommendation 2)

(i) Improvement on Business-centric Cluster Services in relation to public administration

This recommendation associates with public administration, which would be made again in the item COMP01, that is, “one-stop” business-centric cluster and integrated electronic services to increase the comprehensibility of the two G2B websites, thereby possibly increasing the usage of the G2B electronic services under examination.

Findings. Based on Section 4.6.2.2, the current research reported that the G2B systems concerned have been pursuing each specific service provision of “one-stop” business-centric integrated electronic services, which is in turn subsumed in the corresponding service provision of “one-stop” business-centric cluster electronic services as currently found in the respective service cluster developed for the submission of each mainstream electronic trading document. In the present situation, a pre-deterministic approach is sought mainly under typical vertical system integration regime, in particular, whilst also meaning that cumbersome agreed-on arrangements have to be made among the public service providers involved, and additionally, about the planned data and information to be transferred or exchanged before fulfilling the actual vertical system integrations and hence the electronic submission of a particular trade-related document. As the service clusters mentioned above have been provided taking both vertical system integration and high cost perspectives only, the current research supposes that the G2B websites concerned have not attained the desirably high level of comprehensibility yet.

Improvement. In response to such observations, the current research suggests that an open and on-demand system integration approach would be adopted to fulfill the necessary data and information integration requirements, which should be initiated when delivering “one-stop” business-centric integrated and hence cluster electronic services in the dedicated G2B system contexts. Figure 5.2 illustrates the relationship between the two streams of G2B electronic services. This revamped approach to integrating the required data and information among the partnering service providers involved would be applied to develop a saliently improved public service product in the new public management domain. In effect, there not exists any bounds specific to vertical, horizontal and other dimensions concerning the partners’ participation, and also, any preset specifications on the data and information to be transferred or exchanged in the system integration processes. While achieving so, the current research believes that the fullest extent of system integration would be realized in terms of increasing its dynamics and flexibility, thus serving to be one of the facets of increasing the comprehensibility of the G2B websites concerned for pursuing a more successful implementation case.

In one respect, increasing the dynamics and flexibility would depend on the likewise enhancement on the openness of such system integration approach. To this end, the current research enlightens a number of ways that would achieve so by the relevant government departments or agencies, and also, private businesses involved, including (1) the freedom of choice as to incorporating the partnering service providers or G2B electronic services in different and dynamic combinations as required, that is, amalgamating business or transaction processes and steps pertaining to different service cluster nodes for instantiating the system integrations whichever necessary, (2) the development of open mentality for fostering the mutual-beneficial system integration culture conducive to data and information transfers or exchanges, and (3) the application of enterprise-wide solutions leveraging common integration architecture or gateway, open interoperable IT framework and related processes as well as technologies such as Extract, Transform and Load (ETL) processes and XML technology in scales pertinent to transferring or exchanging the required data and information.

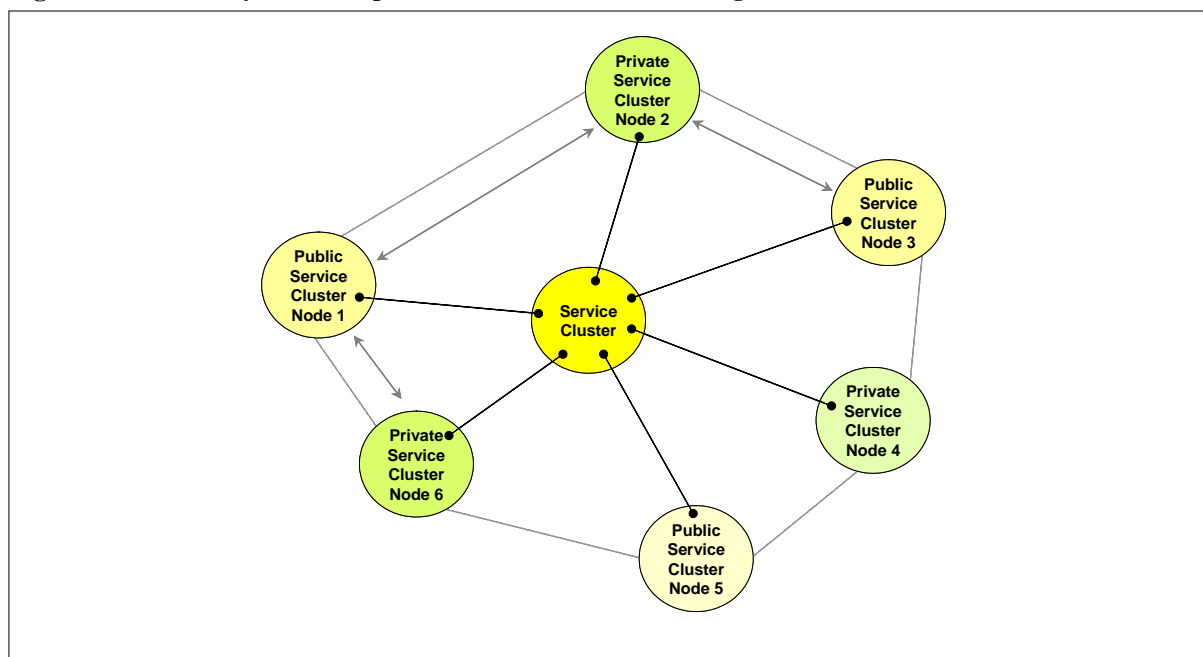
However, the emerging concern with the quantity of service cluster nodes developed for instantiating such system integrations, which are also largely transactional in nature, should be accentuated with necessity and dissimilarity in the aspects of data and information transfers or exchanges. Because the latter issues, if not properly addressed, still bring about complications in public service provision and hence BPR exercise as discussed in the next improvement area, whereas data and information transfers or exchanges still have cost implications for the large majority of service providers.

In another respect, increasing the dynamics and flexibility would also be contingent on the on-demand facet of such system integration approach. To realize this objective, in particular, the relevant government departments or agencies, and also, private businesses involved would provide the liaisons at a minimum to develop such on-demand capabilities accordingly in the aspects of (1) transferring or exchanging unplanned set of data or information subject to the ever-evolving trading business requirements, and (2) furnishing bi-directional data and information flows or movements together with the affiliated logical schemas, messaging specifications or equivalent facilitations, meaning that input- and/or output-oriented data and information streams would be supported with greater ease of control.

As a concluding note, addressing the aforementioned two aspects of the proposed system integration approach and related concern, which are sophisticated by their very nature, would

help create more dynamics and flexibilities to the larger extent of system integration and hence both cluster as well as non-cluster service deployment while comparing with both vertical and horizontal system integration counterparts of high rigidity, thereby possibly increasing the diversity of use of the G2B electronic services under examination taking the perspective of service consumers.

Figure 5.2 Anatomy of “one-stop” business-centric cluster and integrated G2B electronic services^(b)



(b) Integrated G2B electronic services are illustrated with “public service cluster node 1”, “public service cluster node 3”, “private service cluster node 2” and “private service cluster node 6”, whereas non-integrated G2B electronic services are illustrated with “public service cluster node 5” and “private service cluster node 4”.

(ii) *Implications for service providers and government sector*

Service providers. While comparing with both vertical and horizontal system integration regimes, which generally fulfill rigid system integrations, the proposed system integration approach would appeal to the service providers in the light of the significant benefits achieved. The intended benefits include relieving the burdens of allocating the manpower, financial and time resources for engaging in those tedious agreed-on arrangements as generally experienced in the current implementation, and also, stretching the capabilities for expediting the provision of more service clusters in collaborative or integrated nature subject to the ever-changing trading business requirements.

Government sector. In another respect, the current research notes that the aforementioned values created for the service providers through exploiting the full and sophisticated potentials of IT would be more compelling because the government sector would likewise realize the

tangible benefit of increasing its system integration capabilities for fulfilling unplanned integration of public service delivery processes, or alternatively, delivering more flexibly integrated e-Government services. With the increased system integration capabilities, the government sector would be able to make itself become more proficient than ever for addressing the substantial changes as always taken place in the trading business domain.

(iii) Implications for service consumers and trading community

Service consumers. The notion of this improvement would instantaneously deploy (1) more service clusters with integrated service cluster nodes, and (2) more integrated service cluster nodes in a service cluster in order to readily facilitate unplanned data and information transfers or exchanges in response to the ever-evolving trading business requirements imposed in the dedicated trading business domain. From the perspective of service consumers, the rigidity of deploying just a few service clusters with integrated service cluster nodes, which are coincidentally high volume-based or frequently accessed as found in the current implementation of the two G2B systems, would be mitigated, whilst also meaning that the degree of integrating public service delivery processes would be even intensified and varied in the new public management domain. More importantly, the tangible value created would be realized as seen in the case that the service consumers would be enabled to deepen their core competencies of expediting the conduct of diversified G2B electronic transactions.

Trading community. Likewise, creating values for individual SME through adopting the aforementioned open and on-demand system integration approach also means creating values for the trading community. In this regard, there would exist the significant benefit to be reaped by the trading community as a whole in terms of addressing the agenda of increased dynamics and flexibility as always laid out in the fast-paced trading industry, thereby outshining its competition against the international counterparts.

5.2.1.3 Undertaking sustainable BPR initiatives (Recommendation 3)

(i) Improvement on Business or Transaction Steps in relation to public administration

This recommendation associates with public administration, which would be made in the item COMP02, that is, simplified business or transaction processes and steps to increase the comprehensibility of the two G2B websites, thereby possibly increasing the usage of the G2B electronic services under examination.

Findings. Based on Section 4.6.2.2, the current research reported that existing IT automations done on a series of classical fragmented business or transaction processes and steps do not sustain the delivery of public service products with desirably good quality in the new public management domain on a long-term basis. In the present implementation, both the simplification and convergence aspects of BPR have not been fulfilled in a comprehensive manner yet. This actually means that the number of business or transaction processes and steps has not been trimmed significantly, and additionally, some overlaps still persist in terms of transferring or exchanging the same or duplicate set of common data and information, whilst just injecting a small set of added-on updated data and information only across various similar business or transaction processes and steps in the current joined-up governance environment. Typical examples of such duplicate data and information include common electronic transaction data like SME identifier, TDEC number, document submission date, shipping date, etc. To the extent that such solitary IT automations are not able to fulfill both the simplification and convergence aspects of BPR in an inclusive and complete manner, the current research supposes that the G2B websites concerned are not yet qualified as developing truly simplified and streamlined business or transaction processes and steps for dealing with the relevant government departments or agencies.

Improvement. Based on such observations, the current research suggests undertaking BPR initiatives along with the implementation of the G2B systems under examination on an ongoing basis. However, these BPR initiatives should be sustainable in the sense that they should not be over-hyped in one case or underperforming in other case. In achieving so, the current research supposes that sustainable BPR efforts should be inclusive and complete enough in order to virtually accomplish the objective of modernizing and reengineering existing business or transaction processes and steps, and hence delivering the well conceived combination of GETS. Contributing such sustainable BPR efforts thus serves to be one of the facets of increasing the comprehensibility of the G2B websites concerned for pursuing a more successful implementation case.

Therefore, the current research proclaims that sustainable BPR efforts would be made to follow prevalent best paradigms of BPR, including (1) the simplification by their very nature, and additionally, (2) the convergence of business or transaction processes and steps, that is, G2B electronic services pertaining to both cluster as well as non-cluster service deployment. At the bottom line, it is thus expected that the notion of this improvement would engender a well-performing implementation case, whilst also meaning to introduce “keep-in-touch”

public administrative processing in a required sense in the joined-up governance setting, thereby delivering even more simplified and streamlined business or transaction processes and steps for dealing with the relevant government departments or agencies. On the contrary, the current research does not intend to incorporate the notion of the transformational aspect of BPR as discussed in the literature, that is, “zero-touch” public administrative processing into the improvement scope in order to avoid running the risk of undertaking over-hyped BPR initiatives.

In the light of the aforementioned sustainable BPR efforts, the current research reckons that the simplification aspect of BPR would plainly reduce the number of business or transaction processes and steps required to accomplish when dealing with the relevant government departments or agencies, thus also serving to help formulate the corresponding government electronic trading requirements at the same retrenched level, and additionally, would mitigate the data entry efforts embodied therein. In another respect, the current research also realizes the fact that simplifying the government electronic trading requirements in such a way does not equally mean waiving off any overlapping data and information transfers or exchanges across different business or transaction processes and steps. Hence, the convergence aspect of BPR would come into play by reinforcing its effects to merge the business or transaction processes and steps mentioned above, thereby trimming them and eliminating the needs to perform any duplicate data and information captures, transfers or exchanges wherever applicable. In any of the cases above and in particular for cluster service deployment, the number of service cluster nodes and hence the perimeter or elasticity of an individual service cluster, namely, “TDEC Submission Services” as an example would be reduced as a possible consequence.

Nevertheless, subject to the inclusiveness and completeness of BPR efforts as would be commissioned and accomplished in a sustainable manner, the usage of the G2B electronic services under examination would be increased in future taking the perspective of service consumers.

(ii) Implications for service providers and government sector

Service providers. In response to existing sub-optimal BPR results achieved, the current research advocates the convergence aspect of BPR because of its underlying rationale of trimmed and non-integrated business or transaction processes and steps. As a result of merging the latter business or transaction processes and steps that instantiate “hop-and-hand-

over” system integrations, overlaps would be removed by means of eliminating the needs to perform any duplicate data and information captures, transfers or exchanges wherever applicable. Again, as the latter business or transaction processes and steps would be trimmed and no longer be integrated in the scenario just mentioned, the corresponding value creations would be materialized for the service providers revolving around the reduction of the manpower, financial and time resources that should have been allocated for fulfilling the system integrations as intentionally planned.

In summary, the current research supposes that the basic functions of this particular paradigm of BPR emphasize system disintegration, and additionally, “need-to-have” non-duplicate data and information transfers or exchanges. As a matter of fact, the latter function also closely aligns with what mentioned in Section 5.2.1.2(ii), which accentuates indispensable and dissimilar data and information transfers or exchanges for filling real data and information gaps across different business or transaction processes and steps.

Government sector. As the service providers would realize the aforementioned benefits of simplified and streamlined business or transaction processes and steps, and therefore, the government sector would equally grasp the benefit of system disintegration or disintermediation, in particular, as perceived from the possibility that the government sector would be able to abolish the substantial manpower, financial and time resources, which should have been assumed for furnishing prevalent digital intermediation in the context of e-Government. More importantly, the government sector would likewise realize another greatest advantage achieved in the new public management domain, meaning that the notion of disintermediation in the joined-up governance environment would completely reorganize or aggregate together existing potentially similar functional proficiencies of each government department or agency involved, thereby possibly reducing the resources concerned.

(iii) Implications for service consumers and trading community

Service consumers. On the one hand, the simplification aspect of BPR would create the obvious benefits of reducing data entry efforts, and also, trimming unnecessary business or transaction processes and steps pertaining to both cluster as well as non-cluster service deployment, thus accruing more substantial benefits by saving the service consumers’ manpower, financial and time resources spent in doing so. On the other hand, the convergence aspect of BPR would undertake the likewise reduction exercise but under a non-integrated regime, thereby eliminating the necessity of fulfilling any duplicate data and information

captures, transfers or exchanges wherever applicable. Following this particular paradigm of BPR would further create values for the service consumers in terms of greater efficiency and effectiveness for using the G2B electronic services concerned since those overwhelming system integration overheads would no longer be incurred.

Trading community. Because of the aforementioned values that would be created for the service consumers, value creations would be likewise instantiated along the same two dimensions of BPR from the perspective of the trading community. Specifically, the notion of this improvement would entail more simplified and streamlined business or transaction processes and steps on behalf of the service consumers through disposing of those dispensable or duplicate intermediaries as far as practicable. Equally speaking, due to the simplification and convergence in the government electronic trading requirements, which also imply the significant benefit of disintermediation, the trading community as a whole would preserve its competitive capabilities and advantages in an international perspective of the trading industry.

5.2.2 Ease of Use

The current research findings showed that EOU was a non-significant explanatory variable with regard to the usage of the G2B electronic services being examined, meaning that it does not have a significant relationship with the item USESAT01. However, EOU was a significant explanatory variable with regard to the satisfaction with using the G2B electronic services being examined, meaning that it has a significant relationship with the item USESAT02.

5.2.2.1 Developing polymorphic information architecture (Recommendation 4)

(i) Improvement on Organization of Web Content in relation to public administration

This recommendation associates with public administration, which would be made in the item EOU01, that is, organization of web content to increase the ease of use of the two G2B websites, thereby possibly increasing the satisfaction with using the G2B electronic services under examination.

Findings. As recapped from Section 4.6.3.3, the current research reported that the G2B systems concerned have been prescribing the ways of organizing web content, that is, the suite of online information and services. By organizing the web content that comes with hardwired online information and service products within a confined web-based content structural context, or alternatively, on a web-based common access platform bound by the

inherent constraints or conventional thinking about public service provision, SMEs have just accessed the web content arranged in a taxonomic structure of trading business-oriented theme or subject links only. To the extent that the web content concerned has been organized in such a compliance perspective, the current research supposes that the G2B websites concerned are not proclaimed as achieving the desirably high level of ease of use yet.

Improvement. In response to such observations, the current research makes the recommendation that the G2B websites concerned would be improved in the aspect of their website architecture, which should always entail a general tendency to improve the ease of use in terms of provisioning increased dynamics and flexibility for addressing the continuous growth of the diversification of web content. In this connection, in order to address varying aspects of business expectations or needs and hence web content, polymorphic information architecture (IA) is suggested to be developed in the dedicated G2B system contexts.

As mentioned by AGIMO (2004), user needs generally refer to the information and activities that users really want to find and undertake respectively on Internet-based e-Government websites. Based on this definition, in particular, the current research contends that the organization of web content of the G2B websites concerned would be improved surrounding the notion of polymorphic information architecture. In effect, the latter information architecture is perceived as multiform information architecture to be appropriately developed for arranging and housing the suite of online information and services in increased dynamics and flexibility therein, and thereafter, facilitating the gleaning of information and carrying out of trading business activities irrespective of the degree of variety exhibited, thereby addressing diversified business needs in terms of information and services. While achieving so, the current research believes that the underlying organization of web content would be improved incrementally in terms of its structure and related hierarchy, thus serving to be one of the facets of increasing the ease of use of the G2B websites concerned for pursuing a more successful implementation case.

Specifically, the hierarchical skeleton of the aforementioned polymorphic information architecture would be built accompanying with the two main streams of G2B electronic services as illustrated in Figure 5.3, including (1) system-defined G2B electronic services, and (2) user-defined G2B electronic services. The current research then interprets G2B electronic services as including G2B information, communication and transaction services, that is, a range of online information and services in general on the one hand, whereas user-defined

G2B electronic services collectively as an aggregated web content deployed as a result of taking a user-participatory approach to developing the information architecture concerned on the other hand.

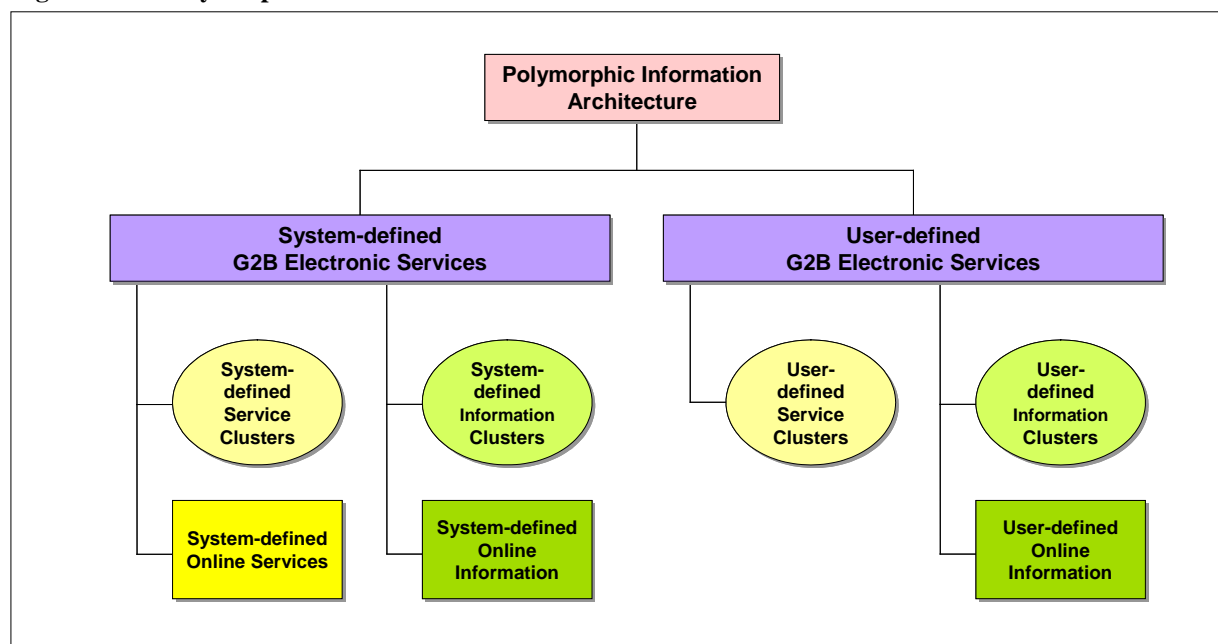
Obviously, the structural aspect of the proposed information architecture, which should be polymorphic in nature, would support deploying system-defined online information and services in the first place, encompassing (1) system-defined high volume-based service clusters together with (2) system-defined information clusters that pertain to some predefined perspectives of using the G2B electronic services involved, (3) system-defined online services pertain to no particular perspective of using the referring G2B electronic services, meaning that they would be accessed by the service consumers in solitary manner for realizing the benefits of the corresponding functionality as originally designed, and (4) system-defined online information that in turn subsumes multi-purpose information to be organized by multi-topic, multi-theme, multi-industry sector, and also, problem- or situational-oriented theme links for solving general business problems and specific situational problems as would always be encountered in the trading business context. Organizing the problem- or situational-oriented information, in particular, would be accomplished by synthesizing the initially scattered information into cohesive information through linking the related themes together.

Second, the structural aspect of the proposed information architecture would set out another realm of provisions for accommodating user-generated web content in terms of online information and services. Rather than relying on one or more dedicated information architectures of single or static form nature, a user-participatory approach to developing the information architecture concerned would be pursued for facilitating its continuous evolvments in order to cover the growing spectrum of online information and services as far as practicable. Specifically, the proposed information architecture would support deploying user-defined online information and services, including (1) user-defined service clusters together with (2) user-defined information clusters that tie to a variety of user perspectives of using the G2B electronic services involved as mentioned in Section 5.2.1.1(i), and (3) user-defined online information that again adheres to the principle of the aforementioned multi-purpose information structure. The latter deployment takes into account the possibility that the service consumers themselves would be empowered to harvest the multi-purposeful information tailoring to their specific information needs by (1) using powerful search and browse facilities equipped with usable, effective, optimized and resilient search / browse models as well as options, and (2) drawing on the large repository of comprehensive and

appropriate metadata such as target audience, subject coverage or locality, resource relevance and information proficiency to be well-maintained for describing a vast amount of information resources.

After all, component-based organization of web content would engender higher level of coherence and diversity of online information and services than ever, whilst also concomitantly bringing about the aspiration to provide dynamic and flexible G2B electronic services in a self-servicing orientation under the new paradigms of public administration. To the service consumers, such aspiration would also be conceived to increase the satisfaction with using the G2B electronic services under examination.

Figure 5.3 Polymorphic information architecture



(ii) Implications for service providers and government sector

Service providers. This embracing-all approach to organizing web content is revamped in the sense that it would be able to address increasing business demands, expectations or needs in terms of information and services, which should be consistent with contemporary trading business requirements. To the service providers, substantial and perpetual values would be created from the development of polymorphic information architecture mentioned above. On an ongoing basis, the service providers would be exempted from devoting infinite but scarce manpower, financial and time resources to develop one or more dedicated information architectures of single or static form nature only while tackling the frequent changes as always initiated in the trading business domain. By employing metadata management

software or tools, the service providers would realize a more salient benefit of extending the capabilities for accommodating the incremental growth of information architecture. As such, they would regard themselves as full-fledged in furnishing inherently manifold public service provision in the information age.

Government sector. From the perspective of the government sector, the values created for the service providers mentioned above are collectively envisioned as a range of facilitations for streamlining information and public service delivery processes of multiform nature in the new public management domain. At the bottom line, the current research supposes that such values would be created in a number of aspects from the development of polymorphic information architecture specific to meeting SMEs' diversified business needs, which include (1) relieving the frustration around the requirements to configure or reconfigure other forms of providing e-Government services confined to Internet-based website or portal environment, (2) reducing the burdens of usual manpower, financial and time resource allocations for dealing with those complications that should have been incurred in addressing the growth of information architecture in a general sense, and also, those early planning efforts that should have been made for identifying SMEs' business needs, (3) increasing its responsiveness to serving as the biggest aggregator of a vast array of electronic services in the context of e-Government even in favor of the ever-evolving trading business requirements, and more importantly, (4) increasing its capabilities for promoting the overall democratization of e-Government harnessed with the provision of non-hardwired online information and service products.

(iii) Implications for service consumers and trading community

Service consumers. The current research emphasizes that the proposed information architecture should be perceived as a web-based content structure logically and appropriately defined for the provision of a wide range of online information and services in the dedicated G2B system contexts, thus serving to dynamically adapt to different business needs of the SME sector within a single web-based content structural context as far as practicable. This particular information architecture is also analogous to a physical supermarket place, wherein the selling goods and products are always reshuffled for putting on the target shelves depending on the latest customer buying habits, marketing and product promotion campaigns that are being carried out.

As SMEs' business needs vary quite widely according to the ever-evolving trading business requirements, and therefore, both non-hardwired and user-participatory approaches to developing the information architecture concerned would be highly appraised. In brief, the notion of this improvement would instantiate the generation of the obvious benefit of meeting their diversified information and service needs but not at the expense of ease of use. Given the adaptive nature of the information architecture concerned, the service consumers themselves would be able to make good use of the large repository of metadata being maintained for the wealth of information resources, thereby taking in charge of the delivery of the wanted online information products specific to meeting their respective information needs, in particular. In effect, with considerable reliance on the provision of powerful search and browse facilities, which should come along with the implementation of the proposed information architecture, the service consumers would be provided easy-to-find and not be overwhelmed by unnecessary online information products.

Trading community. In another respect, as reflected from the polymorphic orientation towards democratizing the information and public service delivery processes, the trading community as a whole would be likewise prompted the liberties to easily fulfill its diversified information as well as service needs and hence the compelling benefits of achieving so within the trading business context, whilst not being bound by any one or more particular web-based content structures that are in turn usually fueled with so many hard-selling or commodity-based public service products as observed in the current e-Government context.

5.2.2.2 Adopting a “thin” multiple channels approach for dedicated public service provision (Recommendation 5)

(i) Improvement on Selection of Routine Services in relation to public administration

This recommendation associates with public administration, which would be made in the item EOU04, that is, selection of routine services to increase the ease of use of the two G2B websites, thereby possibly increasing the satisfaction with using the G2B electronic services under examination.

Findings. Based on Section 4.6.3.3, the current research reported that the G2B systems concerned have been providing multiple channels to facilitate accessing routine services including trade-related document lodgment and payment settlement services. The variety of these public service delivery channels has not been so diverse, meaning that the current implementation of the two G2B systems just merely offers both manual and electronic

submission channels. Notwithstanding, the multiple channels strategy concerned is always expected to be business-oriented for development purpose, featuring greater ease of use in terms of increased accessibility, availability and speed for facilitating SMEs' use of the G2B electronic services mentioned above.

Improvement. In response to such observations, the current research suggests a “thin” approach to achieving so. Such a “thin” multiple channels approach for dedicated public service provision would also be perceived as an important facet of the delivery of business-centric G2B electronic services. While achieving so, the current research supposes that multiple channels strategy for dedicated public service provision would be improved incrementally based on the following range of parameters, thus serving to be one of the facets of increasing the ease of use of the G2B websites concerned for pursuing a more successful implementation case.

First, the current research draws on the basic principle that large SME segmentation or population of the whole trading community should be targeted by the two G2B service providers in order to justify the implementation of multiple public service delivery channels. Additionally, as there seems to be a high probability of success, high volume- and routine-based G2B electronic services would be potential candidates for taking into consideration while developing the multiple channels strategy concerned. For the latter criterion, in particular, although the related cost and benefit issues should be tackled in a distributed way among all the public service delivery channels involved, the choice of high volume- and routine-based G2B electronic services would be highly preferred because it is self-evident that they would even strongly reinforce the implementation of the selected public service delivery channels, thus serving to be part of the facilitations for delivering business-centric G2B electronic services in adherence to the disciplines of new public management.

Second, there exists another parameter that the public service delivery channels involved would be optimized in terms of variety, whilst also indicating the underlying channel selection mechanisms to be formalized in a prudent manner in order to determine the number of public service delivery channels as would be necessarily implemented. In this connection, the selection rationale behind is explicated based on the possibility that the resultant channel variety would not be too rare or too rich, and therefore, no considerable influences would be exerted, or in other case, adverse impacts would be made on the management of, and also, resource allocations for fulfilling the business and legacy system processes that pertain to the

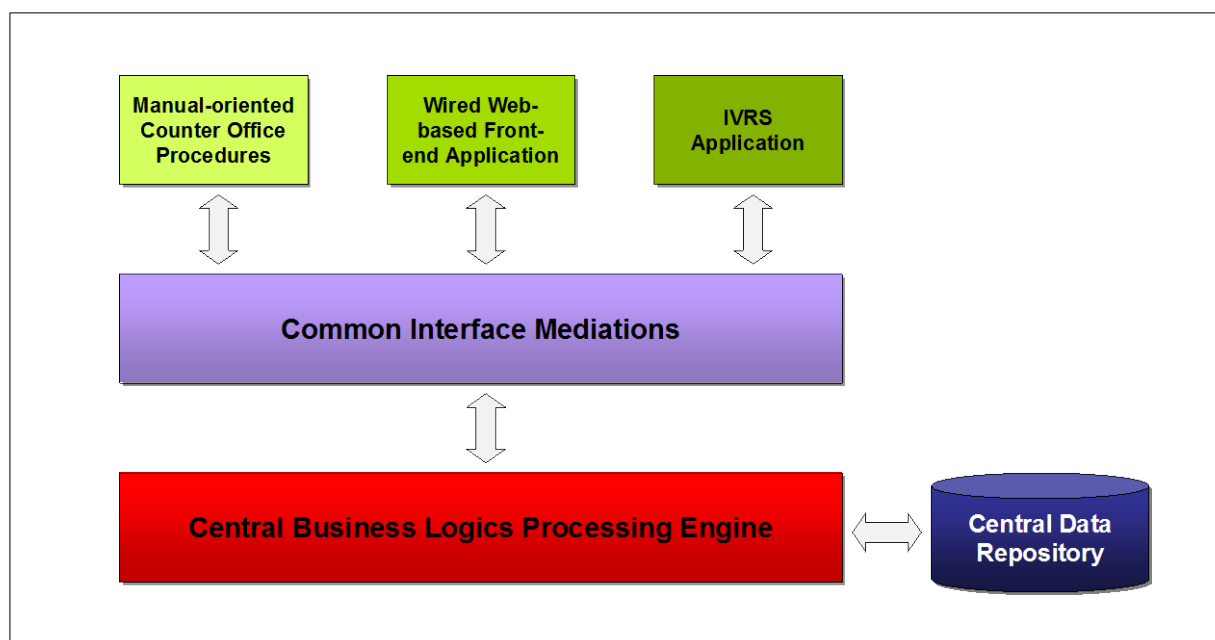
selected public service delivery channels, regardless of whether the latter processes would be shared or integrated among such selected channels. Having said all these, the current research recommends the implementation of the cheaper Internet-based electronic channel, in particular, for facilitating SMEs' accesses to high volume- and routine-based G2B electronic services because of the higher flexibility, robustness and lower costs incurred for developing the related system resilience capabilities.

Finally, it would be necessary to incorporate the "thin" integration of the affiliated business and legacy system processes into the implementation scope of the selected public service delivery channels as presented in Figure 5.4. Clearly to say, this specific "thin" integration, in particular, would also be perceived as implementing (1) a heterogeneous mix of each different front-end procedure(s) or application, including manual-oriented counter office or call centre procedure(s), wired or wireless web-based front-end application, interactive voice response system (IVRS) application, etc. specific to each public service delivery channel being made available, (2) a central data repository, and (3) a single and common suite of back-end business and legacy system processes, which would collectively serve to be a central business logics processing engine. From the technical point of view, this simple multiple channels application architecture would deserve the implementation because it would not bring about irreconcilable system integrations in terms of multi-directional data transfers or exchanges across all the public delivery channels involved, thereby not inducing any complexities and degradations in management and resource allocations.

As a specific example for illustration, the "thin" integration concerned would furnish the system integrations just mentioned by merely facilitating the data captures in common or interoperable interface files, messages or datasets from the respective front-end procedure(s) or application, and additionally, transferring the data concerned to the central data repository for storage, and to the dedicated common back-end business logics processing engine for the actual execution. As well, data transfers would be performed in the reverse direction using the same common interface mediations just mentioned. In the final respect, such a "thin" integration of the underlying business and legacy system processes would also be perceived as a simple and flexible means for accommodating channel coordination, that is, channel attuning or switching among all the public service delivery channels involved whenever necessary.

In summary, the “thin” version of multiple channels strategy for dedicated public service provision would be considered for incorporation into the improvement scope of the provision of business-centric G2B electronic services. In other words, implementing the “thin” version concerned would be equally seen as providing the service consumers easy-to-use business-centric G2B electronic services that are characterized with increased accessibility, availability and speed, thereby possibly increasing the satisfaction with using the G2B electronic services under examination. Although having said all these, the current research also acknowledges that the “thin” version of multiple channels strategy should not expend substantial IT integration efforts indeed because non-trivial IT integration initiatives are difficult to be implemented, and they are also prone to failure, especially for those initiatives involving complex and non-concerted human, organizational as well as technical dimensions.

Figure 5.4 The “Thin” integration of the affiliated business and legacy system processes



(ii) Implications for service providers and government sector

Service providers. Adopting this specific “thin” multiple channels approach under the realm of new public management would increase the efficiency and effectiveness of managing the business and legacy system processes that pertain to the selected public service delivery channels only, thereby achieving significant savings in terms of manpower, financial and time resources to be spent. In addition to creating the values under the “thin” regime just mentioned, the current research points out that subject to the feasibility and suitability of the electronic channel offered over the Internet for facilitating the accesses to high volume- and routine-based G2B electronic services, in particular, it would specifically appeal to the service

providers because of generating the salient benefit of reaching the large majority of target service consumers with lower costs, that is, the SME sector in a more precise and effective way.

In another respect, implementing the most preferred public service delivery channels would likewise appeal to the government sector taking a broader perspective, having got acquainted with the values created for the service providers as mentioned in the preceding paragraph. To this end, the current research agrees so and puts forth another argument to support accordingly, which delineates the likelihood that each public service delivery channel selected in place would not complement each other with regard to public service provision. But instead, each of them would compete with each other, whilst thereafter making a harmful consequence such that the implementation of each selected public service delivery channel would deter or jeopardize the value realizations pertaining to all other channels involved subject to the service consumers' channel preferences. This particular drawback would be brought about because of the distinctive set of the best and prevailing values that would be created for the same group of service consumers. As a result of the mutual competition among all the public service delivery channels concerned, there would be a general tendency that a particular public service delivery channel would not be cost-justified on the government side for ensuring its permanence for implementation on an ongoing basis.

More importantly, it would also be irrational for the government sector to pursue such an over-performed multiple channels strategy for dedicated public service provision because of the potential impediment to the wider adoption of the cheaper Internet-based electronic channel by the service consumers for accessing high volume- and routine-based e-Government services. After all, the aforementioned "thin" multiple channels approach for dedicated public service provision is generally analogous to the production and marketing of non-competing commercial goods along one particular product line, whilst also articulating that the government sector, which serves to be a big producer and marketer of public services, should not develop and promote similar or non-useful public service products in the same product function domain.

Government sector. Finally, in the light of executing the "thin" version of multiple channels strategy for dedicated public service provision, it is thus envisaged that the government sector would be comparatively feasible to offer a suitable and hence prominently winning public service delivery channel among all other channels involved, or alternatively, to reap the

overarching benefit of achieving the very high penetration rate of the cheaper Internet-based electronic channel if properly implemented, thereby facilitating the service consumers' intensive and immediate accesses to the required electronic services in the context of e-Government.

(iii) Implications for service consumers and trading community

Service consumers. At first glance, it appears that SMEs' channel preferences would be constrained under such a "thin" regime, but they would still realize the greatest benefits or business-centric values created for them especially in the fast-tracking trading business domain. In this connection, if the cheaper Internet-based electronic channel is selected with high preferences, in particular, values would be created accordingly for the service consumers, including (1) lower services usage costs, and (2) greater ease of use in terms of increased accessibility, availability and speed provided for facilitating the use of various types of G2B electronic services including those high volume- and routine-based ones.

However, it is noted that the ease of use of the G2B websites concerned would be maintained at the somewhat mediocre level from the perspective of service consumers when comparing with an offer of a comprehensive set of public service delivery channels. Additionally, some SME segments would even regard the limited provision of public service delivery channels as a potential deterioration of the quality of business-centric G2B electronic services. The latter potential drawback would also violate what have been described in the literature concerning with the provision of customer-centric public services, which serve to be one of the facets of public administration modernization. In this connection, the study carried out by IDA Programme (2004) also emphasized the similar concepts when defining user-centric public services, articulating that user-centric public services in general should be provided to different user segments of the whole community with easy accessibility and flexibility irrespective of the time, location and know-how constraints imposed in the context of e-Government. But this study also mentioned that it is not practical to offer numerous public service delivery channels but without examining the necessity of providing such channels in term of creating good values, that is, maximizing the values created for each user segment concerned in the first place.

After all, the current research intends to redefine G2B electronic services as genuinely business-centric only in case that the essential criterion is met to gear up the affiliated value creation mechanisms for running to deliver the greatest benefits to the SMEs concerned.

Based on this redefinition of business-centric G2B electronic services, whilst also meaning not to let SMEs be overfed but undernourished with more public service delivery channels than actually required, the current research does not contend for pursuing an over-hyped or “thick” version of multiple channels strategy for dedicated public service provision, which always creates sets of similar or depreciated values with regard to the provision of dedicated G2B electronic service.

As a typical example, SMEs are allowed to submit paper-based trade-related documents through the manual submission channel, and thereafter, paper-to-electronic conversion services are also provided in place to mediate the data captures and conversion as found in the current implementation of the two G2B systems. To the service consumers who have preference on manual submission channel, in particular, they are able to get rid of those subjectively and conceptually inconvenient experiences with using the counterpart web-based functions, features and facilities. However, the current research reveals the reality that the SMEs involved should suffer from paying service fees, and additionally, repeated manual preparation and longer lead time taken for processing manual submission of paper-based trade-related documents. This particular example also shows that the degree of value creations is not intensified as expected to achieve the greatest benefits for the SMEs concerned while comparing with other channels implemented for delivering the same dedicated public service.

Trading community. The trading community as a whole would primarily materialize the maximum business-centric values created on behalf while accepting the notion of “thin” multiple channels approach for dedicated public service provision. And subject to using the cheaper Internet-based electronic channel for accessing high volume- and routine-based e-Government services, in particular, the trading community would realize the significant benefits of economies of scale and hence lower services usage costs accordingly. Additionally, the trading community would even extol some other intended benefits of the electronic channel mentioned above as reflected from its intrinsic channel features, including increased accessibility, availability and speed provided for enhancing the ease of use of the required e-Government services. More profoundly, the latter benefits are magnified in a greater extent that the preferential channel features just mentioned would be regarded by the trading community as somewhat utility-oriented, meaning that they should be in conformity to the trading business norm, or alternatively, they should mesh with the mainstream requirements imposed in the trading business domain as if supplying utilities or commodities for the widest domestic application as always deserved.

5.2.2.3 *Developing self-service user interface strategy (Recommendation 6)*

(i) Improvement on User Interfaces in relation to public administration

This recommendation associates with public administration, which would be made in the item EOU07, that is, user interfaces to increase the ease of use of the two G2B websites, thereby possibly increasing the satisfaction with using the G2B electronic services under examination.

Findings. Based on Section 4.6.3.3, the current research reported the problematic issues, which have been prevailingly raised over brick-and-mortar public services provided in traditional public administration domain, and additionally, prevalent G2B electronic services provided under the realm of new public management. Subject to the generalities of the problematic issues concerned, they are largely connected to (1) human-to-human user interactions and experiences with emotional or sentimental traits because both end users are genuine human beings, and additionally, (2) non-simple, non-user friendly or non-helpful, non-intuitive human-to-human and human-to-computer user interactions and experiences.

For the aforementioned generalities of the two streams of user interactions and experiences, the current research supposes that the human-to-computer user interface strategy developed in prevalent G2B system contexts largely do not make significant differences from the human-to-human counterpart. This actually means that the inherent problems with ineffective and ponderous human-to-human user interactions and experiences have not been completely solved yet even in the new public management domain.

As an example, predominant deterrent effect has sometimes been produced in the typical case that the service consumers are not able to easily find the information and services as required while doing those complicated web page navigations, redundant searches, repeated browsing of unnecessary web content, etc. These ineffective human-to-computer user interactions and experiences are collectively gained as also found in another typical case that when the same service consumers approach a particular government premise, wherein they are being informed or instructed to look for the wanted government information and public services somewhere else at other government offices, thus potentially resulting in some non-helpful human-to-human user interactions and experiences eventually.

To put another example, such predominant deterrent effect has sometimes been realized from the usual case that the service consumers are not provided the wanted online information and

services in a reactive manner. Likewise, these ponderous human-to-computer user interactions and experiences are aggregately similar to those found in the representative case that when government officials do not take a proactive or intent approach to providing the same service consumers the wanted government information and public services, thus possibly driving towards some normative human-to-human user interactions and experiences ultimately.

Having concluded the aforementioned drawbacks of both traditional human-to-human and prevalent human-to-computer user interface strategies, the current research supposes that the G2B websites concerned are not yet portrayed as developing truly simple, user friendly, intuitive and valuable human-to-computer user interfaces to facilitate the dealings with government-related trading business matters or affairs.

Improvement. In response to such observations, the current research suggests that self-service user interface strategy would be developed within the domain of the two G2B systems in order to alleviate predominant problems concerned. In brief, the self-service user interface strategy just mentioned would be developed accompanying with the use of the Internet-based human-to-computer user interfaces, which actually simulate the one side of a user interaction as a “humanized” computer interface agent, whereas the other side as a human interface agent. Furthermore, the “humanized” human-to-computer user interfaces just mentioned would imitate the essential humanizing traits surrounding the notion of greater ease of use, that is, mainly revolving around the range of simple, user friendly, intuitive, valuable and self-learning functions or capabilities developed for getting the service consumers directly engaged in “self-servicing” public service provision under the realm of new public management. In achieving so, the current research believes that both user interactions and experiences would be improved in a significant manner than ever, thus serving to be one of the facets of increasing the ease of use of the G2B websites concerned for pursuing a more successful implementation case.

To explain the notion of “humanized” human-to-computer user interfaces, which would increase the ease of use of the G2B websites concerned with greater humanity, the current research accomplishes so by firstly focusing on the respectfulness of the text-based messages and instructions provided. More specifically, such respectfulness issues would be addressed by the “humanized” computer interface agent, which imitates the essential humanizing trait of elevating the brevity of user interactions and experiences. As such, the service consumers would be provided simple or concise, user friendly and intuitive text-based messages and

instructions for the fulfillment of self-services as mentioned in Sections 5.2.1.1(i) and 5.2.2.1(i).

Second, the current research suggests embracing the provision of storytelling functions, which would serve to be the capabilities developed for fulfilling self-services taking the perspective of service consumers as mentioned in the preceding paragraph. Again, the “humanized” computer interface agent would enact the role of storyteller to imitate another important humanizing trait of fostering valuable user interactions and experiences. To realize these objectives, a series of contiguous but selectable story boards would be presented with the use of multimedia such as multi-dimensional and interactive animations, graphical images, audio and video streams, etc. in the dedicated G2B system contexts in order to help illustrate and demonstrate complex or interesting concepts, and if applicable, the information and service cluster nodes involved in relation to fulfilling a particular self-service. Given the most valuable user interactions and experiences to be gained, the service consumers would be readily to engage in “self-servicing” public service provision.

Third, the current research recommends engaging and inspiring the service consumers to be involved in “self-servicing” public service provision as mentioned beforehand. In a similar vein, the “humanized” computer interface agent would imitate in such an intelligent way by giving preliminary level suggestions on the potential solutions to solve the pending or emerging problems in association with self-servicing on the one hand, whereas also engaging and inspiring the service consumers to get immersed in parts of constructivism learning processes, or alternatively, self-directed learning and problem-solving processes on the other hand. In summary, the “humanized” computer interface agent would imitate the essential humanizing trait of nurturing rich, sensory, interactive, self-learning user interactions and experiences such that the service consumers would be enabled to directly and proactively participate in “self-servicing” information and public service delivery processes.

Overall, successful “self-servicing” public service provision in the new public management domain should be entirely connected to the development of self-service user interface strategy in the same dedicated G2B system contexts. In the light of the aforementioned aspects of “humanized” imitation, the service consumers would conceive to increase the satisfaction with using the G2B electronic services under examination.

(ii) Implications for service providers and government sector

Service providers. The notion of self-service user interfaces, which are actually “humanized” human-to-computer user interfaces, is completely different from those human-to-human user interfaces practiced in traditional brick-and-mortar public administration, and also, prevalent human-to-computer user interfaces developed in the current implementation contexts of the two G2B systems. To the service providers, many of the essential functions or capabilities of self-service user interface strategy would be basically perceived as being instrumental in promoting SMEs’ awareness of new brand civil servicing in the new public management domain. With a view to heightening the awareness of the SME sector over new brand civil servicing, the service providers would further realize the additional benefits of increased customer loyalty, acquisition and retention while sharing the perspective of service consumers in a general sense.

Needless to say, the development of self-service user interface strategy is also envisaged to be an auxiliary improvement to be undertaken for reinforcing the implementation of the improvements and hence the creation of substantial values on behalf of the service providers as mentioned in Sections 5.2.1.1(ii) and 5.2.2.1(ii).

Government sector. To the government sector, the aforementioned values created for the service providers are collectively realized as the obvious benefit of promoting the new and good image of civil servicing in an innovative way under the realm of new public management. Specifically, with SMEs’ growing awareness of “humanized” human-to-computer user interfaces, which would also enact the role of complementing or substituting both traditional human-to-human and prevalent human-to-computer user interfaces, concomitant beneficial results would be realized as initially forging new and better relationships with the service consumers when comparing with the conventional and prevalent practices applied in the pertaining governance setting, and consequently, instantiating the adoption of e-Government services in a wider extent.

On the other hand, the corresponding value creations for the government sector as mentioned in Sections 5.2.1.1(ii) and 5.2.2.1(ii) would become even affirmative or strengthened while attributing to the development of self-service user interface strategy.

(iii) Implications for service consumers and trading community

Service consumers. While the current research advocates in Sections 5.2.1.1(iii) and 5.2.2.1(iii) the potential contributions of the improvements, SMEs would even realize the

salient benefit that they would be enabled to achieve so if the pertaining self-service user interface strategy would be developed in the dedicated G2B system contexts, thus serving as part of the concerted improvement efforts to be devoted as well. In essence, their engagement together with autonomy in the aforementioned “self-servicing” public service provision would be enhanced concurrently under the realm of new public management, having geared up with the functions or capabilities of “humanized” human-to-computer user interfaces of simple, user friendly, intuitive, valuable and self-learning nature.

Trading community. For the trading community, the current research thus realizes the greatest potentials that developing self-service user interface strategy would contribute to (1) fostering an autonomous and knowledge-based SME sector in the HKSAR, which is specifically driven by deploying user-defined information-intensive and service clusters, and (2) fulfilling its diversified information as well as service needs. Similarly, the aforementioned “humanized” human-to-computer user interfaces would exert their reinvigorating effects on the trading community by obliterating those oldest ineffective and ponderous human-to-human user interactions and experiences practiced in traditional brick-and-mortar public administration, and additionally, the recent older but likewise problematic human-to-computer user interactions and experiences developed in prevalent e-Government system contexts.

Since there would be considerable orchestrating effects attached to the underlying value creation mechanisms for increasing the breadth of business orientation of service clusters and developing polymorphic information architecture respectively, it is therefore anticipated and summarized that the trading community as a whole would be enabled to take its initiatives or liberties as intended for seeking out the most invaluable information assets and e-Government services in the best interests of the trading industry in the information age.

5.2.3 Usefulness

The current research findings showed that USEF was a non-significant explanatory variable with regard to the usage of the G2B electronic services being examined, meaning that it does not have a significant relationship with the item USESAT01. However, USEF was a significant explanatory variable with regard to the satisfaction with using the G2B electronic services being examined, meaning that it has a significant relationship with the item USESAT02.

5.2.3.1 Managing collaborative web content (Recommendation 7)

(i) Improvement on Quality of Web Content in relation to public administration

This recommendation associates with public administration, which would be made in the item USEF01, that is, quality of web content to increase the usefulness of the two G2B websites, thereby possibly increasing the satisfaction with using the G2B electronic services under examination.

Findings. Based on Section 4.6.4.3, the current research reported that the G2B systems concerned have been spending their endeavors to streamline information delivery processes in the respective implementation context. To realize this objective, in particular, two essential drivers, that is, both the “producing” and “disseminating” processes of web content have been executed as far as practicable within the domain of the two G2B systems. The “producing” process of web content is generally perceived as synthesizing complete, timely, accurate and valuable information in any single course of process running. The “disseminating” process of web content generally deals with a suite of content management activities, including the editorial, credibility review, metadata, versioning, publishing, preservation and archiving of web content accompanying with the use of prevalent document management system (DMS) or otherwise content management system (CMS).

Existing “producing” process of web content, in particular, has been typically characterized by the necessities that complicated and prolonged business as well as technical procedures should be gone through before officially disseminating or releasing web content to the service consumers for their practical uses. Due to the ponderous “producing” process, the current research realizes that the G2B systems concerned has not performed desirably good in this specific service provision, meaning that the quality of web content has been rather sub-optimal while comparing with the benchmark of information quality generally set along the dimensions of completeness, timeliness, accuracy and usefulness. Moreover, there have been lacks of customized information provided to the service consumers, which further compounds the sub-optimal performance concerned. Thus, the current research supposes that the G2B websites concerned are not qualified as reaching the desirably high level of usefulness yet.

Improvement. In response to such observations, the current research intends to recommend enhancing the quality of web content surrounding the notion of managing collaborative web content. To clearly delineate the latter improvement in details, the current research apportions the first priority to deliberately and intensively engaging SMEs in the “producing” process

of web content, and also, to rightfully prioritize the “disseminating” process of web content to be run by the service providers for addressing the technical DMS or CMS issues. While achieving so, the current research believes that the information quality concerned would be improved or otherwise enhanced significantly in the aspects of completeness, timeliness, accuracy and functionality in the contexts of carrying out both the “producing” and “disseminating” processes of web content, thus serving to be one of the facets of increasing the usefulness of the G2B websites concerned for pursuing a more successful implementation case.

To foster the notion of managing collaborative web content, it is therefore suggested to create a sharable web content space within the domain of each of the two G2B systems, facilitating representative SMEs to engage in the “producing” process of web content at the least on voluntary-, contested- and even incentive-based basics whichever applicable. By taking such a collaborative approach together with accessing a number of facilitations, the SMEs involved would be enabled to directly participate in such information acquisition process for synthesizing online information products in the new public management domain.

Given the facilitations, the SMEs involved would be able to ensure the information quality of the online information products concerned in the aspects of (1) increasing the information completeness when they are geared up to contribute the larger set of their online information products in the form of electronic documents, articles, research papers and works in the required disciplines, (2) increasing the information currency in a timely fashion when they are prompted for active participations, and (3) increasing the information accuracy and functionality when they are invited and encouraged to provide their commentary feedbacks and evaluations on a periodical or an on-demand basis, whilst also meaning to pursue the credibility of the contributed web content at different interim stages before being officially released. In addition to these facilitations, it is suggested to provide in place both tangible and intangible rewards in appreciation of the contributions on an ongoing basis.

To synthesize customized online information products, in particular, the SMEs involved would likewise experience the same new experimentation while accessing the aforementioned facilitations, meaning that they themselves would be enabled to undertake such information customization exercises in their best interests. In the final respect, as the service consumers would help expedite the carrying out of the “producing” process of web content in a deliberative and intensive manner, the service providers would be able to readily accomplish

those remaining procedures or steps as usual for the dissemination of web content upon finalizing the full management cycle of collaborative web content.

Managing collaborative web content in the dedicated G2B system contexts is revamped in nature, whereas it is proposed for implementation drawing on the analogy with the Internet-based Wikipedia, the free encyclopedia (Wikipedia, 2010), but having the dissimilarity that the underlying credibility review mechanisms would not be as open and neutral as those of Wikipedia because the service providers would still take on the responsibility for performing the final credibility review before actually disseminating web content. Notwithstanding, this improvement is envisaged to exert its considerable influences on enhancing the quality of web content in a wider extent along the dimensions of information completeness, timeliness, accuracy and functionality than those precedent implementation cases. However, such expectation is unprecedented from the perspective of service consumers because both end points of the G2B initiatives concerned would be enabled to directly and collaboratively participate in the new foray into end-to-end content management, thereby possibly increasing the satisfaction with using the G2B electronic services under examination.

(ii) Implications for service providers and government sector

Service providers. Involving the service consumers in content management in a collaborative manner would certainly create substantial values for the service providers. Not to mention those values created as discussed in the literature, which mainly include reducing the manpower, financial and time resources spent on providing the related business support services for handling the complaints or enquiries about various aspects of the information quality concerned. Instead, the current research identifies some other tangible values to be created accordingly from the implementation of this improvement.

While accepting the notion of managing collaborative web content in the new public management domain, the service providers would be able to decentralize the works of the “producing” process of web content to the larger extent. Apart from outsourcing the substantial synthesis works of online information products in the required disciplines to the service consumers, the service providers would also relieve the efforts that should have been spent on undertaking a tremendous amount of information customization initiatives at the same time. By extending the affinity with the service consumers in this specific area, the service providers would significantly strengthen its responsiveness to meeting the immediate

and ever-increasing information needs since the carrying out of the aforementioned information acquisition process, in particular, would be expedited than ever at the bottom line.

Government sector. From the perspective of the government sector, the aforementioned values created for the service providers are collectively realized as reducing the information asymmetries between the providers and consumers involved in an intensive manner. The latter problem has long been recognized as an explicit but negative predominance taken place in traditional and even prevalent governance environments for the past decades. The government sector, which serves to be the main information supplier as to fulfilling the immediate and diversified information needs of the fast-paced trading industry, in particular, would be able to definitely realize the greatest benefit through reassigning and reshuffling its roles as well as responsibilities accordingly in the context of managing collaborative web content. Stated another way, rather than just streamlining information delivery processes with a single-purposeful intent, the government sector would grasp the obvious benefit of increasing its competences to re-provision information delivery processes in an innovative way by way of producing continuous stream-oriented information, thereby possibly increasing the information symmetries concerned and enhancing the underlying transparency under the realm of new public management.

(iii) Implications for service consumers and trading community

Service consumers. As the “producing” process of web content would be hastened, in particular, the service consumers would realize the significant benefits of meeting their immediate and diversified information needs in a general and broader perspective. As well as realizing these first priority benefits, the service consumers would be enabled to rationalize and optimize their decision-making processes at time of carrying out various trading business activities since they would also help to be accountable for ensuring the quality of the information provided in the same act of speeding up the production of web content, or alternatively, the synthesis of online information products. Specifically, the latter value creation mechanisms would be formalized in such a collaborative manner that the service consumers would realize the increased capabilities for making sensible, timely, correct and valuable decisions in their best interests based on the available information of desirably good quality in terms of completeness, timeliness, accuracy and functionality.

Trading community. For the trading community, the current research realizes, the aforementioned values created with respect to addressing immediate and diversified

information needs, as democratizing but not just streamlining information delivery processes only in the new public management domain. In the broadest sense, the trading community would highly appraise such liberties or democratic empowerments vested in an era of e-Government. On the other hand, accompanying with the improvement made in the information quality concerned and hence the rationalization as well as optimization in decision-making processes, the trading community as a whole would be able to alleviate their growing concerns with potential business losses, statutory issues and legal liabilities, which are always emerged from referencing sub-standard information. Along with the efforts to be spent by individual SME in developing business strategy, conducting risk or impact analysis, etc., the benefit just mentioned, which is profound by its very nature within the fast-tracking trading business context, would bring about the tangible contributions to the life of the whole trading community on a continuous basis.

5.2.3.2 Maintaining robust productivity (*Recommendation 8*)

(i) Improvement on Productivity Gains in relation to productivity

This recommendation associates with productivity, which would be made in the item USEF09, that is, productivity gains to increase the usefulness of the two G2B websites, thereby possibly increasing the satisfaction with using the G2B electronic services under examination.

Findings. As recapped from Section 4.6.4.3, the current research reported that the G2B systems concerned have been aggressive in launching new G2B electronic service products while expanding their service realm in the respective implementation context. Although being on their own merits, the current research accentuates that existing productivity has been delivered in a rather nimble way, or in other case, in a prescribed manner specific to a narrow niche of business scenarios from the perspective of SMEs. Typical exemplars are found in the provision of several specific high volume-based service clusters to facilitate the electronic submission of different types of trade-related documents. As another example, noticeable negative impacts have also been made on SMEs' productivity as a consequence of the non-dynamicity and inflexibility of the information architecture being developed in place and hence obtaining the final outcome of lengthy, staggered and unpleasant web page navigation, information searching and browsing experiences.

As summarized from what mentioned in the preceding paragraph, the current research reveals the delivery of stagnated and diminished productivity in the current implementation contexts

of the G2B systems concerned. To the extent that existing productivity has not been provided in a notable way, the current research contends that the G2B websites concerned are not yet declared as attaining the desirably high level of usefulness for fulfilling SMEs' ever-changing expectations or needs.

Improvement. Based on such observations, the current research underscores the importance of maintaining robust productivity in the dedicated G2B system contexts. While accepting the notions of various improvements as mentioned in the corresponding sub-sections in Sections 5.2.1, 5.2.2, 5.2.3 and 5.2.4, it should be noted that productivity would also be enhanced in terms of efficiency and effectiveness in a much wider extent than the stagnated and diminished counterpart delivered in the current implementation contexts. In achieving so, the current research believes that with a view to mitigating existing stagnated and diminished productivity on behalf of SMEs, the ever-increasing productivity gains would be evolved to be more robust than ever, thus serving to be one of the facets of increasing the usefulness of the G2B websites concerned for pursuing a more successful implementation case.

To this end, the current research classifies the aforementioned ever-increasing productivity gains, which would be concomitantly achieved upon fulfilling the implementation of the corresponding improvement as mentioned in the preceding paragraph. Accordingly, with regard to alleviating existing problem with stagnated productivity, it would be enriched or enhanced in terms of efficiency and effectiveness in a vast array of aspects but not limited to the classical ones as discussed in the literature on the one hand. Potential driving forces would be propelled by (1) strengthening the depth and breadth of business orientation of service clusters for the deployment of system-defined high volume-based service clusters, (2) adopting open and on-demand system integration approach, (3) undertaking sustainable BPR initiatives, and (4) adopting a "thin" multiple channels approach for dedicated public service provision.

While alleviating existing problem with diminished productivity, it would be improved or revitalized in the aspects of efficiency and effectiveness on the other hand. In this regard, potential drivers would include (1) strengthening the breadth of business orientation of service clusters for the deployment of user-defined information and service clusters, (2) developing polymorphic information architecture, (3) developing self-service user interface strategy, (4) managing collaborative web content, (5) naturalizing electronic authentication mechanisms, and (6) preserving trusted electronic commerce environment.

More specifically and profoundly, the aforementioned improvements would be fulfilled to gear up the carrying out of the pertaining value creation processes. As such, the current research unleashes the full potentials that the variety of values created for various stakeholders involved as mentioned in the corresponding sub-sections in Sections 5.2.1, 5.2.2, 5.2.3 and 5.2.4, would be further transformed into the ever-increasing productivity gains on behalf of the same contingent of stakeholders. These productivity gains virtually encompass both efficiency and effectiveness gained in the ever-evolving business aspects, whilst leveraging the multiplier effects of the value creation mechanisms concerned. Having envisaged the greatest potentials than ever, the service consumers and trading community, in particular, would increase the satisfaction with using the G2B electronic services under examination.

(ii) Implications for service providers and government sector

Service providers. As reflected from the variety of values, which would be created for the service providers while fulfilling the improvements concerned, the current research summarizes that these first beneficial priorities would thereafter be taken to enhance internal productivity in terms of increased efficiency and effectiveness. As an example, the service providers would reallocate the saved-up manpower, financial and time resources to increase the productivity in the aspects of reinforcing the relevant service and information acquisition, metadata management processes, etc., which pertain to inherently multifold public service provision if the service providers would have developed polymorphic information architecture as mentioned in Section 5.2.2.1(ii).

Government sector. For the government sector, the current research realizes the aforementioned productivity gains created for the service providers in a far-reaching perspective. The multiplier effects concerned would come into play eventually in the sense that their innate potentials would be exploited in a non-linear manner. This actually means that the government sector would realize the obvious benefit of being able to reinvest the initial values created from the VCP of “Productivity”, that is, channeling the internal productivity gains into as many proximate VCPs as possible, thus triggering the creation of supplementary or collateral values to the larger extent since the inception of initial values and in the best interests of all the stakeholders involved.

(iii) Implications for service consumers and trading community

Service consumers. In a similar vein, a variety of values would be created for the service consumers while fulfilling the improvements concerned, and thereafter, SMEs would reap more additional benefits of enhancing internal productivity in terms of increased efficiency and effectiveness on top of these firsthand benefits. As an example, since SMEs would no longer struggle for engaging in those time-intensive information searching and browsing processes if polymorphic information architecture would have been developed as mentioned in Section 5.2.2.1(iii), SMEs' staff would be able to reshuffle their saved-up time resources to increase the productivity pertaining to the carrying out of other trading business activities, whilst also indicating that existing problem with diminished productivity would have been addressed.

Trading community. For the trading community, the current research realizes the aforementioned productivity gains created for the service consumers with more profound implications. In this connection, the central themes of the multiplier effects of value creations would be likewise applied. In recognition of such potentially great merits, the trading community as a whole would realize the salient benefit of being able to inject the values of enhanced internal productivity created from the VCP of "Productivity" into other proximate VCPs thereafter, thus instantiating the creation of a substantial amount of additional values wherever applicable started from the outset and in the best interests of all the stakeholders involved.

Furthermore, the current research also holds another envision specifically for "self-servicing" public service provision, which actually pursues particular strand of value creations. In this regard, the current research delineates that the aforementioned multiplier effects of value creations would be collectively perceived as an aggregated outcome of the self-generating and ever-increasing productivity gains, which is supposed to be achieved in a recursive orientation merely in the best interests of each SME involved, if applicable. Such self-generating productivity gains, serving to be a clear echo of fostering a knowledge-based SME sector in the HKSAR, would be unpredictable and enormous in terms of micro-efficiencies and -effectiveness accumulated during the course of effecting the multiplication of value creations. As a consequence, an order of magnitude improvement in values to the trading community as a whole would be created, especially when the large majority of SMEs in the trading community would engage in "self-servicing" public service provision in an era of e-Government.

5.2.4 Trust

The current research findings showed that TRUST was a significant explanatory variable with regard to the usage of the G2B electronic services being examined, meaning that it has a moderately significant relationship with the item USESAT01. However, TRUST was a non-significant explanatory variable with regard to the satisfaction with using the G2B electronic services being examined, meaning that it does not have a significant relationship with the item USESAT02.

5.2.4.1 Naturalizing electronic authentication mechanisms (Recommendation 9)

(i) Improvement on Trustworthy Business Partners in relation to public administration

This recommendation associates with public administration, which would be made in the item TRUST01, that is, trustworthy business partners to increase the trust of the two G2B websites, thereby possibly increasing the usage of the G2B electronic services under examination.

Findings. As recapped from Section 4.6.6.2, the current research reported that the G2B systems concerned have formalized electronic authentication mechanisms for their subscribed SMEs in accordance with contemporary and mandatory Government online security requirements, and the ETO set forth by the Government for the implementation of Internet-based e-Government systems. With the advent of prevalent PKI-based digital signature technology, the two G2B systems have been competent to provide a suite of online security facilities pertinent to ensuring the delivery of authentic G2B electronic services as found in the current implementation contexts. However, existing burdensome technological issues such as administering and mastering the use of hardware security tokens and PKI-based digital signatures should be addressed intently by both the service providers and service consumers, whilst also taking together with considerable resources spent, and somewhat peculiar or awkward user experiences gained. These intrinsic functions and features of PKI-based digital technology are genuine but not natural by their very nature. To the extent that existing trust level has been achieved in a rather normative way, the current research supposes that the G2B websites concerned would be improved in order to alleviate those emerging concerns with the underlying complicated business and technical requirements placed for the adoption and application of PKI-based digital signature technology, and also, to increase the trust level concerned in a high permanence approach.

Improvement. In response to such observations, the current research therefore suggests naturalizing prevalent electronic authentication mechanisms in accordance with the basic

tenets of biometric authentication. In achieving so, the current research believes that naturalizing electronic authentication mechanisms would come into the actual play to aim at addressing existing problematic issues arisen over PKI-based digital signatures on the one hand, whereas bolstering the reliability of effecting G2B electronic transactions in the particular aspect of authenticity started from the outset on the other hand, thus serving to be one of the facets of increasing the trust of the G2B websites concerned for pursuing a more successful implementation case.

With the proliferation and increased maturity of commercially available biometric technologies and related advanced protection schemes since their inception, there exists notable ways of achieving the biometric authentication concerned surrounding the notions of fingerprint and face recognition whichever applicable. More specifically, two-factor authentication should still be applied in the dedicated G2B system contexts, but exhibiting the possibility that the first authentication factor would conform to the principle of “something you have” using magnetic stripe card, whereas the second authentication factor would adhere to the principle of “something you are” using fingerprint or face recognition technology. To this end, the current research also accentuates that requiring the first factor just mentioned for electronic authentication would also entail the necessities of providing a digital, unique, non-replicable, sophisticatedly as well as mathematically derived card identifier, and additionally, embedding or embossing a personal fingerprint or face image in a microchip on every magnetic stripe card.

From the holistic point of view, the aforementioned biometric authentication mechanisms would be centralized among all the public service providers involved under the new paradigms of public administration. By taking such a whole of government approach to facilitating the electronic authentication of the SME or even wider business sector, unified identity management practices would be enlightened for the wider application eventually, whilst also developing government-wide electronic authentication framework and standards to provide e-Government service consumers commonality, simplicity and consistency for accessing different e-Government websites or systems as necessary and hence dealing with a wide variety of government-related business in the information age. After all, the current research draws the special attentions that consultations, discourses and debates on relevant statutory or legal implications as well as provisions should be carried out at an elevated and deliberative level in conjunction with authoritative ordinance- and law-making, law enforcing parties, etc. in due course, thereby stipulating the imperatives to be undertaken for assessing

the criticalness and legitimacy pursuant to the implementation of this improvement, which inclines to naturalize the electronic authentication mechanisms concerned.

Overall, the aforementioned improvement would manifest itself to be a novel way of effecting electronic authentications in addition to using conventional PKI-based digital signature technology. As such, the service consumers would strengthen and preserve their trust level to conduct the necessary electronic transactions in the dedicated G2B system contexts, thereby possibly increasing the services usage concerned.

(ii) Implications for service providers and government sector

Service providers. The current research suggests that the service providers would formalize the electronic authentication mechanisms concerned in a natural orientation such that they would be able to reduce spending the substantial amount of manpower, financial and time resources in managing their respective PKI. To further intensify the degree of value creation mechanisms under such a natural regime, the service providers would also be able to increase customer loyalty, which should be reasonably proven to constitute the increasing take-up of G2B electronic services in a general sense.

As well, naturalizing electronic authentication mechanisms, while being novel and simple for implementation on the one hand, should also be of paramount importance to the participating government departments or agencies in spearheading the implementation of collaborative electronic authentication initiatives on the other hand. In this regard, the overall burdensome affairs as always initiated among the government departments or agencies involved would be obsolete in the aspects of (1) administering PKI business models as well as interoperations, (2) issuing digital certificates, and (3) tackling the cryptographic controls of digital signatures. After all, the current research contends that such naturalizing approach together with its underlying virtues, would pave way for developing the good paradigms of unified identity management as mentioned beforehand.

Government sector. The aforementioned value creations are realized as some more profound values created in a wider extent while taking the perspective of the government sector. In this connection, the government sector would realize the obvious benefit of earning the good reputation of promoting secure but easy-to-use e-Government services in the new public management domain having switched to naturalizing electronic authentication mechanisms as intended. With the increasing take-up of the G2B electronic services concerned, the

government sector would reap the notable benefit of high penetration of G2B initiatives, whilst also benchmarking for the successful development of e-Government in the HKSAR. Again, under such a natural regime provided for effecting electronic authentication, a whole of government approach to developing unified identity management practices and hence a government-wide electronic authentication framework would be materialized with greater ease and significant resource savings than ever, and additionally, would be highly regarded by the participating government departments or agencies.

(iii) Implications for service consumers and trading community

Service consumers. The current research believes that the service consumers would lessen a great deal of their reluctance to using G2B transaction services, in particular, once those esoteric matters arisen over the use of hardware security tokens, digital certificates, related cryptographic keys and algorithms are exempted for handling in totality. For the natural regime provided for facilitating electronic authentication and hence accesses to the required G2B electronic services, the service consumers would be able to use trusted electronic services with greater ease of use than that experienced in precedent G2B system contexts. If such naturalizing approach would be in synergy with the development of unified identity management practices in future, the service consumers would be even able to reap the significant benefit of presenting only one single personal biometric credential, which contains their natural biometric information, to gain accesses to multiple e-Government systems as necessary for dealing with wide-ranging government-related business.

Trading community. In another respect, it is realized that the adoption and application of the aforementioned personal biometric credentials would be perceived as highly compatible with the life of trading community members as a whole. Within an even wider scope, personal biometric credentials would also be accepted as satisfying the implementation requirements pertaining to a community-wide electronic authentication initiative in an era of e-Government.

5.2.4.2 Preserving trusted electronic commerce environment (Recommendation 10)

(i) Improvement on Trusted Electronic Commerce Environment in relation to public administration

This recommendation associates with public administration, which would be made in the item TRUST02, that is, trusted electronic commerce environment to increase the trust of the two

G2B websites, thereby possibly increasing the usage of the G2B electronic services under examination.

Findings. Based on Section 4.6.6.2, the current research reported that the G2B systems concerned have maintained their respective trusted G2B environment through the mediation of technical, legal and policy measures in compliance with the ETO and PDPO set forth by the Government. Stated another way, the trusted G2B environments just mentioned have been typically deployed using PKI-based digital signature technology, protection systems for data transmission and storage in a technical perspective, whilst also employing prudent legal and policy measures for the protection of the collected business profile and transaction data from non-legitimate disclosures in a statutory perspective. Specifically, existing technical measures have been set in place, thus serving to efficaciously enforce non-repudiation of electronic transactions as far as practicable in trusted G2B environments. To the extent that existing trust level has been achieved at a rather satisfactory level having sought a suite of technical, legal- and policy-based solutions, the current research realizes that the two G2B websites would be further improved in order to particularly address those concerns with the mainstream PKI-based solutions as mentioned in Section 5.2.4.1(i), and also to invigorate the trustworthiness of the pertaining G2B environments.

Improvement. Based on such observations, the current research recommends preserving trusted electronic commerce or G2B environments by drawing on the notion of environmental protection. In setting out the visions and missions of environmental protection in the broadest sense, it is noted that the agenda set for monitoring the impacts of pollutants should be addressed on a sustainable basis in the aspects of (1) reducing the emissions of various types of pollutants from different plant operations run for the supply of utilities such as electricity, water, etc., and (2) resolving noise problems, maintaining satisfactory air as well as water quality, thereby protecting the health and well-being of a community in a general sense.

In terms of these aspects, the current research supposes that trusted G2B environments would be likewise preserved pertaining to the two G2B systems. To realize the latter objective to the larger extent, both legal- and policy-bound stipulations of the use and protection of the collected data would also be required to be strengthened for a wider range of online information and services provided within the domain of the two G2B systems. To this end, the current research believes that preserving trusted G2B environments based on the doctrines of environmental protection mentioned above, in particular, would address fundamental issues

along the dimension of reinforcing the integrity or non-repudiation of G2B electronic transaction content. Furthermore, to pursue a more successful implementation case, this same act of preservation would also help prevent the breaching of online security as well as privacy invasiveness, thereby enhancing the reliability and hence increasing the trust of the G2B websites concerned.

Based on the first principle of environmental protection as mentioned above, the current research already reckons that reducing the emissions of various types of pollutants from different plant operations would be perceived as not generating “un-trusted” pollutants, thus making the G2B environments concerned more secure. To this end, the current research realizes that existing PKI-based solutions, which deserve the role of enforcing the integrity or non-repudiation of G2B electronic transactions, in particular, are complicated by their very nature and also easily compromised along with the development of different sophisticated techniques, thereby generating “un-trusted” pollutants as a consequence. To address this particular issue, it is supposed not to adopt and apply over-hyped IT, which comprises too complicated IT infrastructures and architectures in terms of network, application and data, and also, are especially vulnerable to a wide variety of unanticipated security attacks. While not generating “un-trusted” pollutants during the course, the G2B environments concerned would be preserved to host trustworthy system platforms, and hence would be made more secure than ever such that the integrity or non-repudiation of electronic transactions would be enforced in an even more rigorous manner under the realm of new public management.

Based on the second principle of environmental protection as mentioned above, the current research delineates the need to prove to the service consumers the security of the G2B environments concerned. The latter principle is generally laid down to supply non-polluted air and water, that is, non-polluted end utility products. This analogously helps articulate the requirement that the range of online information and services should be provided with desirably good quality in the dedicated trusted G2B environments, thus indicating that the end public service products themselves should not contain any “un-trusted” pollutants. Such typical “un-trusted” pollutants would be always observed in the aspects of granting non-legitimate accesses to system data and functions, facilitating misuse and other use of the collected data, etc. even in the light of the concomitant benefits generated. Hence, the implementation of this improvement should be fulfilled in such an efficacious way that “un-trusted” pollutants should not be maintained at the bottom line. As should be demonstrated to the service consumers, major online security faults or errors together with privacy

invasiveness should therefore not be subsumed within the end online information and service products themselves, whilst enhancing the reliability of the G2B systems concerned in terms of increased online security and stronger privacy protection as always required within the domain of new public management.

Finally, preserving trusted G2B environments would also be materialized through expanding the corresponding scope of related legal- and policy-bound stipulations of the use and protection of the collected data. In normal practice, such stipulations would be further enriched accompanying with even more clearer refinements surrounding the imperatives to be undertaken by the service providers for stringently controlling the set up of a business profile and hence the use as well as storage of such business profile data pertaining to each individual SME on the one hand, whereas also focusing on the flexible provisions for the service consumers to override those system default options based on their own preferences, and manage their business profile on the other hand.

Overall, preserving trusted G2B environments as mentioned above would likewise strengthen and preserve SMEs' trust at the required level, which should be adequate enough to foster the culture of using the online information and services provided in the dedicated G2B system contexts on a perpetual basis, wherein they would increase the services usage concerned.

(ii) Implications for service providers and government sector

Service providers. The current research supposes that the service providers would deliver a wider array of assured online information and service products as always required under the realm of new public management. Hence, higher and faster returns on e-Government investment would be resulted in terms of the increasing take-up of the G2B electronic services concerned by the service consumers. Such greater level of assurance in returns would be realized as a significant benefit generated on behalf of the service providers while serving to enhance the reliability of the G2B systems concerned under the new paradigms of public administration.

Government sector. For the government sector, the aforementioned value creations are realized as harvesting the benefits of promoting the trading community's overall confidence in taking up G2B electronic services, and hence achieving high penetration rate of e-Government services. These benefits, which would be generated having preserved trusted G2B environments in a broader perspective, are also collectively analogous to attracting more

foreign investors to exploit business horizons and opportunities under the regime of efficacious environmental protection in Hong Kong.

(iii) Implications for service consumers and trading community

Service consumers. Through intensifying strong privacy protection mechanisms, and more importantly, not producing “un-trusted” pollutants, then trusted G2B environments would be potentially preserved pertaining to the G2B systems concerned. In appreciation of such trustworthy G2B environments, the service consumers would be able to initially grasp the obvious benefit of maintaining a sense of well-being having gained pleasant and confident experiences especially when using the G2B electronic services concerned. As a possible consequence, they would realize the tangible benefits as intended, which should be credible in nature once materialized.

Trading community. For the trading community, the aforementioned values created for the service consumers are realized as taking the initial priority to firstly establish “security-based trust”, and thereafter, to garner the greater “credibility-based trust”. The latter stream of trustworthiness would be propelled by the increased benefits once realized by the trading community members involved having accessed the G2B electronic services within the same trusted G2B environment. In recognition of both streams of trustworthiness, the current research agrees that they should be materialized and not be independent from each other in an era of e-Government.

5.3 Limitations

Several main areas of research limitation were identified when conducting the current study. First, the theoretical G2B success model together with its five main constructs as well as affiliated sub-constructs was developed in the current research and thus served to set out the context for studying e-Government initiatives in the HKSAR at an empirical level. However, for each main construct Comprehensibility (COMP), Trust (TRUST) and Use Satisfaction (USESAT), the underlying sub-constructs were preliminarily identified for investigation at time of conducting the current study. With this potential research limitation, it is envisaged to explore and incorporate more additional sub-constructs into each of the above main constructs in future research in order to develop a more comprehensive and robust research model concerning the successful implementation of G2B initiatives in the broadest sense.

Second, the current research context was set out to employ a rather small sample of subjects. While setting out the research contexts of future research, it is therefore suggested to enlarge the sample size correspondingly for conducting statistical analyses in a more sustainable manner, thereby reducing the possibility of refuting the empirical findings, or in other case, reinforcing the reliability of the empirical findings among each future study concerned, although also having realized that it may be difficult to achieve so in Hong Kong.

Third, the mean performance ratings of the G2B electronic services concerned were apparently centred on the 'neutral' response as presented in Table 4.2. In view of this potential drawback of biased or undesirable survey responses, it is recommended that the 'neutral' response could be placed to the end of the seven-point Likert scale used in survey instrument in the same way as the generic version of EWAM given in Appendix A.

Fourth, it is suggested to include another question in survey instrument as one of future research agendas, thus serving to collect the responses on the degree of usage of conducting the referring research study concerning the evaluation, implementation or other related topics of G2B initiatives. The responses collected would be used to compare the level of prevalence and usefulness of various research studies conducted on contemporary G2B initiatives at different time periods.

Fifth, as with all empirical studies, the online survey instrument as presented in Appendix B and used for conducting the current study, was not developed with a specific section to facilitate capturing the respondents' narrative comments, which should help explain the reasons behind for using or not using a particular G2B electronic service under examination. This deficiency therefore discloses the main limitation of the current study because such narrative comments of qualitative nature may complement the collected importance and performance ratings especially when doing various data analyses concerned, thereby warranting the overall reliability of the current research findings by way of providing adequate and detailed elucidations as far as practicable.

5.4 Future research

The current research findings did not affirm the theoretical G2B success model as a viable one yet in its full and original structure. Therefore, the contribution made to the development of the theoretical G2B success model in the current research context may be further enriched in a wider extent by spending future research efforts in related or similar disciplines, thereby

affirming the model viability or stability in vigorous attempts revolving around the two tenets of the theoretical G2B success model as mentioned in Section 2.7.1, including the (1) the generality of implementation practices and value creations, and (2) equality of value realizations, whilst also not confining to the HKSAR only, but also including other localities wherever applicable. As such, the resultant viable G2B success model and hence the final G2B website evaluation method is expected to become mature enough for wider application in assessing the success of the large majority of G2B initiatives irrespective of their implementation context.

In achieving so, future research contexts may be established in a similar way to the current research context, but not limited to adopting G2B systems pertaining to the trading industry only. Instead, more comparable G2B websites may be identified and selected having taken their implementation scale, pertaining industry, transaction volume and variety of electronic services provided into account. Examples of such G2B websites include e-Tender Box (e-Tender Box, 2006), Brio (Brio, 2009) and InvestHK (InvestHK, 2009).

Along with the endeavors to conduct future research as mentioned above, it should also be noted that additional and considerable efforts are required to be made to address various research limitations identified in Section 5.3, thereby ensuring the overall stability and hence robustness of research model in a more substantial manner even in different research contexts.

5.5 Summary

The summary of this thesis is given in Sections 5.5.1 – 5.5.2 in the aspects of (1) revisiting e-Commerce and e-Government, and (2) creating values for stakeholders. Overall, this summary reports the essential materials and findings presented so far as an abstract work of this thesis.

5.5.1 Revisiting e-Commerce and e-Government

As recapped from Section 2.4, there has been a substantial body of the literature detailing the range of similarities and differences between e-Commerce and e-Government. In this part of conclusions, the current research intends to generalize the comparisons concerned along three main dimensions, thus serving to make some vigorous attempts for revisiting the disparate or otherwise affiliated relationships between e-Commerce and e-Government.

Along the first dimension, the current research highlights the different characteristics currently exhibited in the two main contexts of electronic commerce, which are completely irrelevant to each other. Because of such irrelevancies, the implementation of e-Government initiatives will certainly not inherit those distinctive tenets of e-Commerce counterparts, including the notions of anti-competition, price and cost structure as well as related profitability.

While along the second dimension, the current research presents the appropriateness of the large majority of prevalence of e-Commerce capabilities, which is a clear indicative of the derivation of the theoretical G2B success model primarily and directly from EWAM, a well-established method developed for evaluating the performance of e-Commerce initiatives.

As substantially discussed in the current research context, the last dimension was developed surrounding the fusion of e-Commerce services and e-Government services, that is, the delivery of business-centric integrated G2B electronic services regardless of whether they are clustered or not. However, synthesizing e-Commerce services and e-Government services in a system integration approach will only be feasibly achieved through producing all possible resonances between the former purely profit-driven service provision and the latter “civil-servicing” public service provision. Taking this particular concern into consideration, the current research therefore puts forth the argument that e-Commerce or B2B service providers should secure and sustain their enthusiasm to unleash new system integration potentials while partnering with e-Government or G2B service providers in contemporary public-private G2B joint ventures on the one hand, whereas they should also recognize the possibility that the prospect of achieving higher profitability would be required to be relinquished in some extents on the other hand. The latter argument actually pinpoints the deviation from conventional thinking about the relationships among the interacting or partnering business entities, which have been built purely for the purpose of maximizing profits in the context of B2B e-Commerce.

After all, the current research addresses a notable perception of e-Government, delineating that e-Government should not be perceived as just offering the vast majority of service consumers an alternative channel for accessing government information and services, or in other instance, dealing with government-related business. Moreover, e-Government initiatives by their very nature should be more than those profit-maximizing e-Commerce counterparts

to the least extent such that wide-ranging e-Government services should be delivered under whole-hearted civil-servicing obligations.

5.5.2 Creating values for stakeholders

In this part of conclusions, the current research summarizes that public service provision should be revamped through the implementation of Internet-based e-Government systems in order to move away from traditional regime of brick-and-mortar and government agency-centric public service delivery model as far as practicable in the first place, and consequently, to move away from such prevailing Internet-based public service delivery mechanisms that are likewise government agency-centric by intrinsic.

Existing conservative approach to implementing e-Government systems

Representative exemplars of the Internet-based public service delivery mechanisms mentioned above, in particular, are demonstrated to be prevailing in Hong Kong as found in the cases that various e-Government service providers tend to simply follow the prescribed and broad e-Government strategy set forth by the Government. Hence, they have not yet fully rationalized different aspects of public service provision, which are just merely in an automated or electronic orientation only in contemporary implementation contexts.

The main possible reason for making such faceted achievements so far may be due to the fact that the portfolio of all-embracing public service design principles of “one-stop” business-centric cluster and integrated electronic services, together with multiple channels strategy, which deserve to be developed for achieving long-term prosperity in an era of e-Government, have been completely new or novice to the e-Government service providers involved while comparing with the usual ways of deploying electronic services over the Internet, and even substantially, collating the old styles of providing public services under the realm of traditional brick-and-mortar public administration. As a result, a significant majority of e-Government service providers have delivered somewhat mediocre electronic services, whilst also meaning that they have been taking a rather mild compliance perspective in achieving so. The current research therefore intends to give a concluding note further, articulating that such conservative approach to implementing e-Government systems in the information age will not definitely command the significant and credible increase in take-up of different types of e-Government services.

While specific to the context of implementing G2B initiatives, most implementation cases of prevalent G2B initiatives have still been instilling a sense of sub-optimal value creations and hence delivering normative performances only in terms of the services usage and services satisfaction achieved so far. The current research therefore underscores the importance of IT innovations in a broad perspective as opposed to IT automations in a narrow perspective. Given such significance, there should have an inclining appeal to foster a whole-hearted culture, embracing the “intend-to-serve” mentality that is of utmost importance, then the “intend-to-change” and “intend-to-transform” mentality of adopting and applying IT in an intelligent and innovative way on the service provider or government side when delivering the greatest benefits to all the stakeholders engaged in G2B initiatives.

Resilient-based public service provision

In the light of the aforementioned concerns, the current research intends to reveal such mentalities as would be feasibly developed, having accepted various notions of improvements as mentioned in Sections 5.2.1, 5.2.2, 5.2.3 and 5.2.4. To generalize the major improvements concerned, there exists two main streams of endeavors to be materialized accordingly, including (1) substantial amounts of implementation efforts would be devoted to pursuing a coordinated and effective service- and commodity-wide e-Government strategy, and additionally, the development of the associated government-wide IT frameworks, infrastructures as well as architectures oriented towards establishing overarching public service design principles and achieving open interoperability, and (2) concrete and considerable implementation efforts would be made revolving around “self-servicing” public service provision. Long-term and sustainable convergence of these two streams of endeavors is then achieved because the current research perceives such endeavors collectively as taking the new civil servicing paradigm of *resilient-based public service provision (RPS)* in the context of e-Government, whilst also shaping possible outcomes to be produced in increased dynamics, flexibility, and more importantly, benefits.

Along with the implementation efforts to make “self-servicing” public service provision a reality and hence a success, in particular, the service providers should furnish all the necessary provisions, thereby facilitating and even intensifying the proliferation of self-services, and hence pursuing more successful implementation cases of the newest G2B initiatives. The necessary provisions concerned should include supplying all the sharable and valuable ingredients, which are pertinent to fulfilling “self-servicing” public service provision in an opened-up and collaborative approach within the domain of new public management.

By supplying more building blocks of available and granular G2B electronic services using Web services or equivalent technologies, which are mainly informational, but also interactive and transactional in nature, the service consumers themselves would be enabled to marshal the delivery of online information and services on an autonomous and proficient basis in accordance with their own preferences.

While fulfilling the aforementioned “self-servicing” public service provision, the current research also emphasizes that the service providers should not merely present their subjective and divergent viewpoint to prescribe all the ways or means of providing business-centric G2B electronic services even in favor of the Internet age, and thereby proclaiming or faking such prescribed and government agency-centric public service provision as business-centric one instead. As mentioned in the relevant sections in this chapter, genuine business-centric G2B electronic services should be delivered in full compliance with the inner perspective of service consumers, whereas achieving such great expectation generally requires vesting true liberties to the service consumers for strengthening their own determination or preferences.

On the basis of the aforementioned liberties, the current research elaborates the final respect of appreciation, stating that all these self-servicing initiatives should not be portrayed as undertaking somewhat nomadic imperatives. But eventually, they are able to tangibly facilitate democratizing the overall information and public service delivery processes as far as practicable in the new public management domain by way of demonstrating the transformational use of the Internet in the context of e-Government.

Concluding remarks

On a concluding note, the implementation of prevalent G2B initiatives in Hong Kong has been largely connected to pursuing conservative paradigms in public service provision. Having such conservative mentality factually brings about some significant and far-reaching consequences. In conjunction with this claim, the current research realizes that the service providers are the main custodies for the most available and valuable manpower, financial and time resources, which should be employed to implement various G2B initiatives. Amplifying this plausible argument further, the service providers have been inclining to dominate over both the business and technical aspects of the underlying implementation approaches and practices with predetermined mindsets and hence predefined perspectives as well as preferences. As such, the service providers deserve to enact the role of big gatekeepers in delivering online information and services, despite the drawback that they indeed tender

substantial amounts of dictation in terms of placing a number of prescriptions and constraints on the functions, features and facilities of the online information and service products just mentioned.

Having recognized such deficiencies or otherwise different extents of pre-determinacy in various implementation cases of prevalent G2B initiatives, the current research therefore takes the initiative to lay out the new e-Government strategic agenda for increasing the overall transparency of new public management, in particular. For this new agenda, the current research presents the important and immediate imperative that is to be undertaken for advancing the democratic empowerment of all the stakeholders specifically engaged in both prevalent as well as future G2B initiatives, and additionally, involved in other initiatives pertaining to the remaining sectors of e-Government whichever applicable, whilst also assuring to maximize the multifold effects of the affiliated value creations.

Appendix A.

The Constructs of EWAM

Transaction Phase / EWAM Criterion (with explanation)	ID	Your Selection				
1. Information Phase						
Web Page and Specific Offer are Easily Found <u>Explanation</u> Refer to the explanations for EOU2 and EOU9.	EOU1	++	+	-	--	N.A.
Good Structure of Content <u>Explanation</u> “Structure of content” measures ease of access as well as first and second impression of the logical structure of the content. Table of contents, navigational frames or image maps are typical features provided to facilitate website navigation.	EOU2	++	+	-	--	N.A.
Reasonable Information Quantity <u>Explanation</u> “Information quantity” assesses the range of information on company, products and services.	EOU3	++	+	-	--	N.A.
Quality of Content Meets User Expectations <u>Explanation</u> “Quality of content” assesses the benefits of obtaining online information and content from the website.	USEF1	++	+	-	--	N.A.
Cost Benefits Passed on to the Client <u>Explanation</u> The use of electronic sales channels often reduces transaction costs. Vendors should be able to offer products on their website at lower prices.	USEF2	++	+	-	--	N.A.
Good Combination Possibilities for Products or Services <u>Explanation</u> “Combination possibilities” examines the	USEF3	++	+	-	--	N.A.

Transaction Phase / EWAM Criterion (with explanation)	ID	Your Selection				
<i>breadth of the product range, and the possibility to combine various offerings in terms of cross-selling of the company's own products and/or third-party goods / services (e.g. an airline ticket and a hotel reservation).</i>						
Good Recommendation Systems <u>Explanation</u> "Recommendation systems" assesses the provision of guiding mechanisms, which enable the website to come up with suggestions, or even to grant special discounts to customers.	USEF4	++	+	-	--	N.A.
Adequate Application of Hypermedia <u>Explanation</u> Refer to the explanations for EOU2 and EOU9.	USEF5	++	+	-	--	N.A.
2. Agreement Phase						
Transparent, Interactive Integration of Business Rules <u>Explanation</u> The underlying business rules should be transparent to customers with guided online interactions. Business rules are generally defined related to terms and conditions, guarantees, returning goods, etc.	EOU4	++	+	-	--	N.A.
Fair and Individual Prices <u>Explanation</u> "Individual prices" assesses the provision of customer profiles to maintain customer information such as previous orders, preferences, etc., which helps to treat each customer differently.	USEF6	++	+	-	--	N.A.
3. Settlement Phase						
Easy Selection and Good Integration of Generic Services <u>Explanation</u> "Selection of generic services" examines the provision of generic services such as shopping	EOU5	++	+	-	--	N.A.

Transaction Phase / EWAM Criterion (with explanation)	ID	Your Selection				
<p><i>carts, payment, tracking order, logistics services, etc. of different choices for selection during the settlement phase.</i></p> <p><i>“Integration of generic services” measures whether the generic services are properly deployed in terms of their common user interfaces and routine operations in the website wherever necessary.</i></p>						
<p>Good Integration in Customer’s IT Infrastructure</p> <p><u>Explanation</u> <i>“Integration in customer’s IT infrastructure” assesses the system capacities of network connections, integrations with external IT systems, etc. for facilitating data transfers or exchanges with customers, strategic partners, etc.</i></p>	USEF7	++	+	-	--	N.A.
<p>Good Tracing and Tracking</p> <p><u>Explanation</u> <i>A good example is illustrated that after placing order, customers are provided with information how to trace and track their order at a separate logistic service website.</i></p>	USEF8	++	+	-	--	N.A.
4. After-Sales						
<p>Convenient After-sales Support</p> <p><u>Explanation</u> <i>Examples of after-sales customer support should be convenient and include guarantee forms, feedback forms, etc.</i></p>	EOU6	++	+	-	--	N.A.
<p>Satisfying Customer Support</p> <p><u>Explanation</u> <i>“Customer support” examines the feedback response times, which should be adequate to the medium used.</i></p>	USEF9	++	+	-	--	N.A.
5. Community Component						

Transaction Phase / EWAM Criterion (with explanation)	ID	Your Selection				
<p>Good Access to Community</p> <p><u>Explanation</u> <i>“Access to community” assesses whether a link between the product offer and the virtual community component of the website is provided.</i></p>	EOU7	++	+	-	--	N.A.
<p>Good Quantity & Quality of Relationships in Community</p> <p><u>Explanation</u> <i>For “Quantity of relationships”, as the number of community members increases, so does the probability of good questions and answers, reviews and other contributions and hence a rich community experience.</i></p> <p><i>For “Quality of relationships”, the establishment of personal relationships with other community members such as specific shared experiences of life, etc. is perceived as an additional value creation.</i></p>	USEF10	++	+	-	--	N.A.
<p>Good Quantity & Quality of Content Generated by Community</p> <p><u>Explanation</u> <i>“Quantity and quality of content generated by community” assesses the online information and content that can be obtained from and shared in the community area.</i></p>	USEF11	++	+	-	--	N.A.
<p>Purchasing Power</p> <p><u>Explanation</u> <i>Web marketers should remunerate their customers by granting discounts for product sales based on the basic customer information collected.</i></p>	USEF12	++	+	-	--	N.A.
<p>6. Final Section</p> <p>In the final section, you are asked to answer a last set of questions relevant for all of the above mentioned phases and give some personal information about your Internet experience.</p>						
<p>Good Availability / Performance</p> <p><u>Explanation</u></p>	EOU8	++	+	-	--	N.A.

Transaction Phase / EWAM Criterion (with explanation)	ID	Your Selection				
<p><i>“Availability / Performance” measures the global availability and performance of the website / system to customers regardless of their geographic location. As such, the loading times of web pages are of great importance from the customer perspective.</i></p>						
<p>Good User Interface</p> <p><u>Explanation</u> <i>“User interface” assesses ease of use for frequent users and for first time visitors. Measurement indicators include loading times of web pages, and guidance in the interaction process with the website when completing a transaction.</i></p>	EOU9	++	+	-	--	N.A.
<p>Improvement in Productivity / Time Gained</p> <p><u>Explanation</u> <i>“Productivity / time gained” assesses the productivity in terms of efficiency and effectiveness gained after effecting online interactions and transactions with the website.</i></p>	USEF13	++	+	-	--	N.A.
<p>Interactivity</p> <p><u>Explanation</u> <i>Refer to the explanations for EOU2 and EOU9.</i></p>	USEF14	++	+	-	--	N.A.
<p>Good Contact Possibilities</p> <p><u>Explanation</u> <i>“Contact possibilities” examines the various ways to establish communications with the vendor. Examples of such customer supports include help desk or call centre, FAQs, email or web forms for providing feedback, etc.</i></p>	USEF15	++	+	-	--	N.A.
<p>Trustworthy Business Partners</p> <p><u>Explanation</u> <i>The website should implement reliable security measures such as digital signatures, etc. to ensure trustworthy business partners are being involved in an online transaction in the context of the website.</i></p>	TRUST1	++	+	-	--	N.A.

Transaction Phase / EWAM Criterion (<i>with explanation</i>)	ID	Your Selection				
Trust in Internet as Platform and Legal Situation <u><i>Explanation</i></u> <i>The website should implement reliable security measures such as SSL, etc. to ensure trust in the context of the website and hence Internet-based e-Commerce.</i>	TRUST2	++	+	-	--	N.A.
Your Internet Experience		3 years or more				
		1 – 3 years				
		Less than 1 year				

(Adapted from Schubert and Selz, 1999; Schubert, 2003a)

Appendix B.

Online Survey Instrument

Appendix B.1 The English version of online survey instrument

<http://www.onlinesurvey.html>

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR Participant Information and Consent Statement

To: The Participating SME

You are cordially invited to participate in a study of implementing successful G2B initiatives in the HKSAR. The purpose of the study is mainly to discover the substantial influences as well as contributions that core success factors would make towards increasing the satisfaction on using G2B electronic services in the HKSAR.

The study is being conducted by Cecili Kwok (Email: chun.kwok@students.mq.edu.au), the original investigator, to meet the requirements for the degree of Doctor in Business Administration under the supervision of Professor Ernest Jordan (Email: ernest.jordan@mgsim.edu.au; Telephone Number: (612) 9850 9041) of the Macquarie Graduate School of Management (MGSM) of the Macquarie University of Australia.

If you decide to participate, you will be asked to provide answers to the survey questions by filling out the first and second section given below, which generally take around 10 minutes to finish.

Any information or personal details gathered in the course of the study are confidential. The confidentiality and retention of the data being collected are ensured by storing them in a secured place at the original investigator's University office. Access to data is strictly monitored and limited to the original investigator directly involved in the research. No individual will be identified in any publication of the research results.

The research results will be made available to each participating SME upon request by sending email to chun.kwok@students.mq.edu.au. In return, a summarized research report, which explains the G2B success model that is most viable in the HKSAR and is beneficial to businesses in the trading sector, will be sent via email or by postal mail to the participating SME. Thank you for your cooperation.

I (the participating SME) have read and understand the information above and any questions I have asked have been answered to my satisfaction. I agree to participate in this research by clicking on the **[Accept]** button below, knowing that I am also informed that return or submission of the online questionnaire will be regarded as consent to use the information for research purposes. I can print out this Information and Consent Statement to keep.

Accept

The ethical aspects of this study have been approved by the Macquarie University Ethics Review Committee (Human Research). If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Ethics Review Committee through its Secretary (Email: ethics@mq.edu.au; Telephone Number: (612) 9850 7854). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Section 1

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR **General Information**

The following questions ask you about the employment profile of the person participating in this survey, the business profile and information technologies (IT) capabilities of your company. Please clearly write your answer in the space provided, or putting a ✓ inside the appropriate box. **If your company does not subscribe to both *Tradelink-eBiz* and *Ge-TS*, then you do not need to fill out Section 2.**

Employment Profile

Email Address*

Years with present company

_____ Years

Years of experience using Internet and/or information technologies (IT)

_____ Years

Present Position*

☐

Clerk

☐

Supervisor

☐

Technical Professional

☐

Manager

☐

Others

Business Profile

Business Nature*

☐

Trading

☐

Manufacturing

☐

Others

Main Products (e.g. Electronics, Jewellery, Watch)*

Number of staff in Hong Kong*

_____ Staff

Target Market*

☐

PRC

☐

U.S.

☐

Europe

☐

Others

IT Capabilities

Does your company have computing equipment and system?*

☐

Yes

☐

No

Number of personal computers (PCs) in your company

_____ PCs

Category of computing equipment and system that your company is using

☐

Standalone System

☐

Client-Server System

☐

Mainframe System

Does your company have network connections with government departments and/or business partners?*

☐

Yes

☐

No

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR

General Information

The following questions ask you about the employment profile of the person participating in this survey, the business profile and information technologies (IT) capabilities of your company. Please clearly write your answer in the space provided, or putting a ✓ inside the appropriate box. **If your company does not subscribe to both *Tradelink-eBiz* and *Ge-TS*, then you do not need to fill out Section 2.**

- Does your company have a website? ☐ Yes ☐ No
- Does your company subscribe to *Tradelink-eBiz*? ☐ Yes ☐ No
- Does your company subscribe to *Ge-TS*? ☐ Yes ☐ No

Section 2

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR

Questionnaire

Guidelines for Assessment:

There are two steps established for the assessment of the G2B websites or systems under examination.

- a. *Tradelink-eBiz (eBiz)*. <http://www.tradelink-ebiz.com/english/331n08or3m9a51l/index.html>
- b. *Ge-TS (Ge-TS)*. <http://www.ge-ts.com.hk/en/home.html>

Step 1: Importance Rating

- a. Please clearly rate the importance of the item to you.

Step 2: Website Evaluation

- a. For the G2B website or system that you already subscribed to, please clearly rate the response that best expresses your answer.

Note: N.A. (Not Applicable) can be rated if an item is not relevant to the G2B website or system under examination, or in other case, you do not know the answer.

Item	How Important is this Item to you?	Your Rating on the Website:
(The following questions ask you about your opinions of using the electronic services provided by the website under examination. Please clearly indicate your answer by filling in a number using the guidelines and rating scale given in this section.)	1 = Very Unimportant 2 = Unimportant 3 = Fairly Unimportant 4 = Neutral 5 = Fairly Important 6 = Important 7 = Very Important N.A. = Not Applicable	1 = Strongly Disagree 2 = Disagree 3 = Fairly Disagree 4 = Neutral 5 = Fairly Agree 6 = Agree 7 = Strongly Agree N.A. = Not Applicable
Comprehensibility	<i>eBiz</i>	<i>Ge-TS</i>
The website offers groups of related government and commercial services according to the trading business life events.		
The website allows our company to complete a transaction with just a few simple steps.		

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR Questionnaire

Guidelines for Assessment:

There are two steps established for the assessment of the G2B websites or systems under examination.

- a. **Tradelink-eBiz (eBiz).** <http://www.tradelink-ebiz.com/english/331n08or3m9a51l/index.html>
- b. **Ge-TS (Ge-TS).** <http://www.ge-ts.com.hk/en/home.html>

Step 1: Importance Rating

- a. Please clearly rate the importance of the item to you.

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- a. For the G2B website or system that you already subscribed to, please clearly rate the response that best expresses your answer.

Note: N.A. (Not Applicable) can be rated if an item is not relevant to the G2B website or system under examination, or in other case, you do not know the answer.

Item	How Important is this Item to you?	Your Rating on the Website:	
(The following questions ask you about your opinions of using the electronic services provided by the website under examination. Please clearly indicate your answer by filling in a number using the guidelines and rating scale given in this section.)	1 = Very Unimportant 2 = Unimportant 3 = Fairly Unimportant 4 = Neutral 5 = Fairly Important 6 = Important 7 = Very Important N.A. = Not Applicable	1 = Strongly Disagree 2 = Disagree 3 = Fairly Disagree 4 = Neutral 5 = Fairly Agree 6 = Agree 7 = Strongly Agree N.A. = Not Applicable	
Ease of Use		eBiz	Ge-TS
The website organizes web content based on trading business needs, which allow easy search of information and selection of electronic services.			
The website provides reasonable quantity of information that our company actually needs.			
The website provides guided instructions for data entry on web forms, acceptance of terms and conditions, etc.			
The website offers various submission channels (e.g. paper, electronic) of trading documents with flexible payment options (e.g. cheque, Internet).			
The website provides various convenient online business supports (e.g. FAQs, emails, feedback forms).			
The website allows our company and the Government to easily share common interests and business knowledge in online communities.			
The website provides simple navigation and easy-to-understand web content.			
The website brings much convenience to our company by offering flexible or round-the-clock service hours.			
The website offers fast loading times of web pages and electronic documents, instant update of transaction status, etc.			
Usefulness		eBiz	Ge-TS
The website provides updated and complete web content, which meet the general trading business needs.			

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR Questionnaire

Guidelines for Assessment:

There are two steps established for the assessment of the G2B websites or systems under examination.

- a. **Tradelink-eBiz (eBiz).** <http://www.tradelink-ebiz.com/english/331n08or3m9a51l/index.html>
- b. **Ge-TS (Ge-TS).** <http://www.ge-ts.com.hk/en/home.html>

Step 1: Importance Rating

- a. Please clearly rate the importance of the item to you.

Step 2: Website Evaluation

- a. For the G2B website or system that you already subscribed to, please clearly rate the response that best expresses your answer.

Note: N.A. (Not Applicable) can be rated if an item is not relevant to the G2B website or system under examination, or in other case, you do not know the answer.

Item	How Important is this Item to you?	Your Rating on the Website:	
(The following questions ask you about your opinions of using the electronic services provided by the website under examination. Please clearly indicate your answer by filling in a number using the guidelines and rating scale given in this section.)	1 = Very Unimportant 2 = Unimportant 3 = Fairly Unimportant 4 = Neutral 5 = Fairly Important 6 = Important 7 = Very Important N.A. = Not Applicable	1 = Strongly Disagree 2 = Disagree 3 = Fairly Disagree 4 = Neutral 5 = Fairly Agree 6 = Agree 7 = Strongly Agree N.A. = Not Applicable	
The website provides our company with clear and updated service charging information.			
The website adds value to our business by offering other useful electronic services (e.g. web hosting, service / levy charges calculation).			
The website saves data entry effort by automatically filling out some previously inputted data on various web forms.			
The website allows our company to readily trace and track transaction status whenever necessary.			
The website satisfies business support for our company with fast response times and online help facilities.			
The website provides community members good and sufficient connection links to help build relationships and create business opportunities.			
The website continuously provides community members timely and useful information updates on business knowledge and practices.			
The website increases our productivity because more applications can be electronically submitted and processed within shorter time.			
The website lets our company realize the cost savings after using the electronic services.			
Adaptability		eBiz	Ge-TS
The website allows our company to obtain the wanted information based on our business profile submitted beforehand.			

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR Questionnaire

Guidelines for Assessment:

There are two steps established for the assessment of the G2B websites or systems under examination.

- a. **Tradelink-eBiz (eBiz).** <http://www.tradelink-ebiz.com/english/331n08or3m9a51l/index.html>
- b. **Ge-TS (Ge-TS).** <http://www.ge-ts.com.hk/en/home.html>

Step 1: Importance Rating

- a. Please clearly rate the importance of the item to you.

Step 2: Website Evaluation

- a. For the G2B website or system that you already subscribed to, please clearly rate the response that best expresses your answer.

Note: N.A. (Not Applicable) can be rated if an item is not relevant to the G2B website or system under examination, or in other case, you do not know the answer.

Item	How Important is this Item to you?	Your Rating on the Website:	
(The following questions ask you about your opinions of using the electronic services provided by the website under examination. Please clearly indicate your answer by filling in a number using the guidelines and rating scale given in this section.)	1 = Very Unimportant 2 = Unimportant 3 = Fairly Unimportant 4 = Neutral 5 = Fairly Important 6 = Important 7 = Very Important N.A. = Not Applicable	1 = Strongly Disagree 2 = Disagree 3 = Fairly Disagree 4 = Neutral 5 = Fairly Agree 6 = Agree 7 = Strongly Agree N.A. = Not Applicable	
The website offers additional services (e.g. paper-to-electronic documents conversion, special software) to help our company submit an application.			
The website lets our company input data once for an application, which needs to be processed by multiple parties.			
The website lets our company check status without login to other websites for an application, which needs to be processed by multiple parties.			
The website effectively transmits the transaction data to our computing system so that we can reuse them for further processing.			
The website provides various business contacts (e.g. phone, email, fax, paper-based support) depending on our needs.			
Trust		eBiz	Ge-TS
The website provides various authentic and authorization facilities to ensure transactions are conducted among trusted parties.			
The website provides various security measures and legal principles to create trusted electronic commerce environment.			
Use Satisfaction		eBiz	Ge-TS
Overall, considering the most recent experience in visiting the website, our company frequently uses the electronic services provided.	Not to be Filled In		
Overall, considering the most recent experience in visiting the website, our company is satisfied with the electronic services provided.	Not to be Filled In		

Thank you for completing this survey.

Appendix B.2 The Traditional Chinese version of online survey instrument

<http://www.onlinesurvey.html>

在香港特別行政區實施成功的政府與企業電子政府措施 參與者須知和同意聲明書

致：參與本問卷調查之中小型企業

閣下被誠意邀請參與一個名為「在香港特別行政區實施成功的政府與企業(G2B)電子政府措施」的研究。這個研究的目的主要是就香港特別行政區政府為中小型企業所提供的電子服務，來了解其各個功能的實際影響力和貢獻，從而增加使用這些電子服務時的滿意程度。

這個調查現正由研究員 Cecili Kwok (電郵: chun.kwok@students.mq.edu.au) 進行，並在 Professor Ernest Jordan (電郵: ernest.jordan@mqsm.edu.au; 電話: (612) 9850 9041) of the Macquarie Graduate School of Management (MGSM) of the Macquarie University of Australia 的指導和監督下，以達到研究員之工商管理博士學位的課程要求。

如果閣下決定參與本問卷調查，閣下將會大約使用十分鐘來完成第一部份和第二部份的問卷題目。

在研究期間搜集的資料或個人細節是機密的。所搜集的資料會存放在研究員所屬大學的辦公室內，以確保資料機密和可以安全保留。使用所搜集的資料是絕對嚴密被監察和限制的，只有研究員才可以直接使用這些資料，亦沒有個人在任何出版之研究結果報告裡被記名。

參與本問卷調查之中小型企業可電郵至 chun.kwok@students.mq.edu.au 要求有關研究結果報告。而參與本問卷調查之中小型企業將會透過電子郵件或郵政郵件，收到一份研究報告的總結，內容解說在香港特別行政區最可實行和有利於貿易界的政府與企業(G2B)電子服務之成功模式和典範。謝謝閣下的合作。

本人(代表參與本問卷調查之中小型企業)已閱讀和瞭解上述內容，而本人亦對本人曾提出的任何問題的答覆感到滿意。本人現按下[接受]按鈕，同意參與這個研究，並知道本人所提交的網上問卷，將被視為同意使用其資料作為研究用途。而本人亦能列印和保存此參與者須知和同意聲明書。

Accept

這項研究的道德評審已被 Macquarie University Ethics Review Committee (Human Research) 批准。如果閣下對參與這項研究在道德方面有任何投訴或保留，閣下可以聯絡 Ethics Review Committee 的秘書(電郵: ethics@mq.edu.au; 電話: (612) 9850 7854)。閣下所提出的任何投訴將被嚴密調查，並且通知閣下有關調查結果。

第一部份

在香港特別行政區實施成功的政府與企業電子政府措施 一般說明

以下問題是詢問參與本問卷調查人仕的個人職業資料，任職公司資料和其資訊科技設備。請閣下清楚地寫下答案於空格內，或畫上 ✓ 在適當的格子裡面。但如果閣下任職公司不是 **貿易通電子貿易專網 (Tradelink-eBiz)** 和 **商貿易 (Ge-TS)** 的註冊用戶，那閣下不需要填寫第二部份。

個人職業資料

電郵地址*

閣下任職公司的年資

_____ 年

閣下使用互聯網和/或資訊科技的經驗

_____ 年

閣下現時職位*

☐

文員

☐

主管

☐

技術人員

☐

經理

☐

其他

任職公司資料

商業性質*

☐

貿易

☐

製造業

☐

其他

主要產品 (如: 電子、珠寶、手錶)*

在香港的職員人數*

_____ 位

目標市場*

☐

中國

☐

美國

☐

歐洲

☐

其他

資訊科技設備

閣下任職公司有沒有裝設電腦設備和系統*

☐

有

☐

沒有

裝設在閣下任職公司的個人電腦數目

_____ 台

閣下任職公司現時所採用電腦設備和系統的類別

☐

獨立系統

☐

客戶端伺服器系統

☐

電腦主機系統

閣下任職公司是否與政府部門和/或商務夥伴有網絡連接嗎?*

☐

有

☐

沒有

閣下任職公司有沒有設立網站?*

☐

有

☐

沒有

**在香港特別行政區實施成功的政府與企業電子政府措施
一般說明**

以下問題是詢問參與本問卷調查人士的個人職業資料，任職公司資料和其資訊科技設備。請閣下清楚地寫下答案於空格內，或畫上 ✓ 在適當的格子裡面。但如果閣下任職公司不是 **貿易通電子貿易專網 (Tradelink-eBiz)** 和 **商貿易 (Ge-TS)** 的註冊用戶，那閣下不需要填寫第二部份。

閣下任職公司是不是 **貿易通電子貿易專網 (Tradelink-eBiz)** 的註冊用戶？*

☐

是

☐

否

閣下任職公司是不是 **商貿易 (Ge-TS)** 的註冊用戶？*

☐

是

☐

否

第二部份

**在香港特別行政區實施成功的政府與企業電子政府措施
問卷調查**

政府與企業網站評價指引：

就以下列出的政府與企業網站的評價，請完成下列兩個步驟。

- a. **貿易通電子貿易專網 (eBiz)**. <http://www.tradelink-ebiz.com/english/331n08or3m9a51l/index.html>
- b. **商貿易 (Ge-TS)**. <http://www.ge-ts.com.hk/en/home.html>

步驟一：項目重要性之評分

- a. 請閣下就所列出的政府與企業網站的每個項目，清楚地表示其重要性。

步驟二：網站評分

- a. 請閣下就所列出的政府與企業網站的每個項目，清楚地表示其評分。

註：在閣下評分時，如果以下某些項目是與該網站不相關的，或閣下不知道答案，那只需填上不適用。

項目	閣下認為這個項目有多重要？	閣下對這個項目的評分：	
(以下問題是詢問關於閣下使用以下網站所提供的電子服務的意見。請參照此部分的指引和評分等級，並清楚地以一個數字來表示閣下對每一條問題的答案。)	1 = 非常不重要 2 = 不重要 3 = 頗不重要 4 = 中立 5 = 頗重要 6 = 重要 7 = 非常重要 N.A. = 不適用	1 = 非常不同意 2 = 不同意 3 = 頗不同意 4 = 中立 5 = 頗同意 6 = 同意 7 = 非常同意 N.A. = 不適用	
網站之全面性		貿易專網	商貿易
此網站是根據恆常的貿易事務，而提供相關的政府和商業電子服務。			
此網站讓本公司以簡單的步驟來完成電子交易。			
網站之易用情況		貿易專網	商貿易
此網站是根據貿易事務的需求來編組網站內容，因此很容易地搜尋所需資訊和選擇所需電子服務。			

**在香港特別行政區實施成功的政府與企業電子政府措施
問卷調查**

政府與企業網站評價指引：

就以下列出的政府與企業網站的評價，請完成下列兩個步驟。

- a. **貿易通電子貿易專網 (eBiz).** <http://www.tradelink-ebiz.com/english/331n08or3m9a51l/index.html>
- b. **商貿易 (Ge-TS).** <http://www.ge-ts.com.hk/en/home.html>

步驟一：項目重要性之評分

- a. 請閣下就所列出的政府與企業網站的每個項目，清楚地表示其重要性。

步驟二：網站評分

- a. 請閣下就所列出的政府與企業網站的每個項目，清楚地表示其評分。

註：在閣下評分時，如果以下某些項目是與該網站不相關的，或閣下不知道答案，那只需填上不適用。

項目 (以下問題是詢問關於閣下使用以下網站所提供的電子服務的意見。請參照此部分的指引和評分等級，並清楚地以一個數字來表示閣下對每一條問題的答案。)	閣下認為這個項目有多重要？ 1 = 非常不重要 2 = 不重要 3 = 頗不重要 4 = 中立 5 = 頗重要 6 = 重要 7 = 非常重要 N.A. = 不適用	閣下對這個項目的評分： 1 = 非常不同意 2 = 不同意 3 = 頗不同意 4 = 中立 5 = 頗同意 6 = 同意 7 = 非常同意 N.A. = 不適用	
此網站提供本公司所需適當數量的資訊。			
此網站在資料輸入、交易細則及條件接納等方面，提供指示和說明。			
此網站提供多元化的貿易文件遞交渠道(如:紙張、電子遞交)，和具有靈活的付款方式(如:網上付款、郵寄支票)。			
此網站提供多樣化和方便的網上商業支援服務(如:常見問題解答、電子郵件、網站意見表格)。			
此網站讓本公司和政府部門運用互聯網社群，互相分享共同興趣和商業知識。			
此網站提供簡單的瀏覽路徑和容易瞭解的網站內容。			
此網站提供彈性或日夜不停的服務，從而為本公司帶來便利。			
此網站提供快捷的網頁和電子文件下載，及即時的電子交易情況更新。			
網站之用途		貿易專網	商貿易
此網站提供即時更新和完整的網站內容，從而達到貿易事務的一般需求。			
此網站提供本公司清楚和即時更新的電子服務收費資訊。			
此網站提供其他有用的電子服務(如:網站儲存服務、計算服務收費或徵稅)，從而為本公司帶來增值服務。			

在香港特別行政區實施成功的政府與企業電子政府措施 問卷調查

政府與企業網站評價指引：

就以下列出的政府與企業網站的評價，請完成下列兩個步驟。

- a. 貿易通電子貿易專網 (eBiz). <http://www.tradelink-ebiz.com/english/331n08or3m9a51/index.html>
- b. 商貿易 (Ge-TS). <http://www.ge-ts.com.hk/en/home.html>

步驟一：項目重要性之評分

- a. 請閣下就所列出的政府與企業網站的每個項目，清楚地表示其重要性。

步驟二：網站評分

- a. 請閣下就所列出的政府與企業網站的每個項目，清楚地表示其評分。

註：在閣下評分時，如果以下某些項目是與該網站不相關的，或閣下不知道答案，那只需填上不適用。

項目 (以下問題是詢問關於閣下使用以下網站所提供的電子服務的意見。請參照此部分的指引和評分等級，並清楚地以一個數字來表示閣下對每一條問題的答案。)	閣下認為這個項目有多重要？ 1 = 非常不重要 2 = 不重要 3 = 頗不重要 4 = 中立 5 = 頗重要 6 = 重要 7 = 非常重要 N.A. = 不適用	閣下對這個項目的評分： 1 = 非常不同意 2 = 不同意 3 = 頗不同意 4 = 中立 5 = 頗同意 6 = 同意 7 = 非常同意 N.A. = 不適用	
此網站能保存先前輸入的資料，並自動填入在各式各樣的網上表格內，從而縮短輸入所需資料的時間。			
此網站讓本公司在任何時候，都能很快捷地查詢電子交易的狀況。			
此網站提供快速的回應和網上援助服務，從而滿足本公司要求的商業支援。			
此網站提供互聯網社群成員良好和足夠的網站連結，從而幫助建立關係和創造商機。			
此網站不時提供互聯網社群成員最新和實用的商業知識及實踐理論。			
此網站能在短時間之內處理較多的網上申請，從而增加本公司的生產力。			
此網站所提供的電子服務，能使本公司減低營運成本。			
網站之適應性		貿易專網	商貿易
此網站能根據本公司先前給與的公司檔案或業務概況，從而提供我們所需的相關資訊。			
此網站提供附加的電子服務(如:紙張轉電子文件、特別軟件)，來幫助本公司提交申請。			
此網站讓本公司為一個由多個政府部門或商業夥伴處理的申請，只輸入所需資料一次。			
此網站讓本公司不需登入其他相關網站，便可查詢一個由多個政府部門或商業夥伴處理的申請之審批情況。			

在香港特別行政區實施成功的政府與企業電子政府措施 問卷調查

政府與企業網站評價指引：

就以下列出的政府與企業網站的評價，請完成下列兩個步驟。

- a. 貿易通電子貿易專網 (eBiz). <http://www.tradelink-ebiz.com/english/331n08or3m9a51l/index.html>
- b. 商貿易 (Ge-TS). <http://www.ge-ts.com.hk/en/home.html>

步驟一：項目重要性之評分

- a. 請閣下就所列出的政府與企業網站的每個項目，清楚地表示其重要性。

步驟二：網站評分

- a. 請閣下就所列出的政府與企業網站的每個項目，清楚地表示其評分。

註：在閣下評分時，如果以下某些項目是與該網站不相關的，或閣下不知道答案，那只需填上不適用。

項目	閣下認為這個項目有多重要？	閣下對這個項目的評分：	
(以下問題是詢問關於閣下使用以下網站所提供的電子服務的意見。請參照此部分的指引和評分等級，並清楚地以一個數字來表示閣下對每一條問題的答案。)	1 = 非常不重要 2 = 不重要 3 = 頗不重要 4 = 中立 5 = 頗重要 6 = 重要 7 = 非常重要 N.A. = 不適用	1 = 非常不同意 2 = 不同意 3 = 頗不同意 4 = 中立 5 = 頗同意 6 = 同意 7 = 非常同意 N.A. = 不適用	
此網站有效地傳送電子交易資料給本公司的電腦系統，以便我們能重複利用這些資料，作進一步的處理。			
此網站根據本公司需求，而提供各種各樣的商務聯繫(如:電話、電子郵件、傳真、紙張文件支援)。			
網站之可信性		貿易專網	商貿易
此網站提供多樣的可信和認可授權設施，來保證電子交易在被信任的多個政府部門或商業夥伴中進行。			
此網站提供不同的保安措施和法律原則，來創造被信任的電子商務環境。			
網站之使用滿意程度		貿易專網	商貿易
就最近瀏覽此網站之經驗而言，本公司經常地使用其提供的電子服務。	不需填寫		
就最近瀏覽此網站之經驗而言，本公司滿意其提供的電子服務。	不需填寫		

謝謝閣下完成這問卷調查。

Appendix B.3 The explanations or rationales for asking the survey questions

<i>Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR</i>		
The following descriptions present the explanations or rationales for asking the survey questions along with examples, which facilitate understanding and answering the survey questions accordingly.		
Criterion ID	Criterion	Explanations / Rationales for Asking the Survey Questions
COMP	Comprehensibility	
COMP01	Business-centric Cluster Services	<ul style="list-style-type: none"> • This sub-criterion examines the possibility of vertical and/or horizontal bundling of G2B electronic services. Vertical and/or horizontal bundling of G2B electronic services is actually one form of clustering approach to packaging and deploying related G2B electronic services together, thereby overcoming the vast size and bureaucratic nature of the government. • Since traditional brick-and-mortar government services are fragmented, businesses always need to visit government departments / bureaux office by office, to queue, submit paper documents and tender payments, etc. at various brick-and-mortar government offices. With vertical and/or horizontal bundling of G2B electronic services, the business life events are followed along the whole business chain as done in one-stop government services portal or website, linking up various government departments / bureaux and business partners. • Vertical bundling of G2B electronic services includes linking or grouping relevant services of various government departments / bureaux concerned for processing a permit application submitted electronically, or according to the business life cycle of the trading sector, as an example. • Horizontal bundling of G2B electronic services includes linking or grouping relevant services of various government departments / bureaux and business partners concerned such as banks, utilities, etc. for processing a business registration application submitted electronically, or according to the business life cycle of the trading sector, as an example.
COMP02	Business or Transaction Steps	<ul style="list-style-type: none"> • This sub-criterion focuses on the implementation of unified and convergent business processes of G2B electronic services such that simplified business flows and fewer business work steps are established in a single user interface as far as practicable. • From the process perspective, redesigning and re-engineering the business processes will lead to rethinking of the government and its works in the public administration domain. As a result, traditional interactions between a business and the government should be changed in a simpler and straightforward way while effecting an electronic transaction.

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR		
The following descriptions present the explanations or rationales for asking the survey questions along with examples, which facilitate understanding and answering the survey questions accordingly.		
Criterion ID	Criterion	Explanations / Rationales for Asking the Survey Questions
		<ul style="list-style-type: none"> Examples include fewer business work steps as required via electronic media, redesign of application forms and web forms, electronic submission of applications or service requests, reforms in business rules, regulations and laws concerned, etc., and as a consequence, the overall processing time for an application or a service request is shortened.
EOU	Ease of Use	
EOU01	Organization of Web Content	<ul style="list-style-type: none"> This sub-criterion assesses the ease of access to and structure of web content. In this regard, problem- or business- oriented situational structuring of web content is important for easy search of business information and selection of the required G2B electronic services, and for web page navigations all along the whole business chain in the real business life. Site map, navigation frames and links based on business flows or situations, etc. are typical example features to smooth and shorten the web page navigation paths.
EOU02	Quantity of Web Content	<ul style="list-style-type: none"> This sub-criterion focuses on the provision of reasonable quantity of information that a business actually needs, thereby overcoming the possibility of information overloading. Use of appropriate searching mechanisms, well presented formats and styles for business information, etc. are some examples.
EOU03	Guidance in Online Interactions	<ul style="list-style-type: none"> This sub-criterion measures the transparency and interactivity of front-end electronic transaction process. With the use of Internet and web-based technologies, etc., levels of transparency and interactivity can be increased. As another example, transparency and interactivity are increased through online and guided interactions as well as instructions for data entry on various web forms, acceptance of terms and conditions, etc., which are helpful while conducting the front-end electronic transactions.
EOU04	Selection of Routine Services	<ul style="list-style-type: none"> This sub-criterion assesses the possibilities that routine or common services are sensibly used whenever and wherever necessary, which highly mesh with a business's activities or flows such that businesses are comfortable using those services in their daily business operations. Examples of routine services include various

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR

The following descriptions present the explanations or rationales for asking the survey questions along with examples, which facilitate understanding and answering the survey questions accordingly.

Criterion ID	Criterion	Explanations / Rationales for Asking the Survey Questions
		submission channels of trading documents (i.e. logistics services) accompanying with the corresponding payment options (i.e. payment services), electronic contracting, logistics, etc.
EOU05	Online Business Support	<ul style="list-style-type: none"> • This sub-criterion assesses the contact possibilities via electronic media, which are essential to providing various convenient online business supports. • Examples of good contact electronic media include FAQs, email, feedback forms, self-serve help desk, etc.
EOU06	Online Business Communities	<ul style="list-style-type: none"> • This sub-criterion focuses on the virtual G2B forums / communities, which are of paramount importance in the sense that businesses and the government are allowed to share common values and interests, business knowledge in the dedicated industry or sector irrespective of restrictions of time and place. • These virtual G2B forums / communities may be loosely or more closely attached to a special and separate website, or alternatively, they make use of electronic media or services such as email, chat rooms, interest groups, Webcast, bulletin boards, online posting of news, etc. to communicate with or broadcast message / information to community members, for example.
EOU07	User Interfaces	<ul style="list-style-type: none"> • This sub-criterion assesses the ease of use while conducting an electronic transaction. • Simple navigations and intuitive web content, etc. are some examples, which are essential to aid businesses to efficiently use G2B electronic services.
EOU08	System Availability	<ul style="list-style-type: none"> • This sub-criterion measures the global availability of the G2B system under examination, which definitely allows businesses to get the wanted business information and services irrespective of time of day and geographical location. • Typical examples in this aspect include long or flexible service hours, 24x7 round-the-clock services, etc., which bring the greatest convenience to businesses.
EOU09	System Performance	<ul style="list-style-type: none"> • This sub-criterion measures the performance of the G2B system under examination, which are of great importance for businesses' comfort in order to fit into the busy business life cycle, or alternatively, in close adherence to the relevant business life events. • Examples of system performance indicators include

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR		
The following descriptions present the explanations or rationales for asking the survey questions along with examples, which facilitate understanding and answering the survey questions accordingly.		
Criterion ID	Criterion	Explanations / Rationales for Asking the Survey Questions
		the loading times of web pages and electronic documents, instant update of electronic transaction status, etc.
USEF	Usefulness	
USEF01	Quality of Web Content	<ul style="list-style-type: none"> This sub-criterion focuses on the quality of web content, which should be enriched with updated and integrated, but not fragmented business information in order to meet the general business needs of the dedicated industry or sector on a timely basis. Examples include online posting of related news and articles by categories of specific topics, or in the order of problem- or business-oriented situation, etc.
USEF02	Price Information	<ul style="list-style-type: none"> This sub-criterion assesses the provision of service charging scheme in the G2B system under examination, which is important for the paying the required G2B electronic services. Examples include online posting of updated and transparent price list at the level of G2B electronic services, etc.
USEF03	Value-added Services	<ul style="list-style-type: none"> This sub-criterion examines the possibility that other useful or auxiliary electronic services can be combined with the principal or mainstream electronic services. In this regard, tangible added values should be provided to businesses if good combination of auxiliary electronic services is introduced to the G2B system under evaluation. Examples include the web hosting services, online training services, service or levy charges calculation services, etc.
USEF04	Reuse of Data	<ul style="list-style-type: none"> This sub-criterion focuses on the possibility that business profile data and information, which were previously captured in the back-end databases of the G2B system under examination, should be effectively reused or automatically filled out on various web forms whenever and wherever necessary throughout the whole business life cycle. As an example, retrieval of business data and information from the back-end databases for reuse is necessary in conducting the front-end electronic transactions of customer services, order placing services, etc. This certainly saves up much data entry efforts spent on online fulfillment of order details, license details, etc.

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR		
The following descriptions present the explanations or rationales for asking the survey questions along with examples, which facilitate understanding and answering the survey questions accordingly.		
Criterion ID	Criterion	Explanations / Rationales for Asking the Survey Questions
USEF05	Tracking of Transaction Status	<ul style="list-style-type: none"> This sub-criterion examines the system capabilities for tracing and tracking the electronic transaction status, which are essential to facilitating decision-makings at different stages of the whole business life cycle. Examples include checking order status, billing statement, electronic transaction status, etc.
USEF06	Responses to Business Support	<ul style="list-style-type: none"> This sub-criterion assesses the system capabilities for satisfying business support, which should be adequate to the electronic medium being used, thereby heightening the overall use satisfaction. Typical examples in this aspect include fast feedback response time, online training, comprehensive online help facilities, etc.
USEF07	Business Relationships	<ul style="list-style-type: none"> This sub-criterion focuses on the direct and close relationships with network of businesses, between businesses as well as the government, and between businesses as well as business partners, which can be forged via electronic network to facilitate sharing of common and specific interests as well as experiences of business life. For quantity of relationships in virtual G2B communities, there should be an adequate number of community members. For quality of relationships in virtual G2B communities, the government departments / bureaus would better be the key members who are able to show a special and leading dedication to the communities of relationships, thus enriching the overall community experience. Typical examples in this aspect include specific business web or networks, good and sufficient business and government connection links, business and business partners connection links, online business directory, etc., which facilitate seeking the relationships among the community members at all levels of the business value chain, and more importantly, expanding the number of business network nodes to create more business opportunities.
USEF08	Information Sharing	<ul style="list-style-type: none"> This sub-criterion focuses on the effective collection, synthesis, combination and storage of valuable knowledge from different sources in a knowledge base, which is necessary to facilitate sharing best and enlightened business knowledge, ethics and practices

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR

The following descriptions present the explanations or rationales for asking the survey questions along with examples, which facilitate understanding and answering the survey questions accordingly.

Criterion ID	Criterion	Explanations / Rationales for Asking the Survey Questions
		<p>among businesses and the government.</p> <ul style="list-style-type: none"> • For quantity of business knowledge, both push and pull mechanisms are put in place to supply the needed information updates to businesses. • For quality of business knowledge, well-implemented filtering mechanisms are established to ensure the accuracy and timeliness of information updates. • To take some examples for quantity of business knowledge, by means of push mechanisms, the G2B system under examination automatically supplies businesses via email, online posting, etc. with categories of information updates, whereas by pull mechanisms, businesses actively retrieve the required information updates on their own from electronic and easy-to-access post and talk links, etc. whenever necessary. • As an example taken for quality of business knowledge, the filtering mechanisms generally include the authorized posting or publication of the relevant news, articles, circulars, etc.
USEF09	Productivity Gains	<ul style="list-style-type: none"> • This sub-criterion examines the possibility that the improvement in productivity / time gained should be realized when using G2B electronic services as compared with traditional brick-and-mortar government services provided to businesses. • Examples include shortening the overall processing time of a permit or license application submitted electronically, and processing more electronic applications because the retrieval processes of the relevant information updates / electronic documents are expedited via electronic media, repetitive data entry and correction of errors in traditional paperwork are eliminated, etc.
USEF10	Costs	<ul style="list-style-type: none"> • This sub-criterion examines the possibility that the reduction in transaction cost should be realized when using G2B electronic services as compared with traditional brick-and-mortar government services provided to businesses. • As an example, businesses are able to eliminate sending paper faxes, making international long distance phone calls, avoid queuing at brick-and-mortar government offices, etc. after using the G2B electronic services of the G2B system under evaluation such that significant cost savings are produced for businesses.

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR		
The following descriptions present the explanations or rationales for asking the survey questions along with examples, which facilitate understanding and answering the survey questions accordingly.		
Criterion ID	Criterion	Explanations / Rationales for Asking the Survey Questions
ADPT	Adaptability	
ADPT01	Customized Information	<ul style="list-style-type: none"> • This sub-criterion assesses the provision of customized information services, meaning that a business is given the chance to select the kind of business information it really wants to access. • Typical examples in this aspect include the posting of tailor-made business information for a business based on the business profile given beforehand, etc., thus allowing the business to obtain the wanted business information, do its own business research, and take appropriate actions accordingly.
ADPT02	Mediating Services	<ul style="list-style-type: none"> • This sub-criterion examines the possibility that additional value-added services or business specific services are provided for focused offers. Essentially, these business specific services are provided to businesses in an adaptive approach according to each business's needs. • In this regard, these additional value-added services, business specific services or small-scale auxiliary services are provided as plug-ins or mediating services between the electronic-based system activities / flows of the G2B system under evaluation, and the conventional based (i.e. manual and/or paper-based) business activities / flows, which eventually, allow businesses to successfully use the G2B electronic services of the G2B system under evaluation. • To this end, it is not intended to change the business activities or flows currently engaged by a business, but just to augment them with appropriate mediating services as far as practicable. • Examples include the issuance of paper or electronic payment receipt, manual or electronic submission channels for the trade-related and supporting documents, conversion services for the submitted paper documents submitted to electronic counterparts, auxiliary services for the installation of special software for businesses to prepare transaction data in specific format before actually using the required G2B electronic services, etc.
ADPT03	Collaborations among Business Partners for Data Sharing	<ul style="list-style-type: none"> • This sub-criterion focuses on the possibility that adaptation or equivalent integration is achieved among the information systems of the government departments / bureaus and business partners involved, especially for delivering integrated G2B electronic services.

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR

The following descriptions present the explanations or rationales for asking the survey questions along with examples, which facilitate understanding and answering the survey questions accordingly.

Criterion ID	Criterion	Explanations / Rationales for Asking the Survey Questions
		<ul style="list-style-type: none"> • Different parties involved should be able to make adaptation efforts in terms of IT infrastructure, databases and systems to allow for parallel processing, and accesses to shared services, thereby stimulating cohesive cross team works, and improving the efficiency of traditional cascading or serial workflows. • As an example taken for parallel processing, multiple government departments / bureaus and business partners, if any, collaborate and communicate in real time or electronically, and simultaneously access the electronic documents / information updates needed, which lead to proper coordination of efforts while processing a permit or license application submitted electronically, etc. • Examples taken for shared services, which can be used many times by the multiple parties involved, including common data exchange services, by which multi-level business processes are carried out accompanying with the automatic transfer of business data and information such as company name, addresses, contact numbers, etc. to all other information systems that need such data and information.
ADPT04	Collaborations among Business Partners for Status Checking	<ul style="list-style-type: none"> • This sub-criterion focuses on the possibility that adaptation or equivalent integration is achieved among the information systems of the government departments / bureaus and business partners involved, especially for delivering integrated G2B electronic services. • Again, this survey question was asked with the same rationale as that for asking the survey question related to “Collaborations among Business Partners for Data Sharing”. In a nutshell, a business is able to freely check the single application status at each stage of the whole processing chain of multiple information systems involved, just by means of a single system login.
ADPT05	Collaborations with the Service Consumers	<ul style="list-style-type: none"> • This sub-criterion focuses on the possibility that adaptation or equivalent integration is achieved between the legacy system of a business and the G2B system under evaluation. Stated simply, this sub-criterion measures the extent of integration with a business’s IT infrastructure, databases and systems. • It is important to note that the overall functionality of G2B electronic services of the G2B system concerned should be run on some generic hardware and software platforms, but not sophisticated ones.

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR

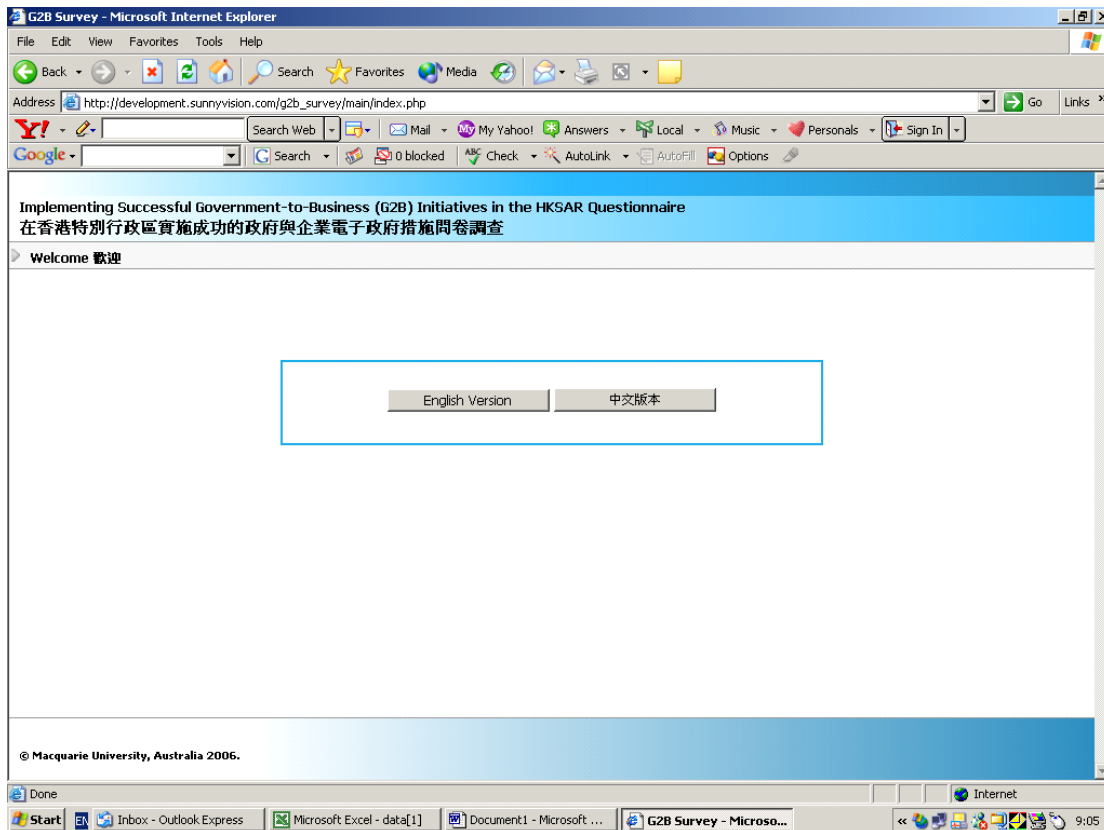
The following descriptions present the explanations or rationales for asking the survey questions along with examples, which facilitate understanding and answering the survey questions accordingly.

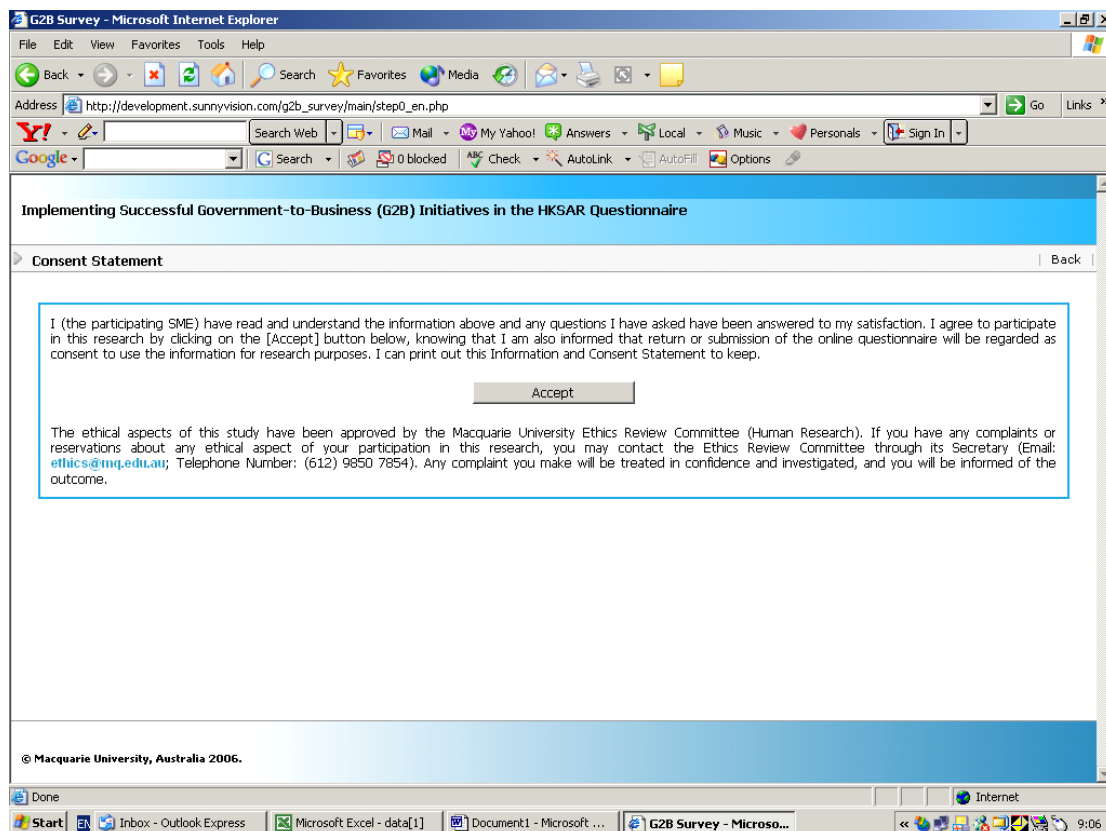
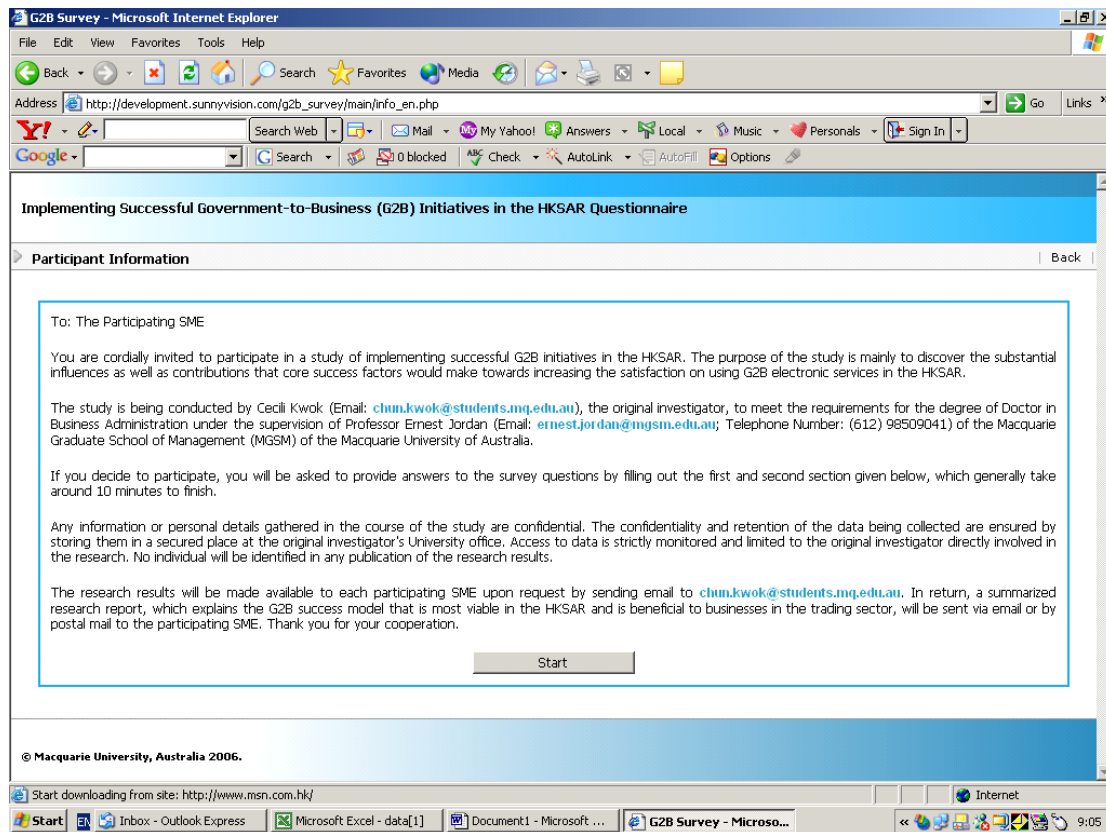
Criterion ID	Criterion	Explanations / Rationales for Asking the Survey Questions
		<p>Based on these generic platforms, the depth of functionality of G2B electronic services of the G2B system under examination can be easily provided in a multi-adaptive approach, meaning that more customized functionality of any one particular G2B electronic service (e.g. data exchange service) should be offered to the target group of businesses as categorized by differences in their IT capabilities.</p> <ul style="list-style-type: none"> • To this end, it is not intended to replace existing legacy systems currently used by a business, but just to extend or augment them with customized functionality as far as practicable. • As an example taken in this aspect, the interface method or strategy of data exchange service between a business's legacy systems and the G2B system under examination can be custom-injected by means of text files, ACCESS database / Excel files, or XML files, etc. depending on the IT capabilities of the business such that the output files containing previously captured or newly generated business as well as application-related data and information, can be easily transferred into its legacy systems for further processing.
ADPT06	Selection of Business Contacts	<ul style="list-style-type: none"> • This sub-criterion examines on the possibility that multi-tiered business contact framework is established in the G2B system under evaluation in order to increase levels of interactivity with different businesses. Again, an adaptive approach is sought depending on each business's needs. • Examples include the use of multiple or diversified layers of business contacts such as emails, faxes, hotlines, letters or other paper-based support, etc.
TRUST	Trust	
TRUST01	Trustworthy Business Partners	<ul style="list-style-type: none"> • This sub-criterion assesses the provision of various authentic and authorization services, which should ensure that electronic transactions are conducted among trusted business partners, and thus reducing the security risks. • Examples include security login of subscribed businesses, Virtual Private Networks (VPNs), etc.
TRUST02	Trusted Electronic Commerce Environment	<ul style="list-style-type: none"> • This sub-criterion assesses the provision of various security measures and legal principles, which are important for the creation of trusted electronic commerce environment, wherein the availability, integrity and confidentiality of business data and information can be enhanced during the conduct of

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR		
The following descriptions present the explanations or rationales for asking the survey questions along with examples, which facilitate understanding and answering the survey questions accordingly.		
Criterion ID	Criterion	Explanations / Rationales for Asking the Survey Questions
		<p>electronic transactions.</p> <ul style="list-style-type: none"> Examples include purpose specification and use limitation of business data and information being collected, security safeguards such as SSL, third party digital certificates, etc.
USESAT	Use Satisfaction	
USESAT01	Services Usage	<ul style="list-style-type: none"> This sub-criterion focuses on the quantity aspect of the measurement from the perspective of actual use. In this regard, rating should be given in relation to the frequency of use of the electronic services of the G2B system under examination.
USESAT02	Services Satisfaction	<ul style="list-style-type: none"> This sub-criterion focuses on the quality aspect of the measurement from the perspective of actual use. In this regard, rating should be given in relation to the levels of satisfaction with using the electronic services of the G2B system under examination.

Appendix C.

Screen Captures of Online Survey Website





G2B Survey - Microsoft Internet Explorer

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Address http://development.sunnyvision.com/g2b_survey/main/step1_en.php Go Links »

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Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR Questionnaire

General Information Back

Step 1 General Information

Step 2 Comprehensibility & Ease of Use

Step 3 Usefulness

Step 4 Adaptability, Trust & Use Satisfaction

The following questions ask you about the employment profile of the person participating in this survey, the business profile and information technologies (IT) capabilities of your company. Please clearly write your answer in the space provided, or selecting a ☒ inside the appropriate box. **If your company does not subscribe to both Tradelink-eBiz and Ge-TS, then you do not need to fill out Section 2.**

Employment Profile	
Email Address*	shpte@netvigator.com
Years with present company	10 Years
Years of experience using Internet and/or information technologies (IT)	3 Years
Present Position*	<input type="radio"/> Clerk <input checked="" type="radio"/> Supervisor <input type="radio"/> Technical Professional <input type="radio"/> Manager <input type="radio"/> Others

Business Profile	
Business Nature*	Importer
Main Products (e.g. Electronics, Jewellery, Watch)*	Food & Beverage
Number of staff in Hong Kong*	20 Staff
Target Market*	<input type="radio"/> PRC <input checked="" type="radio"/> U.S. <input type="radio"/> Europe <input type="radio"/> Others

Done

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G2B Survey - Microsoft Internet Explorer

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business nature importer

Main Products (e.g. Electronics, Jewellery, Watch)* Food & Beverage

Number of staff in Hong Kong* 20 Staff

Target Market* ☐ PRC ☒ U.S. ☐ Europe ☐ Others

IT Capabilities	
Does your company have computing equipment and system?*	<input checked="" type="radio"/> Yes <input type="radio"/> No
Number of personal computers (PCs) in your company	12 PCs
Category of computing equipment and system that your company is using	<input type="radio"/> Standalone System <input checked="" type="radio"/> Client-Server System <input type="radio"/> Mainframe System
Does your company have network connections with government departments and/or business partners?*	<input type="radio"/> Yes <input checked="" type="radio"/> No
Does your company have a website?*	<input checked="" type="radio"/> Yes <input type="radio"/> No
Does your company subscribe to Tradelink-eBiz?*	<input checked="" type="radio"/> Yes <input type="radio"/> No
Does your company subscribe to Ge-TS?*	<input checked="" type="radio"/> Yes <input type="radio"/> No

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Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR Questionnaire

Comprehensibility & Ease of Use Back

Step 1
General Information

Step 2
Comprehensibility & Ease of Use

Step 3
Usefulness

Step 4
Adaptability, Trust & Use Satisfaction

Guidelines for Assessment:

There are two steps established for the assessment of the G2B websites or systems under examination.

a. [Tradelink-eBiz \(eBiz\)](#).
b. [Ge-TS \(Ge-TS\)](#).

Step 1: Importance Rating
a. Please clearly rate the importance of the item to you.

0 = Not Applicable	4 = Neutral
1 = Very Unimportant	5 = Fairly Important
2 = Unimportant	6 = Important
3 = Fairly Unimportant	7 = Very Important

Step 2: Website Evaluation
a. For the G2B website or system that you already subscribed to, please clearly rate the response that best expresses your answer.

0 = Not Applicable	4 = Neutral
1 = Strongly Disagree	5 = Fairly Agree
2 = Disagree	6 = Agree
3 = Fairly Disagree	7 = Strongly Agree

Note: (Not Applicable) can be rated if an item is not relevant to the G2B website or system under examination, or in other case, you do not know the answer.

Item (The following questions ask you about your opinions of using the electronic services provided by the website under examination. Please clearly indicate your answer by filling in a number using the	How Important is this Item to you?	Your Rating on the Website
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Done

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G2B Survey - Microsoft Internet Explorer

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Address: http://development.sunnyvision.com/g2b_survey/main/step2_en.php

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(The following questions ask you about your opinions of using the electronic services provided by the website under examination. Please clearly indicate your answer by filling in a number using the guidelines and rating scale given in this section.)	How Important is this Item to you?	Your Rating on the Website	
		eBiz	Ge-TS
Comprehensibility			
The website offers groups of related government and commercial services according to the trading business life events.	6 - Important	4 - Neutral	4 - Neutral
The website allows our company to complete a transaction with just a few simple steps.	7 - Very Important	3 - Fairly Disagree	3 - Fairly Disagree
Ease of Use			
The website organizes web contents based on trading business needs, which allow easy search of information and selection of electronic services.	6 - Important	5 - Fairly Agree	5 - Fairly Agree
The website provides reasonable quantity of information that our company actually needs.	6 - Important	3 - Fairly Disagree	3 - Fairly Disagree
The website provides guided instructions for data entry on web forms, acceptance of terms and conditions, etc.	6 - Important	5 - Fairly Agree	5 - Fairly Agree
The website offers various submission channels (e.g. paper, electronic) of trading documents with flexible payment options (e.g. cheque, Internet).	6 - Important	6 - Agree	6 - Agree
The website provides various convenient online business supports (e.g. FAQs, emails, feedback forms).	6 - Important	2 - Disagree	2 - Disagree
The website allows our company and the Government to easily share common interests and business knowledge in online communities.	6 - Important	5 - Fairly Agree	5 - Fairly Agree
The website provides simple navigation and easy to use.			

Internet

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G2B Survey - Microsoft Internet Explorer

Address: http://development.sunnyvision.com/g2b_survey/main/step2_en.php

selection of electronic services.

The website provides reasonable quantity of information that our company actually needs.	6 - Important	3 - Fairly Disagree	3 - Fairly Disagree
The website provides guided instructions for data entry on web forms, acceptance of terms and conditions, etc.	6 - Important	5 - Fairly Agree	5 - Fairly Agree
The website offers various submission channels (e.g. paper, electronic) of trading documents with flexible payment options (e.g. cheque, Internet).	6 - Important	6 - Agree	6 - Agree
The website provides various convenient online business supports (e.g. FAQs, emails, feedback forms).	6 - Important	2 - Disagree	2 - Disagree
The website allows our company and the Government to easily share common interests and business knowledge in online communities.	6 - Important	5 - Fairly Agree	5 - Fairly Agree
The website provides simple navigation and easy-to-understand web contents.	6 - Important	5 - Fairly Agree	5 - Fairly Agree
The website brings much convenience to our company by offering flexible or round-the-clock service hours.	6 - Important	5 - Fairly Agree	5 - Fairly Agree
The website offers fast loading times of web pages and electronic documents, instant update of transaction status, etc.	6 - Important	5 - Fairly Agree	6 - Agree

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G2B Survey - Microsoft Internet Explorer

Address: http://development.sunnyvision.com/g2b_survey/main/step3_en.php

Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR Questionnaire

Usefulness [Back](#)

Step 1
General Information

Step 2
Comprehensibility & Ease of Use

Step 3
Usefulness

Step 4
Adaptability, Trust & Use Satisfaction

Item (The following questions ask you about your opinions of using the electronic services provided by the website under examination. Please clearly indicate your answer by filling in a number using the guidelines and rating scale given in this section.)	How Important is this Item to you?	Your Rating on the Website	
		eBiz	Ge-TS
Usefulness			
The website provides updated and complete web contents, which meet the general trading business needs.	6 - Important	4 - Neutral	4 - Neutral
The website provides our company with clear and updated service charging information.	6 - Important	5 - Fairly Agree	6 - Agree
The website adds value to our business by offering other useful electronic services (e.g. web hosting, service / levy charges calculation).	6 - Important	2 - Disagree	2 - Disagree
The website saves data entry effort by automatically filling out some previously inputted data on various web forms.	5 - Fairly Important	4 - Neutral	4 - Neutral
The website allows our company to readily trace and track transaction status whenever necessary.	6 - Important	5 - Fairly Agree	6 - Agree
The website satisfies business support for our company with fast response times and online help facilities.	6 - Important	3 - Fairly Disagree	3 - Fairly Disagree
The website provides community members good and	6 - Important	2 - Disagree	2 - Disagree

G2B Survey - Microsoft Internet Explorer

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The website adds value to our business by offering other useful electronic services (e.g. web hosting, service / levy charges calculation).	6 - Important	2 - Disagree	2 - Disagree
The website saves data entry effort by automatically filling out some previously inputted data on various web forms.	5 - Fairly Important	4 - Neutral	4 - Neutral
The website allows our company to readily trace and track transaction status whenever necessary.	6 - Important	5 - Fairly Agree	6 - Agree
The website satisfies business support for our company with fast response times and online help facilities.	6 - Important	3 - Fairly Disagree	3 - Fairly Disagree
The website provides community members good and sufficient connection links to help build relationships and create business opportunities.	6 - Important	2 - Disagree	2 - Disagree
The website continuously provides community members timely and useful information updates on business knowledge and practices.	6 - Important	2 - Disagree	2 - Disagree
The website increases our productivity because more applications can be electronically submitted and processed within shorter time.	6 - Important	5 - Fairly Agree	5 - Fairly Agree
The website lets our company realize the cost savings after using the electronic services.	6 - Important	6 - Agree	6 - Agree

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Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR Questionnaire

Adaptability, Trust & Use Satisfaction Back

Step 1
General Information

Step 2
Comprehensibility & Ease of Use

Step 3
Usefulness

Step 4
Adaptability, Trust & Use Satisfaction

Item (The following questions ask you about your opinions of using the electronic services provided by the website under examination. Please clearly indicate your answer by filling in a number using the guidelines and rating scale given in this section.)	How Important is this Item to you?	Your Rating on the Website	
		eBiz	Ge-TS
Adaptability			
The website allows our company to obtain the wanted information based on our business profile submitted beforehand.	6 - Important	5 - Fairly Agree	5 - Fairly Agree
The website offers additional services (e.g. paper-to-electronic documents conversion, special software) to help our company submit an application.	6 - Important	2 - Disagree	2 - Disagree
The website lets our company input data once for an application, which needs to be processed by multiple parties.	5 - Fairly Important	4 - Neutral	4 - Neutral
The website lets our company check status without login to other websites for an application, which needs to be processed by multiple parties.	6 - Important	3 - Fairly Disagree	3 - Fairly Disagree
The website effectively transmits the transaction data to our computing system so that we can reuse them for further processing.	6 - Important	3 - Fairly Disagree	3 - Fairly Disagree
The website provides various business contacts (e.g. phone, email, fax, paper-based support) depending on our needs.	6 - Important	5 - Fairly Agree	4 - Neutral
Trust			
The website provides various authentic and authorization	7 - Very Important	6 - Agree	6 - Agree

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G2B Survey - Microsoft Internet Explorer

Address: http://development.sunnyvision.com/g2b_survey/main/step4_en.php

application, which needs to be processed by multiple parties.

The website lets our company check status without login to other websites for an application, which needs to be processed by multiple parties.

The website effectively transmits the transaction data to our computing system so that we can reuse them for further processing.

The website provides various business contacts (e.g. phone, email, fax, paper-based support) depending on our needs.

6 - Important	3 - Fairly Disagree	3 - Fairly Disagree
6 - Important	3 - Fairly Disagree	3 - Fairly Disagree
6 - Important	5 - Fairly Agree	4 - Neutral

Trust

The website provides various authentic and authorization facilities to ensure transactions are conducted among trusted parties.

The website provides various security measures and legal principles to create trusted electronic commerce environment.

7 - Very Importa	6 - Agree	6 - Agree
7 - Very Importa	6 - Agree	6 - Agree

Use Satisfaction

Overall, considering the most recent experience in visiting the website, our company frequently uses the electronic services provided.

Overall, considering the most recent experience in visiting the website, our company is satisfied with the electronic services provided.

Not to be Filled In	5 - Fairly Agree	5 - Fairly Agree
Not to be Filled In	5 - Fairly Agree	5 - Fairly Agree

Submit Reset

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G2B Survey - Microsoft Internet Explorer

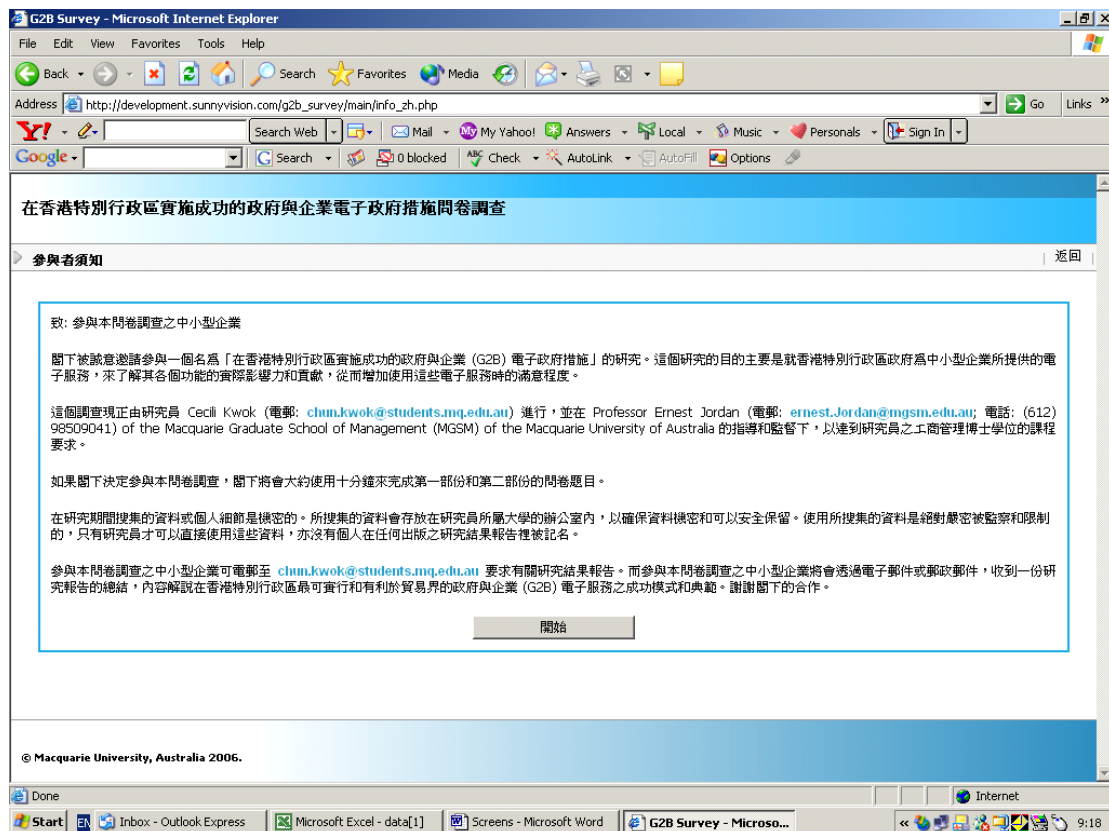
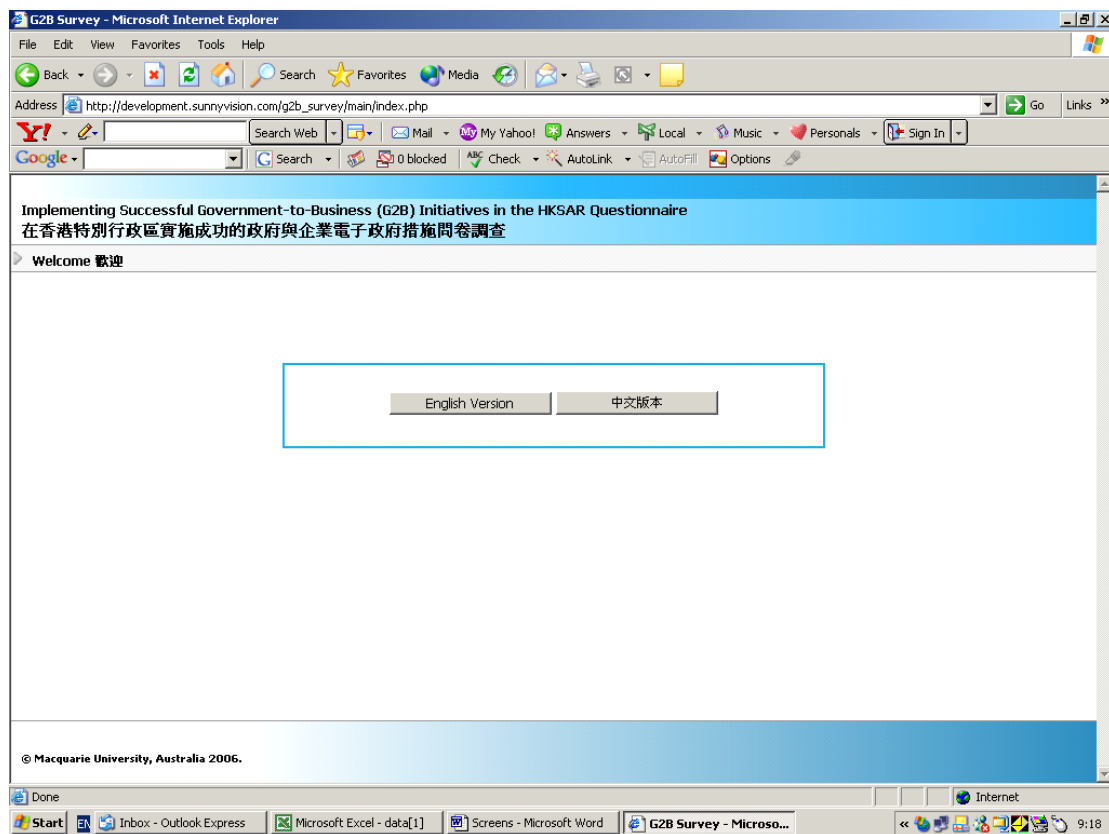
Address: http://development.sunnyvision.com/g2b_survey/main/thankyou_en.php

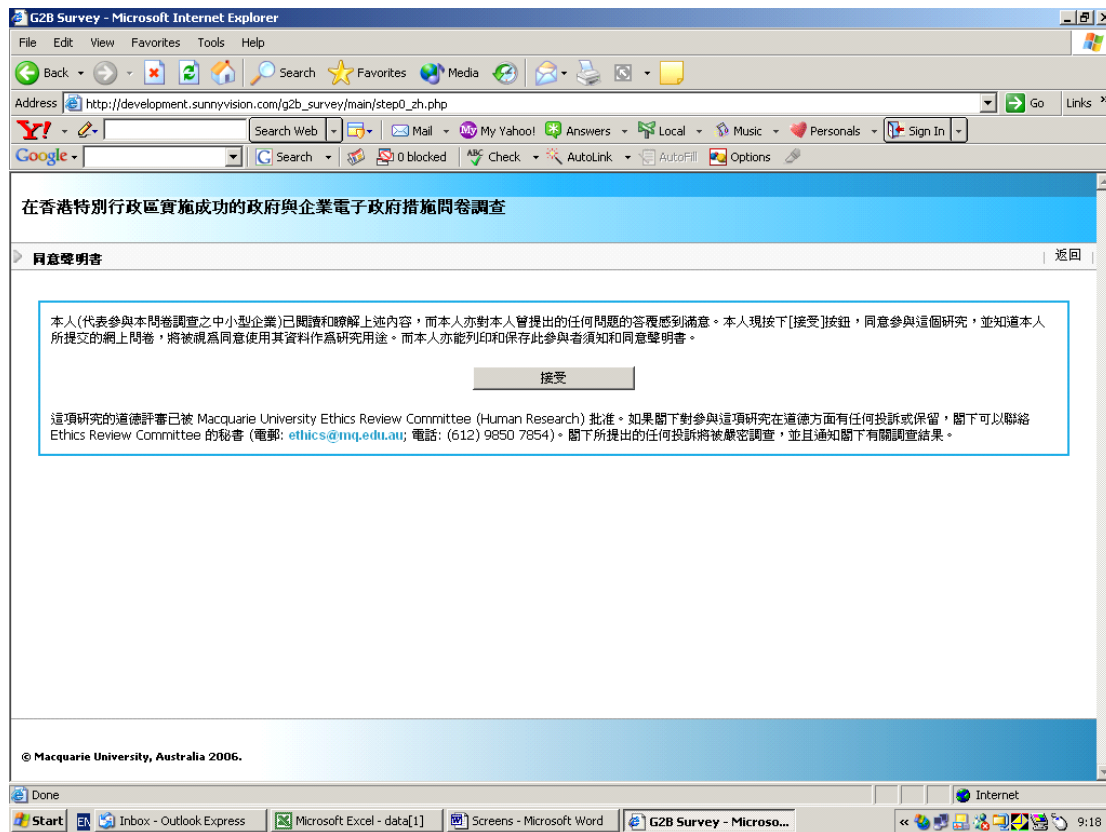
Implementing Successful Government-to-Business (G2B) Initiatives in the HKSAR Questionnaire

Back

Thank you for completing this survey.

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在香港特別行政區實施成功的政府與企業電子政府措施問卷調查

一般說明 返回

步驟一 一般說明

步驟二 網站之全面性及易用情況

步驟三 網站之用途

步驟四 網站之適應性、可信性及使用滿意程度

以下問題是詢問參與本問卷調查人士的個人職業資料，任職公司資料和其資訊科技設備。請閣下清楚地寫下答案於空格內，或選擇在適當的格子裡面。但如果閣下任職公司不是 [貿易通電子貿易專網](#) 和 [商貿易](#) 的註冊用戶，那麼閣下不需要填寫第二部份。

個人職業資料	
電郵地址*	shptc@netvigator.com
閣下任職公司的年資	10 年
閣下使用互聯網和/或資訊科技的經驗	3 年
閣下現時職位*	<input type="radio"/> 文員 <input checked="" type="radio"/> 主管 <input type="radio"/> 技術人員 <input type="radio"/> 經理 <input type="radio"/> 其他

任職公司資料	
商業性質*	入口商
主要產品 (如: 電子、珠寶、手錶)*	食品及飲料
在香港的職員人數*	20 位
目標市場*	<input type="radio"/> 中國 <input checked="" type="radio"/> 美國 <input type="radio"/> 歐洲 <input type="radio"/> 其他

資訊科技設備	
閣下任職公司有沒有裝設電腦設備和系統*	<input checked="" type="radio"/> 有 <input type="radio"/> 沒有

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在香港特別行政區實施成功的政府與企業電子政府措施問卷調查

一般說明 返回

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任職公司資料	
商業性質*	入口商
主要產品 (如: 電子、珠寶、手錶)*	食品及飲料
在香港的職員人數*	20 位
目標市場*	<input type="radio"/> 中國 <input checked="" type="radio"/> 美國 <input type="radio"/> 歐洲 <input type="radio"/> 其他

資訊科技設備	
閣下任職公司有沒有裝設電腦設備和系統*	<input checked="" type="radio"/> 有 <input type="radio"/> 沒有
裝設在閣下任職公司的個人電腦數目	12 台
閣下任職公司現時所採用電腦設備和系統的類別	<input type="radio"/> 獨立系統 <input checked="" type="radio"/> 客戶端伺服器系統 <input type="radio"/> 電腦主機系統
閣下任職公司是否與政府部門和/或商務夥伴有網絡連接嗎?*	<input type="radio"/> 有 <input checked="" type="radio"/> 沒有
閣下任職公司有沒有設立網站?*	<input checked="" type="radio"/> 有 <input type="radio"/> 沒有
閣下任職公司是不是 貿易通電子貿易專網 的註冊用戶?*	<input checked="" type="radio"/> 是 <input type="radio"/> 否
閣下任職公司是不是 商貿易 的註冊用戶?*	<input checked="" type="radio"/> 是 <input type="radio"/> 否

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網站之易用情況	貿易專網	商貿易
此網站是根據貿易事務的需求來編組網站內容，因此很容易地搜尋所需資訊和選擇所需電子服務。	6 - 重要	5 - 頗同意
此網站提供本公司所需適當數量的資訊。	6 - 重要	3 - 頗不同意
此網站在資料輸入、交易細則及條件接納等方面，提供指示和說明。	6 - 重要	5 - 頗同意
此網站提供多元化的貿易文件遞交渠道(如:紙張、電子遞交)，和具有靈活的付款方式(如:網上付款、郵寄支票)。	6 - 重要	6 - 同意
此網站提供多樣化和方便的網上商業支援服務(如:常見問題解答、電子郵件、網站意見表格)。	6 - 重要	2 - 不同意
此網站讓本公司和政府部門運用互聯網社群，互相分享共同興趣和商業知識。	6 - 重要	5 - 頗同意
此網站提供簡單的瀏覽路徑和容易瞭解的網站內容。	6 - 重要	5 - 頗同意
此網站提供彈性或日夜不停的服務，從而為本公司帶來便利。	6 - 重要	5 - 頗同意
此網站提供快捷的網頁和電子文件下載，及即時的電子交易情況更新。	6 - 重要	6 - 同意

下一步 重設

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在香港特別行政區實施成功的政府與企業電子政府措施問卷調查

網站之用途

步驟一 一般說明

步驟二 網站之全面性及易用情況

步驟三 網站之用途

步驟四 網站之適應性、可信性及使用滿意程度

項目 (以下問題是詢問關於閣下使用以下網站所提供的電子服務的意見。請參照此部分的指引和評分等級，並清楚地以一個數字來表示閣下對每一條問題的答案。)	閣下認為這個項目有多重要?	閣下對這個項目的評分	
網站之用途		貿易專網	商貿易
此網站提供即時更新和完整的網站內容，從而達到貿易事務的一般需求。	6 - 重要	4 - 中立	4 - 中立
此網站提供本公司清楚和即時更新的電子服務收費資訊。	6 - 重要	5 - 頗同意	6 - 同意
此網站提供其他有用的電子服務(如:網站儲存服務、計算服務收費或徵稅)，從而為本公司帶來增值服務。	6 - 重要	2 - 不同意	2 - 不同意
此網站能保存先前輸入的資料，並自動填入在各式各樣的網上表格內，從而縮短輸入所需資料的時間。	5 - 頗重要	4 - 中立	4 - 中立
此網站讓本公司在任何時候，都能很快捷地查詢電子交易的狀況。	6 - 重要	5 - 頗同意	6 - 同意
此網站提供快速的回應和網上援助服務，從而滿足本公司要求的商業支援。	6 - 重要	3 - 頗不同意	3 - 頗不同意
此網站提供互聯網社群成員良好和足夠的網站連結，從而幫助建立關係和創造商機。	6 - 重要	2 - 不同意	2 - 不同意

Done

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此網站提供本公司清楚和即時更新的電子服務收費資訊。	6 - 重要	5 - 頗同意	6 - 同意
此網站提供其他有用的電子服務(如:網站儲存服務、計算服務收費或徵稅),從而為本公司帶來增值服務。	6 - 重要	2 - 不同意	2 - 不同意
此網站能保存先前輸入的資料,並自動填入在各式各樣的網上表格內,從而縮短輸入所需資料的時間。	5 - 頗重要	4 - 中立	4 - 中立
此網站讓本公司在任何時候,都能很快捷地查詢電子交易的狀況。	6 - 重要	5 - 頗同意	6 - 同意
此網站提供快速的回應和網上援助服務,從而滿足本公司要求的商業支援。	6 - 重要	3 - 頗不同意	3 - 頗不同意
此網站提供互聯網社群成員良好和足夠的網站連結,從而幫助建立關係和創造商機。	6 - 重要	2 - 不同意	2 - 不同意
此網站不時提供互聯網社群成員最新和實用的商業知識及實際理論。	6 - 重要	2 - 不同意	2 - 不同意
此網站能在短時間之內處理較多的網上申請,從而增加本公司的生產力。	6 - 重要	5 - 頗同意	5 - 頗同意
此網站所提供的電子服務,能使本公司減低營運成本。	6 - 重要	6 - 同意	6 - 同意

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在香港特別行政區實施成功的政府與企業電子政府措施問卷調查

網站之適應性、可信性及使用滿意程度 | 返回

步驟一
一般說明

步驟二
網站之全面性及易用情況

步驟三
網站之用途

步驟四
網站之適應性、可信性及使用滿意程度

項目 (以下問題是詢問關於閣下使用以下網站所提供的電子服務的意見。請參照此部分的指引和評分等數,並清楚地以一個數字來表示閣下對每一條問題的答案。)	閣下認為這個項目有多重要?	閣下對這個項目的評分	
		貿易專網	商貿易
網站之適應性			
此網站能根據本公司先前給與的公司檔案或業務概況,從而提供我們所需的相關資訊。	6 - 重要	5 - 頗同意	5 - 頗同意
此網站提供附加的電子服務(如:紙張轉電子文件、特別郵件),來幫助本公司提交申請。	6 - 重要	2 - 不同意	2 - 不同意
此網站讓本公司為一個由多個政府部門或商業夥伴處理的申請,只輸入所需資料一次。	5 - 頗重要	4 - 中立	4 - 中立
此網站讓本公司不需登入其他相關網站,便可查詢一個由多個政府部門或商業夥伴處理的申請之審批情況。	6 - 重要	3 - 頗不同意	3 - 頗不同意
此網站有效地傳送電子交易資料給本公司的電腦系統,以便我們能重複利用這些資料,作進一步的處理。	6 - 重要	3 - 頗不同意	3 - 頗不同意
此網站根據本公司需求,而提供各種各樣的商務聯繫(如:電話、電子郵件、傳真、紙張文件支援)。	6 - 重要	5 - 頗同意	4 - 中立
網站之可信性			
此網站提供多條的可靠和認可授權設施,來保證電子交易在被信任的多個政府部門或商業夥伴中進行。	7 - 非常重要	6 - 同意	6 - 同意
此網站提供不同的保安措施和法律原則,來創造被信任的電子商務環境。	7 - 非常重要	6 - 同意	6 - 同意
網站之使用滿意程度			

Internet | 9:27

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步驟四
網站之適應性、可信性及
使用滿意程度

我們所需的相關資訊。			
此網站提供附加的電子服務(如:紙張轉電子文件、特別軟件),來幫助本公司提交申請。	6 - 重要	2 - 不同意	2 - 不同意
此網站讓本公司為一個由多個政府部門或商業夥伴處理的申請,只輸入所需資料一次。	5 - 頗重要	4 - 中立	4 - 中立
此網站讓本公司不需登入其他相關網站,便可查詢一個由多個政府部門或商業夥伴處理的申請之審批情況。	6 - 重要	3 - 頗不同意	3 - 頗不同意
此網站有效地傳送電子交易資料給本公司的電腦系統,以便我們能重複利用這些資料,作進一步的處理。	6 - 重要	3 - 頗不同意	3 - 頗不同意
此網站根據本公司需求,而提供各種各樣的商務聯繫(如:電話、電子郵件、傳真、紙張文件支援)。	6 - 重要	5 - 頗同意	4 - 中立
網站之可信性		貿易專網	商貿易
此網站提供多條的可靠和認可授權設施,來保證電子交易在被信任的多個政府部門或商業夥伴中進行。	7 - 非常重要	6 - 同意	6 - 同意
此網站提供不同的保安措施和法律原則,來創造被信任的電子商務環境。	7 - 非常重要	6 - 同意	6 - 同意
網站之使用滿意程度		貿易專網	商貿易
就為近瀏覽此網站之經驗而言,本公司經常地使用其提供的電子服務。	不需填寫	5 - 頗同意	5 - 頗同意
就為近瀏覽此網站之經驗而言,本公司滿意其提供的電子服務。	不需填寫	5 - 頗同意	5 - 頗同意

提交 重設

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謝謝閣下完成這問卷調查。

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Appendix D.

Table of Reference Sources for Developing the Theoretical Research Model

Main Construct	Sub-construct	References	
Comprehensibility (COMP)	N/A	<ul style="list-style-type: none"> Devadoss, Pan and Huang (2002) Swedberg and Douglas (2003) Carbo, Williams and Emeritus (2004) Reddick (2004) 	
	Business-centric Cluster Services (COMP01)	<ul style="list-style-type: none"> Aichholzer and Schmutzer (1998) Bellamy and Taylor (1998) Schubert and Selz (1999) Adhanda Enterprises (2000) Symonds (2000b) Cabinet Office (2001) Wu and Chua (2001) Accenture (2002) Budhiraja (2002) Ho (2002) Lenk (2002) Moon (2002) Poon and Huang (2002) PRISMA (2002b) PRISMA (2002c) PRISMA (2002d) Teicher and Dow (2002) 	<ul style="list-style-type: none"> Beynon-Davies and Williams (2003) Cabinet Office (2003) Chadwick (2003) OECD (2003a) OECD (2003b) OECD Observer (2003) Schubert (2003a) Vintar, Kunstelj, Decman and Bercic (2003) Westholm and Aichholzer (2003) Bakry (2004) Haldenwang (2004) Kunstelj and Vintar (2004) Reddick (2004) Seifert and Bonham (2004) Beynon-Davies (2005)
	Business or Transaction Steps (COMP02)	<ul style="list-style-type: none"> Schubert and Selz (1999) Khoong (2001) Schubert and Hausler (2001) Interpretech (2002) Chadwick (2003) 	<ul style="list-style-type: none"> Schubert (2003a) Westholm and Aichholzer (2003)
Ease of Use (EOU)	N/A	<ul style="list-style-type: none"> Schubert (2003a) 	
	Organization of Web Content (EOU01)	<ul style="list-style-type: none"> Bellamy and Taylor (1998) Schubert and Selz (1999) American City & County (2000) Ho (2002) Pollard (2000) Wu and Chua (2001) Fountain (2001) Schubert and Hausler (2001) Wescott (2001) Budhiraja (2002) 	<ul style="list-style-type: none"> PRISMA (2002d) Teicher and Dow (2002) Chadwick and May (2003) OECD (2003b) Schubert (2003a) Westholm and Aichholzer (2003) Choudrie, Ghinea and Weerakkody (2004) Haldenwang (2004) Reddick (2004)

Main Construct	Sub-construct	References	
	Quantity of Web Content (EOU02)	<ul style="list-style-type: none"> o Schubert and Selz (1999) o Dearstyne (2001) o Hoenig (2001) o Satyanarayana (2001) o PRISMA (2002d) 	<ul style="list-style-type: none"> o Chadwick (2003) o Schubert (2003a) o Vintar, Kunstelj, Decman and Bercic (2003) o Choudrie, Ghinea and Weerakkody (2004)
	Guidance in Online Interactions (EOU03)	<ul style="list-style-type: none"> o Schubert and Selz (1999) o Symonds (2000b) o Fountain (2001) o Hoenig (2001) o PRISMA (2002d) 	<ul style="list-style-type: none"> o Cabinet Office (2003) o Schubert (2003a) o Beynon-Davies (2005)
	Selection of Routine Services (EOU04)	<ul style="list-style-type: none"> o Teo and Lim (1998) o Schubert and Selz (1999) o American City & County (2000) o Wescott (2001) o Budhiraja (2002) 	<ul style="list-style-type: none"> o Lenk (2002) o Schubert (2003a) o Carbo, Williams and Emeritus (2004) o AGIMO (2005)
	Online Business Support (EOU05)	<ul style="list-style-type: none"> o Schubert and Selz (1999) o American City & County (2000) o Wescott (2001) o Ho (2002) o PRISMA (2002d) 	<ul style="list-style-type: none"> o OECD (2003b) o Schubert (2003a) o Carbo, Williams and Emeritus (2004) o Choudrie, Ghinea and Weerakkody (2004) o Haldenwang (2004)
	Online Business Communities (EOU06)	<ul style="list-style-type: none"> o Schubert and Selz (1999) o Moon (2002) o Poon and Huang (2002) o Bekkers (2003) o Beynon-Davies and Williams (2003) 	<ul style="list-style-type: none"> o Chadwick (2003) o Schubert (2003a) o Seifert and Bonham (2004) o Beynon-Davies (2005)
	User Interfaces (EOU07)	<ul style="list-style-type: none"> o Schubert and Selz (1999) o Fountain (2001) o PRISMA (2002d) o Schubert (2003a) o Choudrie, Ghinea and Weerakkody (2004) 	<ul style="list-style-type: none"> o Reddick (2004) o Riedl (2004)
	System Availability (EOU08)	<ul style="list-style-type: none"> o Schubert and Selz (1999) o Symonds (2000b) o Wu and Chua (2001) o Linds kog and Wennberg (2002) o Teicher and Dow (2002) 	<ul style="list-style-type: none"> o Beynon-Davies and Williams (2003) o OECD (2003b) o Schubert (2003a) o Bakry (2004) o Reddick (2004)
	System Performance (EOU09)	<ul style="list-style-type: none"> o Schubert and Selz (1999) o Thompson (2000) o PRISMA (2002d) o Lodge (2003) o Schubert (2003a) 	<ul style="list-style-type: none"> o Choudrie, Ghinea and Weerakkody (2004)
Usefulness (USEF)	N/A	<ul style="list-style-type: none"> o Schubert (2003a) 	
	Quality of Web Content (USEF01)	<ul style="list-style-type: none"> o Ho (2002) o PRISMA (2002d) o Seifert (2003) o Schubert (2003a) 	<ul style="list-style-type: none"> o Choudrie, Ghinea and Weerakkody (2004)

Main Construct	Sub-construct	References	
		<ul style="list-style-type: none"> Carbo, Williams and Emeritus (2004) 	
	Price Information (USEF02)	<ul style="list-style-type: none"> Satyanarayana (2001) Schubert and Hausler (2001) NOIE (2003) OECD (2003b) Schubert (2003a) 	
	Value-added Services (USEF03)	<ul style="list-style-type: none"> Wu and Chua (2001) Griffin and Halpin (2002) Beynon-Davies and Williams (2003) AGIMO (2005) Beynon-Davies (2005) 	
	Reuse of Data (USEF04)	<ul style="list-style-type: none"> Schubert and Selz (1999) American City & County (2000) Fountain (2001) OECD (2003b) Beynon-Davies (2005) 	
	Tracking of Transaction Status (USEF05)	<ul style="list-style-type: none"> Schubert and Selz (1999) American City & County (2000) Budhiraja (2002) PRISMA (2002d) Schubert (2003a) 	<ul style="list-style-type: none"> Beynon-Davies (2005)
	Responses to Business Support (USEF06)	<ul style="list-style-type: none"> Schubert and Selz (1999) PRISMA (2002d) Schubert (2003a) 	
	Business Relationships (USEF07)	<ul style="list-style-type: none"> Schubert and Selz (1999) Teicher and Dow (2002) Schubert (2003a) Swedberg and Douglas (2003) Holliday and Kwok (2004) 	
	Information Sharing (USEF08)	<ul style="list-style-type: none"> Schubert and Selz (1999) OECD (2003b) Schubert (2003a) 	
	Productivity Gains (USEF09)	<ul style="list-style-type: none"> Wu and Chua (2001) Budhiraja (2002) Cabinet Office (2003) Seifert (2003) OECD (2003b) 	<ul style="list-style-type: none"> Schubert (2003a) Bakry (2004)
	Costs (USEF10)	<ul style="list-style-type: none"> Schubert and Selz (1999) Symonds (2000b) Budhiraja (2002) McNeal, Tolbert, Mossberger and Dotterweich (2003) NOIE (2003) 	<ul style="list-style-type: none"> OECD (2003b) Schubert (2003a) Bakry (2004)

Main Construct	Sub-construct	References	
Adaptability (ADPT)	N/A	<ul style="list-style-type: none"> PRISMA (2002b) Janssen and Wagenaar (2004) 	
	Customized Information (ADPT01)	<ul style="list-style-type: none"> Schubert and Selz (1999) Ho (2002) Lenk (2002) OECD (2003b) Choudrie, Ghinea and Weerakkody (2004) 	<ul style="list-style-type: none"> Haldenwang (2004)
	Mediating Services (ADPT02)	<ul style="list-style-type: none"> Devadoss, Pan and Huang (2002) 	
	Collaborations among Business Partners for Data Sharing (ADPT03)	<ul style="list-style-type: none"> Wescott (2001) Van Wert (2002) OECD (2003b) 	
	Collaborations among Business Partners for Status Checking (ADPT04)	<ul style="list-style-type: none"> Symonds (2000b) Wu and Chua (2001) Accela (2002) Isaacs (2002) OECD (2003b) 	<ul style="list-style-type: none"> OECD Observer (2003) Accenture (2006b)
	Collaborations with the Service Consumers (ADPT05)	<ul style="list-style-type: none"> Schubert and Selz (1999) Schubert (2003a) OECD (2004) Accenture (2006b) 	
	Selection of Business Contacts (ADPT06)	<ul style="list-style-type: none"> Schubert and Selz (1999) Lenk (2002) PRISMA (2002d) OECD Observer (2003) Schubert (2003a) 	
Trust (TRUST)	N/A	<ul style="list-style-type: none"> Schubert (2003a) 	
	Trustworthy Business Partners (TRUST01)	<ul style="list-style-type: none"> Budhiraja (2002) Schubert (2003a) Bakry (2004) Dempsey (2004) 	
	Trusted Electronic Commerce Environment (TRUST02)	<ul style="list-style-type: none"> Budhiraja (2002) Schubert (2003a) Bakry (2004) Choudrie, Ghinea and Weerakkody (2004) Riedl (2004) 	<ul style="list-style-type: none"> Seifert and Bonham (2004)
Use Satisfaction (USESAT)	N/A	<ul style="list-style-type: none"> Rai (2000) DeLone and McLean (2002) Boon, Wilkin and Corbitt (2003) Jennex and Olfman (2003) DeLone and McLean (2004) 	

Main Construct	Sub-construct	References	
	Services Usage (USESAT01)	<ul style="list-style-type: none"> o Cabinet Office (2002) o Kunstelj and Vintar (2004) 	
	Services Satisfaction (USESAT02)	<ul style="list-style-type: none"> o Shutter and Graffenreid (2000) o Choudrie, Ghinea and Weerakkody (2004) o Kunstelj and Vintar (2004) 	

References

Reference sources from the Internet:

Accenture. 2006a.

http://www.accenture.com/Global/Services/By_Subject/Information_Mgmt/Portals_Content_Mgmt/R_and_I/PortalsCollaboration.htm, accessed July 2006.

Brio. 2009. <http://www.brio.com.hk/eng/index.html>, accessed January 2009.

Business2000. 2006. http://www.business2000.ie/cases/cases_7th/case2.htm, accessed October 2006.

C&SD of Hong Kong Government. 2005.

http://www.censtatd.gov.hk/products_and_services/products/publications/statistical_report/labour/index_cd_B1050003_dt_back_yr_2005.jsp, accessed March 2005.

CCGO of Hong Kong Government. 2006. <http://dp.ogcio.ccgo.hksarg>, accessed November 2006.

City University of Hong Kong. 2006. <http://newmedia.cityu.edu.hk/cyberlaw/gp2/intro.html>, accessed July 2006.

CTIL. 2004. http://www.ctil.com/news_events/press_release/2004_01_06/index.htm, accessed September 2006.

Digi-Sign. 2011. <http://www.dg-sign.com/eng/index.htm>, accessed March 2004.

Digital 21 Strategy of Hong Kong Government. 2007a.

http://www.digital21.gov.hk/eng/strategy/2001/strategy_part04.html, accessed April 2007.

Digital 21 Strategy of Hong Kong Government. 2007b.

http://www.digital21.gov.hk/eng/strategy/2004/strategy_part4.html, accessed April 2007.

Digital 21 Strategy of Hong Kong Government. 2007c.

http://www.digital21.gov.hk/eng/strategy/2004/strategy_part2.html, accessed April 2007.

Digital 21 Strategy of Hong Kong Government. 2009.

http://www.digital21.gov.hk/eng/press/press_releases_200901301659.htm, accessed March 2004.

e-Tender Box. 2006. https://www.gldpcms.gov.hk/etb_prod/jsp_public/sm/ssm00407r.jsp, accessed December 2006.

Ge-TS. 2004. http://www.ge-ts.com.hk/en/news_20040106.html, accessed March 2004.

Ge-TS. 2011a. http://vip.ge-ts.com.hk/en/index.php?option=com_content&task=view&id=12&Itemid=40, accessed March 2004.

Ge-TS. 2011b. http://vip.ge-ts.com.hk/en/index.php?option=com_content&task=view&id=50&Itemid=93, accessed March 2004.

Ge-TS. 2011c. http://vip.ge-ts.com.hk/en/index.php?option=com_frontpage&Itemid=1, accessed December 2006.

Ge-TS. 2011d. http://vip.ge-ts.com.hk/en/index.php?option=com_content&task=view&id=13&Itemid=46, accessed December 2006.

Ge-TS. 2011e. http://vip.ge-ts.com.hk/en/index.php?option=com_content&task=view&id=27&Itemid=66, accessed December 2006.

Ge-TS. 2011f. http://vip.ge-ts.com.hk/en/index.php?option=com_content&task=view&id=28&Itemid=71, accessed December 2006.

Ge-TS. 2011g. http://vip.ge-ts.com.hk/en/index.php?option=com_content&task=view&id=46&Itemid=94, accessed December 2006.

Ge-TS. 2011h. http://vip.ge-ts.com.hk/en/index.php?option=com_content&task=view&id=56&Itemid=101, accessed December 2006.

Ge-TS. 2011i. http://vip.ge-ts.com.hk/en/index.php?option=com_content&task=view&id=34&Itemid=78, accessed December 2006.

Ge-TS. 2011j. http://vip.ge-ts.com.hk/en/index.php?option=com_content&task=view&id=103&Itemid=138, accessed December 2006.

Ge-TS. 2011k. http://vip.ge-ts.com.hk/en/index.php?option=com_content&task=view&id=100&Itemid=134, accessed December 2006.

HK-DTTN. 2006. <http://www.hk-dtt.com/home/english/home.html>, accessed December 2006.

IDA of Singapore. 2009. <http://www.ida.gov.sg/Publications/20070125131857.aspx>, accessed January 2009.

InvestHK. 2009. http://www.investhk.gov.hk/default_bodies/common/en_index.html, accessed May 2009.

Louisiana State University. 2006. http://projects.bus.lsu.edu/independent_study/vdHING1/b2b/, accessed August 2006.

Neurauter. 2006. <http://www.neurauter.at/diplomarbeit/html/node17.html>, accessed October 2006.

Rimarcik. 2005. <http://rimarcik.com/en/navigator/fa.html>, accessed March 2005.

Statsoft. 2011. <http://www.statsoft.com/textbook/elementary-concepts-in-statistics/?button=1>, accessed August 2006.

The EC eurostat. 2010. http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/E-government_statistics#Development_of_e-government_services_usage, accessed January 2009.

TID of Hong Kong Government. 2005a. <http://www.tid.gov.hk/print/english/aboutus/publications/tradestat/10yrs10.html>, accessed September 2006.

TID of Hong Kong Government. 2005b. <http://www.tid.gov.hk/print/english/aboutus/publications/tradestat/wmt10tt.html>, accessed September 2006.

TID of Hong Kong Government. 2005c. <http://www.tid.gov.hk/english/aboutus/pressspeech/press/2001/success.html>, accessed September 2006.

TID of Hong Kong Government. 2005d. http://www.tid.gov.hk/english/smes_industry/smes/smes_content.html, accessed September 2006.

TID of Hong Kong Government. 2005e. <http://www.tid.gov.hk/print/english/aboutus/publications/tradestat/im05com.html>, accessed September 2006.

TID of Hong Kong Government 2005f. <http://www.tid.gov.hk/print/english/aboutus/publications/tradestat/ex05com.html>, accessed September 2006.

Tradelink. 2005. http://www.tradelink.com.hk/pdf/ValuNet_leaflet.pdf, accessed December 2006.

Tradelink. 2008. <http://www.tradelink.com.hk/pdf/Eman11082008.PDF>, accessed December 2006.

Tradelink. 2011a. http://www.tradelink.com.hk/eng/company_profile.html, accessed March 2004.

Tradelink. 2011b. http://www.tradelink.com.hk/eng/our_mission.html, accessed March 2004.

Tradelink. 2011c. <http://www.tradelink.com.hk/eng/about.html>, accessed March 2004.

- Tradelink-eBiz. 2003. http://www.tradelink-ebiz.com/english/2m599em7b74er/newscast/tp_0306a.html, accessed September 2006.
- Tradelink-eBiz. 2006. http://www.tradelink-ebiz.com/eSecurity/esecurity_e.html, accessed December 2006.
- Tradelink-eBiz. 2011a. <http://www.tradelink-ebiz.com/english/331n08or3m9a511/footer/help.html>, accessed March 2004.
- Tradelink-eBiz. 2011b. <http://www.tradelink-ebiz.com/english/331n08or3m9a511/index.html>, accessed December 2006.
- Tradelink-eBiz. 2011c. <http://www.tradelink-ebiz.com/etas/address.html>, accessed December 2006.
- Tradelink-eBiz. 2011d. http://www.tradelink-ebiz.com/english/331n08or3m9a511/main/training_video_tdec.html, accessed December 2006.
- Tradelink-eBiz. 2011e. http://www.tradelink-ebiz.com/english/331n08or3m9a511/others/ad_main.html, accessed December 2006.
- Tradelink-eBiz. 2011f. <http://www.tradelink-ebiz.com/english/331n08or3m9a511/bizcentral/bizcentral.html>, accessed December 2006.
- Tradelink-eBiz. 2011g. <http://www.tradelink-ebiz.com/english/331n08or3m9a511/transportation/econnect.html>, accessed December 2006.
- Wikipedia. 2010. http://en.wikipedia.org/wiki/Main_Page, accessed May 2010.
- Worldbank. 2006. <http://wbln0018.worldbank.org/LAC/LAC.nsf/ECADocbyUnid/>, accessed September 2006.

Other reference sources:

- Anonymous. 1999a. "Business-to-Business Electronic Commerce: Status, Economic Impact and Policy Implications". OECD.
- Anonymous. 1999b. "Defining and Measuring E-Commerce: A Status Report". OECD.
- Anonymous. 2000. "Business-to-Government". Adhanda Enterprises.
- Anonymous. 2000. "Bringing local government home". American City & County. May.
- Anonymous. 2000a. "E-Commerce: Impacts and Policy Challenges". OECD.
- Anonymous. 2000b. "Competition Issues in Electronic Commerce". OECD.
- Anonymous. 2001. "e-Government Benchmarking Electronic Service Delivery". Cabinet Office. London. July.
- Anonymous. 2001. "The Internet and Business Performance". OECD.
- Anonymous. 2002. "Government-to-Business (G2B) Web Services for Online Permitting". Accela. July.
- Anonymous. 2002. "Canada Wins the Gold in Moving Government Services Online, 2002 Annual Global Accenture Study Shows". Accenture.
- Anonymous. 2002. "e-Government Unit". Cabinet Office. London. May.
- Anonymous. 2002. "Government to Business (G2B) Executive Workshop". Interpretech.
- Anonymous. 2002a. "Pan-European trends in public administration eServices". PRISMA.
- Anonymous. 2002b. "Providing Innovative Service Models and Assessment". PRISMA.

- Anonymous. 2002c. "Pan-European changes and trends in service delivery". PRISMA.
- Anonymous. 2002d. "Pan-European best practice in service delivery". PRISMA.
- Anonymous. 2003. "Opportunity and Prosperity for All". Cabinet Office. London.
- Anonymous. 2003. "E-Government Benefits Study". NOIE. April.
- Anonymous. 2003. "The e-government imperative: main findings". OECD Observer.
- Anonymous. 2003a. "e-Government in Finland". OECD.
- Anonymous. 2003b. "Public Sector Modernisation: A New Agenda". OECD.
- Anonymous. 2003c. "Digital Delivery of Business Services". OECD.
- Anonymous. 2004. "Better Practice Checklist: Practical guides for effective use of new technologies in Government". AGIMO.
- Anonymous. 2004. "Multi-channel delivery of eGovernment services". IDA Programme. June.
- Anonymous. 2004. "ICT, E-Business and SMEs". OECD.
- Anonymous. 2005. "Transforming Government Volume 2: Enhancing Productivity". AGIMO.
- Anonymous. 2005. "The 2005 e-readiness rankings". The Economist Intelligence Unit.
- Anonymous. 2005. "UN Global E-government Readiness Report 2005". UNDESA.
- Anonymous. 2006b. "Australian Tax Office: Integrated Internet Solution". Accenture.
- Anonymous. 2006. "Responsive Government: A New Service Agenda". AGIMO. July.
- Anonymous. 2006. "Online Payment Systems for E-Commerce". OECD.
- Anonymous. 2007. "The User Challenge Benchmarking The Supply Of Online Public Services". Capgemini.
- Anonymous. 2007. "Government on the internet: progress in delivering information and services online". National Audit Office. London.
- Anonymous. 2008. "United Nations e-Government survey 2008". UNPAN. New York.
- Aichholzer, G. & Schmutzer, R. 1998. "Bringing Public Administration Closer to the Citizens". Background paper to the Conference of the Information Society Forum of the European Commission WG5: "Public Administration", Vienna. November.
- Aichholzer, G. & Sperlich, R. 2001. "Electronic Government Services for the Business Sector in Austria". Proceedings of the 12th International Workshop on Database and Expert Systems Applications.
- Andersen, K.V. & Beck, R. & Wigand, R.T. & Bjorn-Andersen, N. & Brousseau, E. 2004. "European e-commerce policies in the pioneering days, the gold rush and the post-hype era". Information Polity. 9: 217-232.
- Andersen, K.V. & Bjorn-Andersen, N. & Dedrick, J. 2003. "Governance Initiatives Creating a Demand-Driven E-Commerce Approach: The Case of Denmark". Information Polity. 19: 95-105.
- Bakry, S.H. 2004. "Development of e-government: a STOPE view". International Journal of Network Management. 14: 339-350.
- Bekkers, V. 2003. "E-government and the emergence of virtual organizations in the public sector". Information Polity. 8: 89-101.

- Bellamy, C. & Taylor, J.A. 1998. "Understanding government.direct". Information Infrastructure and Policy. 6: 1-16.
- Beynon-Davies, P. 2005. "Constructing electronic government: the case of the UK inland revenue". International Journal of Information Management. 25(2005): 3-20.
- Beynon-Davies, P. & Williams, M.D. 2003. "Evaluating electronic local government in the UK". Journal of Information Technology. June. 18(2003): 137-149.
- Boon, O. & Wilkin, C. & Corbitt, B. 2003. "Towards a broader based IS success model – Integrating Critical Success Factors and the DeLone and McLean's IS Success Model".
- Budhiraja, R. 2002. "E-Governance in G2B & Some Major Initiatives". International Conference on Building Effective e-Governance.
- Carbo, T. & Williams, J.G. & Emeritus. 2004. "Models and Metrics for Evaluating Local Electronic Government Systems and Services". Electronic Journal of e-Government. 2(2): 95-104.
- Carter, L. & Belanger, F. 2003. "The Influence of Perceived Characteristics of Innovating on e-Government Adoption". Electronic Journal of e-Government. 2(1): 11-20.
- Carter, L. & Belanger, F. 2004. "Citizen Adoption of Electronic Government Initiatives". Proceedings of the 37th Hawaii International Conference on System Sciences.
- Chadwick, A. 2003. "E-Government and E-Democracy: A Case For Convergence?". Political Studies Association Annual Conference. April.
- Chadwick, A. & May, C. 2003. "Interaction between States and Citizens in the Age of the Internet: "e-Government" in the United States, Britain, and the European Union". Governance: An International Journal of Policy, Administration, and Institutions. April. 16(2): 271-300.
- Chan, B. & Al-Hawamdeh, S. 2002. "The development of e-commerce in Singapore: The impact of government initiatives". Business Process Management Journal. 8(3): 278-288.
- Chen, H. & Themistocleous, M. & Chiu, K.H. 2004. "Approaches to Supply Chain Integration Followed By SMEs: An Exploratory Case Study". Proceedings of the Tenth Americas Conference on Information Systems, New York. August.
- Choudrie, J. & Ghinea, G. & Weerakkody, V. 2004. "Evaluating Global e-Government Sites: A View using Web Diagnostic Tools". Electronic Journal of e-Government. 2(2): 105-114.
- Davis, F.D. Jr. 1985. "A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results". Sloan School of Management.
- Dearstyne, B.W. 2001. "e-Business, e-Government Information Proficiency". Information Management Journal. October. 35(4): 16-24.
- DeLone, W.H. & McLean, E.R. 2002. "Information Systems Success Revisited". Proceedings of the 35th Hawaii International Conference on System Sciences.
- DeLone, W.H. & McLean, E.R. 2004. "Measuring e-Commerce Success: Applying the DeLone & McLean Information Systems Success Model". International Journal of Electronic Commerce. Fall. 9(1): 31-47.
- Dempsey, J.X. 2004. "Creating the Legal Framework for Information and Communications Technology Development: The Example of E-Signature Legislation in Emerging Market Economies". Information Technologies and International Development. Winter. 1(2): 39-52.
- Devadoss, P.R. & Pan, S.L. & Huang, J.C. 2002. "Structurational analysis of e-government initiatives: a case study of SCO". Decision Support Systems. 34(2002): 253-269.
- Dunt, E.S. & Harper, I.R. 2001. "E-Commerce and the Australian Economy". Melbourne Business School. August.

- Economides, A.A. & Terzis, V. 2008. "Evaluating tax sites: An evaluation framework and its application". Electronic Government, an International Journal. 5(3): 321-344.
- Else, S.E. 2002. "Strategic Sourcing and Federal Government Transformation". Information Knowledge Systems Management. 3: 31-52.
- Evans, R. 2002. "E-commerce, Competitiveness and Local and Regional Governance in Greater Manchester and Merseyside: A Preliminary Assessment". Urban Studies. 39(5-6): 947-975.
- Forman, M. 2002. "E-Government Strategy". Executive Office of the President Office of Management and Budget. February.
- Fountain, J.E. 2001. "The Virtual State: Transforming American Government?". National Civil Review. Fall. 90(3): 241-251.
- Gibbs, J. & Kraemer, K.L. & Dedrick, J. 2003. "Environment and Policy Factors Shaping Global E-Commerce Diffusion: A Cross-Country Comparison". The Information Society. 19: 5-18.
- Grandon, E. & Pearson, J.M. 2004. "Electronic commerce adoption: an empirical study of small and medium US businesses". Information and Management. 42: 197-216.
- Greenwood, A. 2005. "One region, one vision". New Statesman. January.
- Griffin, D. & Halpin, E. 2002. "Local government: A digital intermediary for the information age". Information Polity. 7: 217-230.
- Guerra, G.A. & Zizzo, D.J. & Dutton, W. & Peltu, M. 2003. "Economics of Trust in the Information Economy: Issues of Identity, Privacy and Security". Oxford Internet Institute (OII). April.
- Hagel, H. & Armstrong, A. 1997. "Net gain: Expanding Markets through Virtual Communities". Harvard Business School Press.
- Haldenwang, C.V. 2004. "Electronic Government (E-Government) and Development". The European Journal of Development Research. Summer. 16(2): 417-432.
- Hampe, J.F. & Schubert, P. & Schneider, F. 2004. "Mobile Community Support: A Mobile Reservation System for the Leisure Industry". 17th Bled eCommerce Conference. June.
- Heeks, R. 2006. "Benchmarking eGovernment: Improving the National and International Measurement, Evaluation and Comparison of eGovernment". Development Informatics Group, Institute for Development Policy and Management, University of Manchester, U.K. Paper No. 18.
- Henriksen, H.Z. & Andersen, K.V. 2004. "Diffusion of E-Commerce in Denmark: An Analysis of Institutional Intervention". Knowledge, Technology & Policy. Summer. 17(2): 63-81.
- Hilson, G. 2003. "Canadian SME e-business growth stalled by a lack of IT skills: Report". Computing Canada. May. 29(10).
- Ho, A.T.K. 2002. "Reinventing local governments and the E-government initiative". Public Administration Review. 62(4): 434-444.
- Hoenig, C. 2001. "Beyond e-government". Government Executive. November. 33(14): 49-56.
- Holliday, I. & Kwok, R.C.W. 2004. "Governance in the information age: building e-government in Hong Kong". New Media & Society. 6(4): 549-570.
- Hopkins, W.G. 2000. "Quantitative Research Design".
- Huang, W. & D'Ambra, J. & Bhalla, V. 2002. "An empirical investigation of the adoption of e-government in Australian citizens: Some unexpected research findings". The Journal of Computer Information Systems. Fall. 43(1): 15-30.

- Hussey, J. & Hussey, R. 1997. Business Research. UK: Macmillan.
- Isaacs, L. 2002. "Setting the federal e-government agenda". American City & County. January.
- Jain, P. 2002. "The Catch-up State: E-government in Japan". Japanese Studies. 22(3).
- Janssen, M. & Wagenaar, R. 2004. "Developing Generic Shared Services for e-Government". Electronic Journal of e-Government. 2(1): 31-38.
- Javalgi, R. & Ramsey, R. 2001. "Strategic issues of e-commerce as an alternative global distribution system". International Marketing Review. 18(4): 376-391.
- Jennex, M.E. & Olfman, L. 2003. "A Knowledge Management Success Model: An Extension of DeLone and McLean's IS Success Model". Ninth Americas Conference on Information Systems. 2529-2539.
- Kearney, A.T. 2000. "Building the B2B Foundation: Positioning Net Market Makers for Success". ATKEARNEY.
- Khoong, C.M. 2001. "How e-business models are (finally) reinventing government, industry, and society". Annual Quality Congress Proceedings, Milwaukee, US. 598-601.
- Koch, H. 2004. "Pegasus: Lessons from a Business-to-Business Electronic Marketplace's Struggle". Proceedings of the Americas Conference on Information Systems, New York. August.
- Koch, M. & Moeslein, K. & Schubert, P. & Lechner, U. 2004. "Identities Management: An Approach to Overcome Basic Barriers in E-Commerce and Collaboration Applications". Proceedings of the EURAM Conference, St. Andrews.
- Koch, M. & Schubert, P. 2002. "Personalization and Community Communication for Customer Support". Proceedings 6th International Conference on Work With Display Units – World Wide Work, Berchtesgaden, Germany. May. 530-532.
- Koffi N'Da. 2001. "Foundations of Electronic Commerce".
- Koh, C.E. & Prybutok, V.R. 2003. "The Three Ring Model and Development of an Instrument for Measuring Dimensions of E-Government Functions". Journal of Computer Information Systems. Spring.
- Krooman, F.S.G. 2004. "Understanding eCommerce Business Models: Strategic and key Success Factors". Krooman eBusiness.
- Kunstelj, M. & Vintar, M. 2004. "Evaluating the progress of e-government development: A critical analysis". Information Polity. 9: 131-148.
- Kurnia, S. & Leimstoll, U. & Schubert, P. 2005. "An Evaluation of Australian and Swiss E-Shops in the Grocery Sector". Proceedings of the Hawaii International Conference on System Sciences. January.
- Kurnia, S. & Schubert, P. 2004. "An Evaluation of On-line Grocery Services in Australia from a Consumers' Viewpoint". Proceedings of the Twelfth COLLECTeR Workshop on eCommerce.
- Leimeister, J.M. & Krcmar, H. 2004. "Revisiting the Virtual Community Business Model". Proceedings of the Tenth Americas Conference on Information Systems, New York. August.
- Lenk, K. 2002. "Electronic Service Delivery – A driver of public sector modernisation". Information Polity. 7: 87-96.
- Lindskog, H. & Wennberg, H. 2002. "Learning from "Big Brother" Public Sector E-Commerce as a Role Model for Swedish Industry". Quarterly Journal of Electronic Commerce. 3(3): 211-222.
- Liu, S.P. 2001. "An E-Government Readiness Model". UMI. December. 3073537.

- Lodge, J. 2003. "Towards an E-Commonwealth? A Tool for Peace and Democracy?". The Round Table. October. 372: 609-621.
- Madeja, N. & Schoder, D. 2003. "Designed for Success – Empirical Evidence on Features of Corporate Web Pages". Proceedings of the 36th Hawaii International Conference on System Sciences.
- Martin, B. & Byrne, J. 2003. "Implementing e-Government: widening the lens". Electronic Journal of e-Government. 1(1): 11-22.
- McNeal, R.S. & Tolbert, C.J. & Mossberger, K. & Dotterweich, L.J. 2003. "Innovating in Digital Government in the American States". Social Science Quarterly. March. 84(1).
- Moon, M.J. 2002. "The evolution of E-government among municipalities: Rhetoric or reality?". Public Administration Review. 62(4): 424-433.
- Nam, K. 2002. "Experience on E-Commerce of Hong Kong, China". Proceedings and papers presented at the Regional Consultative Meeting on Initiatives for E-Commerce Capacity-Building of Small and Medium Enterprises. November.
- O'Donnell, O. & Boyle, R. & Timonen, V. 2003. "Transformational aspects of e-Government in Ireland: Issues to be addressed". Electronic Journal of e-Government. 1(1): 23-32.
- Osborne. 2005. "Developing a Business Case for Electronic Commerce Projects".
- Phan, D.D. 2003. "E-business development for competitive advantages: a case study". Information & Management. 40(2003): 581-590.
- Phan, D.D. & Stata, N.M. 2002. "E-business success at Intel: An organization ecology and resource dependence perspective". Industrial Management + Data Systems. 102(3/4): 211-217.
- Piller, F. & Schubert, P. & Koch, M. & Moslein, K. 2004. "From Mass Customization to Collaborative Customer Co-design".
- Pollard, P. 2000. "Geographical Information Services: A UK perspective on the development of interorganisational information services". Information Infrastructure and Policy. 6: 185-195.
- Poon, S. & Huang, X. 2002. "Success at E-Governing: A Case Study of ESDLife in Hong Kong". Electronic Market. 12(4): 270-280.
- Porter, M.E. 2001. "Strategy and the Internet". Harvard Business Review. March.
- Prattipati, S.N. 2003. "Adoption of e-Governance: Differences between Countries in the Use of Online Government Services". The Journal of American Academy of Business. September. 3(1/2): 386-391.
- Rai, A. 2000. "A Measurement System for Online Course Delivery Success". Report for Summer Instructional Innovation Grant. Summer.
- RAND Europe. 2001. "Topic Report No. 8: E-Government". SIBIS. Tasks 2.1 (Update) +2.2.
- Reddick, C.G. 2004. "A two-stage model of e-government growth: Theories and empirical evidence for U.S. cities". Government Information Quarterly. 21(2004): 51-64.
- Riedl, R. 2004. "Rethinking Trust and Confidence in European e-Government. Linking the Public Sector with Post-modern Society".
- Rodeghier, M. 2003. "Advanced Descriptive Analysis". SPSS.
- Satyanarayana, J. 2001. "e-Government for the new Millennium".
- Schmitt, C. & Fischbach, K. & Schoder, D. 2006. "Towards Ambient Business: Value-added Services through an Open Object Information Infrastructure". Proceedings of COLLECTeR Europe 2006, Basel, Switzerland. June.

- Schoder, D. & Madeja, N. 2004. "Is Customer Relationship Management A Success Factor in Electronic Commerce?". Journal of Electronic Commerce Research. 5(1).
- Schubert, P. 2003a. "Extended Web Assessment Method (EWAM) - Evaluation of Electronic Commerce Application from the Customer's Viewpoint". International Journal of Electronic Commerce. Winter. 7(2).
- Schubert, P. 2003b. "Personalizing E-Commerce Applications in SMEs". International Journal of Electronic Commerce Ninth Americas Conference on Information Systems.
- Schubert, P. 2004. "Case Study Triamun: Solving IT Integration Problems in the Health Care Sector with the Innovative use of an ASP Software Solution". Proceedings of the Tenth Americas Conference on Information Systems, New York. August.
- Schubert, P. & Ginsburg, M. 1999. "Virtual Communities of Transaction: The Role of Personalization in Electronic Commerce". Twelfth International Bled Electronic Commerce Conference. June.
- Schubert, P. & Hausler, U. 2001. "E-Government meets E-Business: A Portal Site for Startup Companies in Switzerland". Proceedings of the Hawaii International Conference on System Sciences. January.
- Schubert, P. & Kummer, M. & Leimstoll, U. 2002. "Legal Issues of Personalized E-Commerce Applications".
- Schubert, P. & Leimstoll, U. 2001. "The Extended Web Assessment Method (EWAM) Applied: Do Websites for Consumer Goods Stand the Test?". Proceedings of the Eighth Research Symposium on Emerging Electronic Markets, Maastricht, The Netherlands. September.
- Schubert, P. & Leimstoll, U. 2006. "The Importance of ICT: An Empirical Study in Swiss SMEs". 19th Bled eConference, Bled, Slovenia. June.
- Schubert, P. & Selz, D. 1999. "Web Assessment – Measuring the Effectiveness of Electronic Commerce Sites Going Beyond Traditional Marketing Paradigms". Proceedings of 32nd Hawaii International Conference on System Sciences.
- Scupola, A. 2002. "Adoption Issues of Business-to-Business Internet Commerce in European SMEs". Proceedings of 35th Hawaii International Conference on System Sciences.
- Seifert, J.W. 2003. "A Primer on E-Government: Sectors, Stages, Opportunities, and Challenges of Online Governance". Congressional Research Service, Library of Congress, US. January.
- Seifert, J.W. & Bonham, G.W. 2004. "The Transformative Potential of E-Government in Transitional Democracies". Congressional Research Service, Library of Congress, US.
- Shapiro, C. & Varian, H. 1999. "Information Rules. A Strategic Guide to the New Economy". Harvard Business School Press.
- Sheridan, W. 2001. "The Future of Government". The Innovation Journal.
- Shutter, J. & Graffenreid, E.D. 2000. "Benchmarking the eGovernment Revolution: Year 2000 Report on Citizen and Business Demand". Momentum Research Group. July.
- Slocum, W. 1998. "Reinventing Government in Cyberspace". June.
- Stamoulis, D. & Gouscos, D. & Georgiadis, P. & Martakos, D. 2001. "Revisiting public information management for effective e-government services". Information Management & Computer Security. 9(4): 146-153.
- Steward, S. & Callaghan, J. & Rea, T. 1999. "The eCommerce revolution". BT Technology Journal. July. 17(3): 124-131
- Swedberg, D. & Douglas, J. 2003. "Transformation by Design: An Innovative Approach to Implementation of e-Government". Electronic Journal of e-Government. 1(1): 51-56.
- Symonds, M. 2000a. "The Next Revolution". Economist. 355(8176).

- Symonds, M. 2000b. "Government and the Internet: No gain without pain". Economist. 355(8176).
- Teicher, J. & Dow, N. 2002. "E-government in Australia: Promise and progress". Information Polity. 7: 231-246.
- Teo, T.S.H. & Lim, V.K.G. 1998. "Leveraging information technology to achieve the IT2000 vision: the case study of an intelligent island". Behaviour & Information Technology. 17(2): 113-123.
- Thompson, B. 2000. "Countdown to 2005". New Statesman. December.
- Turban, E. & Lee, J. & King, D. & Chung, H.M. 2000. Electronic commerce: a managerial perspective. US: Prentice-Hall.
- Van Wert, J.M. 2002. "E-Government and Performance: A Citizen-centered Imperative".
- Vintar, M. & Kunstelj, M. & Decman, M. & Bercic, B. 2003. "Development of e-government in Slovenia". Information Polity. 8: 133-149.
- Voss, A. & Schubert, P. 2004. "User interface integration in corporate travel management: the case of the CWT Connect portal". Proceedings of the Tenth Americas Conference on Information Systems, New York. August.
- Walter, S. & Leimeister, J.M. & Krcmar, H. 2003. "Towards Value Webs in the after-sales-service area of the German automotive industry". RSEEM.
- Wescott, C.G. 2001. "E-Government in the Asia-Pacific Region". Asian Journal of Political Science. December. 9(2).
- West, D.M. 2001. "E-Government and the Transformation of Public Sector Service Delivery". Annual Meeting of the American Political Science Association, San Francisco, US. August-September.
- Westholm, H. & Aichholzer, G. 2003. "eAdministration". PRISMA. April.
- Wilkins, L. & Swatman, P.M.C. & Castleman, T. 2002. "Mustering Consent: Government-Sponsored Virtual Communities and the Incentives for Buy-in". International Journal of Electronic Commerce. Fall. 7(1): 121-134.
- Wong, P.K. 2003. "Global and National Factors Affecting E-Commerce Diffusion in Singapore". The Information Society. 19: 19-32.
- Wu, C.P. & Chua, J.H. 2001. "E-Procurement and Government to Business (G2B) Portals". ICA 35th Conference, Berlin. October.
- Zhao, J.J. & Truell, A.D. & Alexander, M.W. & Davis, R. 2007. "E-Government-to-Business Service Quality and User Satisfaction: An Assessment of the U.S. State G2B Web Portals". Issues in Information Systems. 8(2).
- Zikmund, W.G. 1994. Business Research Methods. 4th edn. US: Dryden.
- Zwass, V. 2003. "Electronic Commerce and Organizational Innovation: Aspects and Opportunities". International Journal of Electronic Commerce. Spring. 7(3): 7-37.