Evaluation of E-Government Services Quality: A Business Perspective

A Thesis Submitted for the Degree of Doctor of Philosophy

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Abstract

Given the vast and rapid developments in using e-government services, many countries all over the world commenced to improve the quality of their e-government services especially the ones concerning the business sector. Accordingly, the issue of evaluating the quality of e-government services from the perspectives of business firms became a crucial aim.

This study addressed the topic of evaluating e-government service quality in Jordan from a business perspective. The study problem stemmed from the paucity of research that addressed evaluating e-government service quality form a business perspective at the local and global levels. Moreover, the literature review showed the lack of effective model for assessing the quality of e-government services based on the business perspective. Furthermore, frequent international reports showed that Jordan occupy low rank in E-government readiness at the global and regional levels.

The current study aimed to fill the existed gap in literature related to evaluating the quality of e-government services from the business perspective by adding to the present literature body. In order to fulfill the study's goals, a conceptual framework was developed and proposed. The framework included two scales: a SERVQUAL questionnaire and Barrier-Enablers questionnaire.

The proposed model was verified according to the validity and reliability indicators. The study methodology adopted an explanatory mixed approach of quantitative and qualitative methods. The quantitative method involved questionnaires that were applied on 300 employees who were working in the business sector and in direct contact with e-government services. However, the qualitative method involved 11 stakeholders who are in charge for E-government services within two major governmental departments were interviewed.

In order to verify the model's measures and gather data; means, standard deviations, internal consistency, t-test, ANOVA, simple linear regression and Factor analysis were used.

Based on the proposed model, the study results revealed various gaps between the actual and expected e-services from the business firms' perspective. All the expected e-services scored higher than the real ones. All the gaps in the proposed SERVQUAL questionnaire indicated statistical significant differences in the overall dimensions except the Security and Privacy dimension that revealed no statistically significant difference. Moreover, the results revealed various gaps between the actual and expected barriers/enablers from the business firms' perspective. Similar to the expected e-services, all the expected barriers/enablers scored higher than the actual ones. Furthermore, the qualitative results indicated a number of barriers and enablers that influence using e-government services from E-government perspective in Jordan. Furthermore, based on the results of the analysis, the proposed model was revised and modified.

The results introduced a number of implications for the public agencies that provide E-government services. Moreover, the results lend themselves to researchers who are interested in furthering the current study by revising the resulting model and addressing more perspectives or variables.

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ABBREVIATIONS

AHP	Analytic Hierarchy Approach
ANOVA	Analysis of Variance
CBM	Contextual Benchmark Method
COBIT	Control Objectives for Information and related Technology
E-government	Electronic Government
E-readiness	Electronic Readiness
E-service	Electronic Service
G to G	Government to Government
G to B	Government to Business
G to E	Government to Employee
G to C	Government to Citizen
ICT	Information and Communication Technology
IS	Information System
IT	Information Technology
KMO	Kaiser-Meyer-Olkin test
OECD	Organization of Economic Co-operation and Development
PC	Personal Computer
SALT	**S**elf **A**daptive quality monitoring model
SD	Standard Deviation
TRA	Theory of Reasoned Action
TAM	Technology Acceptance Model

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Dedication

To all those who supported me during this undertaking - my family, my friends and my relatives, I dedicate this work.

Chapter One: The Study Background

1.1 Introduction

Recently, significant worldwide developments in ICTs have been clearly witnessed. Such change has tremendously influenced all areas of our modern life (Al-Khouri, 2012). Among the noticeable effects is the spreading of positive change in the manner in which governments interact with various parties such as citizens, business sector, and other governmental departments. Moreover, the governments, through their departments, sought to adapt and develop their services relying on practical form that is E-government (Cullen, 2007). This shift was undertaken by many governments in order to keep up with global growth in terms of internet and information technology. This shift reflects the transformation of public services offered by governments from the old traditional form of a new electronic means; which was attained by using the internet.

This type of transformation enabled the governments to increase their abilities towards offering a more rapid access to their services as well as their information resulting in increasing the effectiveness of their departments. In addition, many countries have decided to adopt governmental reforms through resorting to the E-government systems in an attempt to raise the level of public transactions in both developed and developing countries (Petricek et al., 2006).

Alshehri, Drew and Alfarraj (2012) outlined that introducing the concept of E-government brought a fundamental and central change in the public sector's structure, values, culture and the manner by utilizing the ICT tools. Increasingly, the governments at the worldwide level sought to adopt E-government's initiatives that have the potential to advance the effectiveness of their

transactions. As a function, E-government is used as a tool for encouraging and promoting the economic development, because it will enable businesses to effectively transact in a more effective manner with any government (Badri & Alshare, 2008).

Because many of the services that are provided by governments for both firms and citizens over the counter (OTC) directly, governments have become greatly influenced and became interested in the adaptation of E-services as a step towards meeting the various needs and challenges of the fast-pacing modern age (Al-Khouri, 2012).

E-government services are and in no doubt of great interest for the Business organizations since they use these services widely and frequently. These e-services enable the business firms to achieve many benefits such as reducing costs, improving the productivity (Al-Khamaysah, 2013).

Specifically, to pursue the economic growth, governments all over the world have paid a significant attention towards adopting modern e-government services that integrate and share services to the business sector. In respect to business sector, the e-government aims to activate the economic cycle by facilitating the transactions of business firms at the local, regional and global levels. Additionally, this type of e-services expresses the new concept of an economy that is, delivering the service or commodity without the need for a face to face contact (Al- Mubaydheen, 2011; Al- Khamaysah, 2013).

In fact, the business sector has had the priority in adopting the electronic administrative systems so that every firm that seeks for success established its own web site in order to market its services and perform its transactions. Moreover, the business sector still contribute effectively in supporting the e-government system and providing essential services in modern manner (Al-Mubaydheen, 2011).

Frequently, governments sought to establish a working partnership with the various business sectors, so as to meet the needs of the desired markets; this was attained by providing new job opportunities within the local communities. Furthermore, E-government can be used to promote the transparency of the governmental operations, thereby enhancing business trust and confidence in government (Tolbert & Mossberger, 2006; Ubaldi, 2011).

However, the potential business users of E-government services may have some concerns regarding the adoption of such services since there is no much research that focus on the use of the information and services related to E-government (Tung & Rieck, 2005; Reddick & Roy 2013; Lee, Kim, & Ahn, 2011). To be more specific, much of the existing research tends to pay more attention towards citizens rather than business (Cohen, 2006).

Reddick and Roy (2013) confirmed that little research examined what might businesses encounter while using the E-government services. This is particularly important for some governments since the majority of small businesses, which are prevalent in most economies, is considered to be the main drivers of the economic progress and future innovation as well as the new job growth. Therefore, it is deliberate that the improvement of the business satisfaction with the delivery of the public service is considered very noteworthy for the economic development (Ubaldi, 2011).

Studying the quality E-government services in Jordan from many perspectives is regarded important for identifying any existed gaps between what is expected and actual. These perspectives include the business and citizens. Business perspective refers to the firms' employees who undertake E-government transactions on the behalf their own firms. This type of firms focuses mainly on cost and time considerations (Thi, Lim and Al-Zoubi, 2014). However, citizen's perspective refers to the individuals who use e-government transactions for personal purposes. Despite they represent the majority of E-government services' users, the research outlined that they prefer to use over the counter transactions (Al-Khouri, 2012; Allahawiah and Alsaraireh, 2014).

In Jordan, similar to other countries, as outlined by Jawad & Abu zaid (2007) and Al-Khamaysah (2013), the increase in using the services provided by E-government in any business sector would result in achieving many economical gains besides it will create a form of integration between the public and the private sectors. However, Jordan position in E-government readiness still low with some inclinations over the time despite the increasing improvements in ICTs (Majdalawi et al., 2015). So far, the process of evaluating the E-government service quality from the business perspective by using the needed model has appeared to be highly limited in the relevant literature in Jordan as well as in the other developing countries (Al Khamaysah, 2013; Al-Khouri, 2012; Al-Kasasbeh, Dasgupta & AL-Faouri, 2011).

1.2 Motivation for the Research Problem

Despite the increasing importance of providing a wide range of e-government services, the evaluation of the quality of such online services still needs more attention especially in the developing countries (Lee et al., 2011; Al-Khamaysah, 2013). In Jordan, this issue appears to be more obvious since the related literature shows paucity in studies that addressed the process of evaluating e-government services based on various perspectives particularly business firms (Thi, Lim and Al-Zoubi, 2014).

Moreover, many studies reported that the majority of the E-government's customers show a strong preference towards the traditional interactions with governments which in turn has led to unsatisfactory experiences with many of the E-government initiatives, especially in the public sector, which and are thought to be unmanageable (Al-Khamaysah, 2013; Al-Mubaydheen, 2011). This notion is supported by UN E-government indicators' reports that showed frequent inclinations in E-government ranking for Jordan at the international and regional levels since 2003 (United Nations E-Government Survey, 2014).

Furthermore, the factors, which have the potential to influence the decision-making process within any government during the process of evaluating the e-government service quality, have not been identified adequately. As a result, a reasonable framework concerning the evaluation of the quality of E-services provided by the government still not well-acknowledged at the worldwide level in general and in Jordan in particular. Among the problems that e-government initiative encounter in Jordan is lacking for understanding or ignoring the users' needs which in turn influences the process of evaluating such services (Thi, Lim and Al-Zoubi, 2014).

Therefore, there is a need to develop a valid frame of reference that is effective in evaluating the e-government services' quality. This framework may contribute in reducing the confusion by providing a valid and effective instrument based on a rigid ground of theory and empirical work. These reasons have stimulated the current study, which aims to evaluate the E-government service quality offered by the Jordanian public sectors from a business perspective.

To conclude, the rationale behind this research is highly based on the conclusions which are presented previously, these conclusions states that the evaluation, which is related to the quality of the E-government services in general and its evaluation from a business perspective in particular did not receive an adequate attention in Jordan. Precisely, the current investigation sought to provide a model for the evaluating the quality of E-government services from a business perspective as well as a number of contributions to the relevant body of literature.

1.3 Research Aim and Objectives

1.3.1 Research Aim

Because the evaluation of the E-government service quality has become such an important issue, particularly from the business firms' perspective so that the stakeholders of E-government has become so much aware of their needs, the aim of this research work is summarized as follows:

To develop a valid and applicable frame of reference that contributes in evaluating the E-government service quality from a business perspective so as to be used for supporting the process of decision making within the governmental organizations.

1.3.2 Research Objectives

In order to address the aim of this research adequately, the research will consider the following objectives:

- To review and analyze the literature related to the evaluation of E-government service quality in order to identify the theory and models related to the evaluation of the E-government service quality

- To identify the factors used in the evaluation of E-government service quality from a business perspective, that may be applied by the public organizations.

- To develop a proposed conceptual framework based on the previous literature review so as to be used in the process of evaluating the E-government service quality from a business perspective.

- To validate the proposed model and hypotheses empirically by conducting a quantitative questionnaire survey in Jordan.

- To verify the accuracy of the proposed framework in identifying the gaps that may exist between the expected and actual E-government service quality.

- To conduct a qualitative study in order to explore and verify the importance of evaluating E-government service quality in Jordan.

- To define and specify the barriers and enablers which are experienced by the business firms, while evaluating the quality of the E-government services.

- To introduce theoretical and practical contributions based on the findings along with offering recommendations and future research directions.

1.4 Research Questions

Mainly, in concordance with the research objectives, the current study will attempt to answer the following measurable questions:

1. Are there any gaps between the actual and expected e-services from the business firms' perspective?

2. Are there any gaps between the actual and expected barriers/enablers from the business firms' perspective?

3. Are there any gaps between the actual and expected e-government services; and what are the barriers and enablers that affect using e-government services, from e-government perspective?

1.5 Structure of the Thesis

This thesis has been structured in seven chapters, each one of these chapters is addressing a distinct point in carrying out this research project. A brief outline of the chapters appears as follows:

Chapter One provides an introduction to the problem area of the thesis, which is the Evaluation of the quality of service provided by the E-government through using the current evaluation approaches and their related problems. Afterwards, the objectives and aim of the research are stated as well as the research questions; the chapter ends with the dissertation outline.

Chapter Two addresses the context in which this work is set. It begins with a presentation of the meanings of the major terms underpinning the subject matter, namely, the definition of the e-government service quality, the e-government models and the categories. The chapter then reviews the different evaluation approaches and methodologies currently used in evaluating e-government service quality. The conceptual and practical strengths and weaknesses related to these approaches within the e-government' context are then presented. The chapter addressed the evaluation process based on SERVQUAL and barriers-enablers instruments, which are used so as to enhance the effectiveness of Evaluating the services provided by the e-government along with the quality and the account for their special characteristics by providing a better model which can be used to support the process of decision- making within the E–government service quality arena. This chapter also addressed the research context by introducing the topic of the e-government in Jordan. It moves over a general background for Jordan. Then, it reviews the developments of e-government in Jordan with addressing the relevant research.

Chapter Three presents a conceptual Evaluation approach, which is developed as an attempt to provide the decision makers with a useful tool for evaluating the E-government service quality process of coping with the special characteristics

of the E-government and in doing so, would help them make feasible E-government initiatives and investments. The approach is based on the SERVQUAL under the name of SERVQUAL E-government Evaluation approach.

Chapter Four deals with the research methodology. It has addressed the research design, instrument, and the validity and reliability issues. In this chapter, the methods adopted in analyzing the data were discussed. The objective of this chapter is to provide data that may contribute in identifying the validity of the proposed approach in the Evaluation of the E-government and the problems that may be encountered; this would pave the way for refining the proposed model. Furthermore, the purpose is an attempt to generalize these results into different e-government models and projects; this purpose offers an attempt to generalize such results into different E - government projects and models.

Chapter Five browses the findings attained from Chapter 4 which are based along the research inquiries that are referred in Chapter Two; the results are shown in relation to the questionnaires and consultations.

Chapter Six will provide a detailed discussion of the results which are revealed from chapter 5; the chapter also presents major conclusions, which can be drawn from the research, and evaluating the contribution to knowledge; it also ends by elaborating on the scope for further research in topics related to this research.

Chapter Seven provides a brief and a final summary of the overall findings of this study. In addition to that, it addresses the study limitations that would affect the process of the generalization of the results. Finally, it presents the proposed field for further study and recommendations.

Chapter Two: Literature Review

2.1 General Introduction to E-government

Chapter two aims at presenting a critical analysis and a holistic review of the literature on the evaluation of the quality of the E-government services in general as well as for the E-government service quality from a business perspective in particular.

The chapter would also provide some critical classifications that would illustrate a clearer analysis of the E-government concept, for example the classification of the electronic interactions of the e-government with other distinct sectors, the E-government services dimensions that would perform an important role in the E-government implementation, the classification of the benefits behind applying the e-government that would enhance and promote its adoption, the chapter would also specify the barriers that may prevent any public sector organization from trying to adopt the e-government successfully.

Moreover, this chapter addresses various topics related to evaluating the E-government service quality. It browses the definition of the e-government service quality, the E-government models and the categories. Moreover, the chapter then reviews the different evaluation approaches used in evaluating e-government service quality.

The increasing developments in ICT have obliged many of the governments of many countries all over the word to replace and substitute their traditional services with E-services unless these new services are assessed in an adequate manner, the quality of the E-government services will be subjected to failure as

stated by Osman et al. (2011). Accordingly, the representation of the E-government as an alternative ICT strategy has emerged and constituted a valuable instrument that can bring about potential and impeding benefits for the public sector organizations, the citizens and business such as cost saving, the improvement in the coordination and the communication between the different organizations as well as the expansion of the citizen's participation, and the increased government accountability.

Hence, the adoption of the E-Government has become a very significant strategic action plan specifically for the public sector, because it is has proven to be a fundamental framework in the modernization of the government business process as many IT managers have the belief that that E-government adoption would increase the efficiency and would save money as well through the increased centralization of resources, the economies of scale, the unification of the government's IS applications, and funneling of all the IT initiatives through the qualified IT professionals as implied by Melitski (2003).

Allahawiah and Alsaraireh (2014) and Nica (2015) reported that many users of E-government services revert back towards the traditional ways of acquiring information such as personal visits and telephone enquiries after the initial trial of E-government services despite its various advantages. Moreover, various studies outlined that the majority of citizens still shows a strong preference for traditional methods of interaction with governments (Al-Khamaysah, 2013; Al-Khouri, 2012).

In general, the E-government services aim at transforming the service delivery and to make it more convenient and easier for both the citizens and businesses to create an effective means of interaction between the two sides (Srivastava & Teo, 2007). It has been shown that the success of any service delivery would largely depend upon its perception in the users' minds (Richard & Allaway, 1993), which would sequentially determine the users' loyalty and retention (Reicheld & Sasser, 1990).

2.1.1 The Concept of E-government

According to Thi, Lim and Al-Zoubi (2014), Ostasius and Laukaitis (2015) and Nica (2015), the field of E-government still needs more investigations and analysis as well as it is difficult to give an accurate and clear definition of the concept of E-government since it includes a very broad range of factors. As a result, there is no single definition that could be considered as a standard definition for E-government, which can summarize precisely what does E-government really mean.

In the current literature, there have been a number of definitions that have attempted to explain and define the concept of E-government in line with their scope and perspectives.

The widely used definition of the term E-Government is what was stated by Gartner (2000, adapted from Cascadis, 2007). According to this view, the term E-government represents the constant transformation of the internal and external relationships relating to the public sector through the following: internet-enabled operations, the information and the communication technology so as to optimize the service delivery, the population participation and public governance.

In the same disposition, Jeong (2007) defined the term E-government as follows: "The proper utilization of ICTs, as well as other web-based telecommunication technologies in the quest of improving and/or enhancing the effectiveness and efficiency of the delivery of services within the public sector". Others, such as Holden, Norris & Fletcher (2003) on the other hand, defined the term e-Government as: the Electronic delivery of the governmental services mainly by using Web technologies.

By combining ICT receivers and benefits, the UNPAN report (2008) indicated that, E-government can be defined as the proper use of technologies of communications and information by the governments in a manner that enhance the quality and the range of the services and information which are provided to

businesses, citizens, the civil society organizations, and as well to other government agencies. The report clarified that all these services are provided in a cost-effective, efficient and suitable manner which result in making the governmental processes more accountable and transparent.

To clarify, Kafi (2010) provided a more simple definition for E-government that implies the transition from providing public services and transactions in a routine form to an electronic form through the internet. In relevant to the current research context (Jordan), Al-Qudwa (2010) pointed that the E-government reflects the re-innovation of the governmental works via new ways to integrate and incorporate the information with providing the opportunity to access it through an electronic site.

For clarifying the purpose of this study, it is apparent from the stated definitions regarding E-government that they address the field of E-government services. It can be concluded that the definition of the E-government concept have been furthered to include many other aspects.

In consistent with the purposes of this study, the following definition of E-government is adopted: the public services and transactions provided by the various governmental departments through the internet for the beneficiaries from citizens, business, and other government departments.

2.1.2 The Components of E-government

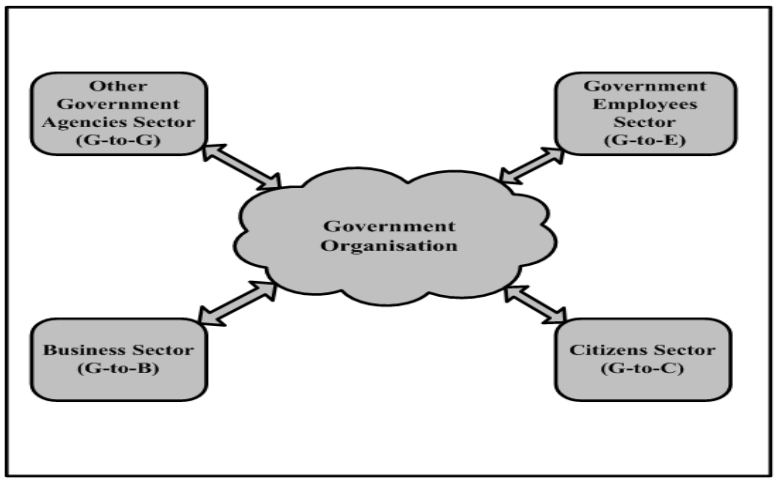
According to Jiang et al. (2002), the basic role of the information systems (IS) within any organization has always been to construct, design, and implement the electronic services; all this is done so as to improve the performance within the organizations. However, Pitt et al. (1995) stated that the IS main function came to include a very important service component; One of the IS department's functions is to provide adequate assistance to all users regarding the software and the hardware selection as well as acquisition and installation, the connection to

specific networks, trouble-shooting, finally, training and maintenance. Furthermore, Jiang et al., (2002) stated that the IS professionals provide assistance to users in the following specific areas: analysing, collecting, and the retrieval of data and the production of information in a form that sounds meaningful for any decision makers. Moreover, Kettinger & Lee (1994), Pitt et al. (1995) and Watson et al. (1998) suggested that the quality of services must be included as a measure of any IS success.

The research on E-government's components pointed to various components such as the Website, the Content, the Service and the Interaction. However, it is strongly believed that the essence of government relies on relationships (Asgarkhan, 2005). Therefore, one of the major goals of e-services are to interconnect the stakeholders with the government entities.

Hence, and due to the diversity of stakeholders' needs, E-services are classified into different categories: citizens, businesses, government and employees. These categories are abbreviated respectively into G2C, G2B which presents the interaction of government with external users, and G2E, G2G which concerning internal purposes (Backus, 2001). Figure 2.1 shows the different types of e-services' interactions.

Figure 2.1: E-government Services Interaction with Community Sectors



Adopted from Wei and Zhao (2005)

According to the notion of Al-Khamaysah (2013), the E-government interactions provide information for the various groups of beneficiaries regardless their geographical locations. However, the E-government interactions over the various groups may be divided according to the following areas:

Government to Business (G2B):

Fang (2002) clarified that this type of transactions includes different services and information which are exchanged between the government that is the public sector and the business community that is the private sector. These services include the following: to obtain the existing business information, to download any application forms, to renew expired licenses, to register new businesses, to obtain permits and taxes payments. Moreover, they would also include: the distribution of memos, policies, rules and regulations to the entire business community (Davies, 2007). The G2B application is mostly beneficial to the improvement of the quality and efficiency of communications and transactions between the business and the government (Metaxiotis & Psarras 2004).

Heeks (2006) argues that the government's interactions with business are far more important than those it has with citizens in terms of the overall rate of economic growth in the country. This could also prove crucial especially in developing countries that need to attract foreign investors and facilitate the cumbersome procedures. Furthermore, issues of transparency and elimination of corruption can be assisted via this type of transaction.

Government to Citizens (G2C):

This dimension provides information and services to citizens. The most important purpose of these applications is to offer people different options and communications channels for public transactions (Al Shihi, 2006). In this regard, G2C applications offer services that are citizen-centric. According to a published report by the Organization of Economic Co-operation and Development (OECD, 2003), some examples of the G2C applications would include information

dissemination to the public, basic citizen services, such as: license renewals, ordering of birth, death, or marriage certificates and filing of income tax returns, as well as assistance for such basic services as education, health care, hospital information, libraries and the like (OECD, 2003).

However, as it have been discussed earlier since the role of E-government is seen to be beyond just provide basic information and services online, it is important to refer as well to the political dimension in the G2C application in which e-government enhances the relationship between citizens and government by having a say through participation online and electronic voting (Davies 2007; Hjouj Btoush, 2009).

Government to Government (G2G):

This interaction is regarded as the backbone of E-government, and identifies the internal processes and data sharing among government sector organizations (Bonham et al, 2001). The critical objectives of G2G applications are to reduce the associated costs, improve strategic decision-making and decentralize the power among all levels of government (Heeks, 2006).

G2G applications also provide coherent and interconnected government organization; thus emphasizing the concept of integrated services. Moreover, G2G applications allow government agencies and departments to share information, databases, resources, capabilities and skills, thus increasing the effectiveness and efficiency of procedures (Ndou, 2004). This actually occurs as governments are allowed to communicate more effectively by reducing duplication and redundancy of information and communication (Evans & Yen, 2005).

Government to Employees (G2E):

The G2E attributes refer to the relationship between the Government and its employees. G2E is also an effective way to bring employees together and to promote knowledge sharing among them (Ndou, 2004). G2E also refers to the

strategic systems utilized to support the implementation of government objectives, human resource management and budgeting (Riley, 2001). The services and data supplied by the Government Agencies to employees and the ways in which employees cooperate with the management level are enabled by G2E services (Chavan & Rathod, 2009). A significant innovation of this feature is the integration of employees and back office systems and processes.

To sum up, the table below illustrates what are the basic objectives of each level of interaction.

Table 2.1: A summary of the basic objectives of the levels of E-government services' interaction

Level of Interaction	Objectives	Source
G2C	• Provides citizen-centric services • Encourages citizens to have a say in policy & decisions making • Enables citizens to do all interactions & transactions in a one stop shop.	AlShihi, 2006 Davies 2007; Hjouj Btoush, 2009 Gant & Gant 2001; Ho 2002
G2B	• Facilitates business' procedures for local and foreign investors. • Improves the quality of communication between the private sector and the public one. • Increases transparency and eliminates corruption.	Fang, 2002 Metaxiotis & Psarras, 2004 Coleman,2005
G2G	• Reduces the costs, improves strategic decision-making and decentralizes the power among all levels of government. • Allows sharing data and consequently increases effectiveness. • Reduces duplication and redundancy of information and communication.	Heeks, 2006 Ndou, 2004 Evans & Yen, 2005
G2E	• Promotes knowledge sharing among employees. • Improves internal efficiency & effectiveness of the administration. • Allows team collaboration & offers internal services to the employees.	Siau & Long, 2005 Chanana, 2007

2.2 E-government service quality

This research attempts mainly to focuses on the E-government services quality from a business perspective. Therefore, this study has given all its focus on the quality of the E-services in the E-government domain. With the continuous increase of the public E-services, research has showed that the service quality in the delivery of the E-government services is dominant in its quest to encourage the adoption by both citizens and businesses Hazlett & Hill 2003, Teicher et al., 2002).

Yet, Buckley (2003) outlined that with the presence of the multiplicity and diversity of service targets and motivations motivating many public institutions, researchers have already faced a difficult task of measuring and defining the service quality for the E-governments, very much less reveal the past experiences leading to the establishment of high quality public E-services. Despite the presence of these difficulties, a big number of definitions for the E-government from the services quality perspective can be found in the literature.

2.2.1 The Concept of E-service quality

Service quality not only provides the different organization with competitive advantages in the online environment, but also it involves the different clients who are involved in the product process through getting feedback from customers along with improving the clients' relationships and their attained satisfactions (Santos, 2003). Moreover, this concept of E-service quality had been derived from the known concept of the quality of traditional services. The E-service quality can be classified as the key determinants to the success or failure of organizations that provides online services (Ateeq et al., 2010).

Research points to e-government service quality as the degree to which an E-government web site facilitates the competent delivery of efficient E-services to

help citizens, businesses and agencies in achieving their governmental transactions (Benbasat & Cenfetelli, 2009).

The measurement of the quality E-service on the E-commerce domain has increasingly received the majority of the attention and care in the last years. Accordingly, a range of studies has been carried out with the attempt to identify the important dimensions of the E-service quality which is associated with the online environment; the studies had been conducted in numerous contexts, which include: the E-service area, the online banking, the online travel agency, the online public library, the online retailing, the web portal as well as online shopping (Ateeq et al. 2010).

Additionally, many dedicated researchers have realized that the main important cause to the success or failure of any E-government projects is actually the level of E-service quality (Faris & Vishanth, 2010; Papadomichelaki & Mentzas, 2012).

There have been a growing number of dedicated studies regarding the E-service quality; these studies have revealed that there are more different dimensions for measuring the quality of the E-service. Furthermore, not that much is known about the impact and effect of these specific dimensions of the service quality expectation and perception on the users' satisfaction in the context of the E-government; the concept of service quality is multi-dimensional and many different dimensions may be noticeable in determining the users' satisfaction in the different contexts (Yang & Jun, 2008). Therefore, there will always be a need to further investigate the impact of these different dimensions of service quality on the users' satisfaction in the context of the E-government services.

Recently, a number of studies have been conducted on E-service quality in different domains, for example, the online banking, the E-service area, the online public library, the online travel agency, the online retailing, the online shopping and the web portal. Nusair and Kandampully (2008) had identified six of the factors that have been considered as presenting the main influence on the E-

service quality in online travel settings specifically: playfulness, information quality, trust, navigability, personalization and responsiveness. Within the academic and public libraries, Shachaf et al. (2008) elicited three main dimensions that have an impact on the E-service quality. These factors are: reliability, timely response, and courtesy. The overall aim of Yang et al. (2005) study has been to validate and develop an instrument which is designed to measure the users' perception of the service quality of the business portals. The study has mainly identified five dimensions as being major factors that have affected and would affect service quality; these factors include usefulness of content, usability, accessibility, adequacy of information and interaction. These dimensions have mainly focused on the web business portals that would function as an information presenting.

With regard to online banking, Herington and Weaven (2008) explored the concept of E-service quality in the setting of financial services. They defined four dimensions, which are related to the E-banking service quality; these dimensions include: site organization, user-friendliness, personal needs and efficiency. Likewise, regarding the context of online retailers, Collier and Bienstock (2006) have identified three other dimensions; these dimensions include outcome quality, recovery quality and process quality. Each one of these dimensions has other sub dimensions. For instance, design, privacy, functionality, information accuracy and ease of use so as to determine process quality. While the outcome quality is, on the other hand, determined by order condition, order accuracy and timeliness; however, recovery quality is in contrast determined by procedural fairness, interactive fairness and outcome fairness. It is evident that what indicates the ongoing importance of the E-service quality is the increasing number of studies regarding the E-service quality in different domains.

Cox and Dale (2001) claimed that these traditional service quality dimensions such as comfort, competence, courtesy and cleanliness were not appropriate for the online environment, while dimensions such as communication, credibility, accessibility, appearance, understanding and availability were very noteworthy

and important for the online environment. In order to evaluate these dimensions, a scale which is called "Web Qual" was developed by Loiacono et al. (2002). Its aim was to evaluate the website quality, which is mainly composed of 12 different dimensions. These dimensions are: tailored communications, ease of understanding, consistent image, innovativeness, informational fit-to-task, relative advantage, visual appeal, online completeness, response time, intuitive operations, emotional appeal and trust.

2.2.2 The Concept of E-government service quality

The definition of the E-Government service quality may be clarified as the users' general assessment of the quality provided in the virtual context and it also serves as one of the main factors in determining the success or failure of any proposed E-Government projects in the future (Bhattacharya, Gulla & Gupta, 2012). E-Government services quality focuses on the front-office website –also known as portal- and on the overall satisfaction of users (Halaris, Magoutas, Papadomichelaki & Mentzas, 2007). Degrees of satisfaction or dissatisfaction and Perceptions are all important to understand for the many service - offering organizations, for example, governments; citizens, businesses in order to determine to what extent the citizens and the businesses are truly experiencing the value of these service (Moorman, Blakely & Niehoff, 1998).

Papadomichelaki et al. (2006) clarified that the quality of the E-government services has been the subject of a countless concern in the last recent years. Consequently, it is very important to address the quality characteristics of the provided services such as the ease of use, reliability and security (Zeithaml, 2002).

However, the factors which influence the adoption of E-government services vary according to the users' interests, needs, and experiences. Some of E-government's users focus on the type and amount of information available within E-government site (Nica, 2015). For the business sector, the main factors that influence the adoption of E-government services relates to cost and time issues

(Allahawiah and Alsaraireh, 2014). The technical aspects such as tangibility, accessibility also appear to influence the adoption process (Mansour, 2012).

By emphasizing the perceptions of both citizens and businesses, Janda, Trocchia and Gwinner (2002) reported four factors, which influence the adoption of E-government services: security, sensation, access and content.

Despite a significant amount of academic literature exists on the services of the E-Government, very little segment is recognized about why and what factors and the circumstances wherein citizens and companies would adopt such services. Notably, the focus of the academic literature on the E-government up to date has somewhat focused on the services provided by E-Governments (Tung & Rieck, 2005; Lee et al. 2011; Nica, 2015).

2.2.3 The importance of Evaluating E-government service quality

The evaluation of the system-builder role has focused on assessing the system effectiveness such as system usage, cost/ benefit analysis, system quality and user satisfaction, information economics (DeLone & McLean 1992).

It is therefore appropriate to infer that evaluation of the E-government services quality especially in the light of E-government projects needs to be carried out not only to enhance the coverage of E-government services studied, but also to explore the prospect of deploying a different method of service quality evaluation.

In services marketing literature, service quality is measured in terms of the gap between the customers' perceptions and expectations; the greater the gap (perception – expectation), the greater is customers' satisfaction with the service provided and the greater their intention to be repeat customers (Parasuraman et al., 1985).

Likewise, in the context of E-Government services, its success also depends upon its capability to meet the expectation of users such that the gap between perception and expectation is positive (in other words, perceived service quality exceeds expectation).

In 1985, Parasuraman et al. (1985) developed their service quality model which contains 97 items allocated to ten dimensions. Later, they diminished their model to five dimensions with 22 items. Those dimensions include tangibles, reliability, responsiveness, assurance, and empathy. Since then, the five dimensions model constitutes the basis for assessing the service quality at the universal level.

Mostly, research referred to E-government service quality as the level in which an e-government web site facilitates its efficiency in delivering effective e-services that can help businesses, citizens, and agencies in accomplishing their governmental transactions (Ateeq et al., 2010).

In turn, this will result in improving user satisfaction with E-government services. Previous research has examined the success of E-government services in terms of trust in E-government or effect of different types of quality perceptions such as system quality, information quality and service quality on user satisfaction with E-government websites (Teo et al., 2008). However, there is relatively less research on the impact of service quality gap on the user satisfaction.

2.2.4 Models of evaluating E-government service quality

Research shows that the evaluation of information systems (IS) in general is a difficult task (Teicher et al., 2002; Serafeimidis and Smithson, 2000). Furthermore, the evaluation process involves many perspectives that complicate enumerating the benefits of IS (Symons & Walsham, 1988). The evaluation of an E-government system is very complicated and multi-faceted process because it involves multiple perspectives (i.e. social, technical, and political) (Liu et al., 2004; Khalifa et al., 2004; Beynon-Davies, 2005) as well as it entails the exploration of the diverse needs of the different groups (i.e. citizens, businesses, employees).

Farbey et al. (1993) claim that IS evaluation is a critical factor to the IS success and the choice of the IS evaluation approach should be suitable to the right organizational context. On the other hand, Funilkul et al. (2008) defined the evaluation framework for the E-government services as "the comprehensive guidance for a government organization which can be used to develop the quality and efficiency of the objectives and strategies of its services and for conforming to citizens' and businesses' requirements". Furthermore, there are many approaches that are designed to evaluate the concept of E-government.

Some approaches are called "hard" approaches (e.g., return on investment, payback period, etc.) while others are known as "soft" (e.g., satisfaction of employees, citizen, and Business). Hard approaches deal with tangible benefits and risks while soft approaches are used to assess intangible benefits and risks. The evaluation of e-government systems based on hard approaches that depend on tangible measures is the more commonly adopted evaluation basis in many countries. Some of these drawbacks are: the limited view of stakeholders, the complete dependence on the financial instruments and accounting (Farbey et al., 1995), the ignorance of human and organizational aspects of the users

(Serafeimidis & Smithson, 2000), and the ignorance of intangible benefits and costs that are caused by the users (Hochstrasser, 1992).

Mansour (2012) outlined that there is no IS evaluation approach that is suitable for every firm. In addition, the evaluation approaches that combine both hard and soft facets are limited. Borrowing from the body of IS literature may be pragmatic, but challenging, as IS researchers still debate actively about the approach most suitable for IS domain (Alshawi & Alalwany, 2009). Many studies acknowledge that the evaluation of E-government is an important research area that needs more investigation (Ostasius & Laukaitis, 2015).

Literature reports many studies which have attempted to specifically develop frameworks for E-government evaluation. Some of these studies focused on the citizen as the center of the evaluation model. For example, Wang et al., (2005) propose a citizen-centric approach that consists of three parts: information users, information problem and information pool.

Funilkul et al. (2008) have provided a summary of the purposes of the evaluation of the services provided by the E-government, the first and foremost purpose is to ensure that E-government services meet the institutional goals and objectives. This type of a formative evaluation (i.e. the evaluation by achieving systems objectives), although widely accepted, it is rarely deployed in E-government studies as stated by (Hamilton & Chervany, 1981; Thompson et al., 2003; Bertot et al., 2008). Formative evaluation is the continuous monitoring for the systems activities and the objectives. Bertot et al. (2008) defined formative evaluation as the ongoing evaluation that would monitor the program activities with the objective of improving and modifying the program on regular basis.

With regard to the website design assessment, Yoo and Donthu (2001) proposed an assessment tool known as SITEQUAL, which was designed to measure the web site quality based on four main factors that are: aesthetic design, processing speed, ease of use and security. Similarly, Barnes and Vidgen (2002) developed

Web Qual scale to measure the web site's quality, which is based on three factors: usability and service, information quality, and interaction quality. Furthermore, reliability and system integrity, aesthetics, serviceability, performance, structure, features, responsiveness, security, service differentiation, trust and customization, reputation, web store police, assurance and empathy were all identified by Madu and Madu (2002) for assessing the website design. Furthermore, Lee and Lin (2005) clarified that there are a various dimensions of E-service quality that were proven to have positive and important effects on the online users' perceived quality.

Within the E-government domain, Parasuraman et al. (1988; 2005) outlined that E-government service quality models were mostly grouped under the name of SERVQUAL model. Upon their viewpoints, SERVQUAL was initially designed in order to measure the dimensions of the service quality. Then, it was narrowed and refined to the five dimensions according to the following: tangibles (such as the appearance of service staff, equipment used, visually-appealing materials); empathy (such as individual's attention, understanding the customer's needs); reliability (error-free information, service as promised); responsiveness (willingness to help and assurance prompt service); and security (feeling safe by the customer's transaction, instilling confidence) (Parasuraman, Zeithaml & Berry, 1994).

Successively, many research papers furthered or updated the SERVQUAL model. For instance, waarden et al. (2003) expanded the SERVQUAL model; the resulting model includes five quality dimensions corresponding to the ones of the initial SERVQUAL model: (1) tangibles (appearance of the website, navigation, search options and structure), (2) reliability (ability to judge the trustworthiness of the offered service and the organization performing the service), (3) responsiveness (willingness to help customers and provide prompt service), (4) assurance (ability of the website to convey trust and confidence in the organization behind it with respect to security and privacy), and (5) empathy (appropriate user recognition and customization).

A summary of the refined five dimensions can be shown in table 2.2.

Table 2.2 Definition of SERVQUAL dimensions

Dimensions	SERVQUAL Definition
Tangibility	• All types of tools used for providing services. • The presence of all physical facilities, communication materials, location, personnel dress equipment, exterior design, the seller's outward appearance and accessibility.
Reliability	• The capacity to perform the promised services accurately and dependably • Reliability involves dependability and inconsistency of performance. • It also means that any firm would perform the service in the right manner from the first time. • It means as well that the firm should honor its promises and commitments. • Reliability describes the seller's ability to supply the promised outputs at the stated desired level.
Responsiveness	• It indicates the willingness to offer needed help to customers and provide rapid services. • Responsiveness has to do with the employees' willingness and readiness to provide services. • It also involves suitability of the service. • Responsiveness also refers to the firm's capability to satisfy and swiftly respond to the customer's wishes. • It also indicates that reaction speed plays a vital role in the service responsiveness.
Assurance	• It refers to the courtesy and knowledge of employees and their ability to inspire trust and confidence and many attributes such as: courtesy, credibility, competence and security. • As well as that, service assurance relates to the seller's capability to deliver the output, precisely in terms of the knowledge, trustworthiness and politeness of the service firms and the employees.
Empathy	• The firm provides its customers (each individual customer) with care and attention including the communication and understanding of the customer and access ability. • Service empathy describes both the seller's capability and willingness to adequately respond to individual customer desires

Based on the five main dimensions, the previous SERVQUAL instrument determines the level of service quality as well as it identifies five key gaps in service exist and to what extent. See (Table 2.3 and Figure 2.2).

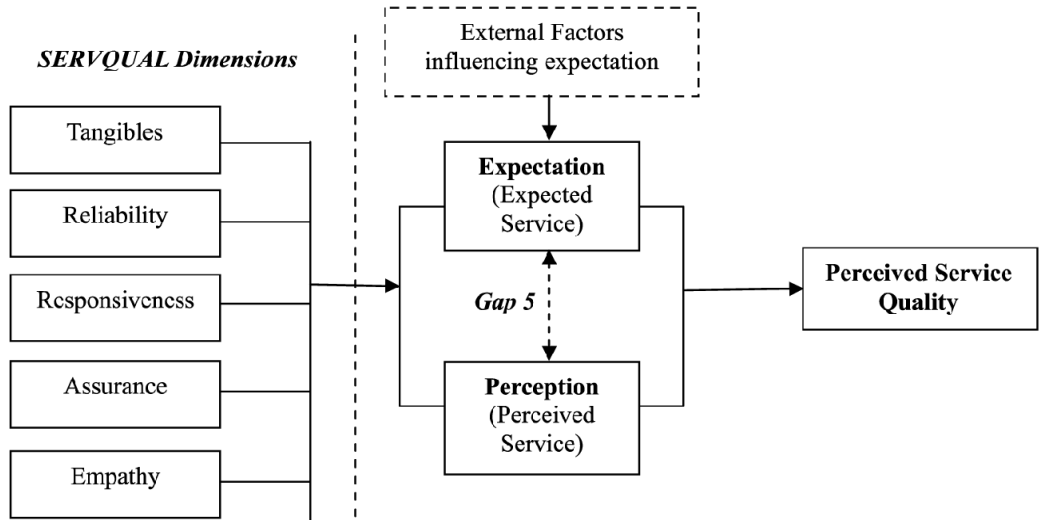
Table 2.3: The Five SERVQUAL Gaps
As generally defined by Zeithaml et al. (1990)

Gap 1 (Positioning gap)	The managers' perceptions of the consumers' expectations as well as the importance consumers attach to the quality dimensions relatively.
Gap 2 (Specification gap)	The actual difference between what the management believes consumers want and what is expected by consumers regarding what the business will provide
Gap 3 (Delivery gap)	The difference between the service which is provided by the business employee and the specifications that are assigned by management
Gap 4 (Communication Gap)	The promises given by any business to its consumers do not truly match the expectations regarding the external promises made by consumers
Gap 5 (Perception gap)	The difference between the anticipation of the services and consumers internal perception

As shown in figure 2.2 below. The customers' expectations are subject to some external factors which are controlled of the service provider -as shown in the next diagram.

According to kumar et al. (2009), each gap on the diagram would represent the difference between customers' perceptions and customers' expectations which is being referred to as the perceived service quality. They indicated that the gaps usually exist at different levels.

Figure 2.2 Measuring Service Quality uses SERVQUAL Model



Adopted from: Kumar et al. (2009)

Later, Parasuraman et al. (2005) developed and tested the E-SQUAL as a new measure of the E-service website quality. The E-SQUAL is a 22-item scale and has four dimensions: which are: fulfillment, system availability, efficiency and privacy. Furthermore, Parasuraman et al. (2005) developed another model (E-Rec S-QUAL), which was directed towards website's users who are considered as non-routine users. This model comprises 11 items in three different dimensions which are: (1) compensation, (2) responsiveness and (3) contact. Both E-SQUAL and E-Rec S-QUAL models were designed to measure the customer's satisfaction and loyalty towards e-services provided by commercial firms (Yang and Tsai, 2007).

Others have proposed and suggested new service quality models. For example, Huang and Chao (2001) asserted that E-government websites have to be evaluated based on the concept of (usability principles) i.e., the websites should precisely follow a design which is user-centered so as to allow any users of the E-government websites to efficiently and successfully reach their desired information , while Holliday (2002) proposed a set of criteria for evaluation for

the level of usefulness of E-government websites, these criteria include factors such as the amount of information regarding the government, the feedback options, the contact information, related links and search capabilities.

Balog et al. (2008) proposed another form of E-ServEval model for the evaluation of the quality of the E-services provided, On the other hand, Papadomichelaki and Mentzas (2009) have developed a different E-government service quality model (E-GovQual); this model consists of 25 quality attributes which are classified into four quality dimensions; these dimensions are: (1) user support, (2) trust, (3) reliability and (4) efficiency.

Liu et al (2010) has established an E-government website evaluation index system by using the analytic hierarchy approach (AHP). The components of the index system are: (1) content (practical, timeliness, comprehensive, accuracy, transparency and unique); (2) function (network office, online monitoring, online communication, opinion survey); (3) technology (convenient, security, availability), and (4) other (adaptability, website content protection).

Furthermore, building on the previous E-services research, Fassnacht and Koese (2006) developed a different broad model based on hierarchical quality for E-services; this model consists of three dimensions which are: the E-service delivery quality (which include ease of use, technical quality, information quality and attractiveness of selection); the outcome quality (which include functional benefit, reliability and emotional benefit); finally the environment quality (which includes graphic quality and clarity of layout).

Whereas, Rowley (2006) proposed a framework that includes: website features; security; communication; information; accessibility; delivery; reliability; customer support; responsiveness; and personalization.

Halaris et al. (2007) developed a model for the assessment of the quality of the E-government services which comprises four layers; these layers are: 1- back

office performance layer (this layer includes factors from quality models for any traditional government services); 2- website technical performance layer (this layer refers to website performance, such as security and reliability); 3- website quality layer (which refers to interface and usability); and finally 4- the user's overall satisfaction layer. Esteves and Joseph (2008) suggested three-dimensional ex-post framework needed for assessing the E-government initiatives. These three dimensions are: (1) E-government maturity level (2) stakeholders level, and (3) assessment levels. These assessment levels take into consideration the following aspects; the technological, strategic, operational, organizational, service, and economic.

On the other hand, Behkamal et al. (2009) proposed six-quality dimensions model for evaluating the E-service quality these dimensions are; (1) functionality (which includes accuracy, interoperability, traceability, suitability and security); (2) reliability (which includes fault tolerance, recoverability, maturity and availability); (3) usability (which relates to learn ability, operability, attractiveness, understandability, navigability and customizability); (4) efficiency (which relates to resource utilization and time behavior); (5) maintainability (which deals with changeability, stability, analyzability and testability); and finally (6) portability (which relates to co-existence, install ability, replace ability and adaptability).

It is apparent from reviewing the former research that the majority of studies focused on revising the models' dimensions and sub dimensions regardless the targeted population as this appears from the studies of the researchers, Behkamal et al. (2009), Fassnacht and Koese (2006), waarden et al. (2003), Parasuraman et al. (2005).This type of revising relied mostly on expanding or reducing the existed models according to the required content.

Recently, few users-centric models suggested addressing the disadvantages of the previous three mentioned categories. For instance, Rowley (2011) argued that any successful e-government service should satisfy the following user benefits: easy to use; accessibility and inclusivity; confidentiality and privacy.

By combining both the users and providers' perspectives, Magoutas and Mentzas (2010) proposed the model “SALT’ which reflects (Self Adaptive quality monitoring); this model was mainly used to monitor the users’ satisfaction and the quality of E-government services.

Any attempt aims to create user-centered E-government services should account for a number of essential elements such as the ability to use E-government, the availability of appropriate content and services, meeting user expectations, and understanding how users actually use e-government (Jaeger and Bertot, 2010).

Pazalos et al. (2010) have proposed and validated a well-structured methodology for the assessment and improvement of the E-services which are developed in digital cities; his proposed methodology mainly assesses the different types of the values generated by an E-service and also assesses the relationship among these values, and by this allowing for an evaluation which is more structured, a profounder understanding of the value generation process.

On the other hand, Eschenfelder and Miller (2005) proposed a socio-technical toolkit which focuses on the value of the social and political context for citizens. In addition, Carter and Belanger (2004) discussed the citizens’ adoption of the E-government process by introducing seven factors that would influence the citizens’ perspective towards the E-government services. These factors include: relative advantage, compatibility, usefulness, perceived ease of use, image and trust in the Internet and in Governments. Zhang et al. (2007) proposed a different model which is a user-centric evaluation model for E-government, specifically in China based on the IS diffusion. Al shawl and Al Alwany (2009) proposed a completely different model based on citizens’ evaluation mainly for developing countries; this proposed citizens’ evaluation model is based on the social, the technical and economic factors.

Other studies propose general evaluation frameworks. For example, Funilkul et al. (2008) propose a generic evaluation framework based on the Control

Objectives for the Information and related Technology (COBIT), ISO 9000, and Technology Acceptance Model (TAM). Griffin and Haplin (2005) present an evaluation model for UK government based on local accountability. It consists of scrutiny processes, principal stockholders, joined-up accountability, sanctions and the political dimension. The study showed that scrutiny committee has more influence than executives, but the executive participation affects that influence.

Esteves and Joseph (2008) presented a fully comprehensive assessment framework for evaluating the E-government services by examining three dimensions which are; (1) E-government maturity level, (2) stakeholders level and finally (3) assessment level. On the other hand, Gupta and Jana (2003) suggested a more flexible evaluation framework which is based on soft measures, hard measures and the hierarchy of measures in order to assess the tangible (concrete) and intangible benefits of applying the E-government. They implemented their suggested framework in an Indian case study and find that e-government project should be in mature stage in order to have proper evaluation. Sorrentino et al. (2009) addressed E-government evaluation from cognitive level based on organization theory and policy studies. The research suggests the cognitive resource role in e-government evaluation. Irani et al. (2005) proposed a framework to evaluate public sector information systems. The study emphasizes the importance of the interpretive evaluation approach, the social context, and the stakeholders' involvement in the evaluation process.

Again, but from a different view, the previous research has focused on the evaluation process from the perspectives of citizens by taking into account cognitive, social, political, technical and personal factors (Rowley, 2011; Jaeger and Bertot, 2010; Pazalos et al., 2010; Eschenfelder and Miller; 2005). The literature review shows that evaluation of E-government services is a relevant topic area, but lacks cohesiveness. It also highlights drawbacks in the current studies. Hence, one of the purposes of this research is to address these limitations.

The private sector's successful experience of adopting an E-business model has been the spark that stimulates business entities to innovate and modernize their functions in what has now been known as e-services (Wimmer, 2002; Asgarkhani, 2005).

According to Lee and Lin (2005), many research effectively employed SERVQUAL in E-commerce context by the following Kim and Lee (2002), Li et al. (2002), Kuo (2003) and Negash et al. (2003). While Colier and Bienstock (2006) described the E-service quality as user's perceptions of the service delivery outcome along with the service recovery perceptions, if service failures would occur.

Since many E-services evaluation models, including their factors, were reviewed in this section, Table 2.4, shows a summary of these models and their main factors.

Table 2.4: A summarizing of e-government's factors

The study	Main focus	Factors Included
Holliday (2002)	proposed a set of criteria for evaluation for the level of usefulness of E-government websites	1. Amount of information 2. Feedback options 3.Contact information 4. Related links 5. Search capabilities
Wang et al., 2005	Focused on the citizen as the center of the evaluation model.	1. Information users 2. information problem 3. Information pool
Funilkul et al. (2008)	Evaluation of the E-government services by ensuring that E-government services achieves the systems objectives (formative evaluation)	1. Institutional goals 2. Institutional objectives
Yoo and Donthu, 2001	Proposed an assessment tool known as SITEQUAL to measure the web site quality	1. Aesthetic design 2. Processing speed 3. Ease of use 4. Security
Barnes and Vidgen,	Developed Web Qual	1. Usability and service

2002	scale to measure the web site's quality	2. Information quality 3. Interaction quality.
Madu and Madu (2002)	Assessed the website design	1. Reliability and system; 2. Integrity; 3. Aesthetics; 4. Service ability; 5. Performance; 6. Structure; 7. Features; 8. Responsiveness; 9. Security; 10. Service differentiation; 11. Trust and customization; 12. Reputation; 13. Web store police; 14. Assurance and empathy
Parasuraman et al. (1988)	Proposed "SERVQUAL model" for Measuring the quality of non internet based services	1. Reliability; 2. Access 3.Competence; 4. Courtesy; 5. Responsiveness; 5. Communication; 7. Credibility; 8.security; 9. Understanding/knowing the customer; and 10. Tangibles
Parasuraman, Zeithaml & Berry (1994).	Diminished the previous 10 dimension SERVQUAL model to 5 dimensions	1. Tangibles 2. Empathy 3. Reliability 4. Responsiveness 5. Security
Parasuraman et al. (2005)	Proposed E-SQUAL is a 22-item scale, which has four dimensions	1. Fulfillment; 2. System availability; 3. Efficiency and 4. Privacy
Esteves and Joseph (2008)	Proposed a comprehensive assessment framework for evaluating the E-government services	(1) E-government maturity level, (2) stakeholders level and finally (3) assessment level.
Behkamal et al. (2009)	proposed six-quality dimensions model for evaluating the E-service	(1) functionality (2) reliability (3) usability (4) efficiency (5) maintainability (6) portability
Liu et al (2010)	Proposed E-government website evaluation index system by using the analytic hierarchy approach (AHP)	(1) content (practical, timeliness, comprehensive, accuracy, transparency and unique); (2) function (network office, online monitoring, online communication, opinion survey); (3) technology (convenient, security, availability), and (4) other (adaptability, website content protection).

Although the literature has reported several E-government services evaluation frameworks, several shortcomings still exist in the previous work. First, some frameworks focus on some dimensions of e-government (e.g., citizen services, awareness initiatives, IT collaboration) and pay less attention to other dimensions (e.g., mobilization, standard setting, business services). These studies designed the evaluation framework based on the technical perspective and focus less on the social perspective. Second, many frameworks were designed to evaluate specific E-government systems in specific countries. These frameworks are usually unique to the country context and may not be applicable in a different setting. Third, the continuous achievement of E-government objectives, or formative evaluation, is not considered in most of the current frameworks (Alalwan and Thomas, 2011).

The importance of SERVQUAL based heavily on the basic assumption that customers can evaluate a firm's service quality by comparing their perceptions with their expectations. The use of perceived as opposed to actual service received makes the SERVQUAL measure the attitudes that are related to, but not the same as, satisfaction (Parasuraman et. al., 1988). Moreover, the diminished SERVQUAL model was widely used in Jordan to assess the quality of various public services (Abu-Kharmeh, 2012).

In conclusion, the difference between perceptions and expectations is perceived as the gap which is considered to be the cause of the customers' perception of the service quality. The literature as proposed that the SERVQUAL model can be used so as to measure gaps in quality and therefore it could be used as a tool for diagnoses in order to enable management to identify service quality shortfalls. The gap score may be calculated to identify the difference between what is perceived and what is expected. If any gap scores a turn out to be positive, at that point, this will imply that the expectations are actually being exceeded. Consequently, the service's managers will be able to review and reform their e-services (Wisniewski, 2001).

2.3 Barriers and Enablers related to E-government service quality

An extensive literature review of the factors affecting the adoption of IT (for example, Icovou et al., 1995; Mehrtens et al., 2001; TheMistocleous & Irani, 2002) revealed that the apparent benefits and barriers are only one of the most important factors that affect the IT adoption process. Therefore, the current model considers this dimension so as to improve the effectiveness of assessing the quality of the E-government services.

2.3.1 Barriers of E-government service quality

Although much progress in E-government services has been made in many countries, the evidence suggests a stark reality that much of E-government remains at an informational or early transactional stage (Lam, 2005). This is because delivering e-services pose complex challenges and requires a fundamental transformation or a reinvention of both the structure and the functionality of any government (Beynon-Davies, 2005; Hu et al., 2003; Pavlichev, 2004). Therefore, the need arises to understand what hampers or blocks the realization of a full potential of e-services.

The available literature on the E-government services' barriers tend to clarify the overall meaning of these barriers through an identification of the different categories that constitute what is known as barriers or challenges. In this section, a review of the literature that analyses the barriers and challenges to e-service provision and development experienced in public sector organizations is presented. The research classified the barriers into two main categories:

(a) Technical Barriers and,

(b) Business Barriers.

With respect to the **Technical Barriers**, it is believed that technology alone will not guarantee the successful implementation and diffusion of the E-government services (Ebrahim & Irani, 2005).

There should be no doubt that any proposed E-government initiative must ensure that it possesses the sustainability and adequacy of sufficient resources: an infrastructure which is adequate, the direct support of management, the capability of the direct IT staff involved in the process, and not to forget the attainability of the effectiveness of the IT training and support (Sanchez et al., 2003).

According to Bonham et al. (2001), Dillon et al. (2002) and Hu et al. (2003), the infrastructure is composed of two components: hardware and software. These two components will jointly provide electronic services that are absolutely secured to citizens as (users), businesses, and employees. In their research they all have enjoyed a mutual consent there is an evident absence of professional and technical infrastructure which constitutes a significant barrier to the process of developing the government organizations' capabilities seeking to provide online services and transactions.

On the other hand, Dillon et al. (2002) and Layne and Lee (2001) emphasized that there is a great importance of the capacity that a network should enjoy and communication infrastructure as both being an important base for the process of integration the information systems throughout the different government organizations. Therefore, In order to attain and gain success in any E-government strategy an adequate IT infrastructure has to be fully implemented; this will support the users' experience of an easy and reliable electronic access when trying to attain governmental services (Eddowes, 2004).

One of the barriers that was given prominence and was therefore cited on a frequent basis is the one that relates to the need that adequate security and privacy in an E-government strategy are highly needed; this notion was stated by Chen & Gant (2001); Daniels (2002); Eddowes (2004); James (2000); Joshi et al. (2001). On the other hand, Lambrinoudakis et al. (2003), Layne & Lee (2001), Sanchez et al. (2003), Bonham et al. (2001) and Gefen et al. (2002) have all reached an agreement on the fact that one of the most significant barriers that might hinder the implementation of the E-government applications are the

privacy issues related to users, the computer security, along with the confidentiality which are related to the personal data of the users.

In addition to previous practices, many governmental organizations, regardless their authoritative and administration levels would resort to using, collecting, processing, and distributing sensitive, personal or financial information on a large scale basis and also in many cases, medical matters are also distributed which enjoy a high level of sensitivity. Therefore, the responsible IT departments in any organization should always bear in mind that the two correlated issues of security and privacy are very critical for both the availability and delivery of ant desired government services as well as to enforce and build the kind of confidence which should exist between citizens and business (Beynon-Davies, 2005; Sanchez et al., 2003). In one of the studies that were conducted by Jupiter Research in New York in 2003, it was revealed that more than three-fourths of 2,015 government consumers, who participated in the study, were highly concerned about their credit card information security, and nearly two-thirds of them were worried about the privacy related to their personal information.

Consequently, this notion has led to the increasing interest in people's desire to invest in the best available applications which facilitate the implementation of privacy and security which proved to be internationally worthwhile; a shortage of such applications could result in the failure of the entire E-government project (Eddowes, 2004). Gefen et al. (2002) reported in a study on online tax services that the importance of the existence of trust in the public sector resulted in alleviating data privacy concerns and in facilitating E-government diffusion. Furthermore, the guidelines relating to the information management policy and standards must be reviewed once in a while so as to ensure that these guidelines are adequate and satisfactory for the fast-pacing world in the field of delivering electronic services to users. These guidelines suggest that government websites must use privacy notices which will ensure that citizens are aware of the range of the personal information that might be collected and how this amount of personal information will be used.

Chen and Gant (2001), Heeks (1999), Ho (2002), and Moon (2002) identified another potential barrier which relates to the shortage of IT skills. This barrier has been ranked as the most persisting barrier to E-government, based on a survey which was conducted in the USA in 2000 (Norris et al., 2001).

One of the reasons behind attracting and retaining the right IT talent has become a difficult task to manage, especially when considering the level of increasing competition and demand for these workers, not to forget to mention that skilled staff who are competent and familiar with the major IT skills are not always available in the market (McClure, 2000). These skills include: systems design, network construction, computer information systems analysis, and application integration, maintaining middleware technologies such as database-oriented, transaction-oriented, and message-oriented, project management, operational management, web development, and system maintenance. However, some governments may have IT staff, whose training may not be sufficient or is not suitable to run application program which are web-enabled. The challenge of the new technology has led to an increased commitment towards the concept of training by the public sector organizations (Pavlichev, 2004).

Moon (2002) on the other hand, concluded that in order to enhance the E-government service effectiveness, a move towards a higher level of E-government development of the public sector organizations has become a vital necessity and a must, to attain this, a more highly trained technical staff will be required.

With regard to the **Business Barriers**, other authors have come to the conclusion that the organizational barrier is thought to be another key barrier to the E-government service. Li and Stevenson (2002), for instance, confirmed that in order to exploit to the full the potential which would be offered by an E-government initiative, the government organizational culture, the individual attitudes the management strategy need to be changed within the organization, as well as the organizational barriers which are extremely related to structural issues, such as the process of communication which is between the different

functional departments, poor relations and fragmentation, and no to forget the role of senior management in accepting the potential strategic benefits of new the E-government initiative (Aichholzer & Schmutzer, 2000; Fletcher & Wright, 1995; Hu et al., 2003).

In addition, it also relates to the complexity of the process which is carried out by the management strategy, government business, and the organizational culture (Lenk &1Traunmuller, 2000; McClure, 2000). For instance, there is a functional problem that some governmental branches possess the authority to block or control certain information in order not to be transmitted without further justification (Hu et al., 2003).

Although the involvement of the effective leadership of senior management represents a key foundation for any IT investment related strategy, it should be taken into great consideration that responsive management processes and strong government leadership are both required to support an E-government initiative. The reason behind this is that there is greater complexity and changes are always present on a large scale basis, such changes will take place in the organization phase during the actual implementation process of E-government (Bonham et al., 2001; Burn & Robins, 2003).

Nevertheless, because the implementation of the E-government initiative might reduce some government officials' authority in government, they believe that E-government would impose a potential threat to their viability, and so they become hesitant and reluctant in enforcing the notion of online transactions (Ebrahim et al., 2003; Sanchez et al., 2003).

However, with regard to the E-business public sector administrations, they are required to engineer and change the perspective of how they run the business process so as to be able to adapt with the demanding new strategies and boosting culture of E-government. The government staff will be subject to new emerging technologies and so they should be prepared to deal with new ways relating to the application of the E-government initiative (Joia, 2004). For example, they

were used to dealing with a more physical form of paperwork and administration as in the traditional physical signatures and paper receipts, but now a new approach has been emerged which call for the transformation from hard tangible transacting to smooth online one (Ebrahim et al., 2003).

The central government funding comprises another undesired barrier to the E-government service quality (Bonham et al., 2001; Heeks, 1999; Ho, 2002). One should not exclude the idea that the main financial resource for the public sector organizations is usually attained from the funding provided by the central government. Apparently, this kind of funding sometimes comes and sometimes goes, this kind of fluctuation makes it difficult to plan in advance or for the future a sustainable IT initiative such as the E-government initiative which is hard to control (Heeks, 1999). According to Eddowes (2004), when the central government fails to provide adequate financial resources for the E-government investments – this is appearing to be a major barrier, particularly by the stakeholders from the government sector.

It should be taken into great consideration that a compatible IT infrastructure and integrated information systems, besides advanced technologies for preserving security and integrity are with no doubt and reluctance required for the E-government service quality. Moreover, the cost of sophisticated hardware and software still impose restrictions and is still considered as a big problem for a public sector organization. Additionally, the high operational cost of the existing IT infrastructure is yet another important financial problem because the maintenance cost of such an infrastructure is tremendously high and this in turn presents additional financial barriers. Therefore, organizations tend to evaluate the cost in relation to the benefits before attempting or even thinking of adopting any new technology.

Consequently, it should be perceived that low - cost technologies are more likely to be adopted (Irani et al., 2003; Palvia et al., 1994). Alternatively, outsourcing information systems' activities become a possible alternative by some public

sector organizations in order to operate the E-government implementation in the quest of cutting down costs.

In this context, Gilbert, Balestrini and Little Boy (2004) reviewed the relevant literature in order to define the perceived barriers and enablers that increase the level of using E-government services by individuals. Moreover, they have developed a model for assessing both the degree of adopting E-government services and the service quality. Their efforts have tremendously contributed to introduce a list of barriers and benefits. The barriers list comprised six factors (Confidentiality, Easy to use, Enjoyable, Reliable, Safe, and Visual appeal). Table 2.4 shows the barriers proposed by Gilbert, Balestrini and Little boy (2004).

Table 2.5: The barriers proposed by Gilbert, Balestrini and Little Boy (2004)

The Barriers
1. Confidentiality: Personal data must be kept private and not used for other purposes. 2. Easy to use: The delivery mechanism must be straightforward to use with minimum effort required. 3. Enjoyable: Using the system must be an enjoyable experience. 4. Reliable: The Web site must have services that are required, and individuals must trust that a requested service will be delivered. 5. Safe: The Web site must be secure with respect to entering financial details. 6. Visual appeal: The Web site should look good.

The current researcher analyzed the E-government services quality barriers and classified them into different categories, provided with examples, as shown in Tables 2.6 and 2.7. This classification has been based on analyzing the relevant literature in some selected countries, which would offer help to

researchers and practitioners in order to gain prior knowledge and a better understanding of the E-government services' barriers.

Table 2.6: E-government Service Quality Technical Barriers

Category	E-government Services Quality Barriers	Reference
IT Infrastructure	• Shortage of communication and reliable networks • Insufficient bandwidth or network capacity • Lack of resources, standards and common, architecture, policies and definitions • Existing systems incompatible and complex • There are restrictions regarding integrating capabilities of the existing internal systems have • Lack of integration across the government systems • A confusion is present in the Integration of technologies of heterogeneous databases • Understanding the systems and processes in order to redesign and integrate them is highly complex. • The question of the availability and the compatibility of the software, systems and the related applications • The lack of documentation, particularly in the case of custom systems	• Beynon-Davies (2005) • Dillon et al. (2002) • Eddowes (2004) • Fletcher and Wright (1995) • Heeks (2001) • Joia (2004) • Layne and Lee (2001) • McClure (2000) • Moon (2002) • Themistocleous and Irani (2002)
Security and Privacy	• The potential Threats from Trojans, viruses and worms • The absence of privacy of the personal data	• Beynon-Davies (2005) • Gefen et al. (2002) • Joia (2004)

	• Unauthorized internal and external access to both systems and information • The assurance that the transaction made is valid and legal. • The lack or absence of policies, security rules and privacy laws • The government hardware and software infrastructure security inadequacy • Lack of risk management security programs • The physical access to computers rooms or building being unsecured	• Joshi el al. (2001) • Lambrinoudakis et al. (2003) • Robins (2001) • Sanchez et al. (2003) • Zeichner, (2001)

In fact, identifying the various barriers that E-government services may encounter would result in providing the needed solutions to overcome them. Moreover, the providers of E-government services, as well as the planners, can rely heavily on these obstacles while setting the strategic and future plans concerning E-government services.

Table 2.7: E-government Service Quality Business Barriers

Category	E-government Services Quality Barriers	Reference
Organizational	• The Lack of cooperation and coordination between departments • Lack of effective leadership support and commitment amongst senior public officials • Complexity of the business processes • The Political and cultural issues • High level management Resisting change • Time consuming for engineering, business process in public organizations	Burn and Robins (2003) Hu et al. (2003) Joia (2004) Lenk an Traunmuller (2000) Li and Stevenson (2002) Pavlichev (2004)
Financial Resources	• The main supply mainly comes from central government • Financial resources in the public organizations are scarce. • The high cost of IT and consultancies professionals • The cost of installation, operation and maintenance of ICT systems • Potential cost of system development and training	Bonham et al. (2001) Eddowes (2004) Heeks (1999) Irani et al. (2003) Palvia et al. (1994)
IT skills	• IT Training programs in government are not adequate. • Experiencing a shortage of IT staff who are well-trained in the market • The lack of employees with proper integration skills • Unskilled staff responsible for developing websites • The shortage of benefits and salaries in public sector • The flow of IT specialist staff	Bonham et al. (2001) Heeks (1999) Ho (2002) Layne and Lee (2001) Pavlichev (2004)

2.3.2 Enablers of E-government service quality

Despite the fact that many studies have addressed what benefits (enablers) that stimulate individuals to use E-government services, few discussed how those individuals perceive and evaluate the quality of electronic services. Furthermore, the previous1literature suggests that an awareness of potential or perceived benefits may result in greater adoption as stated by some researchers (Al-Khamaysah, 2013; Mehrtens et al., 2001; Themistocleous & Irani, 2002).

According to Gilbert, Balestrini and Little Boy (2004) work, the benefits list also comprised six factors: (1) Avoid personal interaction, (2) Control, (3) Convenience, (4) Cost, (5) Personalisation, and (6) Time. Table 2.7 shows the enablers proposed by Gilbert, Balestrini and Little Boy (2004).

Table 2.8: The enablers proposed by Gilbert, Balestrini and Little Boy (2004)

The enablers
E1. Avoid personal interaction: The ability to be able to receive public services without having to interact with members of the service provider's staff.
E2. Control: The ability to exert more control over the delivery of the service than through another method
E3. Convenience: The ability to receive the service how and when the individual wants to.
E4. Cost: The electronic delivery of public services, saving Money.
E5. Personalisation: The ability to tailor the delivery of the service more towards the individual.
E6. Time: The time saved by obtaining the service electronically.

In order to further the previous work, the current researcher analyzed the literature related to e-government service quality enablers (or benefits) and classified them, as shown in Table 2.9. This effort may contribute to improve our knowledge and understanding towards e-government service enablers.

Table 2.9: E-government Service Quality Business Benefits and Enablers

Enablers (Benefits)	Source
• Disseminating of policies, memos, rules and regulations of the business community.	Davies 2007;
• Decreasing transaction costs through improved procurement systems.	Yong & Koon, 2003
• Attracting foreign investors and facilitating the cumbersome procedures.	Heeks , 2006
• Giving opportunity for smaller business to bid on government procurement projects.	Coleman, 2005;
• Increasing transparency and eliminating of corruption	Coleman, 2005;
• Enhancing the political relationship and satisfaction between citizens and government.	Davies 2007;
• Enabling citizens to do all interactions and transactions in a one-stop-shop.	Hjouj Btoush, 2009
• Improving government strategic decision making and decentralizing the power among all levels of government.	Gant & Gant, 2001; Ho, 2002; Ebrahin & Irani, 2005; Hjouj Btoush, 2009
• Allowing government agencies and departments to share information, databases, resources, capabilities and skills and consequently increases effectiveness.	Heeks , 2006
• Reduces duplications and redundancy of information and communications.	Ndou, 2004
• Public Administration shares updated information's and provide services at the moments they are needed.	Evans &Yen, 2005
• Creating common standards of practice for all government organizations.	Bonham et al., 2001
• Promoting knowledge sharing among government employees.	Bonham et al., 2001
• Improving the internal efficiency and effectiveness of Government Administration.	Ndou, 2004 Siau & Long, 2005
• Allowing team collaboration and offers internal services to government employees.	Chanana, 2007

Apparently, the work of Gilbert, Balestrini and Little Boy (2004) involved more thorough factors that are more related to the service receiver than provider and therefore their model will be adopted in the current study. Moreover, the factors included within this model are consistent with the business concerns as well as it focuses mainly on the service quality.

2.4 The Research context: E-Government in Jordan

2.4.1 The Hashemite Kingdom of Jordan – General Background

Jordan is regarded as a small Arab developing country. It is located in the Middle East with inadequate natural resources, such as: water and oil. The economy depends largely on services, the tourism sector and foreign aid (Country Review Jordan, 2010). Moreover, the country is landlocked between Saudi Arabia, Iraq, Palestine and Israel. The last three countries could be described as being in conflict areas. Amman is the capital city; the official religion is Islam with 92% of the citizens being Muslims, 6% Christians. Although Arabic is the official language, English is widely spoken and understood as well. Figure 2.4 shows the geographical location of Jordan and the main cities.

The country is considered to be young in terms of its population, with 37.18% of the population under the age of 15, 59.65 % between 15- 64, and only 3.17% over the age of 65 (Department of Statistics, 2010).

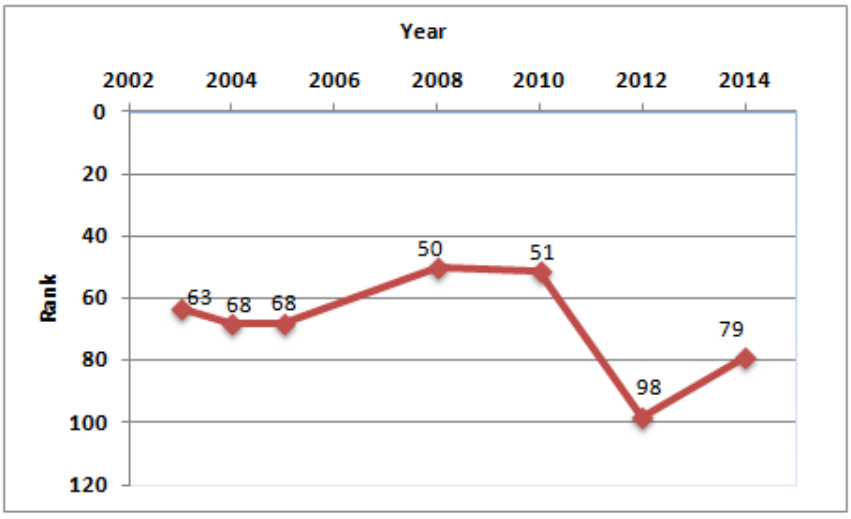
Figure 2.3: Jordan geographical map

2.4.3 The development of E-Government in Jordan

The quest behind the E-government initiative in Jordan has always been initially among ICT related initiatives which have been launched with the succession of King Abdullah II to the throne in 1999.These initiatives aimed at transforming Jordan into an economy which is knowledge-based. According to the E-government representatives, many efforts are expected to be addressed in this regard by providing awareness plans which include conducting workshops, making visits to different agencies such as schools, universities, companies and media promotions. However, such plans face the challenge of the limited resources available which include budget, qualified personnel, and the culture (Al-Jaghoub& Westrup, 2003).

Similar to other counties in the world, Jordan pays a significant attention towards utilizing e-government services. E-government in Jordan is regarded as one pillar of the administrative reform and developing the public sector performance. The E-government project in Jordan relies on ICT for providing citizens and organizations with services and information. Unfortunately, despite Jordan has witnessed increasing developments in ICTs since 2003, the E-government readiness did not show comparable improvements (Majdalawi et al., 2015). Figure 2.4 shows the development in E-government for Jordan.

Figure 2.4: The world ranking in E-government development for Jordan



Recently, many public organizations in Jordan became able to provide a distinguished level of E-government services such as Department of Customs, Department of Taxes and Sales and the Civil Service Bureau... etc. The most common E-services provided by such public departments are: gathering general information, Inquiry about certain transactions, downloading official forms, obtaining temporary admissions, and participating in tenders (see Appendix 9).

It is assumed that Jordan's national E-government program aims at providing and supplying the government of Jordan and other related local agencies with services by resorting to various electronic channels such as the internet, SMS gate, mail and others where work is under progress in order to develop a number of electronic services as stated by (Al-Jaghoub et al., 2010). As stated by the Ministry of Information and Communication Technology (MoICT, 2006); the E-government program in Jordan has a number of aims that are:

- To deliver high-quality services to potential businesses, consumers and organizations
- To improve the performance of the government's and its efficiency
- To enhance Jordan's competitiveness
- To ensure both the public sector accountability and transparency
- To successfully reduce costs and increase the ease of interaction with the government
- To promote the development of the Jordanian ICT sector
- To develop the skills within the Jordanian public sector
- To boost the E-commerce activities
- To improve information security

However, the prevalent situation does not match these ambitious goals. Some research studies concerning the e-government initiative in the Jordanian context have been conducted. All points out to the somehow modest situation.

Within Jordan, e-governments in Jordan provide a wide range of services for various parties such as citizens, business firms and other public departments. The

majority of these e-services comprise transactions concerning finance and inquiry affaires. However, the business sector is more linked to e-governments services compared with citizens (Al-Khamaysah, 2013).

2.4.4 Research Relevant to E-Government in Jordan

Kannan (2009) studied the impediments to adopting e-government in Jordan from citizens' perspectives. He found out that the high cost of the Internet, people's preference that projects which fight corruption, unemployment and poverty should be a precedent for e-government.

Hujooj Btoush (2009) evaluated e-services in Jordan from the perspectives of both citizens' perceived level of satisfaction using a developed framework: 6I model which aims to gauge the level of the e-services on a scale of 6 dimensions: Inform, Interact, Intercommunicate, Integrate, Individualize & Involve. The study has shown that users with a high level of education and ICT expertise are on the whole satisfied with the informative content provided by the e-government services, but appear not to be satisfied with the level of Interact and Intercommunicate. Moreover, the more mature and educated users have higher demands of integrated and engaged service provision.

Al- Jaghoub et al. (2010) conducted a survey among students of a selected private Jordanian university so as to gauge the level of awareness towards the E-government services; the result showing a low level of awareness regarding the E-government program within the sample was so striking because the sample consisted of young students, most of whom with high income, and they have access to the Internet and can use it for numerous reasons this would imply that they should at least know what E-government is. Given that other Jordanians might not have the same level of income, access to the Internet, and easiness of usage would mean that they will most likely have even lower awareness and usage levels of E-government services. According to some E-government officials, this is expected and that there are awareness plans already utilized so as to address this issue which include leading workshops, making visits to different

local agencies and entities such as universities, schools, companies as well as media promotions.

Al-Radaideh et al. (2011) addressed Jordanian e-government website accessibility for people with disabilities. They tested 25 websites using two methods, automatic tool and manual checking of websites. The results from the two methods showed that all Jordanian e-government websites do not address the issue of disability-accessibility, and almost all of them have significant web accessibility problems, which will hinder the users' whether with or without disability from using or revisiting the website gain after the first attempt.

Al-rawahna (2012) conducted a study to investigate the effect of website quality through (information quality and E-services quality and website system quality) on the employees' satisfaction. They were working in organizations affiliated with the civil service system of Jordan. The study results indicated a positive effect for the website quality, represented in information quality and E-services quality and website system quality, on the employees' satisfaction.
Recently, an increasing number of researchers have focused on Factors Affecting E-Service Satisfaction among a variety of e-government service receivers (Al-Kasasbeh, Dasgupta and AL-Faouri, 2011).

From the aforementioned studies, it is clear that the efforts that have been put to make e-government in Jordan a successful project are still not enough. To clarify, most of the existed work focused mainly on the evaluation process from the citizens' perspectives. Moreover, many of the factors which influence the adoption of e-government services still need more attention. Furthermore, critical concerns, and barriers which hinder the process of adoption are needed to be addressed effectively if the government is really interested in making its e-government imitative a success story.

The next chapter, Chapter 3, will provide further discussion of the components of the proposed model.

2.5 Summary and Conclusion

This section explored the literature related to e-government, to e-government service quality and Evaluating E-Government Service Quality. Actually, there are significant gaps in the extant literature as well as this domain has not been explored adequately from the viewpoint of service quality receivers and a conceptual foundation examining what is necessary for assessing the quality of e-government services (Papadomichelaki and Mentzas, 2012). Moreover, the relevant literature addressed certain contexts or dimensions for Evaluating E-Government Service Quality based on special requirements. Apparently, the gap in literature became obvious since the majority of studies related to the evaluation of e-government service quality addressed either revising the existed models or adapting them to the citizens' perspectives. In case of business perspective, a clear paucity in the literature is existed.

Hence, the proposed framework should be built on defining e-government service quality, identifying underlying dimensions, and conceptualizing measurements of these e-government services from the viewpoints of various stakeholders.

To conclude, reviewing the literature showed significant and ongoing improvements in pursuing new and effective methods for evaluating e-government Service Quality all over the world. However, the evaluation of e-government Services from a business perspective still needs more efforts. Moreover, although this study relied on the perspectives of the business sector, it considered some viewpoints related to e-government stakeholders. It is believed that this would add more value to this research. In Jordan, little or no improvement in E-government services was shown, which may reflect the need for the evaluation of e-government services.

The next chapter will provide a detailed description of the proposed framework with clarifying how it works.

Chapter Three: Framework for Evaluating E-Government Service Quality-The Proposed Model

3.1 Introduction

The previous chapter overviewed models related to evaluating the quality of e-government services from different perspectives. However, this chapter addresses the evaluation of e-government service quality based on a business perspective through a proposed model. Of course, the effective evaluation process is regarded as crucial for enhancing current e-government services. A holistic evaluation approach is necessary to determine the needs of citizens and businesses, and to help government and private firms in measuring the return on investment of e-government (Sakowicz, 2006).

The current study may contribute to understanding the core concepts and the basic theories of E-government Evaluation as well as the notion of Service Quality from the business perspective. The theoretical framework deals with important concepts for understanding the subject, such as E-Government definition, Classification of E-Government Services Interaction, and characteristics. In addition, it deals with E-government Evaluation models in general and E-government Service Quality Evaluation model in Jordan particularly. Furthermore, the current study used an approach that relied on a combination of attitudinal technology adoption model and the service quality concept by taking into account the perspectives of both e-government providers and the receivers (business's firms). Furthermore, this study addresses the context of Jordan which is absent in the previous studies.

In this research, we propose looking at the perception of the senior managers in governmental departments, as those who are entitled with the decision to take the

lead and make a difference. Their support, understanding, and work towards having clear vision and objectives are crucial. Their insightful feedback will also help policy makers to address the impediments to e-government in Jordan. However, the attitudes of these managers towards e-government adoption and implementation have not got enough attention. To achieve this, we propose using our development framework as a guiding model to obtain the perceptions of business sector about the critical factors that influence successful implementation and adoption of e-government. This in turn may contribute to improve the evaluation process and consequently improve the quality of e-government services.

3.2 The Proposed Model: A combination of SERVQUAL and Enablers/Barriers Models

The current model was developed relying on analyzing a variety of theories and models available within relevant textbooks, articles, and other web resources. By using these theories we hope to introduce a good overview for the Evaluation of E-government Service Quality model.

3.2.1 Rationale

Of course, developing a global measure for evaluating the e-government service quality implies difficulty because such measure should reflect a given industry or be context dependent (Yang et al. 2005). Hence, the developer will need a specific domain or specific context to define the main influences on e-government service quality.

After reviewing the relevant literature it was shown that there is a lack of studies and related models that addressed the evaluation of the quality of the E-government services in Jordan (Al-Khamaysah, 2013; Al- Khouri, 2012). Moreover, little or even no attention was paid towards the business sector despite

the importance it enjoys at the local and worldwide levels (Ubaldi, 2011; Reddick & Roy, 2013).

The previous research outlined that confining the evaluation process of e-government services to a single approach will not cover all the areas under investigation since every approach has its own limitations. Therefore, combining more than one approach in the evaluation process will result in reducing the potential limitations (Legris, et al., 2002). Moreover, the use of two approaches, which include attitude-based approach (factors influence the adoption - barriers/enablers) and service quality-based approach (SERVQUAL) will assist better in understanding and applying the evaluation process (Gilbert, Balestrini and Little boy, 2004). In the case of the current work, this combination was the base of the process of evaluating the quality of E-government services.

For this study, the researcher intention is focused towards developing an accepted conceptual framework which could be applied in a specific context (i.e. the business sector in the Hashemite Kingdom of Jordan). The reason behind this is that the validation of this conceptual framework will be placed in case organizations throughout Jordan, as well as that it will be explained in the following sections. In doing so, the process of designing the frame of reference that comprises both the SERVQUAL model the Enablers-Barriers model in order to conceptualize the framework for the E-Government service quality evaluation have been prepared exclusively so as to be adaptable and applicable by the governmental organizations in Jordan in order to assess the quality of e-Government services based on the perspective of business.

Consequently, the proposed conceptual framework will assist the different IT managers and many governmental officials in Jordan to reduce the confusion which surrounds the E-government service quality evaluation process within their organizations. In addition, it will assist them to comprehend how the implementation process works, to identify the requirements of the E-government services which relate to the ICT tools together with highlighting the importance of organizational readiness and the effect of the environment.

Finally, the empirical validation of the proposed conceptual framework can also support the decision makers to draw up a clear vision and strategic action plans necessary for improving the quality of E-government services by identifying the key factors.

3.2.2 The Model's Dimensions

The framework consists mainly of two parts: the first is the SERVQUAL model, which is proposed by the researchers Parasuraman et al. (1988); and the Enablers-Barriers model, which is proposed by Gilbert, Balestrini and Little boy (2004).

As a result, the researcher proposed a seven-factor model that would characterize the process of the evaluation of the E-government service quality. These factors are: (1) the website design, (2) Responsiveness, (3) Reliability, (4) Personalization, (5) Security /privacy, (6) Barriers, and (7) Enablers. After that, the chapter proceeded with discussing the benefits and the barrier model which was discussed and then a justification was presented for why it was included in the research model.

In relation with the preceding discussion and with what is stated in Chapter 2, it has become evident that the evaluation of the E-government service quality in the public sector, mainly has turned out to be an important aspect in the IS area and that it has been demanded by many qualified practitioners in the public sector and by many officials in government agencies as well

Because of the fact that the evaluating of the quality of E-government services in Jordan is a relatively new research area, there is a very limited amount of literature which attempts to analyze the Evaluation process of the e-Services quality from business perspective in particular. Hence, the researcher has critically reviewed the SERVQUAL model that has been applied empirically for

many ICT initiatives such as: the E-commerce, the web services, and I.S evaluation that may help any researcher to understand and become aware of how to address the E-Government service quality evaluation.

In addition to that, the researcher has analyzed some of the related literature that identifies the most noteworthy factors which would support the Evaluation of the Service Quality within organizations and as a result, the researcher will become able to adopt other factors from other relevant areas so that he can conceptualize a framework for the evaluation of the E-government service quality.

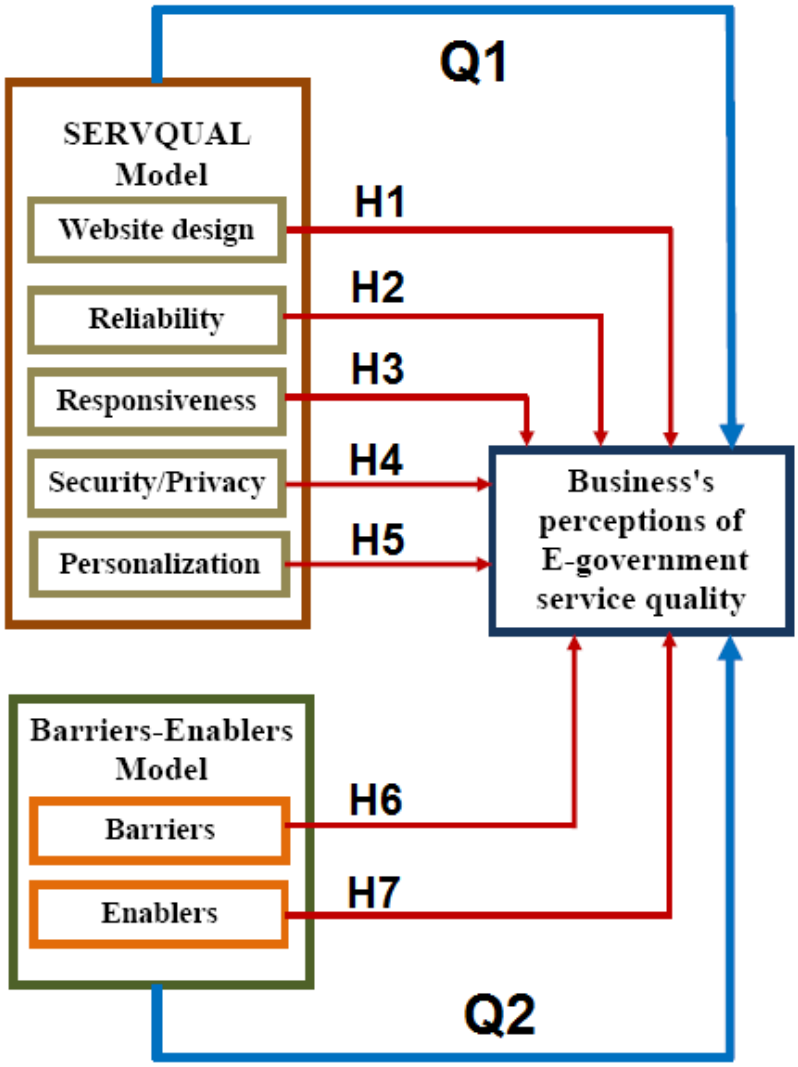
Furthermore, the proposed framework has also presented original and new contributions which are present at two levels. First of all, at the conceptual level, the model incorporates factors which were identified in earlier studies as being influencing agents in the process of the evaluation of E-government services projects.

The current researcher has extended these earlier studies and adapted them to the E-government area through combining some factors which were discussed in the literature, consequently resulting in the development of a very integrated model for the E-government service quality evaluation. Secondly, the concepts of the proposed model can be used as a guide for the adoption of E-Government service projects in public sector organizations.

The following proposed conceptual framework, which is shown in Figure 3.1 is consisted of two parts:

- SERVQUAL model and;
- Barriers-Enablers model.

Figure 3.1: The Proposed Conceptual Framework for E-Government Service Quality Evaluation



Where;

Q1: The gaps between the actual and expected e-government services

Q2: The gaps between the actual and expected barriers/enablers influence the adoption of e-government services

The following subsections would discuss and justify the two parts, which in turn may lead to the conceptualization of the proposed framework for the E-government service quality evaluation.

3.2.3 Adapting SERVQUAL Dimensions to E-Government Service Quality

The current study adopted the five dimensions SERVQUAL model of Parasuraman et al. (1994) as measuring tool for E-government service quality rather than the E-S-QUAL model of Parasuraman et al. (2005). To clarify, the later, that is E-S-QUAL, was introduced as a new measure of the E-service website quality in commercial context, which entails four dimensions: fulfillment, system availability, efficiency and privacy. In addition, this model assesses the E-services provided by the commercial firms based on the customer's satisfaction and loyalty. However, despite SERVQUAL was developed to assess the quality of non internet-based services, it is adaptable and more consistent with the purposes of the current study as well as it includes more comprehensive factors compared with the E-S-QUAL, which focuses mainly on the quality of website quality whereby commercial services are provided rather governmental ones.

The application of the SERVQUAL approach would constitute a good opportunity for any government, when approaching this, new methods would be developed which may contribute to a better understanding of the quality and type of the E-government services which are expected as well as of how its value is being perceived. Since the SERVQUAL is mainly a service quality tool applied with regard to the commercial transactions, it requires a proper adaptation to an E-government context. One of the differences between citizens and business customers is that customers tend to leave the service when they don’t get better services and results; on the other hand, citizens and business users are frequently unable to choose another alternative for the E-government service as it has become their only choice.

The following manifestation will shed more light on the nature and the definitions of the SERVQUAL dimensions adopted by the current model.

1. Web site design (Tangibility):

A convenient and suitable Website design basically consists of the E-government's web site which has to be functioning technically and website's actual appearance. Therefore, it should be given priority and highly considered as crucial dimensions because its function is to attract the customers. According to Lee and Lin (2005), a number of studies investigated the direct influence of website design on the E-service performance. They revealed that the website design plays an important and major role in attaining customers' satisfactions.

2. Reliability:

The concept Reliability indicates the promised service performance that is going to be provided by an E-government website and to which degree. These services would include: E-mailing, calling a customer, as well as delivering the right and needed products with satisfactory confidence and correct charges. The efforts of researcher Parasuraman et al. (1988) revealed that reliability is considered to be the most dimension that enjoys supremacy in the SERVQUAL instrument.

3. Responsiveness:

This concept reflects the extent and the degree in which the services are provided by the E-government website is providing adequate assistance to users. It also specifies if there no delay is witnessed when responding back to citizens (as users). We all agree that any online user usually expects that the organization should effectively respond to his/her inquiries without any unneeded delay (Yang, and Jun, 2002). This kind of immediate response would resolve any problems that are tangled and unresolved. Several studies have revealed that there is a close correlation between the customers' satisfactions and the responsiveness's dimension (Lee and Lin, 2005).

4. Security/privacy:

Security/privacy is one of the most important factors that imply the users' personal information which is provided by the E-government website. They must have high levels of security and protection. One of the main limitations that online environment, development would encounter is the lack of confidence; this kind of needed confidence is usually stimulated by the nonexistent feeling of security and privacy again (Wolfinbarger, and Gilly, 2003).

5. Personalization:

Empathy dimension in the SEVQUAL scale basically deals with the task of providing individual attention to paying and caring customers (Parasuraman et al. 1988). Madu and Madu (2002), Hongxiu and Reima (2009), and Lee and Lin (2005) on the other hand, asserted that in an online environment, personalization has replaced the empathy dimension because of the fact that no direct human interaction is involved between the customers and the employees as (facilitators of services) in a virtual environment.

Using the ERVQUAL theory as a base theory for this research and based on the above discussion, table. 3.2 will show the research framework for measuring and comparing E-Government Service Quality

Table 3.1: Adapting the five dimensions of service quality measured by SERVQUAL to E-Government Service Quality (Ateeq et al., 2010)

	SERVQUAL Factors	E-Government Service Quality Factors
E-Government Service Quality Evaluation Model	Tangible: Indicates the physical facilities, refers to the functional appeal and the appearance of employees	Web site design: The tangible dimension can be replaced by web site design in the E - government domain as the website design consists of technical functioning of the E-government web site and website appearance.
	Reliability: Indicates the ability to execute the promised service in a reliable and accurate way	Reliability: Related to the degree to which a promised service provided by an E-Government web site is going to perform by the promised time, such as e-mailing or calling a business by the promised time as well as providing the confidence of delivering the right products, and correct charges.
	Responsiveness: Indicates a willingness to assist the end users and provide punctual service.	Responsiveness: Refers to the degree to which services provided by the E-Government web site is helpful and there is no delay in responding to Businesses.
	Assurance: Indicates the personnel knowledge which persuades users' confidence and trust.	Security / privacy: Related to the level of security and protection of business's personal information provided by the E-Government website.
	Empathy: Indicates providing caring and paying individual attention to customers.	Personalization: Refers to the degree to which an E-Government website provides a variety of services to convince specific individual business's needs.

As shown in table 3.1, and following Ateeq et al., (2010), the E-government SERVQUAL model which is being used in the current study represents a scale of multiple-items concerning the model of evaluating E-government service quality model, where businesses, citizens and other stakeholders pursue either service or information (Papadomichelaki & Mentzas, 2011).

The items of the original SERVQUAL (Parasuraman et al., 1994) measure were revised and adapted to the current model based on literature reviewing. Moreover, the statements were modified and paraphrased to be consistent with the business perspective. This measure consisted of two vertical sections: the expected e-government services and the actual e-government services. The difference between these sections represents the quality service's gap. Ultimately, the current SERVQUAL questionnaire includes 22 items fall under the following five dimensions:

1. Web site design (Tangibility): this dimension includes 7 items.
2. Reliability: this dimension includes 4 items.
3. Responsiveness: this dimension includes 3 items.
4. Security / privacy: this dimension includes 4 items.
5. Personalization: this dimension includes 4 items.

These five dimensions were discussed in chapter two. Table 3.2 shows the five dimensions with their items for both the expected and actual e-government services. As indicated before, the difference between the expected and actual e-government services reflects the quality gap. The two sections (expected and actual) are provided here to clarify the nature of the Questionnaire's items and how these items were modified to be in line with the two governmental departments involved in the questionnaires. Moreover, the items of each dimension in the second column (The Actual) were modified and directed to indicate the governmental department under study.

Notably, the Questionnaire's items in the Actual column (for both measures) were linked with the Custom Department in particular because the indications revealed from reviewing the literature and informing about the activities of business sector in Jordan clarified that the majority of firms and businessmen uses its e-service.

Table 3.2: The Proposed SERVQUAL Questionnaire

The Expected e-government services	The Actual e-government services
Tangibles E1. E-government web site will be excellent with an attractive appearance. E2. The user interface for the E - government website will be well-organized. E3. The process of conducting transactions on the E-government website will be easy and fast. E4. The E-government website will be always available to business companies. E5. The E-government website must download and run immediately. E6. The Website of the E-government should not be down permanently. E7. The pages in E-government web site do not delay to emerge after the entry of a request for Information.	**Tangibles:** A1. The E-Customs Department web site has an attractive appearance to the viewer. A2. The user interface for E -Customs Department web site is well-organized. A3. The process of conducting transactions in the E-Customs Department web site is easy and fast. A4. The E-Customs Department web site is always available to business companies. A5. The E-Customs Department web site is downloaded and run immediately. A6. The E-Customs Department web site is rarely down. A7. The pages in E-Customs Department web site do not delay to emerge after the entry of a request for Information.
Reliability: E8. When the E-government website undertakes to call me or send me an email message, I would like to commit them to this. E9. I like to be sure that the E-government web site will deliver the services that I order exactly. E10. I like to be sure that the E-government website will ask me for payment, fits with the requested service submitted by me like paying taxes. E11. The excellent E-government web site insists to have error-free records.	**Reliability**: A8. When the E-Customs Department web site undertakes to call me or send me an email message, They are committed to this. A9. The E-Customs Department web site delivers the services that I order exactly. A10. I like to be sure that the E-Customs Department web site will ask me for payment, fits with the requested service submitted by me like paying fees. A11. E-Customs Department web site insists on error-free records.
The Response: E12. I think that the E-government website provide prompt service. E13. I believe that E-government website must be always ready to help companies. E14. I think that E-government web site should not be too busy to answer requests from companies.	**The Response:** A12. I think that the E-Customs Department web site provides prompt service. A13. I believe that E-Customs Department web site must always be ready to help companies. A14. I think that E-Customs Department web site should not delay in answering requests from companies.
Security and confidentiality: E15. The E-government web site must provide security and protection. E16. I want to be confident of the security of E-government web site. E17. The E-government web site does not share my personal information with other web sites. E18. The E-government website will protect my credit card information.	**Security and confidentiality:** A15. The E-Customs Department web site provides security and protection for users. A16. I am confident of the security of the E Customs Department web site. A17. The E-Customs Department web site does not share my personal information with other web sites. A18. The E-Customs Department web site is protecting my credit card information.
Personal Handling and Privacy: E19. I love the E-government website that offers options to build a personal profile. E20.The excellent E-government web site has links to other websites. That could be of interest to companies (links with similar companies and other websites branches or other e-government sites). E21. The E-government web site will provide other e-governmental service options (e.g., payment methods). E22. The E-government web site will provide options for delivering services.	**Personal Handling and Privacy:** A19. The E-Customs Department web site provides options to build a personal profile. A20. The E-Customs Department web site has links to other websites. That could be of interest to companies (links with similar companies and other websites branches or other e-government sites). A21. The E-Customs Department web site provides other options of e-governmental services (e.g., payment methods). A22. The E-Customs Department web site provides options for delivering services.

3.2.4 Adapting Benefits-Barriers Dimensions to E-Government Service Quality

The potential Benefits gathered from e-government and the potential Barriers that may hinder its usage are main determent for assessing the E-Government Service Quality (Gilbert, Balestrini and Little boy, 2004; Hidayanto et al., 2014).

To elaborate, the Benefits-Barriers Model includes the following two dimensions:

1. Benefits:

These would refer to the recognition level of the relative advantage that the proposed E-government services would provide to any businesses. Economic profitability is the degree of relative advantage, the social prestige, the improved business process efficiency, or to other benefits. For example, innovations that would save money better than other existing methods that have been found to be widespread more rapidly because of their perceived economic advantage as stated by some researchers (Icovou et al, 1995; Mehrtens et al., 2001).

2. Barriers:

These would refer to the level of factors that might inhibit the adoption of the E-government services or to the impact on the organization which would negatively influence the implementation process in each of the stage for the adoption process of the proposed model. These barriers could differ from one stage to another as each stage would require different organization capabilities, I.C.T tools and a different strategic action plan as well.

The items of the original **Barriers-Enablers** measure was revised and adapted to the current model based on literature reviewing. Moreover, the statements were modified and paraphrased to be consistent with the business perspective. This

measure consisted of two vertical sections: the expected **Barriers-Enablers** and the actual **Barriers-Enablers** facing e-government services. The difference between these sections represents the **Barriers-Enablers**' gap. Table 3.3 below shows the two dimensions with their items for both the expected and actual **Barriers-Enablers**. The two sections (expected and actual) are provided here to clarify the nature of the Questionnaire's items and how these items were modified to be in line with the two governmental departments involved in the questionnaires. Ultimately, the current **Barriers-Enablers** questionnaire includes 12 items fall under the two dimensions. Similar to SERVQUAL measure, the items of each dimension in the second column (The Actual) were modified and directed to indicate the governmental departments under study.

In addition to what was mentioned previously in section 3.2.1 concerning the rational, the barriers' constructs as well as the benefits' constructs were found to "predict potential usage" of e-government services (Gilbert, Balestrini and Littleboy, 2004: 286).

Table 3.3: The Proposed Barriers-Enablers Questionnaire

The Expected Barriers	The Actual Barriers
EB1. Confidentiality: The Personal data in e-government will be kept private and not used for other purposes.	**AB1. Confidentiality:** The E-Customs Department web site keeps Personal data private and not used for other purposes.
EB2. Easy to use: The delivery mechanism in e-government will be straightforward to use with minimum effort required.	**AB2. Easy to use:** The E-Customs Department web site maintains the delivery mechanism straightforward to use with minimum effort required.
EB3. Enjoyable: Using the e-government system will be an enjoyable experience.	**AB3. Enjoyable:** Using the system of E-Customs Department web site is an enjoyable experience.
EB4. Reliable: The e-government Web site will have services that are required, and individuals must trust that a requested service will be delivered.	**AB4. Reliable:** The E-Customs Department web site has services that are required, and individuals trust that a requested service is always delivered.
EB5. Safe: The e-government Web site will be secure with respect to entering financial details.	**AB5. Safe:** The E-Customs Department web site is secure with respect to entering financial details.
EB6. Visual appeal: The e-government Web site will look good.	**AB6. Visual appeal:** The E-Customs Department web site looks good.
The Expected Enablers	**The Actual Enablers**
EE1. Avoid personal interaction: I will be able to receive e-government, public	**AE1. Avoid personal interaction:** The E-Customs Department web site enables me

services without having to interact with members of the service provider's staff.	to receive public services without having to interact with members of the service provider's staff.
EE2. Control: I will be able to exert more control over the delivery of the e-government service than through another method	**AE2. Control:** The E-Customs Department web site enables me to exert more control over the delivery of the service than through another method.
EE3. Convenience: I will be able to receive the e-government service how and when the individual wants to.	**AE3. Convenience:** The E-Customs Department web site enables me to receive the service how and when the individual wants to.
E4. Cost: The e-government delivery of public services will save Money.	**AE4. Cost:** The electronic delivery of The E-Customs Department web site public services saves Money.
EE5. Personalisation: I will be able to tailor the delivery of the e-government service more towards the individual.	**AE5. Personalisation:** The E-Customs Department web site enables me to tailor the delivery of the service more towards the individual.
EE6. Time: The time will be saved by obtaining the e-government service electronically.	**AE6. Time:** The time is saved by obtaining the E Customs Department web site service electronically.

(Adopted from: Gilbert, Balestrini and Littleboy, 2004)

In accordance with the preceding research regarding the assessment of the E-government service quality that was discussed in Chapter 2, it has been shown that the quantification of the perception of any possible barriers and any possible benefits that are related to it might lead in the direction of a more and better understanding of the selected implementation process.

As indicated in Chapter 2, a number of barriers experienced have been in public sector organizations which have prevented the realization of the sought anticipated benefits and have degrade the successful adoption of the E-government services projects. Yet, it can't be denied that there are potential future benefits and positive motivations arising from the E-government literature which could eventually promote the top management to successfully adopt the E-government services projects (see Chapter 2).

Accordingly, the researcher proposes that the benefits and the barriers which are associated with the E-government Services Quality adaptation should only be considered as key factors that would influence the implementation process of the

E-government. This notion was reflected during the literature review, which has been derived from Chapter 2, and also in the models which were proposed previously (Themistocleous & Irani, 2002; Icovou et al., 1995).

Nevertheless, these barriers and benefits are not yet empirically identified in the literature, that is why the researcher sought to validate them empirically, as has been reported in Chapter 5 of this thesis, and also explored the importance of these factors in the implementation process of the E-government service quality evaluation. The influence of the barriers and the beneficial factors on the E-government service quality evaluation process is explained below

3.3.4 Verifying the Model

The proposed conceptual framework that has been discussed above has integrated two different models; these two models represent a one comprehensive model for the E-government service quality evaluation at the public sector organizations level. Consequently, the next stage of this research is basically dedicated to the verification and validity of the proposed framework.

However, the proposed model above, including its dimensions, will be tested and then validated during the course of this research. To clarify, the model's measures will be validated based on Pre and Post validation. More detailed clarification regarding the validation process will be presented in the next chapter, chapter 4.

3.3 Summary and Conclusion

In this chapter the normative literature will be analyzed in conjunction with the researchers' perspectives in order to establish a conceptual framework for the E-government service quality evaluation. The researcher has identified a gap in the literature; this gap is mainly concerned with the absence of theoretical models for the E-government service quality evaluation in the public sector organization.

Accordingly, this chapter has explored the evaluation of the E-government services through analyzing the service quality models so as to propose an appropriate model that could be used as an important part of the anticipated conceptual framework for the E-government service evaluation. Nevertheless, the SERVQUAL model is still not a satisfactory model for the e-government services quality evaluation, and so there is a need for further models that can identify the factors that may influence the evaluation process and at the same time would support the implementation of each of these services. Therefore, the researcher has sought to integrate the benefits-barriers model with the proposed SERVQUAL model with the purpose of conceptualizing a strategic framework for the E-government service evaluation.

The researcher assumes that the proposed SERVQUAL model is flexible enough for an organization to adopt it regardless of its electronic service delivery maturity. Hence, the researcher proposed a model combining seven dimensions that characterize the evaluation of E-government service framework. These seven dimensions are: 1- Enablers, 2- Barriers, 3- Responsiveness, 4- Reliability, 5- Website design, 6-Personalization and 7- Security/ privacy.

The value of this service quality model is that it provides the public sector organizations with an approach for understanding and assessing the quality of E-Government services which in turn would increase the adoption of such services by the various users.

Moreover, this can help organizations understand the implementation process and provide guidance on how to move towards realizing the potential of the E-Government's initiative.

In addition, the critical review of the literature has revealed what the actual barriers are (also perceived as challenges) as well as enablers (also perceived as benefits). In this context, both are considered among the most central and most important factors that affect the E-government service evaluation process. Therefore, the researcher has a belief that both perceived

benefits and barriers in government organizations would undoubtedly influence the decision-making process for the E-government service, and thereby the researcher has proposed that benefits and barriers which are associated with the E-government should be regarded as factors that would influence the evaluation of E-government services.

This kind of integration between the SERVQUAL model and the Barriers-Enablers model may contribute to the future formulation of a strategic and well-planned framework for the E-government service quality evaluation and will also assist in reducing the confusion affecting the process of using the E-government in the public sector organizations. Consequently; this strategic and well-planned framework will assist in accelerating and facilitating this process of the E-government implementation through recognizing the important and fundamental services and their dimensions. Notably, the conceptual model presented in this chapter not only represents a starting point in the direction of the contribution of this thesis regarding the body of knowledge, or it is an end product. Therefore, any assumptions that are made on the conceptual framework will be validated based on the empirical inquiry in both Chapters 5 and 6.

Chapter Four: Research Methodology

4.1 Introduction

The Aforementioned sections addressed in details the theoretical background of Evaluating E-government Service Quality. Here, this chapter is dedicated to delineate the methodology adopted in this study. Of course, conducting any type of research should imply a well-defined and structured methodology based on scientific principles (Eldabi et al., 2002). Such methodologies are considered to be systems of explicit rules and procedures.

The current study will assist the providers of e-government services in assessing the quality of their e-services in Jordan. It is regarded as the first study in Jordan that takes into account the business perspective regarding the quality of e-government services. This study will focus on three main research questions:

1. Are there any gaps between the actual and expected e-services from the business firms' perspective?
2. Are there any gaps between the actual and expected barriers/enablers from the business firms' perspective?
3. Are there any gaps between the actual and expected E-government services; and what are the barriers and enablers that affect using e-government services, from e-government perspective?

In order to formulate a clear picture of the models and approaches E-government Service Quality Evaluation, an extensive literature study was performed.

Moreover, to manipulate some of the problematic areas concerning E-government Service Quality Evaluation, one possible solution based on

integrating SERVQUAL and benefits-barriers models were developed and proposed. Furthermore, to validate the theoretical model, a mixed approach of quantitative and qualitative was adopted. Then, data were collected and analyzed.

The current study will use questionnaires and semi structured interviews. The questionnaire was administered in five types of business firms located in Amman while their items were directed towards one major governmental department in Jordan, Custom Department. This department provides e-government services to the included business firms wherein the participants work. The interviews were conducted by e-government professionals and leaders.

Similar to the procedures suggested by some researchers (such as, Flick, 2002) that are important for any research design, the current researcher adopted a mixed research methodology with relying on three stages that are: (1) research design, (2) data collection and, (3) data analysis. Figure 4.1 provides illustrations for these stages. Moreover, further discussion is introduced in the following sub-sections.

4.2 Research Philosophy

The field of evaluating e-government implies studying various overlapped disciplines. Accordingly, researchers have alternatives to adopt the most appropriate research methodology based on a philosophical ground. Myers and Avison (2002), among others, reported that all research is based on some underlying assumptions related to the components of a 'valid' research and which research methods are more appropriate. In order to conduct and /or evaluate a giving research, it is therefore very important to define these philosophical assumptions.

The fundamental research epistemologies are often perceived as dichotomous to each other (Lee, 1990, 1991; Guba & Lincoln, 1994; Morey & Luthans, 1984). A number of dichotomies have been proposed in the literature.

According to Fitzgerald (1997), the most common research Dichotomies are: Interpretivist, which partially entails the Qualitative methods versus the Positivist, which partially entails the Quantitative methods.

Other studies in the same field (such as Orlikowski & Baroudi, 1991) outlined that positivist research is the most common paradigm in the field of IS while interpertivism is witnessed as a second approach. Moreover, Galliers (1992) outlined that there is no single framework that encompasses all the knowledge's fields needed for the study of information systems. Therefore, there are many research approaches and strategies that the researchers can rely on.

However, it is not the intention of this chapter to discuss the different schools of thoughts regarding these epistemological issues. Because several studies have recommended a pluralistic research strategy by incorporating standards from both sides (Gable, 1994; Kaplan & Duchon, 1988; Lee, 1990), the current research intends to adopt a mixed approach of both quantitative and qualitative methods.

Hence, the ones, which are used in this dissertation, are presented in Figure 4.1. Using this approach may contribute to clarify the nature of E-government service quality along with introducing purposeful assessment.

Table 4.1 Types of Research Dichotomies

Research Approach		Research Approach
Interpretivist: No universal truth. Understand and interpret from the researcher's own frame of reference. Uncommitted neutrality impossible. Realism of context important.	Vs.	**Positivist:** Belief that the world conforms to fixed laws of causation. Complexity can be tackled by reductionism. Emphasis on objectivity, measurement and repeatability.
Qualitative: Determining what things exist rather than how many there are. Thick description. Less structured and more respective to the needs and the nature of research situations.	Vs.	**Quantitative:** Using the mathematical and statistical techniques to identify facts and causal relationships. Samples can be larger and more representative. Results can be generalized to larger populations within known limits of error.
Exploratory: Seek for discovering patterns in research data and to explain/understand them. Lays basic descriptive foundation. May lead to generation of hypothesis.	Vs.	**Confirmatory:** Seek for testing hypothesis and verification theory. Tends to follow positivist, quantitative models of research.
Induction: Specific instances used to arrive at overall generalization. Criticized by many philosophers of science, but plays an important role in theory/hypothesis conception.	Vs.	**Deduction:** Uses general results to ascribe properties to specific instances. Associated with theory verification/falsification and hypothesis testing.
Field: Focusing on realism of context in natural situations, but precision in control of variables and behavior measurement cannot be achieved.	Vs.	**Laboratory:** Precise measurement and control of variables, but at the expense of naturalness of situation, since real-world intensity and variation may not be achievable.

(Adopted from Fitzgerald, 1997)

4.3 Research Design

Based on the viewpoint of Yin (2003b), research design is regarded as a logical sequence that implies collecting data, analyzing, and interpreting the observations. Hence, this sequence contributes in connecting the empirical data to the study's initial research questions, which result in attaining conclusion.

The research design is regarded as the first independent part of the empirical research methodology. The starting point can be made by reviewing the relevant literature, thus developing deep understanding of the research area under investigation. From the literature review, several research issues will be identified in a more focused literature review (e-government service quality evaluation).

After that, developing a conceptual model is undertaken to represent the intended empirical research. Then, the model's aspects will be investigated through empirical studies. Based on the needs of the empirical study, it was decided that the research design would utilize a mixed approach through combining both quantitative and qualitative research methods. However, using mixed methods entails potential problems. De Lisle (2011) outlined that such problems include the need for:

1. High levels of integration,
2. Skilful research team,
3. Data management systems with high quality information, and
4. Initiation, expansion, and triangulation.

Since there are many research methods that can be used employed by researchers to obtain the data needed to answer their research questions, two of the most commonly used methods are the Quantitative and the Qualitative.

4.3.1 Quantitative Research Method

Quantitative research has various forms such as investigating the relationships that imply cause and effect, the correlations between different variables, and examining theories and hypotheses (Shaughnessy, Zechmeister & Zechmeister, 2000). Through this type of research, correlations or effects among different variables are investigated and evaluated. Quantitative methods employ statistical tools and techniques for identifying facts or relationships. Within this type of research, the most data collection instruments are the questionnaire (Al Killani & Al Shraifeen, 2007). The questionnaire regarded as an instrument or mean for collecting data, relying on the printed form comprises of a list of questions to be answered by the subjects (Audeh & Abdul Rahman, 2013).

The justification for using questionnaires in the current study

The main aim of this study is related to proposing a model based on the SERVQUAL in order to evaluate e-government service quality within the public context. E-government services, as discussed in section 2.4, are presenting different and unique initiatives at different stages of the life cycle. Therefore, a suitable research strategy for fulfilling this is using a survey. The current study required data from a large sample size. Moreover, using the questionnaire has many advantages (Audeh & Abdul Rahman, 2013; Al Killani & Al Shraifeen, 2007) that are conformed to the current study. These advantages are:

- Save money and time, which resulting in low cost.
- Achieve Quick data flow.
- Can be administered to large numbers of respondents
- Easy to control the appropriate time and place that suits the subjects.
- The closed questions, provide simple data analysis.
- The questions can be answered and the answers can be listed down and coded easily.

4.3.2 Qualitative Research Method

According to Newman and Benz (1998), qualitative research represents a process of studying various elements in their natural context for interpreting a given phenomenon based on obtaining feedback from certain individuals. Through this type of research method, the researcher builds knowledge and theory relying on understanding individuals or phenomena within a given context. Within this type of research, the most data collection instruments are the interviews (Al Killani & Al Shraifeen, 2007).

The justification for using interviews in the current study

This study was conducted with the intention to use a combination of both data sources primary and secondary. The reason is that without the empirical information from the primary sources (managers and experienced analyst interviews), it proved difficult to set up a comprehensive evaluation model and conduct a detailed e-government services evaluation. Therefore, the researcher sought to contact E-government's officials and managers to collect primary information related to the relevant governmental departments. The interview is regarded among the means and instruments used for identifying facts, opinions, and beliefs among individuals by conducting oral conversation. Moreover, the researcher can use the interview to verify the information and data gathered from other resources (Audeh & Abdul Rahman, 2013).

4.3.3 Justifications for Adopting a Mixed Research Method

This mixed method focuses on collecting, analyzing, and triangulating both quantitative and qualitative data in the study. Usually, the combination of quantitative and qualitative approaches contribute to provide a better understanding of the research problems compared with relying on a single method. Moreover, using a mixed method would better balance the strengths and weaknesses of both quantitative and qualitative research (Creswell & Plano, 2011).

Each method of these can provide an alternative tool for collecting the empirical data and enable the researcher to get: (a) a clearer picture of the information, (b) an accurate measurement of the data and (c) the evidence that supports the topic under consideration (Denscombe, 2008).

Based on Creswell & Plano (2011) justification, the research resort to mixed methods for the following reasons when:

(a) Single data resource may not be enough;

(b) Initial results need to be further explained;

(c) A second method is needed to enhance the primary method;

(d) The project has a multi-phases.

In addition, many researchers (Kaplan & Duchon, 1988; Audeh & Abdul Rahman, 2013) reported that no single approach alone can provide holistic information regarding a given phenomena.

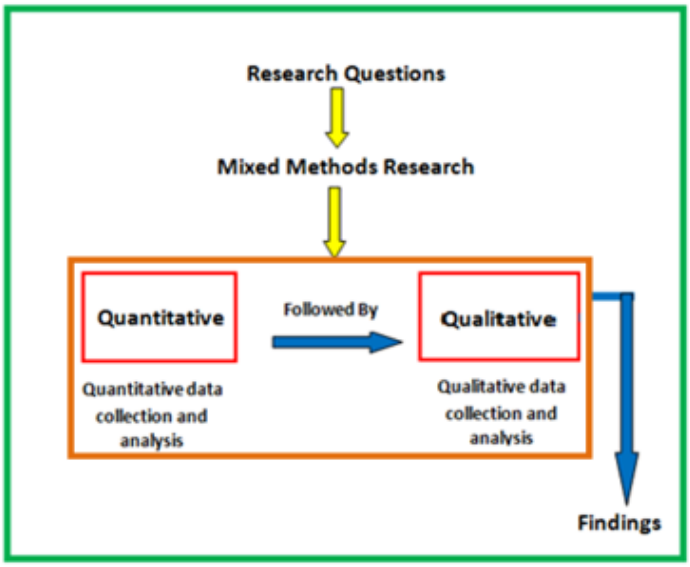
In respect to the sequence of the two methods, Creswell & Plano (2011) recommend two types of sequence for the mixed approach. First, collect the quantitative data first and then follow up with interviews to help explain their outcomes from a qualitative perspective. Second, use interviews to explore how individuals describe a given topic and then using the findings to develop quantitative data collection instrument. Hence, the current study adopted the first sequence by collecting the quantitative data first.

Usually, the procedures of Mixed Research Method vary in their sequence according the theoretical traditions adopted by the research (Hess-Biber, 2010). According to Hess-Biber (2010) and Ayiro (2012), two forms of mixed methodologies are available in terms of their sequence and dominance: (1) the Exploratory Mixed Research Method, and (2) the Explanatory Mixed Research Method. The former one addresses the research problem by focusing on the

qualitative approach as a dominant design while collecting data. This type of Mixed Research Method implies the collection of qualitative data first, followed by the quantitative one. However, the Explanatory Mixed Research Method addresses the research problem by focusing on the quantitative approach as a dominant design while collecting data. This type of Mixed Research Method implies the collection of quantitative data first, followed by the qualitative one (Hess-Biber, 2010; Ayiro, 2012).

The current study aims at evaluating the e-government service quality from a business perspective by developing a measuring instrument that has the potential to identify the gaps between the expected and actual e-government services. For these reasons, this research will adopt the Explanatory Mixed Research Method, in which the quantitative data are collected at first to gain a general understanding regarding the potential factors that influence the evaluation process. Hence, the proposed model will be developed based on the quantitative findings. Then, the qualitative data are collected to gain a thorough understanding of the proposed model. Figure 4-2 shows the sequence of the explanatory Mixed Research Method.

Figure 4.1: The explanatory mixed research method



4.3.4 Triangulation of Data

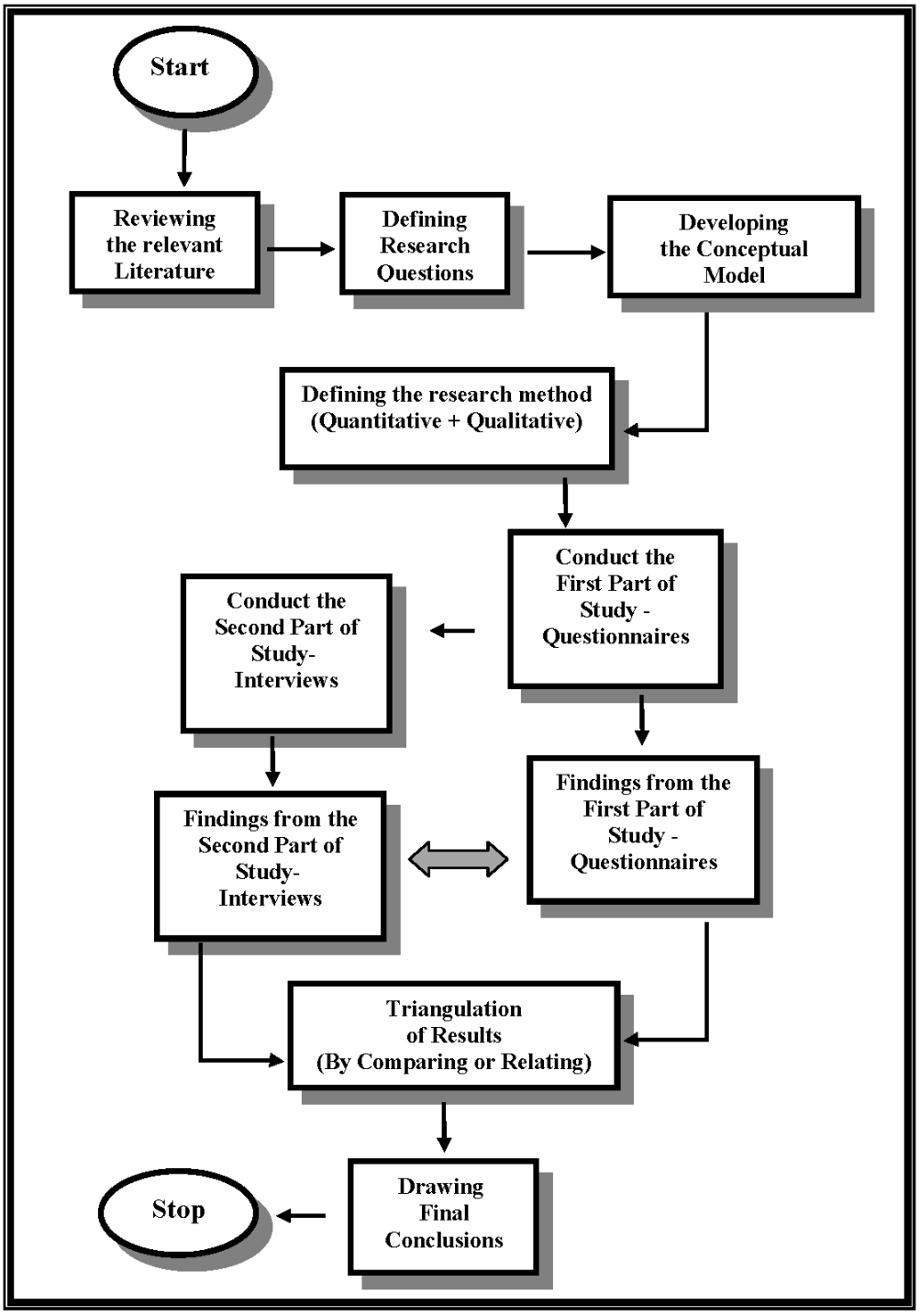
In general, adopting mixed approach enables the researcher to effectively triangulate the data. Triangulation is the process whereby more than two methods are used, or mixed, to verify the results obtained from a piece of research by providing two or three viewpoints on the topic being studied. Moreover, triangulation contributes in validating, deepening and widening our understanding (Cohen & Manion, 2000; Olsen, 2004). The idea of triangulation contribute widely to increase the number of methods (with achieving the same results from those methods), which ultimately result in obtaining more confident in the results achieved by any researcher.

According to Kaplan and Duchon (1988), the main aim of the triangulation process is to study the same phenomenon from different various viewpoints. Triangulation becomes a need when there is a weakness with the other approaches. Moreover, triangulation is regarded as complementary rather than an alternative for other types of research.

The process of triangulating can be undertaken by looking for convergence, divergence, contradictions, or relationships of the two sources of data (Creswell & Plano, 2011). In this research, data revealed from questionnaires will be combined with data revealed from interviews in order to make conclusions regarding the evaluation of the quality of e-government services. The triangulation process may show to what extent the result are consistent.

The research process design is shown in Figure 4.2 below.

Figure 4.2: The Research Process Design



4.4 Participants

4.3.1 Population

The population of this study was divided into two parts: the proposed model population, and the interviews population. The proposed model population consisted of the private business firms' employees who are in direct and continuous contact with certain E-government sites. All the firms were located in Amman, the capital of Jordan. It is worthy to mention that these firms, as well as the other firms located in Amman, comprises employees from all over the country who are seeking for better life opportunities. The researcher listed down the targeted firms and inquired about the nature of their contact with E-government sites. The inquiry showed that the number of firms located that are registered under the records of the Ministry of Commerce and Trade amounted to 7,521 firms in 2014, of which 2822 firms are located in Amman (Ministry of Commerce and Trade, 2014). At the formal level, not all of the firms use the E-government services. Accordingly, it was estimated that the number of firms, which use the E-government services in Amman approximately amounted to 1500 firms. Moreover, the estimated population of the authorized employees who undertake performing the E-government transactions reach about 12,000.

4.3.2 Sample

In order to select the sample, the firms were allocated into four stratifies based on the type of the firm. Accordingly, 40 reachable firms were chosen, 10 firms from each type. The researcher selected the most adequate employees intentionally based on their usage to the Customs Department's E-services so that 346 business customers affiliated with 4 major types of business firms located in Amman were chosen. The sample size was determined according to the recommended calculations proposed by Bartlett, Kotrlik & Higgins (2001). These calculations were based on specific values as shown in Table 4.2 (alpha level of 0.05, the estimated population size, and margin of error ± 3 %). Based on these criteria, 119 participants are needed, however, the current study exceeded this number.

According to Shaughnessy, Zechmeister & Zechmeister (2000), this type of nonprobability sampling is known as "purposive sampling" in which the researcher selects the elements to be included in the sample on the basis of their special characteristics.

Table 4.2: Table for Determining the Sample Size for a Given Population Size for Continuous and Categorical Data*

	Sample size					
	Continuous data (margin of error= .03)			Categorical data (margin of error= .05)		
Population size	alpha= .10 t= 1.65	alpha= .05 t= 1.96	alpha= .01 t= 2.58	p= .50 t= 1.65	p= .50 t= 1.96	p= .50 t= 2.58
100	46	55	68	74	80	87
200	59	75	102	116	132	154
300	65	85	123	143	169	207
400	69	92	137	162	196	250
500	72	96	147	176	218	286
600	73	100	155	187	235	316
700	75	102	161	196	249	341
800	76	104	166	203	260	363
900	76	105	170	209	270	382
1,000	77	106	173	213	278	399
1,500	79	110	183	230	306	461
2,000	83	112	189	239	323	499
4,000	83	119	198	254	351	570
6,000	83	119	209	259	362	598
8,000	83	119	209	262	367	613
10,000	83	119	209	264	370	623

*Adopted from Bartlett, Kotrlik & Higgins (2001)

Accordingly, the sampling method was used to carefully select participants (customers) who met the criteria of having used the e-government services during the past twelve months. After the surveying process, 311 questionnaires were obtained, so that the return rate amounted to 89%. Moreover, 34 questionnaires were excluded because of the incomplete responses which make the valid responses amounted to 300. Ultimately, the sample consisted of 300 participants both males and females (204 males and 96 females). The demographics of the study sample are shown in Table 4.3.

Table 4.3: The demographics of the study sample

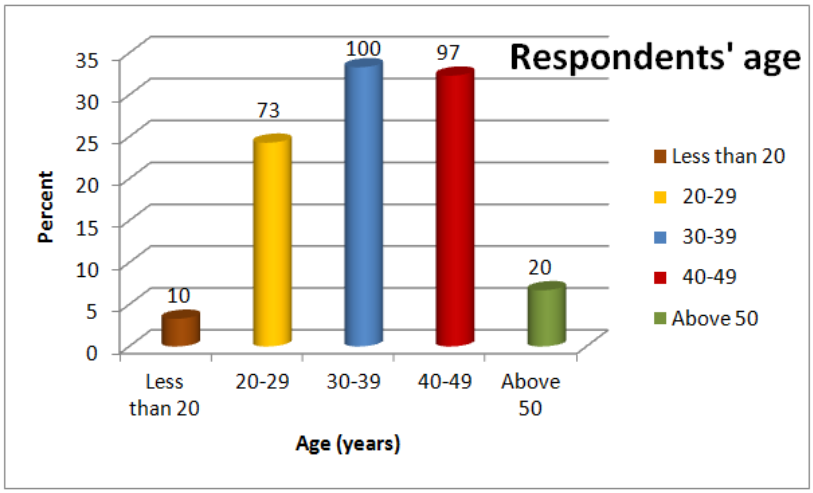
Demographic	Type	Frequency	Percentage %
Gender	Males	204	68.0
	Females	96	32.0
Total		300	100
Age	Less than 20	10	3.3
	20-29	73	24.3
	30-39	100	33.3
	40-49	97	32.3
	Above 50	20	6.7
Total		300	100
Education Level	Less than high school	4	1.3
	High school	25	8.3
	Diploma	73	24.3
	University	140	46.7
	High studies	58	19.3
Total		300	100
The legal type of firm	Individual Project	93	31.0
	Corporation firm	40	13.3
	Private firm	86	28.7
	Public firm	81	27.0
Total		300	100

Age:

With respect to age of the questionnaire's respondents, the categories ranked according to the following order respectively: 30-39 with a percentage of 33.3%, 40-49 with a percentage of 32.3%, 20-29 with a percentage of 24.3%, Above 50

with a percentage of 6.7% and Less than 20 with a percentage of 3.3%. Figure 4.3 shows these results.

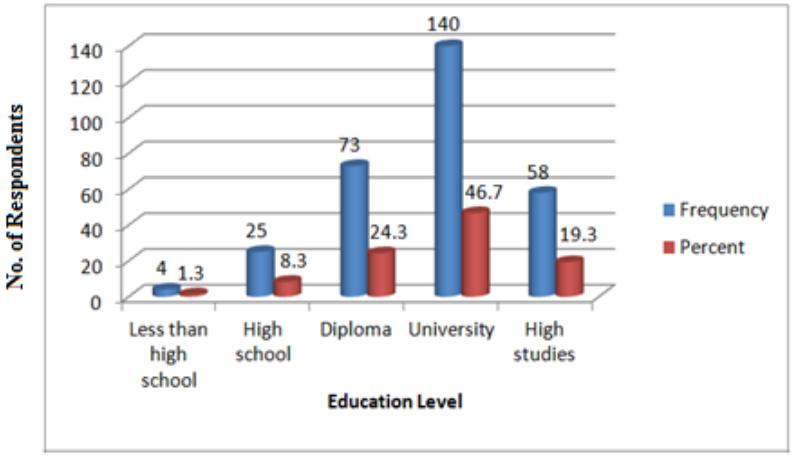
Figure 4.3: Respondents' age



Education level:

With respect to the education level of the questionnaire respondents, the categories ranked according to the following order respectively: University degree with a percentage of 46.7%, Diploma with a percentage of 24.3%, High studies with a percentage of 19.3%, High school with a percentage of 8.3%, and Less than high school with a percentage of 1.3. Figure 4.4 shows these results.

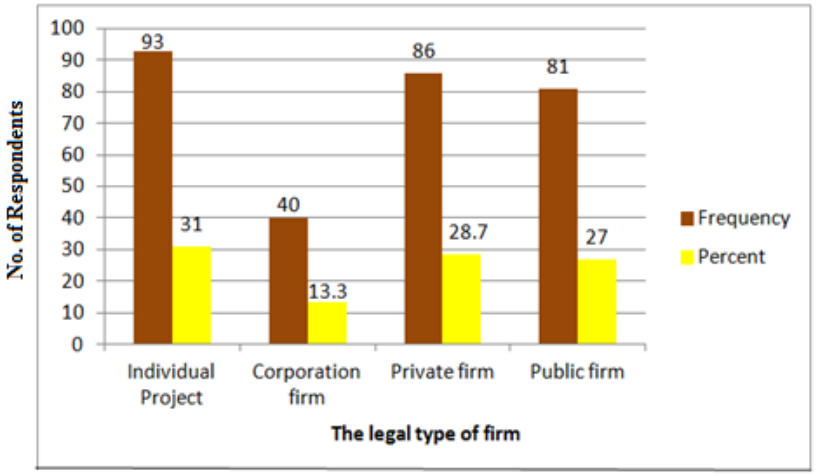
Figure 4.4: Respondents' education level



Legal type of firm:

With respect to the legal type of firm of the questionnaire respondents, the categories ranked according to the following order, respectively: Individual Project with a percentage of 31.0%, Private firm with a percentage of 28.7%, Public firm with a percentage of 27.0%, and Corporation firm with a percentage of 13.3%. Figure 4.5 shows these results.

Figure 4.5: The legal type of firm



The number of the sample was confined to cost and time constraints. It represents the most available participants who work in business firms and deal frequently with e-government services.

However, the demographics of the study sample reflect different variables (Gender, Age, Education Level, The legal type of firm), which in turn broaden the types of responses and give more validation to the quantitative research. Moreover, the variations in demographics reflect wide range of respondents who are members in the overall population of interest so that the sample is regarded to be representative (Shaughnessy, Zechmeister & Zechmeister, 2000).

4.5 Data collection

The current study adopted a research strategy based on particular style accompanied with utilising different research methods to gather data. As reported by Galliers (1992), this step implies difficulty since there are various number of options available such as survey, Interview, case study, action research, and ethnography. Therefore, to adopt a strategy that would define the way in which data is collected and analysed, a research strategy is subjected to the research Purposes. Hence, in order to fulfill the research purposes by answering its questions, the current study relied on two instruments, which are, the **developed SERVQUAL Questionnaire** and **Enablers-barriers questionnaire, and Interviews.**

4.5.1 The Instruments of the proposed model

The proposed model was developed based on a thorough review of the relevant literature. Moreover, it was designed to measure the quality of e-government services from a business perspective. It consisted of two quantitative measures:
(1) The developed SERVQUAL model; and
(2) The Barriers-Enablers model.

This part of the model would provide significant data related to the process of evaluating the quality of e-government services from the business firm's perspectives. The proposed measures aim to answer the first and the second study questions:

Q1. Are there any gaps between the actual and expected e-services from the business firms' perspective?

Q2. Are there any gaps between the actual and expected barriers/enablers from the business firms' perspective?

Despite these two separated questions represent a combination of two different approaches, as outlined previously in sec 3.2.1, they depend on the gap theory.

4.5.2.1 The developed SERVQUAL Questionnaire

The developed SERVQUAL Questionnaire comprises two even columns (22 items) where five dimensions are included within each column; each dimension involves a number of items.

The proposed SERVQUAL Questionnaire was designed to assess the quality of e-government services by identifying the gap between the perceived and expected e-government services. The developed SERVQUAL Questionnaire comprises two even columns (22 items) where five dimensions are included within each column; each dimension involves a number of items.

Table 5.3 shows the perceived and expected dimensions with their items. The SERVQUAL Questionnaire adopted a 5 point Lekert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

4.5.2.2 The developed Barriers-Enablers Questionnaire

The proposed **Barriers-Enablers** questionnaire consists of two sections, the barriers and enablers, where each section involves six items. It was designed to assess the gaps between the expected and perceived e-government services among receivers of the services (in this case the employee within the business firms) which indicates to what extent the Barriers and Enablers affect their using of e-government services. Table 5.4 shows the items that represent both Barriers and Enablers. The Barriers-Enablers Questionnaire adopted a 5 point Lekert-type scale ranging from 1 (1 = strongly disagree) to 5 (5 = strongly agree).

4.5.2 Interviews

The current researcher sought carefully to meet with 11 of governmental professionals and managers who are in direct charge of e-government services in major public departments. The interviewees sample was chosen in relation to their positions within the Customs Department, which was involved in

quantitative research. So that the two parts of the study have a connection. Moreover, prior arrangements with the interviewees were made by visiting their work locations. The data gathered was treated confidentially in accordance with the ethical considerations. The reason for conducting the interviews with the government provider is to gather deeper and more insightful understanding of the factors that influence the adoption of E-government services by inquiring about whether a gap is existed or not. Moreover, the interviews will contribute in proving a clearer picture about the barriers and benefits accompanied with using E-government services. Furthermore, by comparing the gathered data from interviews (E-government services provider) with that gathered from questionnaires (E-government users) we will be able to figure out the nature of consistencies or in consistencies that existed between the two perspectives.

The semi structured interviews consisted of a number of open-ended questions; related to the study questions. The interview was designed mainly to answer the following study question:

Are there any gaps between the actual and expected E-government services; and what are the barriers and enablers that affect using e-government services, from e-government perspective?

In order to assure the conformity between the interview questions and the study questions, the researcher formulated the interview question carefully. During the Interviews, the interviewees can speak freely and express their perceptions about the topic without any restrictions. In addition, the interviewer is able to provide more questions or illustrations to clarify the ideas and therefore gather more accurate and relevant details. In general, the interviews contribute to support the validity of the results revealed from the quantitative research by triangulating both types of data revealed from the quantitative and the qualitative results (as mentioned earlier in this chapter) so that the researcher become able to gather a deeper and clearer understanding regarding the first research question. In this study, the interview comprised a number of qualitative questions derived from the literature. These questions reflect the views of stakeholder who are in charge of e-government services in Jordan. The interview questions can be shown in appendices.

4.5.3 Translation of the Instruments

Notably, the original form of both questionnaires was written in English. Hence a translation process into Arabic was necessary since not all of respondent have the required proficiency in English language. The researcher managed to translate the original questionnaires in a manner assures the quality of the new content. The following procedures were undertaken during the translation process:

- Resorting to an agency specialized in translating services' in the domain of legal and academic translation.
- The questionnaires were translated from English into Arabic with direct participating from the researcher in order to maintain the original meaning.
- The translated items were introduced to a number of academic professors, in the field of management and ICT, who are fluent in both Arabic and English. Their notes and comments were taken considerably.
- The accuracy of the translation process was verified by retranslating the resulted Arabic form into English again.

4.6 Validation of the Measures

In order to verify and validate both measures, the validity and reliability indicators were considered. The validation process is regarded as vital to the verifying any measuring instruments (Shaughnessy, Zechmeister & Zechmeister, 2000). The validation process can be assured in different ways, such as reliability, content validity, and construct validity (Creswell & Plano, 2011).

In order to confirm the indicators of validity and gather more understanding regarding the factors that influence the quality of e-government services evaluation in Jordan, two forms of validation were undertaken in terms of conducting the main study:

First: Pre-validation: Based on the reliability and validity tests (Stability coefficient, internal consistency, and content validity). The validation process at this stage will be undertaken through the pilot study.

Second: Post-validation: Based on factor analysis in addition to linear regression while manipulating the data.

4.6.1 Pilot Study

The current study employed a pilot study prior to conducting the main study in order to assure the indications of reliability, validity and the applicability of questionnaires. According to Shaughnessy, Zechmeister & Zechmeister (2000), the pilot study provides good indicators of validity and reliability. Moreover, it provides valuable information regarding the questionnaires and their administering in terms of their clear wording and the required time for answering (Shaughnessy, Zechmeister & Zechmeister, 2000).

The pilot study was administered to 30 respondents (both males and females) who were selected out of the original study sample. The respondents of this pilot study were working in the Information and Communication Technology sector in Jordan and who were familiar with the field of e-government. The pilot study undertaken in this pilot study implied a direct interaction and discussion with the respondents by the researcher and aimed to achieve the following purposes:

(1) Improve the questions wording.
(2) Increase the comprehension of respondents.
(3) Estimate the average time needed for complete each questionnaire.
(4) Eliminate the ambiguity of the questions.
(5) Identify the relative response rate.

By the end of the pilot study, a valuable feedback was obtained and then the appropriate modifications were carried out later. To clarify, the response rate was determined since 26 completed questionnaires out of 30 were retrieved which indicate that the response rate reached 86.6 %. Moreover, the average time needed for the completion of the questionnaire amounted to 21.4 minutes. Some respondents reported notes regarding the wording where their notes were taken into account. Furthermore, a second round of the same pilot study was conducted later on the same sample in order to provide data for the reliability test.

However, data were analyzed to calculate the means and standard deviations for the two applications of the pilot study. Finally, the difference between the two means was calculated by using T-test. More discussion will be introduced in the reliability subsection.

4.6.2 Reliability

In order to assure the reliability indicator, the data revealed from the pilot study was used. To illustrate, the Test-retest reliability was used on the pilot study sample to confirm the stability of respondents' answers over time. This type of reliability was fulfilled by administering the test in two different times (a period of two weeks) on the same sample. After applying the Pearson correlation method, the correlation coefficients were calculated. The overall correlation coefficients for both scales amounted to 0.88 for the SERVQUAL measure and 0.83 for the Barriers-Enablers measure which indicates that the both measures were stable and reliable.

In addition, the reliability was verified by calculating the internal consistency values for both measures. Consequently, Cronbach Alpha coefficient was extracted for both measures. Table 4.4 shows the Alpha Cronbach coefficient for the overall measures with their dimensions.

According to the relevant literature, Cronbach alpha value of 0.70 or greater is considered to be a good indicator of the scale's construct validity with homogeneous items measuring the same construct (Hair et al., 2006) and therefore is considered to be acceptable in such research. Table 4.3 below exhibits the Cronbach Alpha coefficients for both measures' dimensions that ranged between 0.57 and 0.85.

Moreover, table 4.4 below shows that when eliminating any item, the Cronbach alpha coefficient for its dimension decreases with exception in the case of website design dimension. In this case, eliminating item t6 will result in increasing the value of the Cronbach alpha coefficient of this dimension. This indicates that all the dimensions' items are genuine except the item t6. Consequently, this item was dropped to increase the reliability value of the SERVQUAL measure. Ultimately, Cronbach Alpha coefficients for both measures' dimensions ranged between 0.71 and 0.87 where these values are accepted for this kind of research.

Table 4.4: The Internal Consistency of the measures by using Cronbach Alpha coefficient

Dimension	Number of items	Cronbach alpha for dimensions	Cronbach alpha if item deleted	Items	No. of Items Dropped
Tangibles (Website design)	7	.57	.63	t1	1 (t6)
			.63	t2	
			.65	t3	
			.57	t4	
			. 68	t5	
			.87	t6	
			. 68	t7	
Reliability	4	0.85	.75	r1	0
			.70	r2	
			.67	r3	
			.77	r4	
Responsiveness	3	0.71	.57	rs1	0
			.77	rs2	
			.63	rs3	
Assurance (Security and confidentiality)	4	0.83	.77	s1	0
			.60	s2	
			.76	s3	
			.79	s4	
Empathy (Handle personal and Privacy)	4	0.79	.71	h1	0
			.63	h2	
			.69	h3	
			.71	h4	
Barriers	6	.78	.69	B1	0
			.736	B2	
			.68	B3	
			.71	B4	
			.61	B5	
			.58	B6	
Enablers	6	.81	.79	E1	0
			.57	E2	
			.63	E3	
			.75	E4	
			.63	E5	
			.68	E6	

4.6.3 Validity

The validity assurance is divided into two categories. These two categories are the: (a) content validity and (b) construct validity. According to Casalo et al. (2007) and Flavian et al. (2005), content validity indicates the degree to which items correctly represent the theoretical content of the construct and should be based on a rigid theoretical background. Hence, the scales used in this research were adapted relying on in-depth literature reviewing.

Moreover, both measures were introduced to 10 arbitrators (experts who are in direct contact with e-government services) from e-government professional and university teachers. They were asked to assess the both measures in terms of the adequacy of content, wording and suitability to Jordan context. Their comments were taken into account.

On the other hand, construct validity concerns "whether this scale or set of items measures what it is intended to measure" (Craig & Douglas, 2005). In this research, construct validity will be evaluated relying on the exploratory factor analysis. The exploratory factor analysis of dimensionality is regarded as one of the validity indicators (Lassar, Manolis & Lassar, 2005; 2003 and Yoh et al., 2003). Furthermore, the exploratory factor analysis was used to examine the logical relationships between the multiple items of each scale.

Since the current research focused on how to evaluate the factors that are contributing to the evaluation of e-government service quality from the business' perspective in Jordan; based on their experience and/or understanding, the proposed model was evaluated by using confirmatory factor analysis (CFA) (Byrne, 2001).

Usually, Factor analysis is used to summarize data. It is performed by examining the pattern of correlations between groups of variables. Measures that are highly correlated, either positively or negatively are likely influenced by the same factors, while those that are relatively uncorrelated are likely influenced by different factors (DeCoster, 1998).

Factor analysis is divided into two forms; the exploratory factor analysis, which seeks to identify the nature of the constructs influencing a set of responses, and Confirmatory factor analysis, which examines whether a specified set of constructs influencing responses in a predicted way (DeCoster, 1998). The researcher in the current study will use the confirmatory factor analysis in order to identify the loadings of the various factors and the nature of their correlations.

To assess the appropriateness of using factor analysis on data, the KMO's (Kaiser-Meyer-Olkin) test was used. The KMO's test varies between 0 and 1. A value of 0 indicates that the sum of partial correlations is relatively large to the sum of correlations, which means that the factor analysis is likely to be irrelevant while a value close to 1, shows that patterns of correlations are relatively compact and factor analysis yield distinct and reliable factors (Field, 2005).

This analysis was based on the common factor Model, which proposes that each observed response (21 items of SERVQUAL model and 12 items of Barriers-Enablers) is influenced by underlying common factors (factor 1, 2, 3, 4, 5, 6,7). According to Wal et al., (2002), this factor is defined as the natural affinity of an item in a group. The strength of the correlation between a given factor and each measure varies in that a factor and could influence some dimensions more than others (DeCoster, 1998). Any score follows below the value 0.45 indicates a weak loading and therefore of little or no significance.

The factor loadings indicate the weights and correlations between each variable and the factor. The higher loadings reflect a high importance in defining the factor's dimensionality. However, the negative values indicate an inverse effect on the factor.

Generally, the values of items loadings for both measures as shown in table 4.4 and table 4.5 indicated acceptable levels of loadings and correlations. The items of SERVQUAL scales were categorized under five components which reflect their relation to their original dimensions. Furthermore, the Communalities

values revealed by Principal Component Analysis ranged from 0.739 to 0.976 for the items of the SERVQUAL scale which indicates a high ability of the items in interpreting the variations. However, the Communalities values revealed by Principal Component Analysis ranged from 0.739 to 0.976 for the items of Barriers-Enablers scale ranged from 0.630 to 0.919 (see appendices 7 and 8)

Table 4.4: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Rotated Component Matrix*					
Items	Component				
	1	2	3	4	5
t1	.678				
t2	.731				
t3	.693				
t4	.489				
t5	.688				
t6	.465				
r1		.749			
r2		.719			
r3		.854			
r4		.608			
rs1			.744		
rs2			.591		
rs3			.760		
s1				.759	
s2				.731	
s3				.719	
s4				.763	
h1					.627
h2					.503
h3					.827
h4					.713

*Rotation Method: Varimax with Kaiser Normalization

Similarly, the items of **Barriers-Enablers** scale were categorized under two components which reflect their relation to their original dimensions.

Table 4.5: Extraction Method: Principal Component Analysis for Barriers-Enablers measure

Rotated Component Matrix*		
Items	Component	
	1	2
B1	.724	
B2	.584	
B3	.721	
B4	.694	
B5	.583	
B6	.738	
E1		.664
E2		.617
E3		.548
E4		.811
E5		.631
E6		.705

*Rotation Method: Varimax with Kaiser Normalization

To conclude, the use of KMO's (Kaiser-Meyer-Olkin) test revealed that all the items within both SERVQUAL scale, and the Barriers/Enablers scale scored values higher than 0.45, which indicates strong and reliable loadings.

Further information that indicates how much of the total data fit into the factors of both measures since this was carried using variance are presented in Appendices 5, 6, 7 and 8.

4.7 Data Analysis

Data analysis process occupies the final part of the empirical research methodology presented in Figure 4.2. Data was derived from the interviews and the questionnaire will be triangulated and then analyzed according to comparative bases to draw empirical conclusions. This study implies two forms of data analysis: (1) Qualitative Data Analysis, and (2) Quantitative Data Analysis.

4.7.1 Quantitative Data Analysis

The process of quantitative data analysis takes many forms but is fundamentally mathematical still in nature. The research used various statistical methods in order to analyze the collected data. First, descriptive statistics such as standard deviations, means, the percentages were extracted. Second, the research relied on Factor analysis, Analysis of Variance, T-test and Simple Linear Regression. Usually, ANOVA is used in the Repeated Measures Designs when the measurements are repeated on the same sample while the t-test is used to examine the significance of a difference between two means. However, Simple Linear Regression is used to identify the degree in which the independent factor accounts for the variation in dependent variable (Al Killani & Al Shraifeen, 2007).

The Factor analysis is used to identify the correlations between the expected and actual items. In addition, it serves as an indicator for the validity of the proposed model by presenting the interrelations among the items of the different dimensions. However, in case of testing hypotheses, the Analysis of Variance will serve adequately by identifying the overall statistical differences between the means of the expected and actual dimensions. In respect to T-test, it will be used specifically to test the statistical significances between the means of the expected and actual items.

4.7.2 Qualitative Data Analysis

However, the qualitative data analysis will be more difficult because it implies latent meanings that need to be inferred, and categorized into main topics and themes relying on informal methods (as described early in this chapter) as well as it requires handling a huge amount of data. During this study, data analysis will involve examining the approaches, stages, steps and techniques necessary to carry out an evaluation for e-government service quality.

The interviews were analyzed manually relying on informal analysis approach. Each interview was transcribed verbatim upon completion. According to Berg & Lune (2014) and Creswell & Plano Clark (2011), there are three types of analyzing qualitative research:

(a) Formal (structured): implies the hypothesis testing approach and Quasi-statistics such as content analysis.
(b) Descriptive (Interpretative): implies no or few priori codes and used for researcher interpretation.
(c) Informal (less structured): implies reflection on data to form a hypothesis that fits the data.

In general, the informal analysis approach implies the following steps:

(1) Data collection.
(2) Data organization.
(3) Conceptualization, classifying, categorizing and identifying themes
(4) Connecting and interrelating data.
(5) Interpretation and creating explanatory accounts.

Tuaimah (2004) delineated the practical steps needed for analyzing a given content. These steps are undertaken after gathering the content under study. The following presentation summarizes these steps:

1. Selecting the samples (resource, content)
2. Defining the units of analysis (word, theme, character)
3. Defining the categories of analysis based on the following criteria:
    - The categories related to meaning (values, traits, attitudes)
    - The categories related to form (intensity, arrangement, frequency)
4. Verifying the reliability and validity of the content's lists.
5. Tabulating and organizing the results.
6. Performing the statistical analysis, interpreting, concluding and inferring.

The current study adopted the previous steps with considering the context of E-government. Based on this approach, the study adopted both the "theme" and "word" as units of analysis.

Consequently, the "theme" as a unit of analysis was adopted to identify the ideas related to the study hypotheses in order to extract the strong quotes among the e-government stakeholders. During the content analysis, these themes were classified into five categories that are linked to the study hypotheses: Tangibility, Reliability, Responsiveness, Security/Privacy, and Personalisation.

However, the "word" as a unit of analysis was adopted to identify the concepts related to gap, barriers and enablers. The words and their equivalents were classified into three categories:

1. The words (concepts) related to Gap: gap, hole, space, difference, etc.
2. The words (concepts) related to Barriers: barriers, challenges, obstacles, impediments, negatives, concerns, disadvantages, etc.
3. The words (concepts) related to Enablers: enablers, benefits, advantages, positives, etc.

Hence, the interviews were firstly divided into various categories and then categorized into themes and words. These themes were defined based on the findings of the literature review. This enabled the researcher in identifying the patterns and emerging themes in the data. Text based on these common themes were compared and contrasted and further refinement of these themes was undertaken until key themes were identified. Some researchers have observed that such an approach is the most appropriate choice in research designs where the qualitative text plays a supportive role rather than being the articulation of the study (Creswell & Plano Clark, 2011).

In the current study, two forms of content analysis were used: (1) quantitative content analysis, which is related to the research Q1, and (2) qualitative content analysis, which is related to the research Q3.

In the first form of quantitative content analysis, frequencies of the interviewees' themes were identified relying on their relation to estimating the gap size. The categories adopted were (presence of gap and absence of gap). The category "presence of gap" implies three sub-categories in terms of the level of gap size (small, moderate, large).

In the second form of qualitative content analysis, two main categories were set that are: (1) barriers, and (2) enablers.

To conclude, the interviews transcripts were overviewed carefully and themes were extracted upon the pre-defined categories. Then, the data revealed from analyzing the interviews were integrated with the data revealed from questionnaires in order to present more clarification and support. A brief summary of the interviews is shown in the appendices.

4.8 Ethical Considerations

The research Ethics are regarded as principles and guidelines that help us uphold the things we value (Johnson, 2008). Ethics is an important consideration in the research realm, so that the researcher sought to gather permission from the administrations of targeted firms and departments to access into them and distributes questionnaires to their employees as well as to conduct interviews with e-government stakeholders. The value of research depends largely on its ethical procedures (Walliman, 2011). The researcher, with approval from participants, explained that their participation is voluntary and statements will be kept confidential and that the information is only for research purposes. Moreover, the participants' names will remain anonymous in order to preserve their privacy. Also the study's objectives were explained. The researcher followed these instructions in accordance with the Ethical instructions approved by the School of Business Administration at Brunel University.

4.9 Research hypotheses

After reviewing the literature related to the evaluation of the quality of e-government services, it was concluded that this research will assess the quality of e-government services by proposing a model that comprises 7 research hypotheses. These hypotheses were inferred, and then adopted based on theory and the previous studies. The following table, table 2.9, shows the origins of these 7 hypotheses.

Table 4.7: Taxonomy of the proposed model's dimensions

Model	Dimensions	Reference
SERVQUAL model	Website design	Parasuraman et al. (1994); Lin (2005)
	Reliability	Parasuraman et al. (1994); waarden et al. (2003)
	Responsiveness	Parasuraman et al. (1994); Nusair and Kandampully (2008)
	Security and privacy	Parasuraman et al. (2005); Zeithaml (2002); Barnes and Vidgen (2002)
	Personalization	Parasuraman et al. (1994); Rowley (2006); Nusair and Kandampully (2008)
Barriers-Enablers Model	Barriers	Gilbert, Balestrini and Little Boy (2004)
	Enablers	Gilbert, Balestrini and Little Boy (2004)

The first set of hypotheses will imply five hypotheses derived from the SERVQUAL model. These hypotheses are:

H1: There are significant differences between the expected and actual Website design among business firms regarding the quality of e-government services**.**

H2: There are significant differences between the expected and actual Reliability among business firms regarding the quality of e-government services.

H3: There are significant differences between the expected and actual Responsiveness among business firms regarding the quality of e-government services.

H4: There are significant differences between the expected and actual Security and privacy among business firms regarding the quality of e-government services.

H5: There are significant differences between the expected and actual Personalization among business firms regarding the quality of e-government services.

However, the second set of hypotheses will imply two hypotheses derived from the Barriers-Enablers model. These hypotheses are:

H6: There are significant differences between the expected and actual barriers among business firms regarding the quality of e-government services.

H7: There are significant differences between the expected and actual Enablers among business firms regarding the quality of e-government services**.**

4.10 Summary and Conclusion

This Chapter describes the research methodology of the work presented in this dissertation. This description is within the context of research methods commonly used in the area of IS. Thereafter, the author explained why quantitative and qualitative approaches were used in this research. Finally, the author presents an empirical research methodology, which acts as a framework for conducting the empirical inquiry. Empirical evidences were then used to draw conclusions and resulted in the formulation of a frame of references for e-government service quality evaluation. The results revealed in this section calls for conducting more revising for the dimensions with their items in order to define the most appropriate components needed for the evaluating the e-governments service quality from a given perspective.

The next chapter, chapter 5, will further discussion on the collected data.

Chapter Five: Study Findings

5.1 Introduction

This part of the study addresses the findings gathered from both interviews and questionnaires. The research question relied on the research objectives. The research questions will appear in this section according to the following sequence:

5.2 Results related to Question 1

This question implies five hypotheses:

H1: There are significant differences between the expected and actual Website design among business firms regarding the quality of e-government services**.**

H2: There are significant differences between the expected and actual Reliability among business firms regarding the quality of e-government services.

H3: There are significant differences between the expected and actual Responsiveness among business firms regarding the quality of e-government services.

H4: There are significant differences between the expected and actual Security and privacy among business firms regarding the quality of e-government services.

H5: There are significant differences between the expected and actual Personalization among business firms regarding the quality of e-government services.

In order to answer this question, the standard deviations and means of the perceived and expected e-services were calculated. Table 5.1 shows these descriptive statistics.

It's obvious from Table 5.1 that all the standard deviations for the expected e-services exceeded 1, except the item t7 (Tangibility - The pages in E-government web site do not delay to emerge after the entry of a request for Information) which amounted to 0.95, which indicates a divergence between the respondents regarding this item. The highest standard deviation for the Expected e-services related to the item s2 (Security and confidentiality- I want to be confident of the security of the E - government website).

The means for the Expected e-services factor ranged between 3.40 (h3, Handle personal and Privacy- The E-government web site will provide other e-governmental service options (e.g., payment methods) and 3.88 (s2, Security and confidentiality- I want to be confident of the security of the E - government website).

The negative gap scores in Table 5.1 indicate that a gap existed between expected and perceived E-government services. To clarify, when the gap existed, the user of e-Government services shows to some extent that the e-Government services did not meet his needs and consequently he is not satisfied about such services.

Table 5.1: The descriptive statistics of the Actual/ Expected e-services

Dimension	Item	Expected e-service		Actual e-service		Gap Score
		SD	**Mean**	SD	**Mean**	
Tangibles	t1	1.10	3.66	.92	3.56	-.09
	t2	1.07	3.71	.95	3.43	-.28
	t3	1.05	3.57	.99	3.46	-.10
	t4	1.018	3.59	1.02	3.57	-.02
	t5	1.07	3.67	1.10	3.42	-.25
	t6	.95	3.80	.98	3.45	-.34
Reliability	r1	1.14	3.87	1.16	3.41	-.46
	r2	1.04	3.85	1.12	3.65	-.20
	r3	1.07	3.75	1.17	3.35	-.39
	r4	1.10	3.79	1.13	3.51	-.27
Responsiveness	rs1	1.15	3.76	.93	3.66	-.10
	rs2	1.02	3.78	1.00	3.43	-.35
	rs3	1.06	3.63	.96	3.57	-.06
Security and confidentiality	s1	1.14	3.78	1.25	3.59	-.19
	s2	1.16	3.88	1.15	3.68	-.19
	s3	1.09	3.77	1.17	3.69	-.08
	s4	1.13	3.68	1.27	3.61	-.07
Handle personal and Privacy	h1	1.14	3.70	1.07	3.41	-.29
	h2	1.07	3.77	1.06	3.40	-.36
	h3	1.04	3.40	1.06	3.38	-.02
	h4	1.10	3.41	1.01	3.30	-.11

The standard deviations for the Actual e-services factor ranged between 0.92 for the item t1 (Tangibles, The E-Customs Department web site has an attractive appearance to the viewer) and 1.17 for the item s3 (The E-Customs Department web site does not share my personal information with other web sites). However, the means for the Perceived e-services factor ranged between 3.30 (h4, Handle personal and Privacy- The E-Customs Department web site provides options for delivering services) and 3.69 (s3, Security and confidentiality- The E-Customs Department web site does not share my personal information with other web sites).

In respect to the gaps between the Expected and Actual e-services, all the items revealed gaps with different values.

The items with the highest expectation scores were the security of the government website and customer feels safe in transactions with the government website (3.88), website reliability promises to email or call by a certain time (3.87), e-government web site will deliver the right services (3.80), sincere interest in solving customer's problem (3.85). However, these scores do not vary from scores of other items, which imply in general; customers expect a lot from e-government.

The items that rated higher for actual service were, the web site protects information about credit card. (3.69), web site does not share personal information with other sites. (3.68), the web site gives prompt service. (3.66) and web site will deliver the right services (3.65). The difference between the scores of perceptions was not high. Generally, these differences were lower than expectations. The gap scores represent the difference between the perception and expectation relying on a range of values range from 5 to +5 scores. These gap scores measure service quality and hence the customer satisfaction. The more perceptions are close to expectations, the higher the perceived level of quality. The largest gap scores were, web site promises to email or call by a certain time (-.46), the website will charge me correctly for service order (-.39), the web site provides different e-government service options (e.g. Payment methods) (-.36) and web site is always helping Businesses (-.35).

To verify the significance of the overall gaps between the expected and actual e-government services, a series of T-tests were performed for all the items of each dimension in order to gather more detailed identification about the dimension with its items, which appeared during the validation process to be related to their dimensions. These results are shown according to each dimension.

Tangibility: table 5.2 indicates that all the differences related to the Expected-Actual items of **Tangibility** were significant except 3 items that are: t1 (E-government web site will be excellent with an attractive appearance), t3 (The process of conducting transactions in the E-government web site will be easy and fast) and t4 (The E-government web site will be always available to businesses companies).

Table 5.2: T-test results related to the items of the Tangibility dimension

Dimension	Item	Expected e-service		Actual e-service		T- test
		SD	**Mean**	SD	**Mean**	
Tangibles	t1	1.09	3.66	.92	3.56	1.63
	t2	1.07	3.71	.95	3.43	3.38*
	t3	1.04	3.57	.99	3.46	1.23
	t4	1.01	3.59	1.02	3.57	0.27
	t5	1.07	3.67	1.10	3.42	2.81*
	t6	.95	3.80	.98	3.45	4.36*

* Significant at $\alpha \leq 0.05$, T (critical) = 1.64

It is apparent from table 5.2 above that three items out of six revealed statistical significant differences. The difference is considered to be significant because the calculated T-test values exceeded the critical value that is 1.64.

This result indicates that the respondents (the business users of E-government services) showed a gap in the overall Tangibility dimension which means it does not meet their needs. However, three items or features (t1, t3 and t4) showed exception, which means they met the customers' needs.

Reliability: it is apparent from table 5.3 below that all of differences related to the Expected-Actual items of **Reliability** were significant

Table 5.3: T-test results related to the items of the Reliability dimension

Dimension	Item	Expected e-service		Actual e-service		T- test
		SD	**Mean**	SD	**Mean**	
Reliability	r1	1.14	3.87	1.16	3.41	4.8*
	r2	1.04	3.85	1.12	3.65	2.28*
	r3	1.07	3.75	1.17	3.35	4.32*
	r4	1.10	3.79	1.13	3.51	3.02*

* Significant at $\alpha \leq 0.05$, T (critical) = 1.64

It is apparent from table 5.3 above that all the four items revealed statistical significant differences. The difference is considered to be significant because the calculated T-test values exceeded the critical value that is 1.645.

It apparent from the previous results that the respondents (the business users of E-government services) showed a gap in the overall Reliability dimension which means it does not meet their needs.

Responsiveness: table 5.4 shows that only one Expected- Actual item difference was statistically significant (rs2, I believe that E-government website must be always ready to help companies)**.**

Table 5.4: T-test results related to the items of the Responsiveness dimension

Dimension	Item	Expected e-service		Actual e-service		T- test
		SD	**Mean**	SD	**Mean**	
Responsiveness	rs1	1.15	3.76	.93	3.66	1.20
	rs2	1.02	3.78	1.00	3.43	4.29*
	rs3	1.06	3.63	.96	3.57	0.76

* Significant at $\alpha \leq 0.05$, T (critical) = 1.645

It is apparent from table 5.4 above that only one item out of three revealed a statistical significant difference. The difference is considered to be significant because the calculated T-test values exceeded the critical value that is 1.64.

This result indicates that the respondents (the business users of E-government services) showed a gap in the overall Responsiveness dimension which means it does not meet their needs. However, two items or features (rs1 and rs3) showed exception, which means they met the customers' needs.

Security and Confidentiality: table 5.5 shows that two significant differences were found among Expected-Actual items in this dimension. However, the other two items, s3 (The E-government web site does not share my personal information with other web sites) and s4 (The E-government website will protect my credit card information) showed no significant differences.

Table 5.5: T-test results related to the items of the Security and Confidentiality dimension

Dimension	Item	Expected e-service		Actual e-service		T- test
		SD	**Mean**	SD	**Mean**	
Security and Confidentiality	s1	1.14	3.78	1.25	3.59	2.00*
	s2	1.16	3.88	1.15	3.68	2.04*
	s3	1.09	3.77	1.17	3.69	0.93
	s4	1.13	3.68	1.27	3.61	0.77

* Significant at $\alpha \leq 0.05$, T (critical) = 1.64

It is apparent from table 5.5 above that two items out of four revealed statistical significant differences. The difference is considered to be significant because the calculated T-test values exceeded the critical value that is 1.64.

This result indicates that the respondents (the business users of E-government services) showed no gap in the overall Security and Confidentiality dimension which means it meets their needs. However, two items or features (s3 and s4) showed exception, which means they did not meet the customers' needs.

Personalization: it apparent from table 5.6 that two significant differences were found between Expected-Actual items in this dimension. However, the other two items, h3 (The E-government web site will provide other e-governmental service options, e.g., payment methods) and h4 (The E-government web site will provide options for delivering services) showed no significant differences.

Table 5.6: T-test results related to the items of the Personalization dimension

Dimension	Item	Expected e-service		Actual e-service		T- test
		SD	**Mean**	SD	**Mean**	
Handle personal and Privacy	h1	1.145	3.70	1.07	3.41	3.23*
	h2	1.07	3.77	1.06	3.40	4.20*
	h3	1.04	3.40	1.06	3.38	0.31
	h4	1.10	3.41	1.013	3.30	1.23

* Significant at $\alpha \leq 0.05$, T (critical) = 1.645

It is apparent from table 5.6 above that two items out of four revealed statistical significant differences. The difference is considered to be significant because the calculated T-test values exceeded the critical value that is 1.64.

The previous result indicates that the respondents (the business users of E-government services) showed a gap in the overall Personalization dimension which means it does not meet their needs. However, two items or features (h3 and h4) showed exception, which means they met the customers' needs.

After introducing a general commentating on the results, the next presentation will shed the lights on the results related to each study hypothesis.

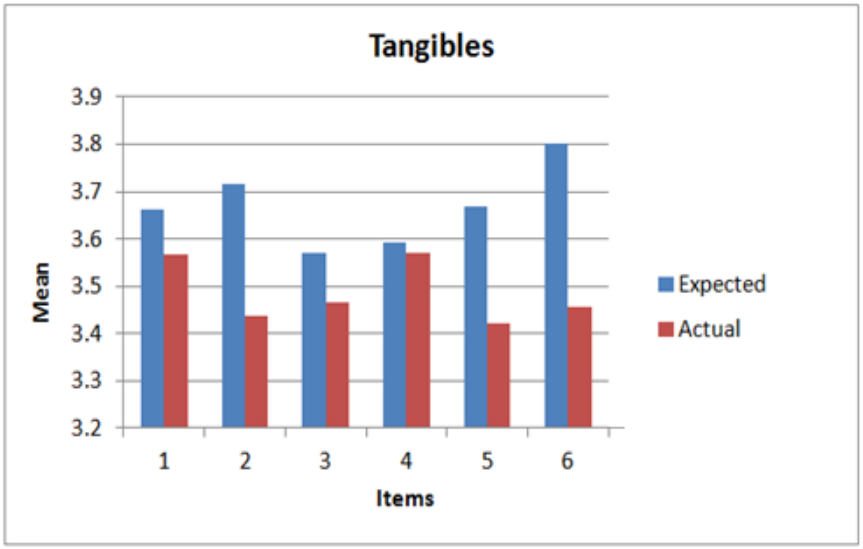
5.2.1 The first study hypothesis (H1)

The first study hypothesis (H1) stated:

"There are significant differences between the expected and actual Website design among business firms regarding the quality of e-government services"

Figure 5.1 below summarizes the results related to the first study hypothesis.

Figure 5.1: Comparisons between the expected and actual means of Tangibles dimension



It is notable from figures 5.1 above that all the items of **the Expected web design** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected e-government services concerning this dimension.

In order to examine the differences between the expected and actual **Website design** among business firms (The first hypothesis, H1), means and standard deviations were calculated.

Table 5.7: Group statistics for differences between the expected and actual Website design among business firms

	The Expected Web Design			The Actual Web Design		
Group Statistics	N	Mean	St. Dev.	N	Mean	St. Dev.
	300	3.67	1.05	300	3.47	1.00

In order to examine the significance of the difference between the Expected-Actual means of the Web Design dimension, ANOVA analysis was performed. Table 5.8 below shows the results of this analysis.

Table 5.8: ANOVA analysis for the differences between the expected and actual Website design among business firms regarding the quality of e-government services

	SS	Df	MS	F	P
Between groups	6.169	1	6.169	5.822*	0.016
Within groups	633.627	598	1.060		
Total	639.796	599			

* Significant at $\alpha \leq 0.05$

Since the P value (0.016) was less than 0.05, the result of ANOVA analysis is considered to be significant. It is apparent from table 5.8 above that ANOVA analysis for the Expected-Actual means of the Web Design dimension revealed a statistical significant difference where F value amounted to 5.822. Therefore, this result represents the overall dimension of Web Design despite some items (three items: t1, t3 and t4) did not show any significant differences.

Furthermore, a simple linear regression analysis was used to measure the effect of the independent variable (Web Design) on the business's perception of e-government service quality. The result indicated that the variable of **Web Design** account for 59.0 % of the resulted variance in the dependent variable.

Table 5.9: Regression Analysis Test (Model Summary) for the differences between the expected and actual Website design among business firms regarding the quality of e-government services

Model	R	R2	Adjusted R Square	Std. Error of the Estimate
1	. 739 (a)	.590	.275	.05732

A Predictors: (Constant), Web Design
b Dependent Variable: business's Perception

To conclude, the results revealed from the above analysis supports the first study hypothesis (H1) that stated **"There are significant differences between the expected and actual Website design among business firms regarding the quality of e-government services"**. Accordingly, this study accepts the first hypothesis (H1).

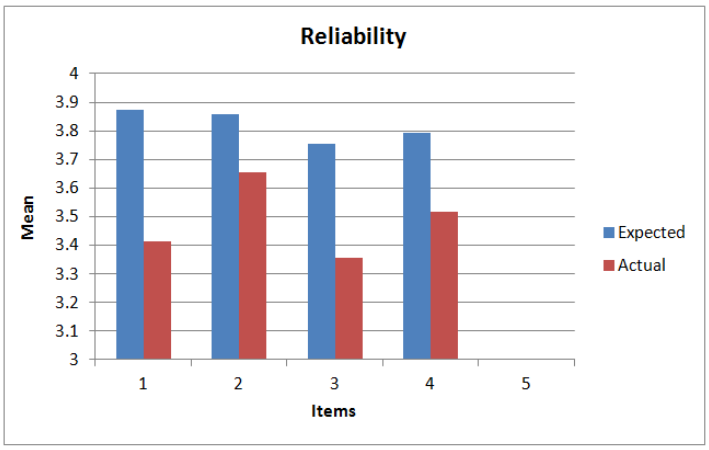
5.2.2 The second study hypothesis (H2)

The second study hypothesis (H2) stated:

"There are significant differences between the expected and actual Reliability among business firms regarding the quality of e-government services"

Figure 5.2 below summarizes the results related to the second study hypothesis.

Figure 5.2: Comparisons between the expected and actual means of Reliability dimension



It is notable from figures 5.2 above that all the items of **the Expected Reliability** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected e-government services concerning this dimension.

In order to examine the effect of **Reliability** on the business's perception of e-government service quality (The second hypothesis, H2), means and standard deviation values were calculated.

Table 5.10: Group statistics for the differences between the expected and actual Reliability among business firms regarding the quality of e-government services

	The Expected Reliability			The Actual Reliability		
	N	Mean	St. Dev.	N	Mean	St. Dev.
Group Statistics	300	3.81	1.09	300	3.48	1.14

In order to examine the significance of the difference between the Expected-Actual means of the **Reliability** dimension, ANOVA analysis was performed. Table 5.11 below shows the results of ANOVA analysis.

Table 5.11: ANOVA analysis for the differences between the expected and actual Reliability among business firms regarding the quality of e-government services

	SS	df	MS	F	P
Between groups	16.743	1	16.743	13.353*	0.000
Within groups	749.841	598	1.254		
Total	766.585	599			

* Significant at $\alpha \leq 0.05$

Since the P value (0.000) reached less than 0.05, the result of ANOVA analysis is considered to be significant. It is apparent from table 5.11 above that ANOVA analysis for the Expected-Actual means of the **Reliability** dimension revealed a statistical significant difference where F value amounted to 13.353. Therefore,

this result represents the overall dimension of **Reliability** noting that all the items of this dimension showed significant differences.

Furthermore, a simple linear regression analysis was used to measure the effect of the independent variable (**Reliability**) on the business's perception of e-government service quality. The result indicated that the variable of **Reliability** account for 51.3% of the resulted variance in the dependent variable.

Table 5.12: Regression Analysis Test (Model Summary) for the differences between the expected and actual Reliability among business firms regarding the quality of e-government services

Model	R	R2	Adjusted R Square	Std. Error of the Estimate
1	. 761 (a)	.513	.200	.043

A Predictors: (Constant), Reliability
b Dependent Variable: business's Perception

To conclude, the results revealed from the above analysis supports the second study hypothesis (H2) that stated **"There are significant differences between the expected and actual Reliability among business firms regarding the quality of e-government services".** Accordingly, this study accepts the second hypothesis (H2).

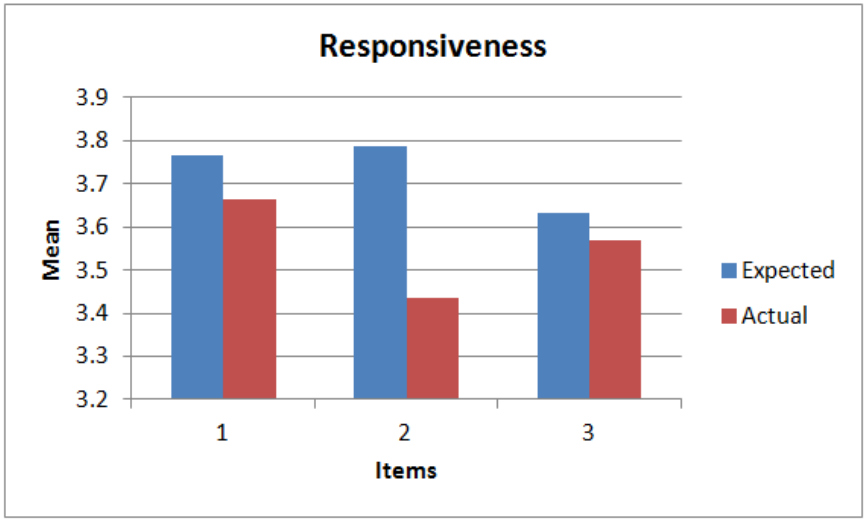
5.2.3 The third study hypothesis (H3)

The third study hypothesis (H3) stated:

"There are significant differences between the expected and actual Responsiveness among business firms regarding the quality of e-government services".

Figure 5.3 below summarizes the results related to the third study hypothesis.

Figure 5.3: Comparisons between the expected and actual means of Responsiveness dimension



It is notable from figures 5.3 above that all the items of **the Expected Responsiveness** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected e-government services concerning this dimension.

In order to examine the differences between the expected and actual **Responsiveness** dimension (The third hypothesis, H3), means and standard deviation values were calculated.

Table 5.13: Group statistics for differences between the expected and actual Responsiveness among business firms regarding the quality of e-government services

	The Expected Responsiveness			The Actual Responsiveness		
	N	Mean	St. Dev.	N	Mean	St. Dev.
Group Statistics	300	3.72	1.08	300	3.55	0.96

In order to examine the significance of the difference between the Expected-Actual means of the **Responsiveness** dimension, ANOVA analysis was performed. Table 5.14 below shows the results of ANOVA analysis.

Table 5.14: ANOVA analysis for differences between the expected and actual Responsiveness among business firms regarding the quality of e-government services

	SS	Df	MS	F	P
Between groups	4.448	1	4.44	4.20*	0.041
Within groups	632.832	598	1.05		
Total	637.280	599			

* Significant at $\alpha \leq 0.05$

Since the P value (0.041) was less than 0.05, the result of ANOVA analysis is considered to be significant. It is apparent from table 5.14 above that ANOVA analysis for the Expected-Actual means of the **Responsiveness** dimension revealed a statistical significant difference where F value amounted to 4.20. Therefore, this result represents the overall dimension of **Responsiveness** despite two items out of three (rs1 and rs3) did not show any significant differences.

Furthermore, a simple linear regression analysis was used to measure the effect of the independent variable (**Responsiveness**) on the business's perception of e-government service quality. The result indicated that the variable of **Responsiveness** account for 44.8% of the resulted variance in the dependent variable.

Table 5.15: Regression Analysis Test (Model Summary) for the differences between the expected and actual Responsiveness among business firms regarding the quality of e-government services

Model	R	R2	Adjusted R Square	Std. Error of the Estimate
1	. 602 (a)	.448	.028	.092

A Predictors: (Constant), Responsiveness
b Dependent Variable: Business's Perception

To conclude, the results revealed from the above analysis supports the third study hypothesis (H3) that stated **"There are significant differences between the expected and actual Responsiveness among business firms regarding the quality of e-government services".** Accordingly, this study accepts the third hypothesis (H3).

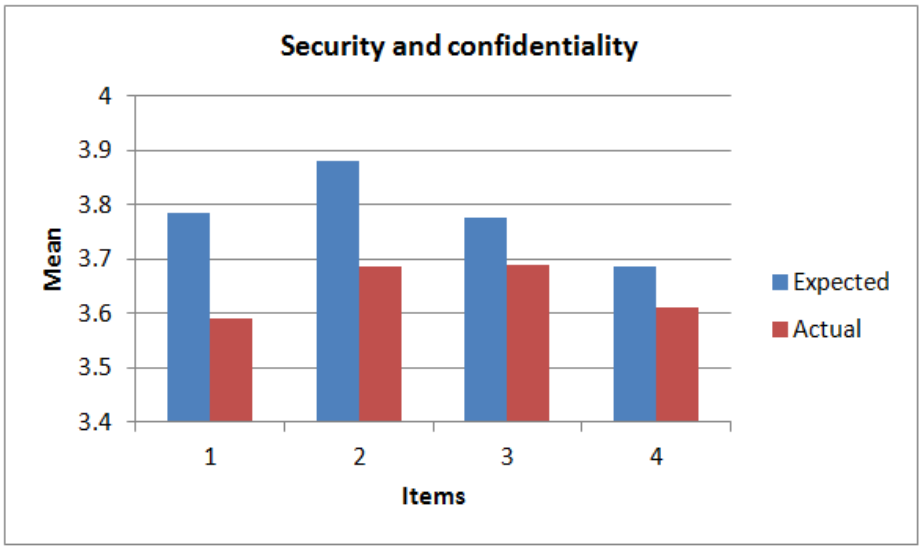
5.2.4 The fourth study hypothesis (H4)

The fourth study hypothesis (H4) stated:

"There are significant differences between the expected and actual Security and privacy among business firms regarding the quality of e-government services".

Figure 5.4 below summarizes the results related to the fourth study hypothesis.

Figure 5.4: Comparisons between the expected and actual means of Security and confidentiality dimension



It is notable from figures 5.4 above that all the items of **the Expected Security and Privacy** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected e-government services concerning this dimension.

In order to examine the effect of **Security and Privacy** on the business's perception of e-government service quality (The fourth hypothesis, H4), means and standard deviations values were calculated as shown in table 5.17 below.

Table 5.16: Group statistics for the differences between the expected and actual Security and privacy among business firms regarding the quality of e-government services

	The Expected Security and Privacy			The Actual Security and Privacy		
	N	Mean	St. Dev.	N	Mean	St. Dev.
Group Statistics	300	3.78	1.13	300	3.64	1.21

In order to examine the significance of the difference between the Expected-Actual means of the **Security and Privacy** dimension, ANOVA analysis was performed. Table 5.17 below shows the results of ANOVA analysis.

Table 5.17: ANOVA analysis for the differences between the expected and actual Security and privacy among business firms regarding the quality of e-government services

	SS	Df	MS	F	P
Between groups	2.873	1	2.87	2.072	0.151
Within groups	829.210	598	1.38		
Total	832.083	599			

Since the P value (0.151) was more than 0.05, the result of ANOVA analysis is considered to be not significant. It is apparent from table 5.17 above that ANOVA analysis for the Expected-Actual means of the **Security and Privacy** dimension revealed no statistical significant difference where F value amounted to 2.072. Therefore, this result represents the overall dimension of **Security and Privacy** despite two items (s1 and s2) out of four showed significant differences.

Furthermore, a simple linear regression analysis was used to measure the effect of the independent variable (**Security and Privacy**) on the business's perception of e-government service quality. The result indicated that the variable of **Security and Privacy** account for 52.0% of the resulted variance in the dependent variable.

Table 5.18: Regression Analysis Test (Model Summary) for the differences between the expected and actual Security and privacy among business firms regarding the quality of e-government services

Model	R	R2	Adjusted R Square	Std. Error of the Estimate
1	. 665 (a)	.52	.297	.058

a Predictors: (Constant), Security and Privacy
b Dependent Variable: Business's Perception

To conclude, the results revealed from the above analysis does not support the fourth study hypothesis (H4) that stated **"There are significant differences between the expected and actual Security and privacy among business firms regarding the quality of e-government services"**. Accordingly, this study rejects the fourth hypothesis (H4).

5.2.5 The fifth study hypothesis (H5)

The fifth study hypothesis (H5) stated:

"There are significant differences between the expected and actual Personalization among business firms regarding the quality of e-government services".

Figure 5.5 below summarizes the results related to the fifth study hypothesis.

Figure 5.5: Comparisons between the expected and actual means of Handle personal and Privacy dimension

It is notable from figures 5.5 above that all the items of **the Expected Personalization** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected e-government services concerning this dimension.

In order to examine the effect of **Personalization** on the business's perception of e-government service quality (The fifth hypothesis, H5), means and standard deviations, values were calculated as shown in table 5.19.

Table 5.19: Group statistics for the differences between the expected and actual Personalization among business firms regarding the quality of e-government services

	The Expected Personalization			The Actual Personalization		
	N	Mean	St. Dev.	N	Mean	St. Dev.
Group Statistics	300	3.57	1.09	300	3.37	1.05

In order to examine the significance of the difference between the Expected-Actual means of the **Personalization** dimension, ANOVA analysis was performed. Table 5.20 below shows the results of ANOVA analysis.

Table 5.20: ANOVA analysis for the differences between the expected and actual Personalization among business firms regarding the quality of e-government services

	SS	Df	MS	F	P
Between groups	5.898	1	5.89	5.126*	0.024
Within groups	688.078	598	1.15		
Total	693.977	599			

* Significant at $\alpha \leq 0.05$

Since the P value (0.024) was less than 0.05, the result of ANOVA analysis is considered to be significant. It is apparent from table 5.20 above that ANOVA analysis for the Expected-Actual means of the **Personalization** dimension

revealed a statistical significant difference where F value amounted to 5.126. Therefore, this result represents the overall dimension of **Personalization** despite two items (h3 and h4) out of four did not show any significant differences.

Furthermore, a simple linear regression analysis was used to measure the effect of the independent variable (**Personalization**) on the business's perception of e-government service quality. The result indicated that the variable of **Personalization** account for 58.2% of the resulted variance in the dependent variable.

Table 5.21: Regression Analysis Test (Model Summary) for the differences between the expected and actual Personalization among business firms regarding the quality of e-government services

Model	R	R2	Adjusted R Square	Std. Error of the Estimate
1	. 763 (a)	.582	.568	.112

A Predictors: (Constant), Personalization
b Dependent Variable: Business's Perception

To conclude, the results revealed from the above analysis supports the fifth study hypothesis (H5) that stated **"There are significant differences between the expected and actual Personalization among business firms regarding the quality of e-government services".** Accordingly, this study accepts the fifth hypothesis (H5).

To summarize, the quantitative analysis in this section revealed that four dimensions out of five present a gap between the expected and the actual E-government services. These dimensions are: Tangibility, Responsiveness, Reliability and Personalization. They reflect shortcomings in the provided E-government services from the business customers' perspective. However, the Security and privacy dimension showed no gap which indicated that it met the customers' needs and was addresses adequately by the providers of E-government services**.**

5.3 Results related to Question 2

This question implies two hypotheses:

H6: There are significant differences between the expected and actual barriers among business firms regarding the quality of e-government services**.**

H7: There are significant differences between the expected and actual Enablers among business firms regarding the quality of e-government services**.**

In order to answer this question, the standard deviations and means of the perceived and expected Barriers/Enablers were calculated. Table 5.22 shows these descriptive statistics.

Table 5.22: The descriptive statistics of the Actual and Expected Barriers/Enablers

Dimension	Item	Expectation		Actual		Gap Score
		SD	Mean	SD	Mean	
Barriers	B1	0.68	3.94	0.74	3.64	-.29
	B2	0.75	3.44	0.55	3.14	-.30
	B3	0.92	3.26	0.64	3.09	-.17
	B4	0.82	3.48	0.73	3.28	-.19
	B5	0.81	3.84	0.68	3.54	-.29
	B6	0.68	3.44	0.68	3.38	-.06
Enablers	E1	0.74	3.84	0.68	3.57	-.27
	E2	0.68	3.47	0.67	3.34	-.36
	E3	0.88	3.59	0.82	3.44	-.25
	E4	0.75	4.04	0.74	3.84	-.20
	E5	0.82	3.44	0.81	3.34	-.10
	E6	0.75	3.58	0.59	3.37	-.21

It is apparent from Table 5.22 that all the standard deviations for the expected and perceived Barriers/Enablers amounted to less than 1, which indicates a

convergence between the respondents regarding this item. The standard deviations for the Expected Barriers factor ranged between 0.68 for the item B1 (Confidentiality: The Personal data will be kept private and not used for other purposes) and 0.92 for the item B3 (Enjoyable: Using the e-government system will be an enjoyable experience).

However, the means for the Expected Barriers factor ranged between 3.26 for the item B3 (Enjoyable: Using the e-government system will be an enjoyable experience) and 3.94 for the item B1 (Confidentiality: The Personal data in e-government will be kept private and not used for other purposes).

The standard deviations for the Perceived Barriers factor ranged between 0.55 for the item B2 (Easy to use: The delivery mechanism in e-government will be straightforward to use with minimum effort required) and 0.74 for the item B1. However, the means for the perceived Barriers factor ranged between 3.09 for the item B3 and 3.64 for the item B1.

The standard deviations for the expected Enablers factor ranged between 0.68 for the item E2 (Control: I will be able to exert more control over the delivery of the e-government service than through another method) and 0.82 for the item E5 (Personalisation: I will be able to tailor the delivery of the e-government service more towards the individual). The means for the expected Enablers factor ranged between 3.44 for the item E5 and 3.44 for the item E4 (Cost: The e-government delivery of public services will save Money). Since the responses were obtained from business perspectives, the high mean for Cost indicates that cost is a matter of importance for this sector.

The standard deviations for the perceived Enablers factor ranged between 0.59 for the item E6 (Time: The time is saved by obtaining the E-Customs Department web site service electronically) and 0.81 for the item E5 (Personalization: The E-Customs Department web site enables me to tailor the delivery of the service more towards the individual). However, the means for the perceived Enablers factor ranged

Between 3.34 for the item E2 (Control: The E-Customs Department web site enables me to exert more control over the delivery of the service than through another method) and 3.84 for the item E4 (Cost: The electronic delivery of The E-Customs Department web site public services saves Money. Here again, the Cost emerges as an important factor for the business sector.

In respect to the gaps between the Expected and Perceived Barriers/enablers, all the items revealed gaps with different values. The lowest gap value amounted to -.06 for the item E6 (**Time**) while the highest gap value reached -.30 for the item B2 (Easy to use).

To verify the significance of the gaps between the expected and actual **Barriers-Enablers**, a series of T-tests were performed for all the items of each dimension. The results are shown according to each dimension.

Barriers: it is apparent from Table 5.23 below that all the differences between the Expected and Actual Barriers' items were significant (at the level $\alpha \leq 0.05$) except the item B6 (Visual appeal) which showed a non significant difference. The difference is considered to be significant because the calculated T-test values exceeded the critical value that is 1.64.

Table 5.23: T-test results related to the items of the Barriers dimension

Dimension	Item	Expected		Actual		T-Test
		SD	Mean	SD	Mean	
Barriers	B1	0.68	3.94	0.74	3.64	5.10*
	B2	0.75	3.44	0.55	3.14	5.57*
	B3	0.92	3.26	0.64	3.09	2.66*
	B4	0.82	3.48	0.73	3.28	3.13*
	B5	0.81	3.84	0.68	3.54	4.86*
	B6	0.68	3.44	0.68	3.38	1.09

* Significant at $\alpha \leq 0.05$, T (critical) = 1.64

Enablers: it is apparent from the table 5.24 below that all the differences between the Expected and Actual Enablers' items were significant (at the level $\alpha \leq 0.05$) except the item E5 (Personalisation) which showed a non significant difference. The difference is considered to be significant because the calculated T-test values exceeded the critical value that is 1.645.

Table 5.24: T-test results related to the items of the Enablers dimension

Dimension	Item	Expected		Actual		T-Test
		SD	Mean	SD	Mean	
Enablers	E1	0.74	3.84	0.68	3.57	4.65*
	E2	0.68	3.47	0.67	3.34	2.38*
	E3	0.88	3.59	0.82	3.44	2.15*
	E4	0.75	4.04	0.74	3.84	3.30*
	E5	0.82	3.44	0.81	3.34	1.50
	E6	0.75	3.58	0.59	3.37	3.77*

* Significant at $\alpha \leq 0.05$, T (critical) = 1.645

The previous results showed that the respondents (the business users of E-government services) showed a gap in the overall Barriers/Enablers dimensions which means that these two dimensions reflect a major concern for the users of E-government services.

After presenting a general commentating on the results related to this question, the next presentation will shed the lights on the results related to each hypothesis.

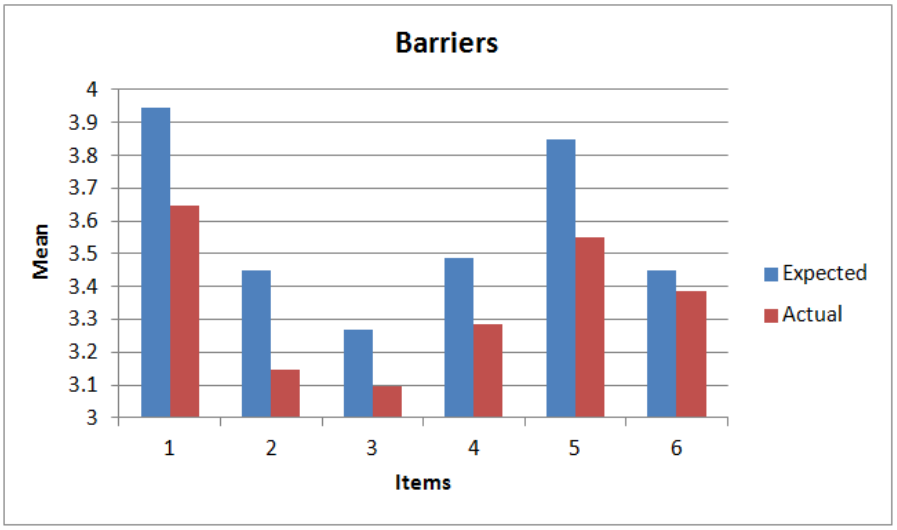
5.3.1 The sixth study hypothesis (H6)

The sixth study hypothesis (H6) stated:

"There are significant differences between the expected and actual barriers among business firms regarding the quality of e-government services".

Figure 5.6 below summarizes the results related to the sixth study hypothesis.

Figure 5.6: Comparisons between the expected and actual means of Barriers dimension



It is notable from figure 5.6 above that all the items of the **Barriers** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected Barriers.

In order to examine the **differences between the expected actual barriers among business firms regarding e-government service quality** (The sixth hypothesis, H6), means and standard deviations values were calculated.

Table 5.25: Group statistics for the differences between the expected actual barriers among business firms regarding e-government service quality

	The Expected Barriers			The Actual Barriers		
	N	Mean	St. Dev.	N	Mean	St. Dev.
Group Statistics	300	3.58	0.80	300	3.35	0.69

In order to examine the significance of the difference between the Expected-Actual means of the **Barriers** dimension that indicates the **differences between the expected actual barriers among business firms regarding e-government service quality**, ANOVA analysis was performed. Table 5.26 below shows the results of ANOVA analysis.

Table 5.26: ANOVA analysis for the differences between the expected actual barriers among business firms regarding e-government service quality

	SS	df	MS	F	P
Between groups	7.935	1	7.93	14.013*	0.000
Within groups	338.619	598	0.56		
Total	346.554	599			

* Significant at $\alpha \leq 0.05$

Since the P value (0.000) was less than 0.05, the result of ANOVA analysis is considered to be significant. It is apparent from table 5.26 above that ANOVA analysis for the Expected-Actual means of the **barriers** dimension revealed a statistical significant difference where F value amounted to 14.013. Therefore, this result represents the overall dimension of **barriers** despite one item out of six (B6: Visual appeal) did not show a significant difference.

Furthermore, a simple linear regression analysis was used to measure the effect of the independent variable (**Actual barriers for business organization**) on the business's perception of e-government service quality. The result indicated that the variable of **Actual barriers** account for 87.5 % of the resulted variance in the dependent variable.

Table 5.27: Regression Analysis Test (Model Summary) for the differences between the expected actual barriers among business firms regarding e-government service quality

Model	R	R2	Adjusted R Square	Std. Error of the Estimate
1	. 935 (a)	.875	.872	.086

A Predictors: (Constant), Actual barriers
b Dependent Variable: Business's Perception

To conclude, the results revealed from the above analysis supports the sixth study hypothesis (H6) that stated "**There are significant differences between the expected and actual barriers among business firms regarding the quality of e-government services".** Accordingly, this study accepts the sixth hypothesis (H6).

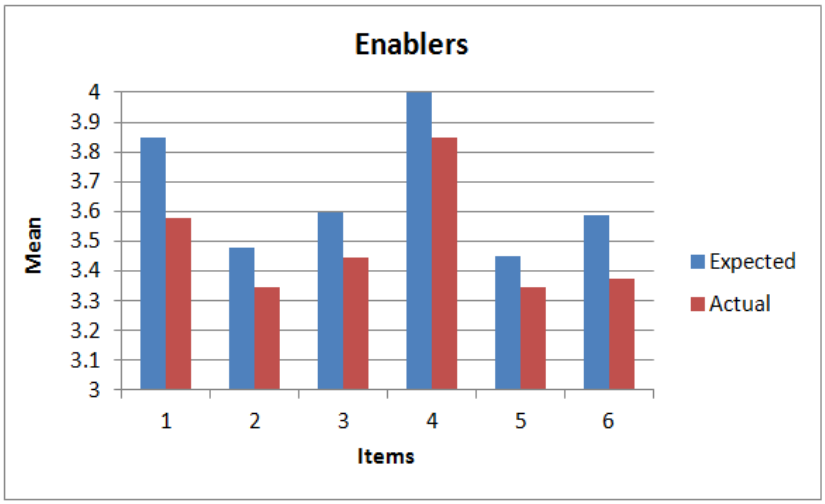
5.3.2 The seventh study hypothesis (H7)

The seventh study hypothesis (H7) stated:

"There are significant differences between the expected and actual Enablers among business firms regarding the quality of e-government services".

Figure 5.7 below summarizes the results related to the seventh study hypothesis.

Figure 5.7: Comparisons between the expected and actual means of Enablers dimension



It is notable from figure 5.7 above that all the items of the **Enablers** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected Barriers.

In order to examine the **differences between the expected and actual benefits among business firms regarding e-government service quality** (The seventh hypothesis, H7), means and standard deviations values were calculated as shown in Table 5.28.

Table 5.28: Group statistics for differences between the expected and actual benefits among business firms regarding e-government service quality

	The Expected Benefits			The Actual Benefits		
Group Statistics	N	Mean	St. Dev.	N	Mean	St. Dev.
	300	3.65	0.79	300	3.50	0.73

In order to examine the significance of the difference between the Expected-Actual means of the **Benefits** (Enablers) dimension that indicates **differences between the expected and actual benefits among business firms regarding e-government service quality**, ANOVA analysis was performed. Table 5.29 below shows the results of ANOVA analysis.

Table 5.29: ANOVA analysis for the differences between the expected and actual benefits among business firms regarding e-government service quality

	SS	df	MS	F	P
Between groups	3.375	1	3.375	5.779*	0.017
Within groups	349.230	598	0.584		
Total	352.605	599			

* Significant at $\alpha \leq 0.05$

Since the P value (0.017) was less than 0.05, the result of ANOVA analysis is considered to be significant. It is apparent from table 5.29 above that ANOVA analysis for the Expected-Actual means of the **enablers** dimension revealed a

statistical significant difference where F value amounted to 14.01. Therefore, this result represents the overall dimension of **enablers** despite one item out of six (E5, Personalisation: I will be able to tailor the delivery of the e-government service more towards the individual) did not show a significant difference.

Furthermore, a simple linear regression analysis was used to measure the effect of the independent variable (**Actual benefits for business organization**) on the business's perception of e-government service quality. The result indicated that the variable of **Actual benefits** account for 94.9 % of the resulted variance in the dependent variable.

Table 5.30: Regression Analysis Test (Model Summary) for the differences between the expected and actual benefits among business firms regarding e-government service quality

Model	R	R2	Adjusted R Square	Std. Error of the Estimate
1	. 974 (a)	.949	.948	.049

A Predictors: (Constant), Actual Benefits
b Dependent Variable: Business's Perception

To conclude, the results revealed from the above analysis supports the seventh study hypothesis (H7) that stated **"There are significant differences between the expected and actual Enablers among business firms regarding the quality of e-government services".** Accordingly, this study accepts the seventh hypothesis (H7).

5.4 Results related to Question 3

This question stated: "Are there any gaps between the actual and expected e-government services; and what are the barriers and enablers that affect using e-government services, from e-government perspective?"

This question relied mainly on the qualitative results. In this respect, the interviewees reported many notices and factors related to the existed gaps; and the barriers and enablers that affect adopting e-government services by the business firms. The interviewees' responses were listed down.

After the interviewees' responses were categorized and analyzed, the results revealed the following:

First: the interviews revealed some findings related to how the gaps between the actual and expected e-services were perceived by the e-government's stakeholders.

After the analysis of the 11 interviews carefully, the relevant data were inferred. Table 5.31 shows the results related to Question 1.

Table 5.31: Presence of gap from e-government perspective

No. of interviews	Categories of Analysis					
	Presence of gap		Gap size			
	Yes	No	Small	Moderate	Large	Unknown
11	9	2	5	1	1	2

It is apparent from Table 5.31 that the majority of responses revealed the existence of a gap between what is expected and actual among e-government services. The results indicated that 9 of the respondents (82% of the

interviewees) asserted the presence of the gap. Moreover, 5 of the respondents indicated that the gap where small while two responses revealed the unknown gap size. On the contrary, two of the interviewees indicated the absence of any gaps (8% of the interviewees).

Second: The interviews revealed two main categories: Barriers and Enablers. Table 5.32 below shows these findings.

Table 5.32: barriers and enablers that affect using e-government services, from e-government perspective

Barriers	Enablers
▪ Lack of training ▪ Lack of adequate budget ▪ Lack of regulations ▪ The need for paper transactions ▪ Lack of integration with another department ▪ High cost of operation ▪ Limitation of budget ▪ Lack of evaluating criteria ▪ Lack of real knowledge about what the customer needs (continuous feedback) ▪ Legislations (the site lack of special laws) ▪ Lack of qualified personnel ▪ Lack of adequate infrastructure	▪ Save time ▪ Save money ▪ Save effort ▪ The presence of alternative services ▪ Ease of use ▪ Good appearance ▪ Education and marketing ▪ Continuous updating of the content, services, and appearance ▪ Simplification of the transactions ▪ Providing new services ▪ The presence of electronic signature ▪ Security and Privacy (the customer profile is always protected) ▪ Fast response to customer needs 24 hours ▪ Integration with the various departments (linking or interoperability) ▪ Awareness

It is notable from Table 5.32 above that the interviewees revealed more factors related to Enablers compared with Barriers.

Notably, these factors show the need for considering them during the processes of improving and evaluating the e-government services. Moreover, these results can shed the light on the relevancy nature of the identified factors; whether they are more related to the providers or to the users of e-government services.

5.5. Summary and Conclusion

This chapter dealt with the results obtained after administering the study instruments and analyzing the data. The study adopted a mixed approach, quantitative and qualitative methods. As a quantitative method, two types of questionnaires were used: a SERVQUAL questionnaire and Barrier-Enablers questionnaire. As a qualitative method, interviews were conducted. Then, data were obtained and analyzed relying on statistical procedures. A series of t-tests were used to identify the significance of the differences between the Expected-Actual items of the dimensions.

Moreover, ANOVA analysis was used to identify the overall significance of the differences between the Expected-Actual dimensions. The factor analysis was used to identify the interrelations between items.

The results indicated the presence of differences between all the Expected-Actual items among all measures. All the expected items had higher values which indicate that the business firms expected more from e-government services.
For the SERVQUAL questionnaire, all the overall Expected-Actual differences among dimensions were statistically significant except the Security and Privacy dimension, which revealed no significant differences.

For the Barrier-Enablers questionnaire, all the overall Expected-Actual differences among dimensions were statistically significant with no exceptions.

Moreover, the factor analysis results revealed acceptable and stable correlations among items in addition to indicating that all the items of both measures were categorized under their original dimension. Furthermore, the regression analysis results indicated the degree in which the independent variables account for the resulted variance in the dependent variable.

More detailed discussion will be provided in the next chapter, chapter 6.

Chapter Six: Discussion of Results

6.1 Introduction

This part of the study addresses the findings gathered from both interviews and questionnaires. The finding indicated the presence of statistical significant differences between the Actual-Expected items in four dimensions of the SERVQUAL Questionnaire that are: Web Design, Reliability, Responsiveness and Personalization. The Security and Privacy dimension indicated the absence of statistical significant differences. Both dimensions of the Barriers/Enablers Questionnaire indicated the presenting of statistical significant differences between the Actual-Expected items. Moreover, the regression analysis indicated that the model was valid in accounting for the resulted variance in the dependent variable. In its essence, this chapter aims to provide a discussion of the results revealed from the previous chapter so as to revise the proposed model in the light of the primary data gained from the analysis. It's hoped that the revised model may contribute to provide a better evaluation for the e-government service quality based on the business perspective.

The research questions relied on the research objectives. The discussion of research questions will appear in this section according to the following sequence:

6.2 Discussion of results related to Question 1

This question stated: "Are there any gaps between the actual and expected e-services from the business firms' perspective?"

The first question was addressed directly by the proposed SERVQUAL questionnaire. In addition, the interviews here contribute widely in supporting the evidences revealed from the qualitative data. In this way, the study was able to propose model for evaluating the quality of E-government services from a business perspective by combining two different sources of perspectives: the e-government service provider and the e-government service receiver (business firms).

The proposed SERVQUAL questionnaire was directed to employees within business firms (the respondents). They were asked to rate their viewpoints regarding two sorts of e-government services: the expected and actual. Their ratings ranged from 1 (strongly disagree) to 5 (strongly agree).

In general, all the dimensions of the proposed SERVQUAL questionnaire, with their items, showed the presence of differences between the expected and actual e-government services where the expected e-government services scored higher.
In order to answer this question, the respondent was asked to rate their viewpoints regarding a number of items concerning the actual and expected e-services. Then, the means of the actual and expected e-services were calculated. At the first phase of analyzing data, only the values of the gaps were calculated. In respect to the gaps between the Expected and Actual e-services, all the items revealed gaps with different values.

All the items indicated the presence of gaps between the Expected and Actual e-services. Interestingly, results from interviews also revealed the presence of gaps between the Expected and Actual e-services but from the e-government

perspective. The interviews' results indicated that 9 of the respondents (82% of the interviewees) asserted the presence of the gap.

Later, a series of T-tests were performed for all the items of each dimension. This step was necessary to verify the significance of the gaps between the expected and actual e-government services. Moreover, ANOVA analysis was used to identify the significance of the gaps between the expected and actual e-government services and therefore to examine the study hypotheses. This discussion of results is shown according to each hypothesis.

In fact, these gaps are expected in addition to they are in line with what kumar et al. (2009) indicated that the gaps usually exist at different levels. This result was asserted by the majority of the stakeholders of E-government services. To specify, one comments revealed:

'.. To be realistic in this regard based on my information and recognizing the sensitivity of this research, I can assert that the user of our website finds a moderate gap between what he expect and receive..'
(Interview Transcript 1)

We may conclude, based on the above evidence that identifying the gap may be regarded a vital step in evaluating the quality of e-government services.

6.2.1 Discussion of results related to the first study hypothesis (H1)

The first study hypothesis (H1) stated:

"There are significant differences between the expected and actual Website design among business firms regarding the quality of e-government services".

By comparing the means, all the items of **the Expected web design** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected e-government services concerning this dimension. To verify the significance of the gaps, and therefore to examine the effect of **Web Design** on the business's perception of e-government service quality (The first hypothesis, H1), ANOVA analysis was performed. The ANOVA analysis of the Expected-Actual means of the Web Design dimension revealed a statistical significant difference where F value amounted to 5.822. Therefore, this result represents the overall dimension of Web Design despite some items (three items: t1, t3 and t4) did not show any significant differences. These items were t1 (E-government web site will be excellent with an attractive appearance), t3 (The process of conducting transactions in the E-government website will be easy and fast) and t4 (The E-government website will be always available to business companies). These results indicate the expectations of business firms. Hence, these three items reflect the success of e-government service providers. However, the other items (services) need more addressing from e-government service providers.

Despite the failure of e-government in providing some services, this result reflected the significant concern of the stakeholders of e-government services in providing acceptable appearance, easy and fast transactions, and businesses firms' services within their web site as pointed by some researchers (Al-Khouri, 2012; Al-Khamaysah, 2013).

Moreover, this result indicates that the tangibility dimension is a good predictor for the gap related to the quality of e-government services. This result appears to be consistent with what was outlined by Lee and Lin (2005) who revealed that a number of studies found a direct influence of website design on the e-service performance. In addition, this result is in line with what Al-rawahna (2012) reported regarding the positive effect of website design on the quality e-services in Jordan.

Again, a number of e-government stakeholders supported this idea by stating:

‘.. The appearance, content and the speed of the website contribute to attract more users..’
(Interview Transcript 5)

6.2.2 Discussion of results related to the second study hypothesis (H2)

The second study hypothesis (H2) stated:

"There are significant differences between the expected and actual Reliability among business firms regarding the quality of e-government services".

By comparing the means, all the items of **the Expected Reliability** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected e-government services concerning this dimension.

To verify the significance of the gaps, and therefore to examine the effect of **Reliability** on the business’s perception of e-government service quality (The second hypothesis, H2), means and standard deviation values were calculated. ANOVA analysis was performed. The ANOVA analysis of the Expected-Actual means of the **Reliability** dimension revealed a statistical significant difference where F value amounted to 13.35. Therefore, this result represents the overall dimension of **Reliability** noting that all the items of this dimension showed significant differences. This dimension with all of its items reflects some sort of failure by the e-government service providers. In general, this result indicates the presence of gaps in all the items, which may reflect the e-government failure in this dimension.

Similar to the Tangibility dimension, this result indicates that the Reliability dimension is a good predictor for the gap related to the quality of e-government services. This result is consistent with the findings of warden et al. (2003).

Moreover, the interviews supported this notion since one stakeholder reported a comment on the issue of Reliability:

'.. Most of the e-government users prefer to receive the requested services precisely without any delay..'
(Interview Transcript 4)

Moreover, this dimension was proposed by Shachaf et al. (2008) in addition to other two dimensions as a main dimension that have a significant effect on the E-service quality.

6.2.3 Discussion of results related to the third study hypothesis (H3)

The third study hypothesis (H3) stated:
"There are significant differences between the expected and actual Responsiveness among business firms regarding the quality of e-government services".

By comparing the means, all the items of **the Expected Responsiveness** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected e-government services concerning this dimension.

To verify the significance of the gaps, and therefore to examine the effect of **Responsiveness** on the business's perception of e-government service quality (The third hypothesis, H3), ANOVA analysis was performed. The ANOVA analysis of the Expected-Actual means of the **Responsiveness** dimension revealed a statistical significant difference where F value amounted to 4.20. Therefore, this result represents the overall dimension of **Responsiveness** despite two items out of three (rs1 and rs3) did not show any significant differences. Accordingly, these two items may reflect the success of e-government service providers. However, the other item (service) needs more addressing from e-government service providers.

This result is consistent with Nusair and Kandampully (2008) who introduced this dimension as a main factor that has the potential to influence on the E-service quality. In respect to the qualitative results, the indicators revealed from the e-government interviewees provide a support for the importance of Responsiveness in the evaluation process. To clarify, one interviewee reported:

'.. The e - government website should respond rapidly to user interactions..'
(Interview Transcript 4)

6.2.4 Discussion of results related to the fourth study hypothesis (H4)

The fourth study hypothesis (H4) stated:
"There are significant differences between the expected and actual Security and privacy among business firms regarding the quality of e-government services".

By comparing the means, all the items of **the Expected Security and Privacy** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected e-government services concerning this dimension.

To verify the significance of the gaps, and therefore to examine the effect of **Security and Privacy** on the business's perception of e-government service quality (The fourth hypothesis, H4), ANOVA analysis was performed. Unexpectedly, the ANOVA analysis of the Expected-Actual means of the **Security and Privacy** dimension revealed no statistical significant difference where F value amounted to 2.07. Therefore, this result represents the overall dimension of **Security and Privacy** despite two items (s1 and s2) out of four showed significant differences. However, the other two items, s3 (The E-government web site does not share my personal information with other web sites) and s4 (The E-government website will protect my credit card information) showed no significant differences.

Interestingly, this result indicates that the e-government service providers pay considerable attention for **Security and Privacy**. This result was not surprised because many researchers pointed to the importance of this dimension for both the providers and receivers of e-government services (Wolfinbarger & Gilly, 2003; Ateeq et al., 2010; Al-Khamaysah, 2013).

Unexpectedly, this result was not in line with the findings revealed by Zeithaml (2002), Barnes and Vidgen (2002) and Parasuraman et al. (2005) who were consensus regarding the importance of Security and Privacy in identifying the gap.

To remove the contradiction in this issue, it might be said that Security and Privacy issues are very important in the reality of the e-government services, but at the same time are not valid in identifying the gap between the expected and actual e-government services, since they are considered adequately by the providers of e-government services and the receivers of the e-government services at the business sector perceived no gaps in this dimension. Consequently, this dimension should be removed from the evaluation process at least in our case.

Moreover, the responses gathered from interviewing the e-government stakeholders confirm the previous idea where one of them outlined:

'.. As a matter of fact, we pay considerable attention towards the issues of security while providing online interactions..'
(Interview Transcript 9)

6.2.5 Discussion of results related to the fifth study hypothesis (H5)

The fifth study hypothesis (H5) stated:

"There are significant differences between the expected and actual Personalization among business firms regarding the quality of e-government services".

By comparing the means, all the items of **the Expected Personalization** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected e-government services concerning this dimension.

To verify the significance of the gaps, and therefore to examine the effect of **Personalization** on the business's perception of e-government service quality (The fifth hypothesis, H5), ANOVA analysis was performed. The ANOVA analysis of the Expected-Actual means of the **Personalization** dimension revealed a statistical significant difference where F value amounted to 5.12. Therefore, this result represents the overall dimension of **Personalization** despite two items (h3 and h4) out of four did not show any significant differences. The items, h3 (The E-government web site will provide other e-governmental service options, e.g., payment methods) and h4 (The E-government web site will provide options for delivering services) showed no significant differences.

Accordingly, it can be said that these two items may reflect the success of e-government service providers. However, the other two items (services) need more attention from e-government service providers. However, this result asserts the idea stated in the previous literature that the stakeholders of e-Government concern for providing a variety of services to convince the customers' needs (Nusair & Kandampully, 2008; Madu & Madu, 2002; Hongxiu & Reima, 2009; Lee & Lin, 2005).

Similar to the results of Tangibility, Reliability and Responsiveness, this result is consistent with the results of Rowley (2006) and Nusair and Kandampully (2008) who introduced this dimension as a main factor that has the potential to influence the E-service quality.

With respect to the results of interviews, some stakeholders support the importance of Responsiveness in the evaluation process. To clarify, one interviewee reported:

'.. Customers of the e - government website are always looking forward to have more alternatives and a variety of online services..'

(Interview Transcript 8)

It is apparent from the previous results along with the relevant discussion that focus should be directed towards four dimensions which have the potential to identify the gap between the expected and actual e-government services (in the Jordanian context, and from the business perspective) in order to assess the quality of these services effectively.

6.3 Discussion of results related to Question 2

This question stated: "Are there any gaps between the actual and expected barriers/enablers from the business firms' perspective?"

Similar to the proposed SERVQUAL questionnaire, the second question was addressed directly by the proposed Barriers/Enablers questionnaire. The proposed Barriers/Enablers questionnaire was directed to employees within business firms (the respondents). They were asked to rate their viewpoints regarding the expected- actual barriers and enablers that influence the adoption of e-government services: their ratings ranged from 1 (strongly disagree) to 5 (strongly agree).

In general, all the dimensions of proposed Barriers/Enablers questionnaire, with their items, showed the presence of differences between the expected and actual Barriers/Enablers where both the expected Barriers and Enablers scored higher.

In order to answer this question, the respondent was asked to rate their viewpoints regarding a number of items concerning the actual and expected Barriers/Enablers. Then, the means of the actual and expected Barriers/Enablers were calculated. At the first phase of analyzing data, only the values of the gaps were calculated. In respect to the gaps between the Expected and Actual Barriers/Enablers, all the items revealed gaps with different values.

All the items of this measure indicated the presence of gaps between the Expected and Actual Barriers/Enablers. Descriptively, the results from interviews a number of Barriers and Enablers that influence the adoption of e-government services from e-government stakeholders.

Later, a series of T-tests were performed for all the items of each dimension. This step was necessary to verify the significance of the gaps between the expected

and actual Barriers and Enablers. Moreover, ANOVA analysis was used to identify the significance of the gaps between the expected and actual Barriers and Enablers and therefore to examine the study hypotheses. This discussion of results is shown according to each hypothesis.

In general, these results are consistent with the results of (1995), Mehrtens et al. (2001) and Beynon-Davies (2005) since they emphasized the importance of considering barriers as factors that may hinder the adoption of e-services.

6.3.1 Discussion of results related to the sixth study hypothesis (H6)

The sixth study hypothesis (H6) stated:

"There are significant differences between the expected and actual barriers among business firms regarding the quality of e-government services".

By comparing the means, all the items of the **Barriers** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected Barriers.

To verify the significance of the gaps, and therefore to examine the effect of **actual barriers for business organization** on the business's perception of e-government service quality (The sixth hypothesis, H6), ANOVA analysis was performed. The ANOVA analysis of the Expected-Actual means of the **barriers** dimension revealed a statistical significant difference where F value amounted to 14.013. Therefore, this result represents the overall dimension of **barriers** despite one item (B6: Visual appeal) out of six did not show a significant difference. It is worthy here to note that the items of the **barriers** scale were phrased in the positive direction. Hence, the result reflects a negative effect, which means that barriers contribute significantly in hindering the adoption of e-

government services among business firms. In general, Gilbert, Balestrini and Little Boy (2004) revealed similar findings with little variations in some items.

The results of this hypothesis were consistent with what Hu et al. (2003) and (Lam, 2005), which indicated the negative effect of barriers to the adoption of e-government services.

Moreover, the qualitative results indicated that barriers are considered as main concerns among the providers of e-government services. To clarify, one of the e-government stakeholders reported the following:

'.. Challenges such as lack of adequate infrastructure, lack of evaluating criteria and the need for paper transactions contributes widely to limiting the effectiveness of e-government services..'
(Interview Transcript 6)

6.3.2 Discussion of results related to the seventh study hypothesis (H7)

The seventh study hypothesis (H7) stated:

"There are significant differences between the expected and actual Enablers among business firms regarding the quality of e-government services".

By comparing the means, all the items of the **Enablers** dimension were higher than the actual ones. In general, this result indicates the presence of a gap between the actual and expected Barriers.

To verify the significance of the gaps, and therefore to examine the effect of **actual Benefits for business organization** on the business's perception of e-government service quality (The seventh hypothesis, H7), ANOVA analysis was performed. The ANOVA analysis of the Expected-Actual means of the **enablers** dimension revealed a statistical significant difference where F value amounted to

14.013. Therefore, this result represents the overall dimension of **enablers** despite one item (E5, Personalisation: I will be able to tailor the delivery of the e-government service more towards the individual) out of six did not show a significant difference. Apparently, this result indicates that the **enablers** contribute significantly in promoting the adoption of e-government services by the business firms.

In general, these findings came in line with finding revealed by many studies such as the study of Gilbert, Balestrini and Little Boy (2004).

Moreover, the results of this hypothesis were consistent with the findings of Mehrtens et al. (2001) and Themistocleous & Irani (2002) that reported the positive effect of enablers on the adoption of e-government services.

With respect to the results of interviews, the e-government stakeholder indicated that enablers are regarded as main factors in promoting the adoption of e-government services. To clarify, one of the e-government stakeholders notified:

'.. There are many advantages such as simple transactions and high level of security and privacy that motivate e-government users to increase the level of their usage for such e-services..'
(Interview Transcript 11)

6.4 Discussion of results related to Question 3

This question stated: "Are there any gaps between the actual and expected E-government services; and what are the barriers and enablers that affect using e-government services, from e-government perspective?"

As mentioned before, this question relied mainly on the qualitative results. The interviewees were asked during the interview to report their notices and their views related to:

A: The interviews, which revealed some findings related to how the gaps between the actual and expected e-services were perceived by the e-government's stakeholders. The results showed that the majority of E-government stakeholder responses revealed the existence of a gap between what is expected and actual among e-government services. In fact, this result was expected and in consistence with the literature.

B: The barriers and enablers, which affect e-government services. The responses were analyzed and then many themes were inferred. In general their responses were consistent with the **barriers and enablers** found in the relevant literature.

Categorizing and analyzing the interviewees' responses (e-government stakeholders) revealed two main categories: Barriers and Enablers. Interestingly, despite these results were expected, their responses introduced factors that are most relevant to e-government. In other words, the e-government service providers are responsible for both barriers and enablers. The only exception existed within the enabler list where some components were more related to the e-government service receivers. These components (or enablers) are: save time, save money, save effort, easiness of use, and awareness.

Moreover, it is worthy to note here that the majority of these factors is more related to the providers of e-government services since they are derived from of e-government stakeholders' perspectives. Moreover, these findings indicated that interviewees revealed more factors related to enablers which can be interpreted that the e-government stakeholders are concerned with meeting the needs of customers. This result is consistent with the previous literature (Al-Khouri, 2012; Al-Khamaysah, 2013; Hazlett & Hill, 2003).

However, some components appeared to be common between the two dimensions such as security and privacy. This result provides a clear vision that this model requires more revising in order to define the most appropriate components especially that adapt certain contexts than others.

In general, these results are in line with the results related to identifying the barriers and enablers that have the potential to influence the adoption of e-government services in different contexts (Gilbert, Balestrini and Littleboy, 2004). Moreover, the identified factors show the need for considering them during the processes of improving and evaluating the e-government services. However, these finding show, in general, that the Barriers (for example, Lack of training, Lack of adequate budget) are more related to the providers of e-government services while the Enablers (for example, Coast, Time) are more related to the receivers of e-government services.

To conclude, adding the barriers and enablres to the process of evaluating the quality of e-government services appears to be an advantage in the current undertaking based on the evidence revealed from the results.

6.5 Results of Triangulation

As discussed early in this study, a mixed method approach was adopted in this research by combining both quantitative and qualitative methods. This process was undertaken in order to gather a more holistic view regarding the process of evaluation of e-government service quality and the business user's trends towards adopting the e-government services. Moreover, it sought to identify the potential barriers and enablers that hinder the adoption of e-government services.

The triangulation process undertaken in this study contributed in clarifying the phenomenon under question from different viewpoints. The data revealed from the questionnaires were combined with data revealed from interviews in order to make conclusions regarding the evaluation of the quality of e-government services. The triangulation process showed to what extent the result was consistent. The triangulation undertaken in this study revealed the following outcomes:

First: the first questions results indicated a significant gap between the expected and actual e-government services; the interview that comprised a number of Qualitative questions derived from the literature indicated the views of e-government stakeholder who are in charge of e-government services. The interview results indicated that the majority of the responses confirmed the existence of a gap between what is expected and actual among e-government services. The results indicated that 9 of the respondents out of 11 (82% of the interviewees) asserted the presence of the gap. Accordingly, the results of both qualitative and quantitative methods were consistent in terms of the presence of a gap.

Second: the results reveled from question three identified a variety of barriers and enablers that may influence the adoption of e-government services. The majority of these factors were consistent with the factors underlying the SERVQUAL and Barriers-Enablers' Questionnaires.

6.6 The Overall Results

The analysis of hypotheses revealed that all of the proposed model's dimensions have a significant effect on the business's perception of e-government service quality except the security/privacy dimension that have no significant effect. Based on these results, the proposed model was modified and revised. The summary of the overall results related to testing the study hypotheses can be shown in table 7.1 below.

Table 7.1: Summary of Hypotheses Results

Hypoth. No.	The Proposed Hypothesis	F Value	R^2	Result
H1	There are significant differences between the expected and actual Website design among business firms regarding the quality of e-government services	5.822*	.590	Accepted
H2	There are significant differences between the expected and actual Reliability among business firms regarding the quality of e-government services	13.353*	.513	Accepted
H3	There are significant differences between the expected and actual Responsiveness among business firms regarding the quality of e-government services	4.203*	.448	Accepted
H4	There are significant differences between the expected and actual Security and privacy among business firms regarding the quality of e-government services	2.072	.52	**Rejected**
H5	There are significant differences between the expected and actual Personalization among business firms regarding the quality of e-government services	5.126*	.582	Accepted
H6	There are significant differences between the expected and actual barriers among business firms regarding the quality of e-government services	14.013*	.875	Accepted
H7	There are significant differences between the expected and actual Enablers among business organizations regarding the quality of e-government services	5.779*	.949	Accepted

* Significant at $\alpha \leq 0.05$

6.7 The Revised Model

The current study aimed mainly to propose a frame of reference concerning the process of evaluating the e-government service quality in Jordan from business firms' perspectives.

This frame of reference is based on the following premises:

A- Theoretical background related to the evaluation of e-government service quality in Jordan based on the gap theory and the barriers and enablers that influence the adoption of e-government services.

The idea of gap refers to identifying the difference between the expected and actual e-government services. Hence, the difference indicates the quality of e-government services provided to the customers (i.e. The business sector in our case). Moreover, the first part of the theoretical background is related to identifying the gaps in five dimensions of SERVQUAL questionnaire that are:

(1) The gaps between the actual and expected e-services related to Website design.
(2) The gaps between the actual and expected e-services related to Reliability.
(3) The gaps between the actual and expected e-services related to Responsiveness.
(4) The gaps between the actual and expected e-services related to Security and privacy**.**
(5) The gaps between the actual and expected e-services related to Personalization**.**

The second part of the theoretical background is related to identifying the gaps in two dimensions of **barriers/enablers** questionnaire that are:

(1) The gaps between the actual and expected barriers.
(2) The gaps between the actual and expected enablers.

The hypotheses related to the theoretical background were derived and formulated based on the previous seven dimensions. Furthermore, the theoretical background was developed in relation to the business perspective. Accordingly, the resulted model is dedicated to the measuring of e-government service quality within the business sector.

Finally, by relying on these seven gaps' dimensions, it became possible to evaluate the quality of e-government services from a business perspective.

B- The final form of the proposed model which is consisted of three parts:
(1) General information and the Rating Scale (related to respondents).
(2) The SERVQUAL questionnaire.
(3) The Barriers/Enablers questionnaire.

This model was revised and validated based on a rigid ground of theory and empirical investigation. Some changes were made based on the research results. These changes may be clarified as follows:

Firstly: as a result of the validation process, one item was deleted from the SERVQUAL questionnaire before conducting the main study, since it reduced the overall reliability coefficient of the scale with indicating low correlation with its dimension. This item belongs to the Website Design. This change resulted in reducing the number of SERVQUAL questionnaire's items from 22 to 21 items.

Secondly: the Security/Privacy dimension was eliminated from the SERVQUAL questionnaire because its hypothesis was rejected based on the results of the analysis. This dimension, failed in identifying the gaps between the actual and expected e-services related to Security and privacy. Since the Security/Privacy dimension consists of 4 items, the resulted SERVQUAL questionnaire will comprise 17 items.

Table 7.2: The Proposed Model before and after Revising

	Before Revising		After Revising	
Model	**Dimensions**	**No. of Items**	**Dimensions**	**No. of Items**
SERVQUAL	Website design	7	Website design	6
	Responsiveness	4	Responsiveness	4
	Reliability	3	Reliability	3
	Security/Privacy	4	-	-
	Personalization	4	Personalization	4
Barriers/Enablers	Barriers	6	Barriers	6
	Enablers	6	Enablers	6

Hence, the resulted model consists of 6 dimensions fall under two measures. The following manifestation shows the final components of the resulted model:

(A) SERVQUAL questionnaire:

(1) Website design (6 items)

(2) Responsiveness (4 items)

(3) Reliability (3 items)

(4) Personalization (4 items)

(B) The Barriers/Enablers questionnaire

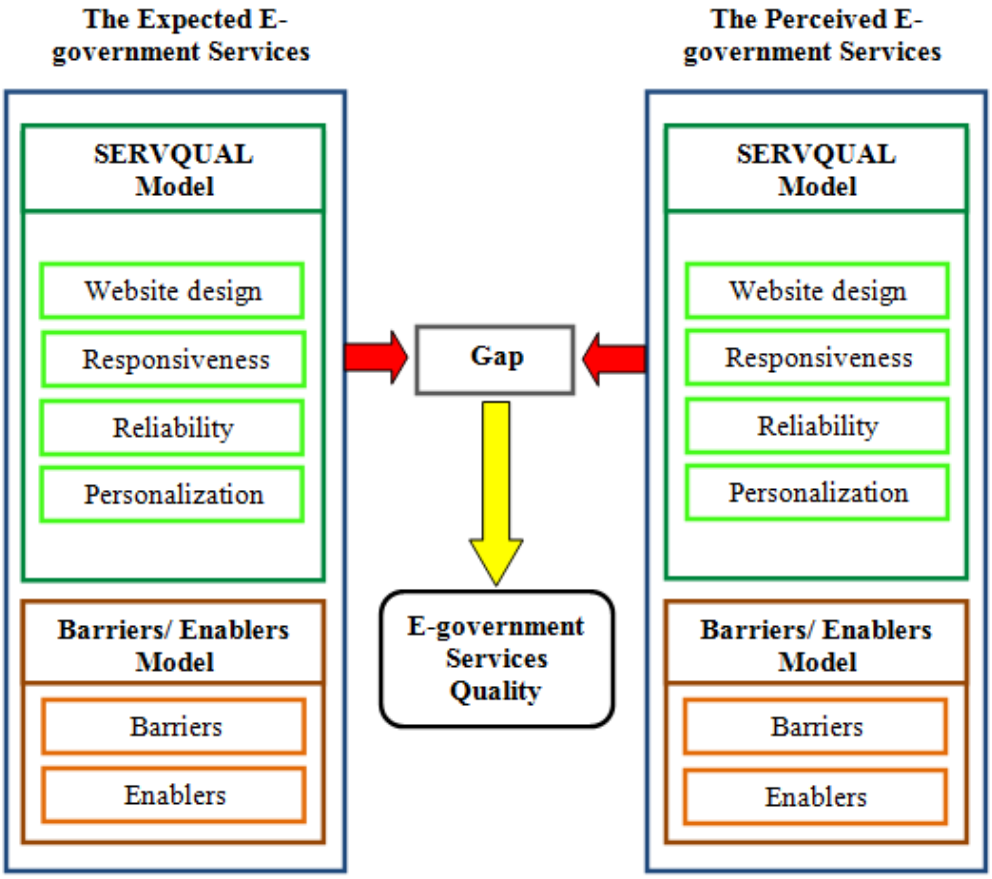
(5) Barriers (6 items)

(6) Enablers (6 items)

The revised model can be applied to any business context (for example: Banks, Industrial Factories, etc.) in Jordan after redirecting the questionnaires" items towards the targeted department such as Tax Department and Land Department.

Figure 7.1 below shows the components of The Revised Model for evaluating the quality of e-government services from a business perspective in Jordan.

Figure 7.1: The Revised Model



The final form of the proposed model is shown in appendix 1.

6.8 Summary and Conclusion

In this chapter, the study addressed the discussion of the findings gathered from both interviews and questionnaires.

The proposed SERVQUAL questionnaire related to the first question. In addition, the interviews here contributed widely in supporting the evidences revealed from the qualitative data. In this way, the study was able to achieve a remarkable success by combining two different sources of perspectives: the e-government service provider (Stakeholders) and the e-government service receiver (business firms). In general, all the dimensions of the proposed SERVQUAL questionnaire, with their items, showed the presence of differences between the expected and actual e-government services where the expected e-government services scored higher. These differences were examined by ANOVA analysis so as to verify their significance. Four dimensions out of five showed significant differences between the expected and actual e-government services. The four dimensions are: Tangibility, Reliability, Responsiveness and personalization. However, the Security and Confidentiality dimension showed no significant difference.

The second study question was addressed by the Barriers/Enablers questionnaire. The two dimensions of the proposed Barriers/Enablers questionnaire showed the presence of differences between the expected and actual items. The expected Barriers/Enablers items scored higher. These differences were examined by ANOVA analysis so as to verify their significance. The two dimensions showed significant differences between the expected and actual items.

The third study question was addressed by the interviews. The interviewees' responses were analyzed and then many themes were inferred. In general their responses were consistent with the gaps as well as the barriers and enablers found in the relevant literature.

Chapter Seven: Final Conclusion and Future Work

7.1 Final Conclusion

This study addressed the process of evaluating the e-government service quality in Jordan from business firms' perspectives. The researcher proposed a model for the process of evaluation, which is consisted of two parts: the SERVQUAL questionnaire, and the Barriers/Enablers questionnaire. Both scales had acceptable indicators of reliability and validity. Moreover, the model was significantly able to identify the gaps between the different dimensions with their items. Based on qualitative findings, the study revealed many barriers and enablers that may influence the adoption of e-government services.

Additionally, the proposed model was evaluated relying on confirmatory factor analysis. Factor analysis is used mostly for data reduction reasons and is performed by examining the pattern of correlations between the observed measures. According to DeCoster (1998), the high intercorrelations among the items of the Measure, either positively or negatively, are likely influenced by the same factors, while those that are relatively uncorrelated are likely influenced by different factors. In this study, the researcher used the confirmatory factor analysis because we already have defined the number of dimensions. The use of KMO's (Kaiser-Meyer-Olkin) test revealed that all the items within both SERVQUAL scale, and the Barriers/Enablers scale scored values higher than 0.45, which indicates strong and reliable loadings. The values of communalities revealed form the Principal Component Analysis showed a high ability by both measure in interpreting the variations in the results. The results indicated strong and reliable indications of validity. The Regression analysis indicated that the model was valid in interpreting the variations that independent variables cause for the dependent ones.

Based on the validation process, the proposed model was revised and modified.

7.2 Summary of results

The results revealed from Qualitative analysis results were consistent with the results revealed from the quantitative one. The first group of qualitative results was quantified to support the idea related to the presence of the gap between the actual and perceived elements. The second group of qualitative results was not quantified where they reflect a variety of barriers and enablers perceived by the e-government stakeholders as well the relevancy of those factors.

Despite the fourth hypothesis was not supported by empirical investigation, it reflects a reasonable result that the Security and Privacy issues are considered widely by the providers of e-government services.

Ultimately, all the hypotheses are emphasized and kept within thin this study with adopting their dimensions as indicators for identifying the level of e-government service quality.

7.3 Study Limitations

Similar to other research, the current study has its own limitations. These limitations may be manifested as follows:

One of the major limitations is the paucity of studies necessary for reviewing the topic under consideration, particularly about Jordan.

The study sample represents another related limitation of this study. The targeted population was confined to those who work in a private business firms located in Amman. Despite the results provide a better understanding regarding evaluating e-government service quality from a business perspective; they still do not represent the overall population.

The participants, with their different experiences and qualifications, present a major limitation for this study. Their knowledge, and perhaps their perceptions, will vary resulting in providing less accurate evaluation.

The measuring instruments themselves constitute another limitation of the current study. Both questionnaires and interviews are limited to specific items or themes so that the results obtained by these instruments will not exceed their lines.

7.4 Future Work and Recommendations

In the light of the findings revealed from previous sections, the current researcher presents the following recommendations for implication and further research:

1. Since the current study focused on business firms perspectives, more perspectives may contribute to better understanding for the evaluation of e-government service quality.

2. The generalization of results may be improved by considering a broader population with more randomized process while selecting the sample.

3. The current model may be revised and refined by adding more relevant items or eliminating the less relevant items based on the current findings.

4. Since this study did not take into account the effect of the demographic variables in evaluating the quality of e-government service, further research is needed by addressing the effect of other demographic variables (such as age, gender, level of education, prior experience, .. Etc.) on the evaluation of e-government service quality.

5. This study may be repeated in other contexts with comparing the results to identify whether it is valid and to identify its ability for generalization in other similar contexts.
6. Because of its importance, the current researcher calls for applying this model by the e-government departments as criteria for evaluating the quality of e-government service. The application process should involve the customers of the interested departments.

7. Despite the study revealed many barriers and enablers that may influence the adoption of e-government services, further work is required in order to prioritize and categorize the importance of these factors.

7.5 Contributions of the Current Work

This study addressed a significant topic related to evaluating the quality of e-government services based on vital economical component that is, the business sector in Jordan. The findings of this undertaking lend themselves to many implications and contributions that may contribute in improving or supporting many of the interested persons or firms as well. The following exhibition will shed the light on some of these contributions at two levels:

The First Level: Theoretical contribution

At this level, this study may provide a number of contributions as shown in Table 7.3 below.

Table 7.3: The Theoretical contribution of the current work

Contrb. No.	Type of contribution	Illustration	Beneficiaries
1	**Addition**	- A source of information on e-government services in general and in Jordan in particular. - Provides a theoretical knowledge to the body of literature concerning the factors influencing the adoption of E-government services	- Researchers - ICT & Business undergraduate Students
2	**Understanding**	Offering more understanding about: - The various perspectives on the issues concerning E-government services. - The role of ICT in E-services. - The lived experiences and perceptions of e-government stakeholders	- Researchers - E-services' providers
3	**Furthering**	The current study extended the previous works by: - combining two instruments in one model for evaluating E-government service quality - Covering a diverse range of evaluating models, theoretical perspectives and methodological approaches.	- Researchers
4	**Analyzing**	Provides an analysis for the E-services evaluating models by utilizing the summary from Table 2.4 to compare between the models used for assessing e-services.	- Researchers
5	**Insight**	The frame of reference offers additional theoretical insights into the needed legislations of e-government services	- E-government stakeholders
6	**Diagnosing**	Defining the gaps between the perceived and expected e-government services where findings from quantitative approach shows the existed gaps and their levels.	- E-government services' providers

The Second Level: Practical contribution:

At this level, this undertaking may contribute in the following:

- Providing a valid and applicable model for evaluating e-government service quality, especially in Jordan based on a business perspective (The final revised Model is shown in appendix 1).
- The proposed framework may also contribute to the support of many existing government organizations which have started to adopt the E-government services in developing the quality of their E-services, this is attained by allowing these government organizations to evaluate and recognize the maturity degree of their progression towards the adaptation of the e-government as well as taking into their account the perspectives of business sector.
- The results revealed from this study may shed more light on the factors affecting the adoption of e-government services which make the process of decision making clearer among e-government stakeholders.
- This study focused on the business sector, which may provide a deeper understanding for its need in term of e-government services.
- The current model integrates two different measures based on two approaches, service quality-based and attitude-based approaches.
- It will also pave the way for the researchers who are interested in studying and developing the process of the evaluation of the E-government service quality from a business perspective as well.
- It provides empirical evidence that the existed gap between the expected and actual e-government services reflects the quality of those services.

To conclude, the main intention of this study was focused towards developing and verifying a holistic frame of reference that is valid for assessing the quality of e-government services from a business perspective in Jordan. In order to accomplish this goal, a comprehensive effort was undertaken to measure and evaluate the e-government service quality in Jordan. The findings of this undertaking contributed widely to enhance the understanding regarding the role of ICT in providing e-government services for the business sector in Jordan. Moreover, this effort added another dimension to the used models, namely the Barriers/Enablers. The proposed frame of reference was examined and modified so as to be applicable and reliable for evaluating the quality of the e-government services by the business sector. The current study introduced a revised model based on theoretical and empirical background.

The significance of this research appears from its focus on the perspective of business firms during the process of evaluating the e-government service quality. Moreover, it provides the body of relevant literature with more theoretical insights and recent information.

On the other hand, the originality of this research appears from the combination of two different instruments have the potential to evaluate the quality of e-government services in more efficiently and effectively. Moreover, the proposed Model is among the first models, which addressed the evaluation of the quality of e-government services from a business perspective in Jordan. All in all, the current undertaking suggest that filling the existed gap between the expected and actual e-government services can contribute to improve the quality of e-government services provided in Jordan.

Finally, in relation to the aim and objectives defined at the beginning of the undertaking, it became possible to conclude, based on the findings of the current study that this undertaking was accomplished in a satisfactory manner.

References

Abu-Kharmeh, Suleiman (2012). Evaluating the Quality of Health Care Services in the Hashemite Kingdom of Jordan. International Journal of Business and Management, vol. 7(4), pp. 195- 205.

Al-Jaghoub, S., Al-Yaseen, H. & Al-Hourani, M. (2010), "Evaluation of Awareness and Acceptability of Using E-Government Services in Developing Countries: the Case of Jordan", The Electronic Journal of Information Systems Evaluation, vol. 13, no. 1, pp 1 – 8.

Al-Kasasbeh, M, M., Dasgupta, S., AL-Faouri, A, H. (2011) " Factors Affecting E-Service Satisfaction", Communication of the IBIMA (ID: 547937) available at: www.ibimapublishing.com/journals/CIBIMA/cibima.

Al-Khamaysah, S. (2013). The Electronic Government: The Way Towards Administrative Reform, 1st ed., Irbid (Jordan): Modern Book's World of Publishing.

Al-Khouri, A. M. (2012)."PKI in Government Digital Identity Systems", European Journal of ePractice, No. 14, pp. 4-21.

Al Killani, A & Al Shraifeen, N. (2007). An Introduction to Research in the Education and Social Sciences, 2nd Ed., Amman: Al Massira Hall for Publishing.

Al- Mubaydheen, Safwan (2011). E-Government: Models, Applications and International Experiences, 1st Ed., Amman: Yazori Hall for Publishing.

Allahawiah, Sattam and Alsaraireh, Mohammad (2014). The Benefits Of Knowledge Management And E-Government In Raising Citizen Engagement -

Jordan Case Study. Economics, Management, and Financial Markets, vol. 9 (1), pp. 213- 220.

Al-Qudwa, M. (2010). E-government and the Contemporary Management (1st Ed.). Amman: Ussamah Hall for Publishing.

Alshawi, S. And Alalwany, H. (2009), E-government evaluation: Citizen's perspective in developing countries. Information Technology for Development, 15: 193–208. Doi: 10.1002/itdj.20125.

Alshehri, Mohammed; Drew, Steve and Alfarraj, Osama (2012). A Comprehensive Analysis of E government services adoption in Saudi Arabia: Obstacles and Challenges, International Journal of Advanced Computer Science and Applications, Vol. 3 (2), pp. 1-6.

AlShihi, H. (2006), Critical factors in the adoption and diffusion of e-government initiatives in Oman. Unpublished doctoral dissertation, Victoria University, Australia.

Asgarkhani, M. (2005), 'the effectiveness of e-service in local government: A case study, The Electronic Journal of e-Government, 3 (4) 157-166.

Asgarkhani, M. (2005a), "The Reality of e–Service in the Public Sector**",** Proceedings of the 2005 IEEE International Conference on e–Business, e–Commerce and e–Service (published on CD-ROM).

Ateeq Mohammed A., Kamil, Ahmed and Basri, Shuib (2010). A proposed instrument dimensions for measuring e-government service quality. International Journal of u- and e-Service, Science and Technology, vol. 3 (4), pp. 1- 17.

Audeh, Thana'a & Abdul Rahman, Abdul Mlik (2013). Introduction to Scientific Research: Concepts, Basics, Procedures and Evaluation. Cairo: Modern Book Hall.

Ayiro, Laban P. (2012). A Functional Approach to Educational Research Methods and Statistics: Qualitative, Quantitative, and Mixed Methods Approaches. New York: Edwin Mellen Press.

Azad, B. And Faraj, S. (2008), Making e-government systems workable: Exploring the evolution of frames, Journal of Strategic Information Systems, **17** (2): 75–98.

Backus, M. (2001). 'E-governance and developing countries: introduction and examples', International Institute for Communication and Development (IICD).

Badri, M. A. and Alshare, K. (2008). A Path Analytic Model and Measurement of the Business Value of e-Government: An International Perspective. International Journal of Information Management, vol. 28(6), pp. 524-535.

Balog, A., Bàdulescu, G., Bàdulescu, R and Petrescu, F (2008), E-ServEval: a system for quality evaluation of the on-line public services, Revista Informatica Economică, **2** (46): 18-21.

Barnes, S.J. And Vidgen, R.T. (2002), "An integrative approach to the assessment of e-commerce quality", Journal of Electronic Commerce Research, (2002), Vol. 3, No. 3, pp. 114-27.

Bartlett, Kotrlik & Higgins (2001). Organizational Research: Determining Appropriate Sample Size in Survey. Research Information Technology, Learning, and Performance Journal, Vol. 19 (1), pp. 43-50.

Behkamal, B. Kahani, M. And Akbari, M. (2009), Customizing ISO 9126 quality model for evaluation of B2B applications, Information and Software Technology, **51** (3): 599–609.

Behkamal, B. Kahani, M. And Akbari, M. (2009), Customizing ISO 9126 quality model for evaluation of B2B applications, Information and Software Technology, **51** (3): 599–609.

Berg, Bruce L. & Lune, Haward (2014). Qualitative Research Methods for the Social Sciences, 8th Ed., Harlow: Pearson Education Limited.

Bertot, J, Jaeger, P and McClure, C (2008), Citizen-centered E-Government Services: Benefits, Costs, and Research Needs, Proceedings of the 9th International Digital Government Research Conference, Montreal

Berry, L., Zeithaml, V. and Parasuraman, A. (1985). Quality counts in services too. Business Horizons, May-June, 44-52.

Bonham, G.M., Seifert, J. M., Thorson, S. J. 2003. 'The Transformational Potential of e-Government: The Role of Political Leadership'. Revised version of a paper presented at the 4th Pan European International Relations Conference of the European Consortium for Political Research, Kent at Canterbury, U.K., 9 September 2001. Retrieved October 5 2003 from: http://www.maxwell.syr.edu/maxpages/faculty/gmbonham/ecpr.htm.

Carter, L. And Belanger, F. (2004), Citizen Adoption of Electronic Government Initiatives, Proceedings of the 37th Hawaii International Conference on System Sciences, 2004, New York: IEEE Publishing.

Cascadis (2007). Benchmark Dutch local councils in electronic government in 2007.Apeldoorn: Ron Zwetsloot. Retrieved November 12, 2007, from:

Chanana, L. (2007). Outsourcing of G2E Applications – The Next Potential Wave for Pubic Private Partnership Initiatives in India. Retrieved Jan 17, 2008 from:

Chavan, G. R. & Rathod, M. L. 2009. E-Governance and Its Implementation. SRELS Journal of Information Management, 46, 17-24.

Chutimaskul, W., Funilkul, S. and Chongsuphajaisiddhi, V. (2008). The Quality Framework of e-Government Development. ACM, 351, pp.105-109.

Creswell, J. W., & Plano Clark, V. L. (2011). Designing and conducting mixed methods research (2nd ed.), CA: Sage Publications, Inc.

Criado, J. I. (2009) "Europeanization of E-Government policy. Institutional mechanisms and implications for public sector innovation. Information Polity, 14, pp 299 – 314.

Coleman, S. (2005), "The lonely citizen: indirect representation in an age of networks", Political Communication, Vol. 22 No. 2, pp. 197-214.
Colier, J. E. and Bienstock, C. C. (2006), "Measuring service quality in e-retailing", Journal of Service Research, Vol. 8, No. 3, pp. 260-75.

Cox, J. and Dale, B.G. (2001), "Service quality and e-commerce: An exploratory analysis", Managing Service Quality, Vol. 11, No. 2, pp. 121-131.

Davies, P. (2007), Models for E-Government, Transforming Government: People, Process and Policy. Vol. 1 (1), pp7–28.

De Lisle, Jerome (2011). The Benefits And Challenges Of Mixing Methods And Methodologies: Lessons Learnt From Implementing Qualitatively Led Mixed Methods Research Designs in Trinidad and Tobago. Caribbean Curriculum, vol. 18, pp. 87-120.

DeLone, W. And McLean E. (1992), Information Systems Success: The Quest for the Dependent Variable, Information Systems Research, **3**(1): 60-95.

Densocombe, M. (2008). The Good Research Guide, Maidenhead: Open University Press.

Department of Statistics (2010). The Annual Report. Aman: Jordan.

Devaraj, S., Fan, M. And Kohli, R., (2002), "Antecedents of B2C Channel Satisfaction and Preference: Validating E-Commerce Metrics," Information Systems Research Vol. 13, No. 3: 316-334.

Ebrahim Z,. Irani Z. And Alshawi S. (2004), 'A Strategic Framework for E-government Adoption in Public Sector'. American conference on Information systems, New York, USA.6th -8th August.

Eddowes, L. A. (2004). The application of methodologies in e-government. Electronic Journal of E-government, 2, 115-126.

Eschenfelder, K.R., and Miller, C. "The Openness of Government Websites: Toward a Socio-Technical Government Website Evaluation Toolkit," MacArthur Foundation/ALA Office of Information Technology Policy Internet Credibility and the User Symposium, Seattle, WA.

Essink, L. (1988), A conceptual framework for information systems development, In T. Olle, H. Sol, and A. Verrijn-Stuart (Eds.), Information systems design methodologies: Improving the practice, Amsterdam: North Holland

Esteves, J and Joseph, R (2008), a comprehensive framework for the assessment of e-Government projects, Government Information Quarterly, **25** (1): 118–132.

Evans, D. And Yen, D. (2005), e-Government: An analysis for implementation: Framework for understanding the cultural and social impact, Government Information Quarterly, **22** (3): 354–373.

Fassnacht, M and Koese, I. (2006), Quality of electronic services, Journal of Service Research, **9** (1): 19–37.

Faris, A. And Vishanth, W. (2010), "The Role of Intermediaries in Facilitating E-Government Diffusion in Saudi Arabia", European and Mediterranean Conference on Information Systems 2010, pp. 1-17.

Fang, Z. 2002. 'E-Government in Digital Era: Concept, Practice and Development'. International Journal of the Computer, The Internet and Management, 10 (2): 1-22.

Fassnacht, M and Koese, I. (2006), Quality of electronic services, Journal of Service Research, **9** (1): 19–37.

Gartner's Four Phases (2000) of the E - Government Model, Gartner Group, Research Note, available at:
/ITstrat/Download/Gartner, e-Government.pdf. Accessed October 5, 2003.

Gilbert, D., Balestrini, P. and Little Boy, D (2004). Barriers and Benefits in the Adoption of E-Government. International Journal of Public Sector Management, vol. 17 (4), pp 286-301.

Griffin, D., and Halpin, E. (2005). "An Exploratory Evaluation of UK Local e-Government from an Accountability Perspective", The Electronic Journal of e-Government, Vol. 3, No.1, pp13-28 available online at www.ejeg.com.

Gupta, M. And Jana, D. (2003), e-Government evaluation: A framework and case study, Government Information Quarterly, 20 (4): 365–387.

Halaris, C. Magoutas, B. Papadomichelaki, X. And Mentzas, G. (2007), Classification and synthesis of quality approach in e-government services, Internet Research, **17** (4): 378–401.

Heeks, R.B. (2006), Implementing and Managing E-Government: An International Text, Sage Publications, London.

Herington, C. And Weaven, S. (2008), " E-retailing by banks: e-service quality and its importance to customer satisfaction", European Journal of Marketing, Vol. 43, No. 9/10, pp. 1220-1231.

Hesse-Biber, Sharlene N. (2010). Mixed Methods Research: Merging Theory with Practice (1st Ed.). New York: The Guilford Press.

Hidayanto, Achmad N., Ningsih, Yulia R., Sandhyaduhita, Puspa I., and Handayani, Putu W. (2014). Journal of Industrial and Intelligent Information Vol. 2 (2), pp. 126-130.

Hochstrasser B. (1992). Justifying IT investment, Proceedings of the Advanced Information Systems Conference, The new technologies in today's business environment, UK, pp.17-28.

Holden, S. H.; Norris, D. F.; Fletcher, P. D. (2003). Electronic government at the local level: Progress to date and future issues. Public Performance & Management Review, 26 (4), June, 325-344.

Holliday, I. (2002), Building e-government in East and Southeast Asia: regional rhetoric and national (in) action, Public Administration and Development, **22** (4): 323–335.

Hongxiu, L. And Reima, S. (2009), "A Proposed Scale for Measuring E-service Quality". International Journal of uand e-Service, Science and Technology, 2 (1)

Huang, C. And Chao M-H (2001), Managing www in Public Administration: Uses and Misuses, Government Information Quarterly, **18** (4): 357-373.

Hu, Y., Xiao, J., Pang, J., and Xie, K. (2003), A Research on the Appraisal Framework of E-Government Project Success, Proceeding ICEC '05 Proceedings of the 7th international conference on Electronic commerce: retrieved from: 1089647.

Janda, S., Trocchia, P., and Gwinner K. (2002). Consumer Perceptions of Internet Retail Service Quality," International Journal of Service Industry Management, vol. 13(5), pp. 412-431.

Iwaarden, J. Wiele, T. Ball, L. And Millen, R. (2003), Applying SERVQUAL to web sites: an exploratory study, International Journal of Quality and Reliability Management, **20** (8): 919–935.

Irani, Z.; Love P.E.; Elliman T.; Jones S. and Themistocleous M. (2005). Evaluating e-government: learning from the experiences of two UK local authorities. Information Systems Journal, 15, pp. 61-68.

Jaeger, P. And Bertot, J. (2010), Designing, Implementing, and Evaluating User-centered and Citizen-centered E-government, International Journal of Electronic Government Research, 6 (2): 1-17.

Jeong C.H., (2007), Fundamental of Development Administration. Selangor: Scholar Press.

Buckley, Joan (2003). "E-service quality and the public sector. Managing Service Quality, Vol. 13 (6), pp.453 – 462.

Joia, L., A., (2004), Developing Government-to-Government enterprises in Brazil: a heuristic model drawn from multiple case studies, International Journal of Information Management, Vol. 24 (2), April 2004, Pages 147-166.

Kaplan, B. & Duchon, D. (1988). Combining qualitative and quantitative methods in information systems research: a case study. MIS Quarterly, vol. 12 (4) 571-586.

Kafi, Mustafa (2010). E-government in the Modern Scientific Technological Revolution. Damascus: Raslan Hall for Publishing.

Kumar, M., Kee, F. and Manshour, A. (2009). Determining the relative importance of critical factors in delivering service quality of banks: an application of dominance analysis in SERVQUAL model. Managing Service Quality, Vol. 19, No. 2, pp. 211-228.

Landrum, H., Prybutok, V., Zhang, X. and Peak, D. (2009). "Measuring IS System Service Quality with SERVQUAL: Users' Perceptions of Relative Importance of the Five SERVPERF Dimensions". Informing Science: the International Journal of an Emerging Tran discipline.(2009), 12.

Layne, K. And Lee, J. (2001). Developing fully functional e-government: A four stage model, Government Information Quarterly, **18** (2): 122-136.

Lee, G.G. And Lin, H.F. (2005). Customer perceptions of e-service quality in online", shopping International Journal of Retail & Distribution Management, Vol. 33 No. 2, pp. 161-76.

Legris, P., Ingham, J. and Collerette, P. (2002). Why do people use information technology: a critical review of the technology acceptance model? Information and Management, Vol. 39, pp. 1-14.

Liu, M. Wang, Z. And Xie, H. (2010), Evaluation of E-government Web Site, Proceeding of 20I0 International conference on computer design and applications (ICCDA 2010), Qinhuangdao, China, June 25 - 27, 2010.

Loiacono, E. T., Watson, R.T. And Hoodhue, D.L. (2002), "WEBQUAL: Measure of web site quality", 2002 Marketing Educators Conference: Marketing Theory and Applications, (2002), Vol. 13, pp. 432-437.

Madu, C.N. And Madu, A.A. (2002), "Dimensions of e-quality", International Journal of Quality & Reliability Management, Vol. 19, No. 3, pp. 246-259.

Magoutas, B. And Mentzas, G (2010), SALT: A semantic adaptive framework for monitoring citizen satisfaction from e-government services, Expert Systems with Applications, **37** (6): 4292–4300.

Majdalawi, Y. K., Almarabeh, T., Mohammad, H. and Quteshate, W. (2015). E-Government Strategy and Plans in Jordan. Journal of Software Engineering and Applications, 8, 211-223.

Mansour, Ahmad (2012). E-government in the Gulf cooperation Council Countries: A Comparative Study. Journal of the Social Sciences, vol. 40 (1), pp. 11- 44.

Melitski, J. (2003). Capacity and E-Government Performance: An Analysis Based on Early Adopters of Internet Technologies in New Jersey. Public Performance and Management Review, vol. 26 (4), 376-390.

McClure, D. (2000), "Electronic government: federal initiatives are evolving rapidly, but they face significant challenges", Accounting and Information Management Division, available at:
t.pdf.

Metaxiotis, K., Psarras, J. (2004), 'E-government: new concept, big challenge, success stores', Electronic Government, An International Journal, Vol. 1, No. 2, pp. 141–151. Ministry of Information & Communication Technology (MoICT, 2006).

Ministry of Commerce and Trade (2014). The Annual Report of 2014. Ministry of Commerce and Trade, Amman, Jordan. Retrieved from: http://mit-web.mit.gov.jo/

Newman, I. And Benz, C. (1998) Qualitative – Quantitative Research Methodology: Exploring the Interactive Continuum. Illinois: Southern Illinois University Press.

Nusair, K. And Kandampully, J. (2008), "The antecedents of customer satisfaction with online travel services: a conceptual model", European Business Review, Vol. 20, No. 1, pp. 4-19.

OECD Policy Brief: Engaging Citizens Online for Better Policy-Making (2003). Available at: www.oecd.org/pol_brief/.

Olsen, W. K (2004). Triangulation in Social research: Qualitative and Quantitative Methods Can Really Be Mixed. In M. Holborn (Ed.), Developments in Sociology, Ormskirk: Causeway press.

Orlikowski, W., and Baroud, J. (1991) Studying Information Technology in Organizations: Research Approaches and Assumptions. Information Systems Research, No. 2, pp. 1-28.

Osman, I, Anouze, A., Irani, Z., Lee, H., Balcı, A., Medeni, T., Weerakkody V. (2011), A new cobras framework to evaluate e-government services: a citizen centric perspective" T-Government workshop, Brunel, U.

Ostasius, Egidijus and Laukaitis, Algirdas (2015). Reference Model for E-Government Monitoring, Evaluation and Benchmarking. Inzinerine Ekonomika-Engineering Economics, 2015, 26(3), 255-263.

Papadomichelaki, X and Mentzas, G. (2009), A Multiple-Item Scale for Assessing E-Government Service Quality, in Wimmer, M. Et al. (Eds.), EGOV 2009, Springer-Verlag, Berlin-Heidelberg, Germany: 163–175.

Papadomichelaki, X., Magoutas, B., Halaris, C., Apostolou, D. and G. Mentzasm, (2006), "A Review of Quality Dimensions in e-Government Services. Retrieved 27 February, 2010, from:

Parasuraman, A., Zeithaml, V.A. And Berry, L.L. (1988), "SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality", Journal of Retailing, Vol. 64, No. 1, pp. 12-40.

Parasuraman, A., Zeithaml, V. and Berry, L. (1994), Reassessment of expectations as a comparison standard on measuring service quality: implications for further research. Journal of Marketing, Vol. 58 (1), pp. 111-24.

Parasuraman, A., Zeithaml, V.A. And Malhotra, A. (2005). "E-S-QUAL: A multiple-item scale for assessing electronic service quality", Journal of Service Research, Vol. 7, No. 3, pp. 213-234.

Pazalos, K. Loukis, E. And Nikolopoulos, V. (In press), A structured methodology for assessing and improving e-services in digital cities, Telematics and Informatics, DOI: 10.1016/j.tele.2010.05.002.

PWGSC a key player in Budget (2005), Collier, J.E. And C.C. Bienstock, 2006. Measuring service quality in E-retailing. J. Service Res., 8.

Reddick, C., & Roy, J. (2013). Business perceptions and satisfaction with e-government: Findings from a Canadian survey. Government Information Quarterly, vol. 30(1), pp. 1–9.

Reichheld, F.F. & Sasser, W.E. (1990). Zero defections: quality comes to services. Harvard Business Review, Sept.–Oct., pp. 105-111.

Richard, M. D., & Allaway, A. W. (1993). Service quality attributes and choice behaviour. Journal of Services Marketing, vol. 7(1), 59-68.

Rowley, J. (2006), an analysis of the e-service literature: towards a research agenda, Internet Research, 16 (3), 339–359.

Riley, T.B. (2003) E-government vs. E-governance: Examining the Difference in a Changing Public Sector Climate, The Commonwealth Secretariat and Government Telecommunications and Information Services, Public Works and Government Services, Canada.

Rowley, J. (2006), An analysis of the e-service literature: towards a research agenda, Internet Research, 16 (3), 339–359.

Rowley, J. (2011), e-Government stakeholders- Who are they and what do they want? International Journal of Information Management, doi:10.1016/j.ijinfomgt.2010.05.005.

Sanchez, A., Koh, C. (2003), "The relationship between IT for communication and e-government barriers", paper presented at Americas Conference on Information Systems.

Santos, F. (2003), "E-Service quality: a model of virtual service quality dimensions." Managing Service Quality, 13 (3), 233-246.

Serafeimidis, V., and Smithson, S., (2000). Information Systems Evaluation in Practice: a Case Study of Organizational Change. Journal of Information Technology, vol. 15(2), pp. 93-105.

Shachaf, P. Oltmann, S.M. And Horowitz, S.M. (2008), "Service equality in virtual reference", Journal of the American Society for Information Science and Technology, Vol. 59, No. 4, pp. 535-50.

Shaughnessy, J., Zechmeister, E. & Zechmeister, J. (2000), Research Methods in Psychology, 5th Ed., Boston: McGraw-Hill Companies, Inc.

Shirley-Ann Hazlett, Frances Hill, (2003) "E-government: the realities of using IT to transform the public sector", Managing Service Quality, Vol. 13 Iss: 6, pp. 445 – 452.

Siau, K. & Long, Y. (2005) Synthesizing e-government stage models – a meta-synthesis based on meta-ethnography approach, Industrial Management & Data Systems, 105, 4, 443-458.

Sorrentino, M., and Simonetta, M. (2011). Analyzing the implementation of local partnerships: an organizational perspective. Transforming Government: People, Process and Policy, (in press).

Srivastava, S.C., and Teo, T.S.H. (2007). What Facilitates E-Government Development? A CrossCountry Analysis. Electronic Government, vol. (4:4), pp. 365-378.

Stowers, Genie N. L. (1999). A Different Model: Alternative Service Delivery for Lesbians and Gay Men. Journal of Health and Human Services Administration. Fall 1999 v 22 n 2: pp. 174-195.

Teicher, J., Hughes, O., Nina, D. (2002), "E-government: a new route to public sector quality", Managing Service Quality, Vol. 12 (6), pp. 384-93.

Teo, T. S. H., S. C. Srivastava, L. Jiang. (2008). Trust and electronic government success: An empirical study. J. Management Information Systems, vol. 25(3), pp. 99–131.

Themistocleous, M. and Irani, Z. (2002). A Model for Adoption Enterprise Application Integration Technology. Proceeding of the Adoption and Diffusion of IT in Environment of Critical Changes, 2002, Sydney: Australia, pp. 61-75.

Thi, Lip-Sam, Lim, Hock-Eam and Al-Zoubi, Mohammad I. (2014). Estimating Influence Of TOE Factors On E-Government Usage: Evidence Of Jordanian Companies. International Journal of Business and Society, vol. 15(3), pp. 413-436.

Tuaimah, Rushdi (2004). Content Analysis in Human Sciences. Cairo: Al Fikr Al-Arabi Hall for Publishing and distribution.

United Nations E-Government Survey (2014). E-Government For The Future We Want. United Nations, Department of Economic and Social Affairs.

V.D. (2004), "E-Government for Developing Countries: Opportunities and Challenges", Electronic Journal of Information Systems in Developing Countries 18, 1, pp. 1.

Wang, L., Bretschneider, S. And Gant, J. (2005), Evaluating web-based e-government services with a citizen-centric approach, Proceedings of the 38th Hawaii International Conference on System Sciences, 3-6 January 2005, Hawaii.

Wassenaar, A. (2000): E-governmental value chain models, DEXA 2000, IEEE Press, 289-293.

Wei, X. And Zaho, J. (2005) Citizens Requirement Analysis in Chinese e-government, Proceeding of the 7th International Conference on Electronic Commerce, ACM International Conference Proceeding Series, 113, 525-428.

Wimmer, M., Tambouris, E. (2002). Online One-Stop Government: A working framework and requirements. Proceedings of the IFIP World Computer Congress, Montreal.

Yang, Z., Cai, S., Zhou, Z. And Zhou, N. (2005), "Development and validation of an instrument to measure user perceived service quality of information presenting web portals", Information & Management, No. 42, pp. 575-589.

Yang, Z. And Jun, M. (2002), "Consumer perception of e-service quality: From Internet purchaser and non purchaser perspectives", Journal of Business Strategies, Vol. 19, No. 1, pp. 19-41.

Yang, Hao-erl and Tsai, Feng-Shii (2007). General E-S-QUAL Scales Applied To Websites Satisfaction and Loyalty Model. Communications of the IIMA, Vol. 7(2). 115- 126.

Yildiz, M. (2007) E-government research: Reviewing the literature, limitations, and ways forward. Government Information Quarterly 24 (3): 646-665.

Yong, L. And Koon, L. (2005), E-Government: enabling public sector reform. In Yong, James, S. L. (Ed.) E-government in Asia: enabling public service innovation in the 21st century. Singapore: Times Editions-Marshall Cavendish. Pp. 3-21.

Yoo, B. And Donthu, N. (2001) "Developing a Scale to Measure the Perceived Quality of an Internet Shopping Site (Sit equal), Quarterly Journal of Electronic Commerce, **2** (1) 31 – 46.

Zhang, X. And Prybutok, V. (2005), A Consumer Perspective of E-service Quality, IEEE Transactions on Engineering Management, 52 (4): 461-477.

Zeithaml, V.A., Parasuraman, A. And Malhotra, A. (2002),"Service quality, delivery through web sites: A critical review of extant knowledge", Journal of the Academy of Marketing Science, Vol. 30, No. 4, pp. 362-375.

Zeithaml, V.A. (2002), "Service excellence in electronic channels", Managing Service Quality, Vol. 12, No.3, pp. 135-138.

Appendices

Appendix 1: The Proposed Model for evaluating e-government Service quality after revising

Part I: General Information

Please tick the appropriate box:

Gender	❑ Male ❑ Female
Age	❑ Less than 20 ❑ 20-29 ❑ 30-39 ❑ 40-49 ❑ Above 50
Education Level	❑ Less than high school ❑ High school ❑ Diploma ❑ University ❑ High studies
The legal type of firm	❑ Individual Project ❑ Corporation firm ❑ Private firm ❑ Public firm

Please use the following rating scale while answering the questionnaire items:

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

Part II: SERVQUAL questionnaire

Item No.	The expected characteristics	The actual characteristics	Rating
	Web site design		
1	E-government web site will be excellent with an attractive appearance	The E-Customs Department web site has an attractive appearance to the viewer	
2	The user interface for E-government web site will be well organized	The user interface for E -Customs Department web site is well organized	
3	The process of conducting transactions on the E-government website will be easy and fast	The process of conducting transactions in the E-Customs Department web site is easy and fast	
4	The E-government website will be always available to business companies	The E-Customs Department web site is always available to business companies	
5	The E-government website must download and run immediately	The E-Customs Department web site is downloaded and run immediately	
6	The pages in E-government web site do not delay to emerge after the entry of a request for Information	The pages in E-Customs Department web site do not delay to emerge after the entry of a request for Information	
	Reliability		
7	When the E-government website undertakes to call me or send me an email message, I would like to commit them to this	When the E-Customs Department web site undertakes to call me or send me an email message, They are committed to this	
8	I like to be sure that the E-government web site will deliver the services that I order exactly	The E-Customs Department web site delivers the services that I order exactly	
9	I like to be sure that the E-government website will ask me for payment, fits with the requested service submitted by me like paying taxes	I like to be sure that the E-Customs Department web site will ask me for payment, fits with the requested service submitted by me like paying fees	
10	E10. The excellent E-government web site insists to have error-free records	P10. E-Customs Department web site insists on error-free records	
	The Responsiveness		
11	I think that the E-government website provide prompt service	I think that the E-Customs Department web site provides prompt service	
12	E12. I believe that E-government website must be always ready to help companies	P12. I think that E-Customs Department web site is always ready to help companies	
13	I think that E-government web site should not be too busy to answer requests from companies	I think that E-Customs Department web site should not delay in answering requests from companies	
	Personal Handling and Privacy		
14	I love the E-government website that offers options to build a personal profile	The E-Customs Department web site provides options to build a personal profile	
15	The excellent E-government web site has links to other websites. That could be of interest to companies (links with similar companies and other websites branches or other e-government sites)	The E-Customs Department web site has links to other websites. That could be of interest to companies (links with similar companies and other websites branches or other e-government sites)	
16	The E-government web site will provide other e-governmental service options (e.g., payment methods)	The E-Customs Department web site provides other options of e-governmental services (e.g., payment methods)	
17	The E-government web site will provide options for delivering services	The E-Customs Department web site provides options for delivering services	

Part III: Barriers-Enablers Questionnaire

Item No.	The expected characteristics	The actual characteristics	Rating
	Barriers		
1	**Confidentiality:** The Personal data in e-government will be kept private and not used for other purposes	**Confidentiality:** The E-Customs Department web site keeps Personal data private and not used for other purposes	
2	**Easy to use:** The delivery mechanism in e-government will be straightforward to use with minimum effort required	**Easy to use:** The E-Customs Department web site maintains the delivery mechanism straightforward to use with minimum effort required	
3	**Enjoyable:** Using the e-government system will be an enjoyable experience	**Enjoyable:** Using the system of E-Customs Department web site is an enjoyable experience	
4	**Reliable:** The e-government Web site will have services that are required, and individuals must trust that a requested service will be delivered	**Reliable:** The E-Customs Department web site has services that are required, and individuals trust that a requested service is always delivered	
5	**Safe:** The e-government Web site will be secure with respect to entering financial details	**Safe:** The E-Customs Department web site is secure with respect to entering financial details	
6	**Visual appeal:** The e-government Web site will look good	**Visual appeal:** The E-Customs Department web site looks good	
	Enablers		
7	**Avoid personal interaction:** I will be able to receive e-government public services without having to interact with members of the service provider's staff	**Avoid personal interaction:** The E-Customs Department web site enables me to receive public services without having to interact with members of the service provider's staff	
8	**Control:** I will be able to exert more control over the delivery of the e-government service than through another method	**Control:** The E-Customs Department web site enables me to exert more control over the delivery of the service than through another method	
9	**EE3. Convenience:** I will be able to receive the e-government service how and when the individual wants to	**Convenience:** The E-Customs Department web site enables me to receive the service how and when the individual wants to	
10	**Cost:** The e-government delivery of public services will save Money	**Cost:** The electronic delivery of The E-Customs Department web site public services saves Money	
11	**Personalisation:** I will be able to tailor the delivery of the e-government service more towards the individual	**Personalisation:** The E-Customs Department web site enables me to tailor the delivery of the service more towards the individual	
12	**Time:** The time will be saved by obtaining the e-government service electronically	**Time:** The time is saved by obtaining the E-Customs Department web site service electronically	

Appendix 2: The Interview Questions

Evaluation of the quality of e-government services

Dear Participant,

The questions of this interview aim to investigate some issues related to evaluating the quality of e-government services provided for business firms based on e-government stakeholders' perspectives who are in direct responsibility for providing such services within the public sector. So, we hope from you to answer the questions of the interview objectively and frankly.

Q1: From your viewpoint, are there any gaps between the Actual and expected e-government services? If there any gaps, how do you estimate their size/ sizes (small, moderate, large)?

Q2: Are the available e-government services sufficient and efficient and?

Q3: Are the available e-government portals subjected to ongoing updating and developing processes? If yes (state some examples)

- Updating periods: (for example: monthly, yearly)
- Nature of developing: (for example: changing the interface, adding new services, increasing the web speed and capacity)

Q4: Within your department, is there any criteria used for evaluating the quality of e-government services? If yes (state some examples)

Q5: What are the barriers and enablers that may influence the adoption of e-government services by the service's receivers?

Appendix 3: Summary of the Interviews with E-government Stakeholders

Interview No.	Gov. Department	The Interviewee's Position	Categories of Analysis		
			Gap size	Barriers	Enablers
1	Passport and Civil Status Department	E-Government Manager	Small	Infrastructure; need for paper transactions	Continuous updating; Security/Privacy
2	Ministry of Interior	E-Government Manager	Moderate	Budget; Training; Evaluating criteria	Electronic signature; Awareness
3	Tax Department	E-Government Manager	No gap	Legislations; integration with other departments	Continuous updating; Fast response; Alternative services,
4	Tax Department	E-Government Assistant	Unknown	High cost of operation; Evaluating criteria.	Security/Privacy; Save time, money and effort
5	Vehicles and Drivers license Department	Computer Manager	Small	Integration with other departments; need for paper transactions	Ease of use; Continuous updating; Save time, money and effort;
6	Passport and Civil Status Department	Chief of e-government Section	Unknown	Evaluating criteria; need for paper transactions	Good appearance; Save time, money and effort; new services
7	Ministry of Interior	Chief of e-government Section	Small	Regulations; Training; Infrastructure	Continuous updating; Fast response; Security/Privacy
8	Custom Department	Chief of e-government Section	Small	High cost of operation; Legislations	New services; Save time, money and effort;
9	Tax Department	E-Government Technical Manager	No gap	Training; Legislations; Infrastructure	Fast response; Continuous updating;
10	Ministry of Interior	E-Government Technical Manager	Large	Evaluating criteria; High cost of operation	Simple transactions; Security and Privacy;
11	Custom Department	E-Government Manager	Small	Qualified personnel; Evaluating criteria	Education and marketing; Awareness;

Appendix 4: T-test Critical Values

t Table

cum. prob	$t_{.50}$	$t_{.75}$	$t_{.80}$	$t_{.85}$	$t_{.90}$	$t_{.95}$	$t_{.975}$	$t_{.99}$	$t_{.995}$	$t_{.999}$	$t_{.9995}$
one-tail	**0.50**	**0.25**	**0.20**	**0.15**	**0.10**	**0.05**	**0.025**	**0.01**	**0.005**	**0.001**	**0.0005**
two-tails	**1.00**	**0.50**	**0.40**	**0.30**	**0.20**	**0.10**	**0.05**	**0.02**	**0.01**	**0.002**	**0.001**
df											
1	0.000	1.000	1.376	1.963	3.078	6.314	12.71	31.82	63.66	318.31	636.62
2	0.000	0.816	1.061	1.386	1.886	2.920	4.303	6.965	9.925	22.327	31.599
3	0.000	0.765	0.978	1.250	1.638	2.353	3.182	4.541	5.841	10.215	12.924
4	0.000	0.741	0.941	1.190	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	0.000	0.727	0.920	1.156	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	0.000	0.718	0.906	1.134	1.440	1.943	2.447	3.143	3.707	5.208	5.959
7	0.000	0.711	0.896	1.119	1.415	1.895	2.365	2.998	3.499	4.785	5.408
8	0.000	0.706	0.889	1.108	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	0.000	0.703	0.883	1.100	1.383	1.833	2.262	2.821	3.250	4.297	4.781
10	0.000	0.700	0.879	1.093	1.372	1.812	2.228	2.764	3.169	4.144	4.587
11	0.000	0.697	0.876	1.088	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	0.000	0.695	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	0.000	0.694	0.870	1.079	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	0.000	0.692	0.868	1.076	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	0.000	0.691	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	0.000	0.690	0.865	1.071	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	0.000	0.689	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	0.000	0.688	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	0.000	0.688	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	0.000	0.687	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.552	3.850
21	0.000	0.686	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	0.000	0.686	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	0.000	0.685	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.485	3.768
24	0.000	0.685	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	0.000	0.684	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	0.000	0.684	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	0.000	0.684	0.855	1.057	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	0.000	0.683	0.855	1.056	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	0.000	0.683	0.854	1.055	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	0.000	0.683	0.854	1.055	1.310	1.697	2.042	2.457	2.750	3.385	3.646
40	0.000	0.681	0.851	1.050	1.303	1.684	2.021	2.423	2.704	3.307	3.551
60	0.000	0.679	0.848	1.045	1.296	1.671	2.000	2.390	2.660	3.232	3.460
80	0.000	0.678	0.846	1.043	1.292	1.664	1.990	2.374	2.639	3.195	3.416
100	0.000	0.677	0.845	1.042	1.290	1.660	1.984	2.364	2.626	3.174	3.390
1000	0.000	0.675	0.842	1.037	1.282	1.646	1.962	2.330	2.581	3.098	3.300
z	0.000	0.674	0.842	1.036	1.282	1.645	1.960	2.326	2.576	3.090	3.291
	0%	50%	60%	70%	80%	90%	95%	98%	99%	99.8%	99.9%
	Confidence Level										

Appendix 5: Total Variance Explained Extraction Method: Principal Component Analysis for **SERVQUAL questionnaire**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.774	44.429	44.429	9.774	44.429	44.429	5.475	26.071	26.071
2	2.611	11.870	56.298	2.611	11.870	56.298	3.969	18.902	44.973
3	1.550	7.046	63.344	1.550	7.046	63.344	3.861	18.386	63.359
4	1.287	4.940	68.284	1.287	4.940	68.284	2.100	10.002	73.362
5	1.061	4.367	72.651	1.061	4.367	72.651	1.287	6.127	79.488
6	.776	3.520	76.178						
7	.732	3.329	79.507						
8	.668	3.036	82.543						
9	.573	2.604	85.147						
10	.508	2.307	87.455						
11	.464	2.110	89.564						
12	.438	1.990	91.555						
13	.348	1.583	93.138						
14	.347	1.576	94.713						
15	.270	1.229	95.942						
16	.220	.999	96.941						
17	.186	.845	97.787						
18	.112	.507	98.945						
19	.094	.429	99.374						
20	.031	.041	99.97						
21	.001	.001	100.000						

* a When components are correlated, sums of squared loadings cannot be added to obtain a total variance

Appendix 6: Total Variance Explained Extraction Method: Principal Component Analysis of Barriers-Enablers questionnaire

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.757	22.975	22.975	1.757	22.975	22.975	2.203	18.360	18.360
2	1.163	18.025	41.000	1.163	18.025	41.000	2.149	17.904	36.264
3	.959	14.659	55.659						
4	.839	11.160	66.819						
5	.702	9.182	76.001						
6	.624	7.703	83.704						
7	.587	6.558	90.262						
8	.431	3.592	93.854						
9	.284	2.366	96.220						
10	.178	1.480	97.699						
11	.169	1.410	99.109						
12	.107	.891	100.000						

* a When components are correlated, sums of squared loadings cannot be added to obtain a total variance

Appendix 7: Communalities values for SERVQUAL questionnaire

Item	Initial	Extraction
T1	1.000	.853
T2	1.000	.851
T3	1.000	.915
T4	1.000	.849
T5	1.000	.754
T6	1.000	.824
R1	1.000	.910
R2	1.000	.941
R3	1.000	.864
R4	1.000	.859
RS1	1.000	.780
RS2	1.000	.904
RS3	1.000	.948
S1	1.000	.642
S2	1.000	.874
S3	1.000	.748
S4	1.000	.739
H1	1.000	.878
H2	1.000	.710
H3	1.000	.885
H4	1.000	.976

Extraction Method: Principal Component Analysis.

Appendix 8: Communalities values for Barriers-Enablers questionnaire

Item	Initial	Extraction
B1	1.000	.919
B2	1.000	.630
B3	1.000	.738
B4	1.000	.783
B5	1.000	.862
B6	1.000	.748
E1	1.000	.780
E2	1.000	.840
E3	1.000	.772
E4	1.000	.750
E5	1.000	.849
E6	1.000	.750

Extraction Method: Principal Component Analysis.

Appendix 9: Jordan Customs Website