Evaluation of E-Government Services in Jordan: Providers' & Users' Perceptions

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In the Name of Allah, the Merciful, the Munificent Oh my Lord, Increase me in Knowledge

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Abstract

Efficient and effective implementation and development of e-government services require an understanding of whether these e-government-services are tailored to meet users' expectations under the citizen-centric approach, and what are the barriers that might hamper the achievement of that slogan. This research explores the public e-services from a multi-view or multi-stakeholders' perspective. This includes: the users' perceptions using a conceptual maturity model-6I Model- to investigate empirically the characteristics of the public e-services in Jordan, and the employees' perceptions, who are the providers of the e-government services, to explore the barriers to these public e-services.

The sample to this research was drawn from two sources: users of e-government services, and employees in Jordanian governmental organizations. This research is mainly deductive, and includes a mixed research approach of both quantitative and qualitative methods. A survey approach was employed to achieve the research objectives. Moreover, nine interviews were carried out with both users and providers of e-services to obtain insightful data, and to enhance the interpretation of the quantitative findings. Factor analysis, bivariate analysis, error bars, and graphs were employed to explore and clarify patterns of multifaceted relationships for various perceptions of e-government services in relation to demographic characteristics, and the barriers that impede the development of these services.

The findings reveal that users of e-government services were chiefly critical of the current status, which was identified according to four categories: Inform, Interact, Intercommunicate, and individualize. However, that dissatisfaction has not stopped the users to aspire a desired status of e-government services, which again was identified according to two categories: Integrate, and Involve. Moreover, the providers reveal in their perception of the barriers that five various barriers' categories impede the implementation and the progress of e-government services in Jordan. These barriers, which have been identified according to the providers' perception, are: Policy, Economic, Skills, Technical, and Organizational barriers which were explained using a PESTO framework.

Finally the state of play of the Jordanian e-government services was evaluated using the 6I Model to account for the previous two perceptions and establish the relationships between the different perceptions.

Because of the scarcity of any empirical investigation of a theoretical maturity model in general, and within the Jordanian context in particular, this research provides an original contribution concerning the evaluation of e-government services and the barriers that hamper them. Unlike previous studies within developed and developing countries, this research investigates the theoretical maturity model from multi-view stakeholders' to establish an understanding of how to provide effective and efficient e-government services that tailored to attain citizen-centric approach.

Publications

The following is a list of publications of the candidate, which are direct products from this PhD research:

1. Hjouj Btoush, M., Siddiqi, J., Grimsley, M., Akhgar, B. & Alqatawna, J. (2008). 'Comparative review of e-service maturity models: 6I Model'. In the *Proceedings of The 2008 International Conference on e-Learning, e-Business, Enterprise Information Systems, and e-Government (EEE'08).* Las Vegas, Nevada, USA.

2. Hjouj Btoush, M., Siddiqi, J., Alqatawna, J. & Akhgar, B. (2009). 'The state of play in Jordanian e-government services'. Paper accepted *The 2009 International Conference on e-Learning, e-Business, Enterprise Information Systems, and e-Government (EEE'09).* Las Vegas, Nevada, USA.

3. Siddiqi, J., Alqatawna, J. & Hjouj Btoush, M. (2009). 'Do insecure systems increase global digital divide?'. Forthcoming chapter, in Kamel, S. (Ed.). *E-Strategies for Technological Diffusion and Adoption: National ICT Approaches for Socioeconomic Development.*

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Dedication

I dedicate this work

- To my dearest parents. I wish to give my hearty thanks to them for their continuous support and encouragement throughout my studies and my entire life, even though the value of my appreciation cannot compare with everything they have done for me.

- To my father and mother in-law for their continuous encouragement throughout my research journey.

- To my brothers and sisters who shared with me my dream, and

- To my dearest wife, Enass and lovely daughter Azd and my little shiny son Aser, this thesis is lovingly dedicated to them.

Abbreviations

FA	Factor Analysis
ICT	Information and Communication Technology
IS	Information System
IT	Information Technology
JGOs	Jordanian Governmental Organization
MoICT	Ministry of Information and Communication Technology
SPSS	Statistical Package for Social Science
G2C	Government-to-Citizen
G2B	Government-to Business
G2G	Government-to-Government
G2E	Government-to-Employee
OECD	Organisation for Economic Co-operation and Development

TABLE OF CONTENTS

CHAPTER THREE

CHAPTER FOUR

CHAPTER FIVE

CHAPTER SIX

CHAPTER SEVEN

List of Tables

List of Figures

Chapter One:

Introduction

1.1 The Research Issues

This thesis investigates the issues of e-government-services or public e-services, henceforth referred to in this research as e-services, from both users' perspectives, and providers' perspectives in an attempt to holistically analyse and evaluate e-government services. This research argues that a successful implementation and development of e-services should take into consideration the need for a reciprocal relationship between e-services providers and users. In particular, we argue that e-government is a complex socio-technical system, in which heterogeneous stakeholders are interactively entangled to fulfil their best interests. Thus, apart from strategies that seek to provide successful e- services, there is a need to investigate how these strategies work in terms of actual implementation and provision. This can be achieved by exploring the perspectives of both users and providers, as it is believed that this will provide valuable theoretical and empirical insights into the role of the various stakeholders involved in e-government services.

The concept of a multi-stakeholder / multi-view perspective has been a topic in the information systems and organizational management literature for a number of years (Avison & Wood-Harper, 1990; Jurison, 1994; Darke & Shanks, 1996). Stakeholder theory and perspectives evolved from the business ethics field to help managers consider and incorporate the principles and values of a number of constituencies, going beyond just stakeholders to include individuals, organizations, and communities that may be influenced by managerial decisions made within the organization (Zhang et al.. 2005).

This concept became of crucial importance in the e-government area because of the need to incorporate multiple viewpoints into systems development and implementation. However, despite a long tradition in the study of end-user involvement in system development and the imperative to consider a broader range of constituents in e-government initiative, little attention has been given to the role of various stakeholders` perspectives from the research community in developed countries (Brown, 2003).

A review of the available literature associated with e-services in developing countries shows that it is important or imperative to apply a multi-stakeholder/multi-view perspective of different stakeholders that are involved in e-services when studying or evaluating these e-services. This is due to the fact that most available studies tend to deal either with users' perspectives (Al-Shafi & Weerakkody, 2007; Belwal & Al-Zoubi, 2008), or with providers' perspectives (AlShihi, 2006; Hossan et al., 2006). Hence, many apparent differences that might lead to the inadequate or even the failure of e-services' initiatives are generated from the lack of congruence between what providers present and what users demand. This fact motivated the researcher to have an investigation that would apply a multi-stakeholder/multi-view perspective in an attempt to unify the perspectives of users with the perspectives of providers to bring about a better understanding of the most adequate ways to provide citizen-centric e-services while reducing the impediments that might hinder that provision or development of these e-services.

The rest of this chapter presents a general and brief background concerning the different issues raised and discussed in the context of this research. It also addresses the overall aim, objectives, research questions, and the outlining of the thesis' structure.

1.2 The Research Background and Context

It is argued that the highly bureaucratic, paternalistic and inflexible hierarchical government structures, established over a century ago, have failed to keep pace with changes in society, particularly, because of rising citizen expectations and a more competitive business environment (Bentley, 2001).

Many countries around the world have adopted a modernisation agenda, in which implementing e-government is a key part of this modernisation and transformation approach. The combined demands of fast and effective public service delivery have fuelled the modernisation process and implementation of e-government initiatives. At its simplest, e-government is about providing citizens with public services and essential information, using a variety of information and communication technologies (Burn & Robins, 2003). This technology focus is located within broader aims of improving public service delivery by decreasing levels of bureaucracy and increasing flexibility, efficiency, and opportunities for citizen interaction.

Although many studies are tackling the e-government from different angles, the e-services, as one of the major issues under the e-government paradigm, received little attention. Most available theoretical or empirical studies of e-services in developed countries have the tendency to focus on technology enabled organizational transformation. More recently advances in the adoption of technology in the public sector have brought with them more critical perspectives focusing on citizens and their needs (Scavo & Shi, 1999; Ho, 2002; Senyucel, 2008). However, there is still a shortage of research that investigates empirically key questions concerning both the ways in which providers of e-services perceive the

barriers that hinder the realization of improved performance of service delivery. and the ways in which users of e-services perceive the kind of e-services they are receiving from those same providers. Even the studies that investigated the stakeholders perceptions, focused on one side of the equation rather than the other. So, many studies, for example. investigated the supply side of the e-services, such as studies by (Zhang et al., 2005; Norris & Moon, 2005; Coursey & Norris, 2008) that have focused on the perceptions of the providers of e-government services, their adoption of e-services and the hurdles that might face the implementation of these e-services.

Other studies, however, focused on the demand side; that is: users' perceptions, their needs and expectations of e-services, and better ways to increase the adoption of public e-services, for example, studies by (Dalziel, 2004; West, 2004; Choudrie & Dwivedi, 2005).

In developing countries few studies addressed the issue of e-services from providers` or users' perceptions. (Charbaji & Mikdashi, 2003; Akman et al., 2005; Al-Shafi & Weerakkody, 2007; AlAwadhi & Morris, 2008) addressed the e-services adoption from users' perceptions. They found that adoption of e-services is affected by cultural and demographic characteristics. To a lesser extent, there were studies that have addressed the employees' perceptions regarding the barriers facing the adoption of e-services (AlShihi, 2006; Hossan et al., 2006). Both studies concluded that lack of awareness, motivation and clear vision are among the main barriers to e-services from the employees` perceptions.

This study, however, presents an exploratory investigation of the diverging and converging expectations of various stakeholders; i.e. providers and users concerning e- services through an evaluation of the compatibility of these e-services with citizen-centric approach

and the barriers that might hinder that approach. Thus, this research brings a holistic understanding to the relationship between the state of e-services and the barriers facing them while avoiding any adherence to one single stakeholders' perspective.

1.3 Aim and Objectives

The overall aim of this research is to provide a citizen-centric perceptive of e-government services. It can be broadly classified under two objectives:

1.3.1 The Development and Evaluation of an Emprical Model: The 6I Model.

6Imodel was developed using a meta-synthesis based on meta-ethnography approach. This will be further explained in chapter 3 where a detailed description of how the conceptual model, the 6Imodel was developed and what does each of its stages mean.

1.3.2 Finding out the Implication of Such a Model for Different Sectors of the Population through Adopting Four Research Questions:

RQ 1. Are there any significant relationships between the demographic characteristics and the usability of the public e-services?

RQ 2. Are there any significant relationships between the demographic characteristics and the 6I maturity model- stages?

R.Q 2.1 Are there any significant relationships between the demographic characteristics and the current 4I stages (Inform, Interact, Intercommunicate, Individualize)?

R.Q.2.2 Are there any significant relationships between the demographic characteristics and the desired 2I stages (Integrate, Involve)?

RQ 3. What are the e-services' barriers and what is their order of importance within the research context?

RQ. 4. What is the actual state of play in the Jordanian e-government services?

The achievement of the overall aim of this research was also enabled by adopting a deductive approach. To ensure that the findings of this research are valid and correct, a multi-method approach to data collection and analysis was used. This included survey, interviews, and secondary literature sources: including books, journals, conference proceedings, online documents … etc. The use of secondary data enabled in-depth understanding of the e-services literature, e-services' barriers, the relationship between e-services maturity and barriers, and an analysis of the current and desired status of e-services within the Jordanian public sector.

The research process involved four phases. The first phase aimed to identify users' perception of e-services in Jordan. A survey was used to collect the necessary data. WebQual 4.0 (Barnes & Vidgen, 2003), was employed to achieve this aim but with major modifications, which are to be discussed in chapter 5. The second phase aimed to identify the providers' perceptions of e-services' barriers. This was also achieved by another survey, which is adapted from the Oxford Internet Institute's Online Survey of Barriers to

eGovernment (2005). The third phase included the analysis of data and identification of the major themes. Statistical Package for Social Sciences (SPSS 15) was used to analyse the collected data from the first two phases. In particular, factor analysis, correlation (bivariate) analysis, and error bar were the primary instruments for the analysis of data. The fourth and final phase of this research focused on exploring the actual state of play in the Jordanian e-government services. This was based on gauging the state of e-services using the 6I maturity model. The overall research findings have led to an understanding of better strategies that would enable a citizen-centric approach to be a reality rather than a vision.

1.4 Research Contribution

The outcomes of this research are expected to contribute to the growing body of knowledge related to e-services in developing countries. The contribution's originality is grounded for the following reasons:

1. The locus of this research is to provide a citizen- centric perception of e-services from both users and providers. Thus, it provides a holistic approach to evaluating e-services. A review of the available literature confirms that this is the first in-depth study within the Jordanian context concerning the status of e-services; therefore, it provides insightful theoretical and empirical implications for e-services effectiveness in developing countries.

2. The conceptual framework, the 6I maturity model that this study proposed and employed to achieve the overall aim of this research provided an empirical evidence that the stages of the e-services' maturity models do exist. However, it questions the assumption of these

same maturity models that e-services must evolve in ladder-like stages wherein e-services go in consecutive or successive stages.

Overall, this research emphasises the importance of considering the perceptions of multi-stakeholders when implementing or developing e-services. In particular, this research has emphasised that users will adopt and use e-services when they meet their expectations and needs. It also demonstrated that e-service' providers were aware of the different barriers that hamper better e-services provision.

1.5 The Structure of the Thesis

To guide the overall process of this research, the thesis is outlined according to the following structure:

Chapter 1: Introduction

This chapter provided the background to the research and introduces the research problem and the four research questions for investigation. It also included justifications of the research and a brief overview of the research approach and methodology. Finally, the layout and content of the chapters were described.

Chapter 2: E-Government Conceptual Overview

This chapter presented the general boundaries of this research. Through a review of literature it traced the roots of the e-government concept, its emergence and its various definitions. It also highlighted the impact of adopting e-government initiatives upon the different aspects of life. An overview of e-government in developing countries, followed by the research directions and observations were presented toward the end of the chapter.

Chapter 3: E-Services in Public Sector

Chapter 3 reviewed the literature about public e-services. It elicited the meaning of having e-services in a governmental context. This led to studying the maturity models that attempt to evaluate public e-services. From this review of the literature, a theoretical framework was developed and refined. In addition, two research questions for investigating e-services within the research context were derived from that framework.

Chapter 4: E- Government Barriers and Challenges

Studies related to e-services' barriers were reviewed and evaluated in this chapter. This enabled the development of the third research question. In addition to chapter 2, this chapter enabled the identification of the multi-view approach that this research endeavours to achieve. The research conceptual framework was also proposed at the end of this chapter.

Chapter 5: Research Methodology

This chapter described and justified the methodological approach adopted for this research, taking into consideration the research context, circumstances and limitations. The processes and procedures that were undertaken in sampling strategy, data collection and analysis to achieve the research objectives were also discussed. The chapter concluded with a discussion of the ethical considerations adopted in this research.

Chapter 6: Analysis of Users' Perception of E-Services

Users' questionnaire was analysed in this chapter. Factor analysis, in particular, confirmatory factor analysis was used to see if the suggested conceptual framework the 6I model is consistent with the structure obtained in a particular set of measures, i.e. the items of the questionnaire. Bivariate analysis was used to investigate the research questions concerning users' evaluation of e-services according to their demographic characteristics. Error bars were also employed to confirm the results of the bivariate analysis.

Chapter 7: Analysis of Providers' Perception of E-Services Barriers

In this chapter, the questionnaire that identified the e-services' barriers from the providers' perceptions was analysed using factor analysis to assess the 30 items that constitute the survey instrument and to extract the dimensions which represent the barriers. PEST analysis was used as a framework to further identify and summarise the possible external factors that could influence the development of e-services in the research context.

Chapter 8: The State of Play in the Jordanian E-government Services and the Interpretation of the Results

The last chapter evaluated the e-services based on the proposed theoretical framework in order to present the state of art of the e-services within the research context and compare it with both users' and providers' perceptions. The research's major conclusions, its contributions to the body of knowledge, as well as the implications for theory and practice were outlined. Finally, the limitations of this research were discussed, along with future research directions.

1.6 Conclusion

The purpose of this chapter is to lay the foundation for the research by providing background information and introducing the research problem and research questions. Justifications for this research and contributions are provided. Then, the research approach and methodology are presented. Finally, an outline of the thesis is given at the end of the chapter.

Chapter Two:

E-Government Conceptual Overview

2.1 Introduction

This chapter and the next two chapters are devoted to review and study the issues that form the theoretical background of this research.

This chapter aims to study the emerging of the e-government concept through tracking its roots and its definitions by different researchers, theorists, institutions and practitioners, and through examining the reasons behind the embracing of e-government in both developed and developing countries. Moreover, it considers the impact or objectives of e-government adoption. Based on a review of the available literature; this chapter will endeavour to provide a background of issues concerning e-government and address related topics.

2.2 E-Government Definition

Defining the e-government concept has never been an easy task for many researchers. It has rather created confusion on what to include or exclude from the definitions.

However, the nascence of the e-government phenomenon, coupled with the complexities associated with the public sector context, contribute to the multiple interpretations and confusion surrounding the concept (Grant & Chau, 2005). Jaeger (2003) considers the concept of e-government to be in a seemingly constant state of development. Hence, creating a workable unique definition of e-government that is accepted universally has

become very difficult. Consequently, the definition has abounded resulting in a set of definitions that are also not watertight, but nevertheless, they help to establish a clear idea about what e-government means.

Pardo (2000) considers that to fully understand the concept of e-government, one must first be aware of what the concept government itself means. Accordingly, she defines government as "a dynamic mixture of goals, structures and functions" (Pardo, 2000: 2). These dynamic mixtures that constitute governments are subjected to a change through e-government, which is defined as "a complex change effort intended to use new and emerging technologies to support a transformation in the operation and effectiveness of government" (Ibid., 2). According to this definition, e-government concept is understood as a transformational process in government. However, Misra (2006) argues that in spite of the diversity of e-government definitions; there is no plain definition that, in particular, indicates or covers the range or the content of which e-government has; a fact that has led to the failure of different strategies and implementation processes that have depended on such unclear definitions. The main axis of controversy in both defining and studying e-government is whether e-government is or should be thought of as a broad and inclusive concept, or a narrow and exclusive concept (Curtin, 2007).

One narrow way of defining e-government is to focus on the use of the ICT, especially the internet, as Jansen (2005) points out. Examples of such definitions that were adopted by large credible organizations, as well as, some researchers are the following:

- "*The use of technology to enhance the access to and delivery of government services to citizens, business partners and employees*" (Deloitte Research, 2000: 1).

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

- "*The use of information and communication technologies in all facets of the operations of a government organization*" (Koh & Prybutok, 2003: 34).

- "*E-government is a delivery of government information and services online through the Internet or other digital means*" (West, 2004: 16).

These one-sided definitions, while useful and straightforward, oversimplify a more complicated transformation of the traditional governments through a mere focus on technology, as the fundamental issue in adopting and implementing e-government. Their deficiency comes from the fact that they either focus on ICT tools to present e-government, or they focus on improvements which e-government would bring to the administrations' traditions through the use of technology. Yildiz (2007) argues that technology is just a means to achieve e-government and that certain technologies do not fundamentally define what e-government is and what it will be. Therefore, adoption of new technology alone can not and will not transform traditional governments. Technology is just one block of a larger set of e-government blocks.

For e-government to be properly understood and applied, it is believed that it needs to be more comprehensively conceptualized (Caldow, 2001). Definitions of e-government vary, but generally the goals of more efficient operations, better quality of services and increased citizen participation in democratic processes should be infused in the definition (Gronlund, 2002). Thus, a broader orientation to define e-government, is to include the effect of the new communication technologies on the social, economic, and democratic life of citizens; that is the impact of e-government in creating and promoting e-societies, the impact it would have in boosting the county's economy, and in increasing the involvement of citizens as individuals and groups in e- participation and e-democracy (Curtin, 2007).

However, e-government has many aspects which are in need to be addressed when defining it. Consequently, a multi-dimensional or multifaceted definition would be the right one in such a case, this multifaceted definition will join the various threads together to produce a woven conceptualization of e-government.

Lofstedt (2005) contends that e-government redefines the public sector, citizens, organizations and their functions. He also argues that defining e-government is not merely attaching it to technology or delivery of services; it has a more profound task of addressing the transformation of the methods and means by which governments interact with stakeholders. It also increases the economic progress, magnifies the democracy, and reshapes the government function in the society and the citizens' perspectives of their government. Thus, it becomes clear that any definition should take into account three factors: Firstly, the change or the transformation processes within the government itself and

its external relationships. Secondly, it should consider the stakeholders of the e-government, and finally, the domains in which e-government is supposed to bring a change (Ndou, 2004).

These observations are expressed in the following broad definitions from credible organizations and some researchers:

- E-government is "*more than technology, more than the Internet, more than service delivery; it is about putting citizens and customers at the heart of everything we do and building service access, delivery and democratic accountability around them*" (DTLR, 2002: 2).
- E-government refers to "*the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions*" (The World Bank, 2004).
- E-government is: "*a broad-based transformation initiative, enabled by leveraging the capabilities of information and communication technology; (1) to develop and deliver high quality seamless, and integrated public services; (2) to enable effective constituent relationship management; and (3) to support the economic and social development goals of citizens,*

businesses and civil society at local, state, national and international level" (Grant & Chau, 2005: 9).

- E-government systems are "*platforms or solutions that use technology to transform and improve the process of providing information services, administration and interactive services for public participation in decision-making and opinion gathering*" (Moulsley, 2005: 73).

This last definition of Moulsley has embraced a new trend in defining the e-government; it is the combination of the use of ICT for better public services while focusing on the idea of empowering the public through emphasising the social and political dimension. This dimension was also observed by (Grimsley & Meehan, 2007). According to them, the emphasis when addressing e-government should not only be directed towards technology alone, it should rather cover the social value provided by e-government.

Moreover, Oyomno (2004) proposes an interesting opinion; he considers that since e-government means different things to different people; it would be helpful to study what it means and what it does not mean, for this will help clarify the scope and content of the term. So he suggests that e-government does not mean the following or it is not concerning the following:

- It does not focus on technology itself as a goal; rather it is about the technology applications especially the ICT to carry out the transformation of government services and functions.

- It is no more centred around what government wants and does, rather it is about what citizens want and need; so all the efforts for the change must be driven by citizens' needs and expectations.
- It eliminates the traditional idea of government controlling people; in contrary to that it is more about shifting the control to citizens through empowering them, by having their access to information and services which will make them more acknowledgeable. Consequently; they will participate in decision making and policy shaping, and the government image and functions will tend to be more accurate and transparent.
- It is not a political agenda in a narrow sense, rather it brings effectiveness and efficiency to government processes. However, it could also help bring the wind of change to the political life by rooting the democracy practise.
- It is not about changing the size of government, but about changing the way in which government conducts its business, especially when it comes to eliminating bureaucracy, and advocating adequate and productive service delivery.

Table 2.1 shows the narrow and broad definitions of e-government that were discussed earlier

Orientation	Perspective	Reference
Narrow	Using technology to deliver services.	Deloitte Research, 2000
	Using technology for better governance.	OECD, 2003a
	Using technology for administrative processes.	Koh & Prybutok, 2003
	Using technology to deliver services and information.	West, 2004
Broad	Versatile e-services to increase efficiency, empower users, and enhance transparency.	DTLR, 2002
	Reforming public sector.	World Bank Group, 2004
	Managerial transformation of governmental function & emphasis on citizen's needs and empowerment.	Oyomno, 2004
	Economic, social, and managerial transformation of governmental functions.	Grant & Chau, 2005
	Services transformation and political dimension through users' empowerment.	Moulsley, 2005

Table 2.1: e-government broad and narrow definitions

However, Grant & Chau (2005) argue that definitions, which are too broad, make it difficult to determine what really constitutes e-government and, as a consequence may confuse the treatment of the issue. In a sense, this is true, since e-government is a detailed and complex development that is difficult to conceptualize. Nevertheless, for the purpose of this research, we use the term e-government as: an overarching concept for the overall modernisation and transformation of the public sector, whereof development of e-services are part of the whole transformation of the public sector. Thus, we adopted a definition that was proposed by Fang (2002), but with considerable modification. According to him e-government is:

"*a way for governments to use the most innovative information and communication technologies, particularly web-based Internet applications, to provide citizens and businesses with more convenient access to government information and services, to improve the quality of the services and to provide greater opportunities to participate in democratic institutions and processes*"(Fang, 2002: 4).

However, in this research e-government is: A way for governments to provide stakeholders with a more convenient and transparent access to government information and services, and to provide greater opportunities to participate in democratic institutions and processes. This process is achieved through means of Inform, Interact, Intercommunicate, Individualize, Integrate and Involve, which constitute the framework, the 6I model, that drives this research. This framework will be discussed thoroughly in the successive chapters.

2.3 Origins of E-Government

There is no clear-cut answer to the question: How does the e-government term come into being? Heeks (2004) claims that: the concept of e-government is not new; since the presentation of the mainframe computers in organizations in the 1950s has brought some computerization to the processes of governmental work. He argues that, 'using that mainframe in the Statistics Office was 'e-government; we just did not give it that name fifty years ago' (Heeks, 2004:1). However, others like Curtin (2007) disagree with this rather over simplification of the e-government concept. He argues that this is just a fact that does not indicate, by any means, that the e-government concept was in real existence in its real essence of distinction at that time.

Others strongly believe that the term e-government which encompasses the reform of the traditional government is associated with different factors which gain momentum during the 1990s; one factor is the appearance of the Internet as the most significant part of the information and communication age, and which later on would be the main media or channel for the delivery of e-government services and information. It is acknowledged that no technology has changed dramatically the business, and has altered its face like the appearance and the use of the Internet. From an early stage, the world has become aware of the great potentials this technology will bring about (Fang, 2002). Its real worth has been beyond the association with the ability to navigate the web for information; rather, its real advantage lays in starting novel options and possibilities to increase business processes, reducing costs, and delivering better services (Ancarani, 2005).

However, the other factor is traced back to the ongoing process of transformation of administration and economy; more specifically, it is associated either with the administrative reform, or mainly with the e-commerce and partially to the broader scope of the e-business (Turban et al., 2002; Misra 2006; Curtin, 2007, Nahon & Scholl, 2007). It is believed that the administrative reform has established the base to the e-government emerging, wherein administrative reform has been a chief part of the wave of the New Public Management, which is characterized mainly by modernization and reform of the public sector to make it more like market-oriented (Misra 2006; Curtin, 2007). However, the nascence of the e-government phenomenon, which is joined with the complexities associated with the public sector context contribute to the multiple interpretations and confusion surrounding the concept's origins (Grant & Chau, 2005).

The idea that reforming the public sector to make it more like market-oriented could suggest that e-government is the equivalent of e-commerce, for those who support this opinion it is like two faces of the same coin; where e-commerce is wholly associated with the private sector while e-government is mainly associated with the public sector, or as Schubert & Häusler (2001: 1) claim that, e-government is the "e-business of the state". However, Stahl (2005) contends that e-commerce has paved the way for e-government's emergent and progress through creating the model that is to be followed by governments. The private sector has proved to gain much success in its efforts to deliver e-services effectively and efficiently that governments wanted to mirror this success through an attempt to provide and deliver e-services in the public sector to meet the citizens' increasing pressure of demands, needs, and expectations (Scholl, 2006).

Turban et al. (2002) support the opinion that relates the e-government emergence to e-commerce by providing a definition of e-government that couples it with e-commerce. According to Turban et al. (2002: 451), e-government is:

> "*the use of information technology in general, and e-commerce in particular, to provide citizens and organizations with more convenient access to government information and services and to provide delivery of public services to citizens, business partners and suppliers, and those working in the public sector. It is also an efficient and effective way of conducting business transactions with citizens and other businesses and within the governments themselves*".

However, Fang (2002) states that e-government should not be mainly connected to the electronic commerce (e-commerce) but rather to the more broader scope of e-business because e-commerce indicates the idea of selling and buying while e-business has the advantage of including the previous idea along with servicing customers and collaborating with business partners, and conducting electronic transactions within an organizational entity. In other words, although the two terms are used interchangeably as nouns describing organised profit-seeking activity, e-business subsumes e-commerce or buying and selling over the Internet, and deep into the processes and cultures of an enterprise (Vakharia, 2002). So, theoretically, it might sound more appropriate to compare e-government to e-business, though in the documented literature this does not appear to be the case.

Nevertheless, many researchers (Carter & Belanger, 2005; Wang et al., 2005; Al-Shehry et al., 2006; Nahon & Scholl, 2007) identify important differences between e-government and e-commerce (see table 2.2). Firstly, in e-commerce users are allowed to make their choice; so if that choice is not satisfactory, they can find alternatives, however, this is not the same and can not be applied to e-government, in which agencies are responsible for providing services to heterogeneous users, and users can not obtain certain kinds of services like: getting birth certificate or renewal of a driving license from any other source than their government (Wang et al., 2005). Secondly, there is the accountability which makes government agencies responsible for allocating resources and providing the best services to citizens (Nahon & Scholl, 2007).

Finally, the dispersion of the authority in the public organization contrasts that of the commercial nature, and could impede the implementation and development of e-government (Carter & Belanger, 2005).

Nevertheless; it is believed that what ever helped to bring the e-government concept to life, no one can deny that the blossom of the information and communication technology (ICT), and the spread of the internet all over the world as a result of that; brought convenience and awareness of its potential benefits, especially when it was adopted by the private sector in e-business and e-commerce. This boosts the demands of the citizens that their governmental organizations should follow the steps of the private sector to afford public services with the same level of services' effectiveness and efficiency (Ebrahim & Irani, 2005). This pressure by citizens encouraged governments to adapt the ready-made models of the e-business from the private sector and reapply them to transform the public sector creating what is known as the e-government, which, in fact, gained fame in use over other terms or services with the initial "e" like e-housing, e- health and so on so forth, because the e- government is perceived as a wide container for all these terms (Oyomno, 2004).

E-commerce	E-government	References
Refers to the commercial use of Internet technology to sell and purchase goods or services	E-government focuses on delivering their services to citizens without expecting profit.	Jorgensen and Cable, 2002
E-commerce deals with private sector with more freedom for doing their own business	E-government deals with the public sector which has many features including roles limited by legislation and complex accountability. Also, actions must be justified and objectives and outputs are difficult to state or measure	Holtham, 1992 and Carter and Belanger, 2004
E-commerce is allowed to choose its customers	E-government agencies are responsible for providing access to information and services to any citizen and the entire eligible population, including individuals with lower incomes and disabilities	Carter and Belanger, 2005
Decision–making can be centralized and easy to make a decision than public sector.	Decision-making authority is less centralized in government agencies than in businesses. This dispersal of authority impedes the development and implementation of new government services	Moon, 2002
Is designed to be accessible for whom able to achieve services.	The digital divide makes e-government task of providing universally accessible online government services challenging	Wilford, 2004 and Fountain, 2003
The commercial view is the main purpose for its adoption	The political nature of government agencies is a feature that distinguishes e-government from e-commerce	Warkentin et al., 2002
The goal is to obtain the profit and reduce the cost.	In a democratic government, public sector agencies are constrained by the requirement to allocate resources and provide services that are "in the best interest of the public"	OECD, 2004

Table 2.2 illustrates main differences between e-government and e-commerce (Al-Shehry et al., 2006: 5).

2.4 E-government Adoption Impact

Titah & Barki (2006) argue that although the e-government research field is enriched with many studies on different aspects, it requires stable 'theoretical frameworks' that aim to understand the reasons behind the e-government adoption. However, more attention is now dedicated to study the impact of e-government adoption since the e-government concept has begun to establish itself through many research studies.

Skelcher (1992) contends that since the mid-1980s the public sector has undergone something of a "service revolution". However, different perspectives on why should governments transform and modernize their traditional public sector through adopting e-government, taking into consideration the cost of such a radical change, under a large paradigm called e-government, has been introduced throughout the literature. Raymond et al. (2006) suggest that the response to citizens' pressure for better, low-cost services, which are compatible with the latest enhancement in political, economic, social and technological environments, is the main motivation for adopting e-government. Thus, an underlying assumption is that obviously there is something inadequate with both the traditional way of providing services, and the functions of the governmental organizations. This is recognized by one of the central and frequently voiced criticisms of governments: that they are slow, do not react to the demands of their citizens, and that they are generally bureaucratic, defective, and wasteful (Stahl, 2005). Hence, a reform of the public sector organizations has become an increasingly significant issue in the theoretical discussion that has dominated the field of e-government; making e-government, as Wimmer (2002: 92) asserts: "the terminus framing and shaping the public administration's route into the 'Information Society'". Thus, the reform of the public sector through adopting new

information technology marked a watershed by shifting the focus of public sector to its external relationship with citizen (Ho, 2002). However, successful e-governments are those that achieve multiple values like: efficiency in administration, innovation in organization, effectiveness of public services, transparency, enhancement of economic development; improvement of service delivery, redefining of communities and strengthening democracy through citizens' empowerment and participation, improvement of policy formulation; and global interconnectivity (Asgarkhani, 2005; Nour et al., 2008). The wide range spectrum of e-government impact can be classified according to Al-Shehry et al. (2006) into economic, social, political and managerial. Nevertheless, it is worth mentioning that some of these motivations may overlap. In the following sections we present an overview of the impact of e-government upon different arenas.

2.4.1 Economic Impact

As discussed earlier, the most accepted assumption that is found in literature is that e-government has been adopted originally from the private sector and more precisely from e-commerce or e-business (Turban et al., 2002; Wimmer, 2002; Fang, 2002; Stahl, 2005; Nahon & Scholl, 2007). The striking success of e-commerce was the impetus for e-government to innovate and modernise the public sector (Wimmer, 2002). Some of the reasons behind adopting e-commerce in the private sector were that it helped to reduce costs of information dissemination and to reduce costs through online sales and customer support (Lubbe & Van Heerden, 2003).

The same economical reasons might be applied for the governments' efforts all around the world to transform their public sector services. Lee-Kelley & Kolsaker (2004) argue that e-government can act as a powerful driver for economic development through helping local businesses gain competitive advantage by stimulating demand and by furnishing key statistics for decision-making. Eggers (2004) claims in his research to promote the use of e-government, that government could save large sums of money by transforming their services. He illuminates different areas in which savings could be tangible. They are particularly: the minimizing of cost of the personnel needed to carry out governmental transactions, resulting in less used papers, faster transactions, more efficient and effective work rate with reduction of corruption, and less governmental buildings to have that large number of workforce, which is supposedly found within the governmental organizations. Although most of these advantages could be traced in developing countries that have implemented e-government, the main focus of Eggers' work was devoted to the promotion of e-government in the United States, which is already one of the leading countries in the e-government status; it ranks four according to a recent study conducted by West (2007) and such results can not fully represent the case for the developing countries since as Bhatnagar (2003) argues that implementing e-government in developing countries has different objectives than those in the developed countries. He further explains that developed countries have already established strong solid economics and industries, while the developing countries' first purpose of adopting e-government is to enhance their economy by providing good environment for the investment in various areas. In developing countries e-government is not a shortcut to economic development, budget savings or clean and efficient government; it is rather a tool for achieving these goals in countries, where resources are scarce (Hachigian, 2002).

Ndou (2004); Al-Shehry et al., (2006) consider that adoption of e-government in developing countries would reduce public governmental expenses, simplify the transaction procedures by transforming them to be more effective and efficient, saving ultimately time and cost. According to them, this decrease of costs will affect both the government itself and its stakeholders. This can be achieved by strengthening government's drive toward effective governance and increased transparency to better manage a country's social and economic resources for development (Basu, 2004). Moreover having an open and encouraging environment in the public sector, where procedures go smoothly and quickly, is hoped to ensure the satisfaction of customers for the 'flow of investments' in developing countries (ibid.). This last statement regarding investments is the catchword of most developing countries that look forward to enhancing their economy.

2.4.2 Managerial Impact

In describing the traditional governments Kumar et al. (2007: 64) state that they are: "complex, mammoth bureaucratic establishments with a set of information silos that erect barriers to the access of information and make the provision of services cumbersome and frustrating". This traditional picture of the administrative processes in governments is thought to be changing through e-government adoption, which is believed to bring about improvements of administrative and management styles. Heeks (1998) asserts that e-government helps to create a more efficient conduct of the management of the public sector resources. It also presents the 'decentralization', which helps in a more quick and effective decision making. In a more detailed description Bhatnager (2003), Al-Shehry et al., (2006)

offer other effects on the management and administrative styles on one hand and on employees' performance on the other hand when applying e-government. According to them, the employees will be able to carry out their duties in a more effective and efficient way due to the help of the ICT applications; especially when it comes to exchanging and sharing information within the organization itself and with other organizations as well, at the same time, the managers will have the chance to monitor the work flow in their organizations.

Andersen (2006) argues that e-government should be looked at as a part of the New Management Paradigm because it advocates more efficient, effective and productive styles of management and administration. However, it could be argued that e-government reforms promise a way forward of implementing the theoretical changes of new public management. Criado et al., (2002) argue that rather than looking at e-government as a part of the New Management Paradigm, both movements could be seen as mutually reinforcing. Therefore, a more productive, efficient working environment could be realized through e-government, which allows for organizations to be based on information flow, rather than hierarchy. It further allows for streamlined operations and less need for lower or middle level operatives. It promotes a working environment that moves away from existing jurisdictional areas, and an organization structure which is flatter, and less hierarchical (Criado et al., 2002). However, we believe that e-government adoption cannot solely change the management styles and administrative traditions especially in developing countries, a change in the organizational culture and employees perceptions could help bring forth the promises of management modernization through e-government.

2.4.3 Social Impact

The use of ICT in public administration and e-government initiatives in particular, will undoubtedly provide many long-term benefits for the community at large and over time will transform relationships between citizens and government (Letch & Carroll, 2008). This could be realized through different axes that revolve around the availability of e-services and information such as: the improvement of the quality of government service delivery, as measured by such indicators as: lessening processing time, improving the ease of interaction through quicker and easier access to information and services in what is known as: 24/7 service delivery, increasing the transparency of governments by increasing availability of information, increasing the responsiveness of governments by providing more information and services to the public, and creating a new mode of contact between the government and the public (Blakemore & Dutton, 2003; Meskell, 2007). However, in developing countries the provision of e-services could mean the availability of services to people in remote areas and especially to those with special needs like the disabled or the elderly (Bhatnagar, 2003; Al-Shehry et al., 2006). The very introduction of the e-government means that people need to have IT enabled society where they can use the IT applications to get information, interact and transact with their government; this is believed to lead, at least theoretically, to social and human development; we believe it to be theoretically because in reality other facts such as the digital divide: a state where there are people who "have" and those who "do not have" access to the internet (Sipior & Ward, 2005); would result in social exclusion or marginality for certain groups in society, such as: the elderly, unemployed and those on low income and those with disabilities (Margetts & Donleavy, 2002).

2.4.4 Political Impact

The adoption of e-government is believed to renew the faith in government bodies through the creation of an interactive government engaged in a wide dialogue with interactive citizenry (Riley, 2005). According to Riely (2005), there is a shortage of the governmental programs that inform people of the nature of the government work or those that encourage people to get involved in public policy. However, the gradual shift towards more emphasis on technology-mediated direct representation and participation in policy creation, and decision-making processes has gained more and more official attention with the adoption of e-government (Ekelin, 2007). The focus is turning towards e-participation and its application. The core issues in e-participation, as Macintosh et al. (2002) argue, are presented as efforts to achieve active and inclusive involvement of citizens in decision-making. This implies material consequences such as the introduction of technology into public organisations and restructuring of resources and responsibilities. Reinforcing this point of view, Siddiqi et al. (2006) suggest that the political impact of the e-government could be harnessed only when participation, involvement, and empowerment are felt by citizens. In other words, what seems to be the ultimate goal of the e-government; must be addressed in the very early stages to ensure citizens' awareness of the political impact brought about by the adoption of e-government besides the other impacts. This means that citizens become 'more empowered to take charge of the services they use and influence policies that affect them' (Siddiqi et al., 2006: 65). Therefore, e-participation is considered a tool for abandoning the representative system for one with a more direct citizen engagement (Mahrer & Krimmer, 2005). Moreover, Al-Sherhy et al. (2006) assume that the political impact of the e-government adoption on citizens lies in its ability to make them

share in the political discourse, and to enhance their confidence in their governments, since the government itself becomes more transparent and open to citizens' opinions and debates. In other words, citizens would be empowered to have a say in the policy shaping and decision making. One could argue that coupling of e- participation with e-services would reinforce organisational work practice along with civic life by creating service-development of direct concern for people, who will be able to make well- informed choices.

2.5 E-government in Developing Countries

The waves of change of the public sector administrational processes, which were initiated under the paradigm of the Public Administrative Reform, have helped creating the desired environment for adopting e-government, and more precisely, changing the traditional ways in which governments deal with their citizens (Criado, 2002; Andreescu, 2003). This promising of e- governments in offering considerable potential for sustained development, raised the hopes of developing countries that e-government could overcome many of the perpetual problems of their public sector by promoting economic development, networking, better services, efficiency and effectiveness. Consequently, a great number of e-government projects are now underway in virtually all developing countries (InfoDev, 2002; Ndou, 2004; Gronlund et al., 2005). However, apart from being prompted by a variety of prevailing social, economic, political and technological factors, these countries have been motivated by experiences of early adopters of developed countries, as Kaaya (2004) contends. She further argues that benefits such as cost savings, increased and more direct interaction with the citizens, enhancement of government accountability, and the spillover

effect to other sectors of the country's economy serve as an incentive to developing countries.

Therefore, there have been recent efforts to initiate e-governments among developing countries that hope to leapfrog and catch up with more advanced countries (Basu, 2004), by providing timely information and facilitating cooperation among regions, e-government is believed to help public managers of developing countries solve long-lingering problems such as poverty, corruption, and diseases (Shin et al., 2008).

However, in order for developing countries to capture the potential opportunities of e-government, Basu (2004) & Chen et al., (2006) emphasise the importance of tailoring the practices and approaches adopted from developed countries to suit the developing contexts. Reinforcing this point, Nour et al. (2008) argue that more realistic and effective, e-government initiatives must take into account the diversity of government systems, cultures, economic conditions, technological infrastructures, and sociopolitical factors, which collectively represent the context within which e-government initiatives are undertaken. However, this has not been the case with most, if not, all developing countries, which according to Chen et al. (2006) have adopted strategies and plans that are based on theories and experiences of developed countries, despite the fact that many of these adopted strategies and plans are not applicable to the developing countries' context. Consequently, many e-government initiatives in developing countries are still faced with various issues pertaining to their implementation of e-government services, or as Al-Shafi & Weerakkody, (2007) contend that while most developed countries have reached transactional level, developing countries are beginning to follow suit. Although many studies assert that the efforts of developing countries to adopt and achieve e-government objectives are questionable; due to the meager developments of e-government (Heeks, 2003; Ciborra &

Navarra, 2005; Dada, 2006). We argue that these studies fall short of understanding the interlinked relationship between technology and society, in which that technology emerged and is being used. We believe that evaluating e-government in any country needs to take into account the crucial perceptions of the stakeholders. That is why in this research, we propose taking users' and organizational aspects into consideration through multiview approach to offer some rich insights of the Jordanian context that would help to ascertain what e-services require to become more efficient within that same context.

The next section draws on some observations and direction for the progress of this research.

2.6 Observations and Directions

Studying the interlinked relationship between technology and society, in which that technology emerged and is being used is still in its nascency (Wood-Harper & Wood, 2005). Many earlier studies have been focusing on technological factors on one hand, and social factors on another (Senyucel, 2008), but in effect, these studies failed to capture the essence of how technology is perceived by those who use it. However, we would argue that current practices of evaluation should emphasis stakeholders' perception in order to ensure adequate evaluation in which people's perceptions are taken into account to guide evaluations. In this research, users' and providers' perceptions are investigated to better understand the status of e-services within the Jordanian context. This investigation, we believe, would provide insightful implications of users' needs and expectations of e-services. It would also identify the barriers to e-services' development from providers' perceptions. Thus, an integral users-providers relationship would emerge, and that could be used to enhance the development of e-services within the research context.

2.7 Conclusion

This chapter provides a general overview of the e-government concept, its emergence and its relation to e-business, its narrow and broad definitions, and its impact upon individuals and governments.

The next chapter reviews a fundamental issue that is related to e-government, and that is the provision and development of e-services in public sector. It reviews the maturity models that are used to evaluate e-services, and proposed a new framework for that evaluation. The third and the fourth chapter will serve to reinforce the choice of stakeholders' multi-view approach of e-services' evaluation, and in both chapters the research questions that are to be investigated in the subsequent chapters will be identified.

Chapter Three:

E-Services in Public Sector

3.1 Introduction

The private sector's successful experience of adopting e-business model has been the spark that stimulates governmental entities to innovate and modernise the performance of governmental functions in what has now been known as e-government (Wimmer, 2002; Asgarkhani, 2005). One dimension of this modernisation is the service-delivery via the Internet, wherein e-government promises to mark a new era of greater convenience in users' access to governmental forms, data, services and information (Garson, 2004). The promise is a real transformation of the way governments do business, allowing increased efficiency and effectiveness, decreased costs and better quality of services (Evangelidis, 2004). However, what do we mean by e-services in a public sector, what are the different interactions of e-services, and how can we evaluate these e-services, not from a theoretical perspective, which the current maturity models are applying, but from empirical perspectives of e-services' users are the objectives of this chapter that have led to the development of a framework of e-services' evaluation. The next section will look first at the definition of e-services in public sector.

3.2 Public e-Service Definition

The public e-service concept very often goes hand in hand with the e-government concept, although it should be understood that it is one of the many outcomes that the transformation towards digital government would bring about.

E-service in public sector has been defined in various ways. The initial definitions tend to be private sector-oriented; this is not surprising since the concept itself emerged from e-commerce or e-business, and was first introduced by the private sector, which according to Asgarkhani (2005), is dominated by competition to attract customers by modernizing and even revolutionizing the provision of e-services. Thus, for example, Hoogwout (2002: 33) defines e-services for government as: "online services". The same perspective is presented by Gilbert et al. (2004) who simplify the concept by defining the e-services as "the government organizations' delivery of services electronically". These kinds of definitions are in fact oversimplifying the concept of e-services in public sector as a mere automation of the existed services. Moreover, they underscore an avoidance of the multifaceted issues and aspects that should be addressed when attempting to define public e-services. Even adopting private sector perspectives in defining e-services, will not fully capture the essence of what public e-services mean. Such definitions are proposed, for example: by De Ruyter et al. (2000: 186), who define e-services as: "an interactive, content-centered, and Internet-based customer service that is driven by the customer and integrated with related organizational support processes and technologies with the goal of strengthening the customer-provider relationship", and by Reynolds (2000) and Boyer et al. (2002) who both define e-service as the service conducted wholly on the web till the delivery of that service or product is achieved. Or even this synthesized definition that is proposed by Kim et al. (2003: 5), in which "e-service [is] an integrated solution for customized services that are delivered through the Internet, enabling the dynamic discovery, composition, and delivery of services". Therefore, the need arise to go beyond what is the basic idea of e-services' concept when it comes to understanding it within the public sector.

Buckley (2003) argues that to fully understand the concept of the public e-service, it is crucial to contextualize it within the e-government or, more precisely, within the public sector organizations that seek to transform their services under the large paradigm of e-government. Thus, she combines the definition of e-service in the private sector with the definition of the e-government in order to generate a more accurate definition of the e-services in the public sector as the "delivery of public services to citizens, business partners and suppliers, and those working in the government sector by electronic media including information, communication, interaction and contracting, and transaction"(Buckley, 2003: 456); what is interesting about this definition is that it encompasses a classification of the stakeholders and presents the stages of e-service evolution all in one. Nevertheless, Goldkuhl (2007) argues that Buckley's use of the service quality notion as a medium to define the e-service in public sector does not contribute to understanding the service's dimension in public e-service. He further suggests that a clear distinction of the direction of communication should be made, thus, he proposes this definition: "a public e-service is, through appropriate information technology, delivers useful messages from governmental agency to citizens, or affordances of communication from citizens to governmental agencies" (Goldkuhl, 2007: 156). Ancarani (2005) suggests that understanding e-service in public sector could be realised by recognizing the provision's level which moves from simple information (one way communication), to interaction (two way communication), to transaction. However, this direction in defining e-services in public sector through their characteristics of quality through stages or more clearly through dimensions will be analysed later on in this chapter. Nevertheless, we define e-service in the public sector, which is referred to in this research, as: the information and services that are provided by

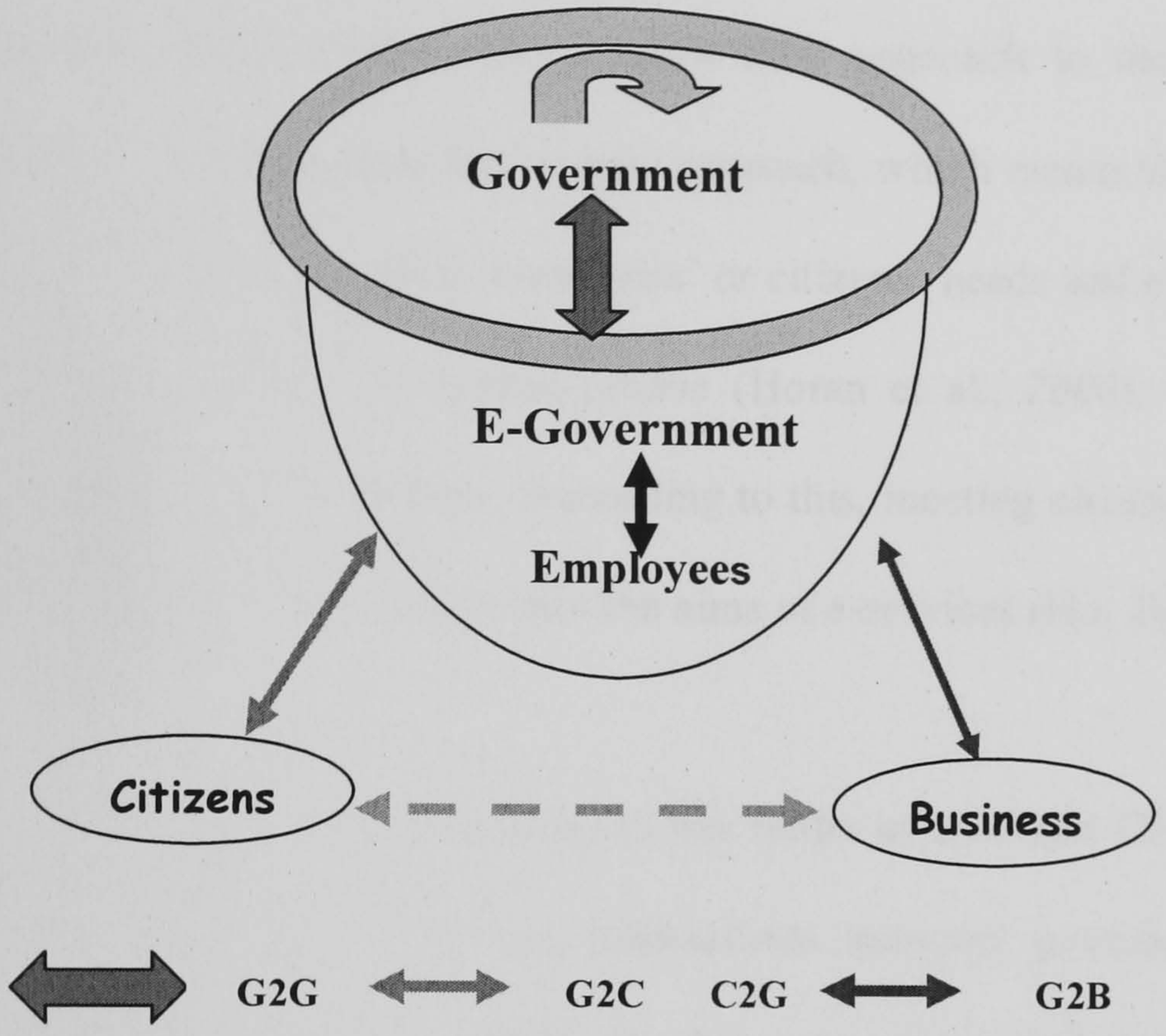
the government to its constituents to enhance efficient and effective interaction, and to increase users' empowerment.

The aforementioned multifaceted definitions of public e-service do not only offer more insightful understanding of the concept itself, but rather they contribute to recognizing, from our perspective, two dimensions within e-services. The first one is related to the classification of the e-services depending on the users, or what is commonly called the stakeholders that have interaction relationship with the government entities, and the second is ascribed to the evolution of the e-services into different stages. Thus, the subsections of this chapter are going to establish, at first, a classification of the different e-services interactions, and then they present a detailed review of the evolution stages of e-services or what is known as the maturity or ladder models; leading to proposing our evaluation framework.

3.3 E-Service Interactions

It is strongly believed that the essence of government centres on relationships (Asgarkhani, 2005). Therefore, one of the major concerns of e-services is to interconnect various stakeholders with the government entities. However, due to the diversity of stakeholders' needs, e-services are classified into different realms: citizens, businesses, governmental personnel, and governmental entities. These categories are abbreviated respectively into: G2C, G2B which present the interaction of government with external users, and G2E, G2G which are for internal purposes (Backus, 2001). Figure 3.1 adopted from Wei and Zhao, (2005) with a slight modification to include G2E shows the different e-services' interactions.

Figure 3.1: Interaction between stakeholders (Wei and Zhao, 2005: 525)



However, this research focuses on the first realm G2C as its major area of investigation; this choice is justified by the fact that the e-government vision in Jordan is claimed to be "dedicated to delivering services to people across society, irrespective of location, economic status, education or ICT ability. With its commitment to a customer-centric approach, e-government will transform government and contribute to the Kingdom's economic and social development" (MoICT, 2006a). This motivates the researcher to find out to what extent this rhetorical vision is compatible with the real state of the e-services within the research context. Nevertheless, a brief explanation of the aforementioned realms is presented next.

3.3.1 Government to Citizens (G2C)

A common theme in the e-government discourse is the improved relations with citizens. Therefore, most governments present their approach to the adoption of e-government initiatives as being customer-centric approach, which means that services are designed and provided to meet to satisfy customers' or citizens' needs and expectations– leading them to be *customer-centric* or *citizen-centric* (Horan et al., 2006). The main customers of the government are the citizens. According to this, meeting citizens' demands and maintaining users' satisfaction should remain the aims of e-services (Ho, 2002).

However, many researchers refer to this realm as G2C and C2G to highlight the reciprocal relationships, interactions and transactions between government agencies and citizens (Fang, 2002; Halachmi, 2004). In this case the governments offer their citizens with information and versatile services ranging from simple ones like provision of benefits, welfare, public health information, to more complicated services like renewing driving licenses and obtaining permits, income taxes, notification of assessment, and social security services (Riley, 2001; Sagheb-Tehrani, 2007). Furthermore, this interactive manner of services provision and use could enhance citizens' participation in the debates and forums that would reinforce the transparency and accountability of the government agencies, leading eventually to a practice of democracy where citizens share in decision making and policy shaping (Ndou, 2004; Halachmi, 2004). However, in our research context a question is posited: Are G2C e-services in Jordan tailored to meet users' expectations? The answer to this question cannot be assumed from theoretical perspectives; it should rather spring from users' real-life experience with e-services. Nevertheless, other arenas of e-services'

interaction are presented in the following sections before returning to how to investigate G2C within the research context.

3.3.2 Government to Business (G2B)

Government-to-Business (G2B) covers exchanges between government and commercial and non-profit enterprises to reduce burdens on business, provide one-stop access to information and enable digital communication (DeBenedictis et al., 2002). This kind of interaction provides governments with an electronic marketplace; this can be explained in terms of enabling and regulating effectively a range of activities such as e-transaction initiatives for e-procurement tenders, international trade and commerce (Fang, 2002). Echoing this point of efficiency, Kolsaker & Lee-Kelley (2007) suggest that through G2B e-services, governments seek to conduct the business of the state more cost-effectively and efficiently than in the past. In other words, it enhances the electronic interactions and transactions between the government and the private sector by reducing the excessive bureaucracy or the red tape, which is a common feature of the public sector, especially, in developing countries (Ndou, 2004). This arena which is also referred to as G2B or B2G is among the very first e- initiatives that governments seek to apply. According to Halachmi (2004), governments were trying to follow the path that was first explored by the private sector in adopting the Internet to invite businesses for bids' offer. Stokes (2005) clarifies that through this domain governments are adopting strategies to attract or build relationships with inter-state or off-shore corporate investors sit within this domain. However, on the part of the businesses this e- interaction or transaction is presented through customs declarations, submission of data to statistical offices, registration of a new company, and corporation tax like declaration and notification (Sagheb-Tehrani, 2007).

Within the Jordanian context, G2B services are mainly targeting investors by providing information and e-services such as: registering new business online, investment incentives, investment benefits at free zones, taxpaying and many more (The Official Site of the Jordanian e-Government).

3.3.3 Government to Government (G2G)

This kind of interaction differs from the two previous ones since it is of an internal kind; dealing with intergovernmental work. Pagano & Cook (2004) & Sagheb-Tehrani (2007) refer to some e-services that might be found within this domain, such as: grants, e-training initiatives for governmental personnel, and employee directory.

Pagano & Cook (2004) recognize the importance of this component as a crucial factor that will enable the other modes of interactions. So, for instance, when a citizen or business transaction requires the collaboration of two or more governmental agencies, the need for G2G appears to be of the utmost importance because the completion of the transaction includes: filling a form, providing some personal and sometimes even secure information, making a payment, and receiving a service or obtain a permit or a license, all these steps need the integration of more than one of the governmental entities, and therefore, the interrelation of these different entities. Riley (2001) points out that governments are actually layers of other governments within the country, so G2G initiatives will help regulate and facilitate the domestic responsibilities of the central government. Furthermore, some of the e-government objectives are to reduce costs, time, and bureaucracy; consequently, decentralizing the government public services through adopting G2G will contribute in achieving such objectives by "allowing government agencies and departments

to share databases, resources, pool skills and capabilities" (Ndou, 2004: 5). Nevertheless, most often G2G applications follow after efforts aimed at satisfying a need for citizens or businesses; which means that many government wait to implement this important mode of interaction till latter stages of e-government adoption, while it should be considered at very early stages to help the management of myriad databases between various and sometimes scattered governments' organizations (Fang, 2002; Pagano & Cook, 2004), and not simply considered as an afterthought option.

3.3.4 Government to Employees (G2E)

This fourth dimension is left out very often or considered at best part of G2G realm. However, Fang (2002) argues that the interaction between government and its employee is an important dimension; since employees constitute what could be called internal customers, and their needs should be considered. He further suggests that G2E interaction should be of the very first initiatives because handling the employees' communications and the civil service management will be more effective in a paperless system. Ndou (2004) emphasises the importance of studying this mode separately. She argues that the employees constitute the internal customers whose needs should be addressed if the e-government initiatives are to be described as customer centric. Moreover, she points out that G2E interaction provides the employees with the opportunity to be more aware of their rights, and any other training workshops that might empower them with better skills and learning. Thus, making the employee themselves part of the e-government initiatives helps implement and enhance the e-government adoption and even reduce the culture of resistance that is so often ascribed to the employees' reaction towards e-government.

Table 3.1 summarises the objectives of the four e-government interactions.

G2C	G2B
•Provide users with more effective, efficient and versatile e-services. •Improve interactive communication between government and remote users. •Create premium personalized and integrated e-services. •Enhance user involvement, participation and contribution into e-services.	•Increase the ability for users and businesses to find, view, and comment on rules and regulations. •Reduce burden on business by enabling online tax filing. •Reduce the time to fill out export forms and locate information. •Reduce time for businesses to file and comply with regulations.
G2G	**G2E**
• Increase the share of knowledge and information across governmental entities. • Reduce processing through common standards for data and processes. • Reduce security breaches through integrated systems.	•Increase availability of training programs for government personnel. •Save the average time to process administrative and managerial processes. •Reduce error rates, re-work, and provide more flexible working hours.

Table 3.1: E-Government Interactions' Objectives

As this study is concerned primarily with the first kind of the e-government services interaction (G2C), it investigates whether the e-services in Jordan have managed to attain these main objectives. This is achieved by using the 6I maturity model as a framework that has many facilities that would enable us to examine whether these objectives have been met or not as will be shown in the successive chapters.

3.4 E-service Evaluation

In the previous section, a description of the different kinds of e-services according to the users' needs was discussed. Yet, a question of how to assess these e-services is crucial in determining the direction that online services may take. In other words, some conceptual frameworks are needed as guiding and evaluating models or benchmarks. One of the most frequent topics in the literature is what is called the "*maturity models*" or the "*stage-ladders models*". These models help us to have an understanding of the various processes that are used to improve and maintain the e- service delivery. They also enable us to select the plans and processes that would improve e-government service quality, even though; it might take years to be achieved. However; the fact that a maturity model is "an enumeration of attributes for a sequence of maturity levels" (Windley, 2002: 1), would help understanding some key facts regarding e-services development. Different models have emerged to describe the "evolutionary" stages of which public e-services go through to make it to the ultimate goal where seamless e-services are presented in a one-stop-shop.

Next section presents a discussion of the reviewed literature of the most well-known stage models. Then, it points out some shortcomings in these maturity models, and suggests a new model which attempts to provide a common standard characterization of the features of each stage, and thereby enhances previous models.

3.4.1 A Review of the Current Maturity Models

For the purposes of a more organized analysis, we have classified the ten reviewed models into three categories depending on their origin or provenance; so they are classified as proposed by: Global Private Companies (GPC), International Public Institutions (IPI), or Researchers.

3.4.1.1 Global Companies Models

- **Gartner's Four-Stage Model:** In 2000 Gartner Group, an international consultancy firm, has proposed a four-stage model; in which these phases were introduced (Backus, 2001).

  1. *Web presence* –a provision of basic static information

  2. *Interaction*-simple processes can be done online by the customers as email or do self-service.

  3. *Transaction*- this is a complex process in which a whole process is transacted online, but due to security and privacy, this could involve technological, organizational, and legal changes.

  4. *Transformation*-personalized, integrated and seamless services are what this stage endeavours to achieve.

- **Deloitte's Six-Stage Model:** In this model citizens are seen as the main focus of e-government, which should facilitate their life and enhance their relationship with the government: it involves a six-stage model as follows: (Deloitte and Touche, 2001).

  1. *Information publishing / dissemination*- this is the very early stage in which information is displayed, and an access to it is provided to the different users.

  2. *"Official" two-way transaction*-interaction is provided between governments and users through ICT.

3. *Multi-purpose portals*- various services are presented via a single portal, which joins different departments.

4. *Portal personalization*- this is an advanced stage, in which customers personalize portals depending on their needs and expectations.

5. *Clustering of common services*- the intermediate is reduced to gain seamless and integrated services.

6. *Full integration and enterprise transaction*-this is the ultimate goal of the e-government, wherein any kind of e- services is presented in a personalized way to each user, so that it would meet his/her aspirations and needs.

❖ **Accenture Five-Stage Model:** In 2003 Accenture presented a five-stage model for the development of e-government. This includes according to Peter et al. (2004).

1. *Online presence*- it is again the display of information but here with the addition of providing simple services like downloading forms.

2. *Basic capability*- a more sophisticated level can be noticed here, as a strategic plane is put forward. Customers can now do some secured transactions because issues like digital signature and legislation are addressed.

3. *Service availability*- customer centric approach begins to take place in this stage more clearly; this is due to the presentation of a central website and the integration of various services from different agencies.

4. *Mature delivery*- the crucial issues of *ownership, authority, intra-agency relationships*, and a kind of partnership between different governmental levels must be carried on.

5. *Service transformation*- the ultimate objective of any e-government, in which all services are presented online in an efficient and easy way.

A Comparison of the Global Companies' Models: These three models which are presented by three leading private companies share certain stages and differ in others. The initial stage of having static or dynamic presence on line is shared by all the three, they also share the interaction and transaction stages. However, the one stop shop is presented in Deloitte's (2001) and Accenture's (2003) models, but it is not found in Gartner's (2000). Furthermore, issues of security and personalization are addressed as separate stages in Deloitte and Accenture, but are embedded within the third stage i.e. (Transaction) in Gartner's. Concepts of seamless and integrated e-services are combined as the fourth and the last stage in Gartner's and Accenture's, but they are presented as two separate stages of development in Deloitte's.

3.4.1.2 International Institutions.

- **UN's Five - Stage Model.** According to the United Nations (2001), the ultimate goal of e-government is to offer efficient web-based public services. So the key word for this model is the web presence through the different stages. Following is a closer look at each stage:

1. *Emerging presence*- one or a few web sites to present basic information.

2. *Enhanced presence*-much more specific and up to date information is provided.

3. *Interactive presence*-the interaction is getting more complicated as the government plays the role of the intermediate, as a portal between customers and services providers.

4. *Transactional presence*- a single government web site will enable users to complete transactions of life cycle documents in a secured way.

5. *Seamless or fully integrated presence*-a one-stop portal is what this stage offers to allow users to have access to all the various services in a fast and easy manner.

❖ **World Bank's Three-Stage Model** : Info Dev (2002) presents this model which consists of three stages as follows:

1. Publish- information that is helpful to citizens is displayed on the web.

2. *Interact*- basic connection through the e-mail between different government organizations can be applied at this stage, in addition to receiving feed back from users.

3. *Transact* –a presence of a transact website that will allow customers to conduct any desired service at any time.

❖ **Asia Pacific Six-Stage Model.** Taking into consideration, their own experience; the Asia Pacific countries presented this model which consists of six stages as follows: (Wescott, 2002).

1. *Setting up an email system and internal network*- the focus of this stage is on internal processes between the different government agencies through a proper medium which is mainly the e-mail.

2. *Enabling inter-organizational and public access to information*- a step forward where many manual processes will be done online.

3. *Allowing 2 way communications*- more active web sites rather than passive ones. Those web sites will enable customers to interact with the government through the published email addresses, telephones or fax numbers. They will also choose from categories as *laws and regulations, government services*.

4. *Allowing exchange of value*- different procedures will be put online to achieve a more easy, comfortable and flexible conducting of business with the government.

5. *Digital democracy*- this stage will enable citizens to have their share in any political process, for example, voting.

6. *Jointed–up government*- the full integration of services and information, which different government agencies are providing to reach the stage of seamless service. In other words there is both vertical and horizontal integration of service delivery.

A Comparison of the International Institutions' Models: These three international institutions share the initial stage as a basic static web presence. However, while this stage is present in both the UN and the World Bank, it is only meant as an internal network between the different governmental organizations in the Asia Pacific model. The second stage is characterized by dynamic presence of the information on the web for both the UN and the Asia Pacific models, while it refers to interaction stage in the World Bank model, which also takes the transaction stage as its final one. The third stage (interactive) is the same for the UN and the Asia Pacific models. But they differ in the last two stages, which are transaction then seamless and integrated services for the UN, while the Asia Pacific

takes seamless services as the fourth stage in its model, and adds in the varying e-democracy and jointed-up stages, which are not found in the others.

3.4.1.3 Researchers

❖ **Layne and Lee's four-stage model.** From a different angle where the focus shifted to technical, organizational, and managerial feasibility; a four-stage model was suggested by Layne and Lee (2001) as follows:

1. *Catalogue*- simple pieces of information (*basic and static*) will be displayed through web sites. So it is simply like a catalogue where information is shown without any interference of the customers.

2. *Transaction*- here the customers are a little bit involved, they can conduct some online processes.

3. *Vertical integration*- the focus of this stage is to connect systems of the local governments and those of the main government so as to provide the customers with seamless services.

4. *Horizontal integration*- this final stage tends to collapse the barriers between the structured functions within the government.

❖ **West's Four-Stage Model.** This model, which was suggested by West (2004). consists of four stages as follows:

1. *Billboard stage*- the stage is the same as the initial stage in all the different models, as there is a display of information and an access by users to this basic information.

2. *The partial service-delivery stage*- some online services are being initiated, so citizens can now start to conduct some online processes like finding informational data bases.

3. *The portal stage with fully executable and integrated service delivery*- at this stage all the services will be found and accessed through one place, which is known as "one-stop". This will provide customers with a more convenient way of interaction.

4. *Interactive democracy*- this would be the final stage of any mature model when the e-services move towards "political transformation". Moreover; there would be choices of "personalization" the e-services and making use of great potentials that the internet offers.

❖ **Moon's five- stage model.** Adopting different models, Moon (2002) introduced his maturity model, which has five stages as follows:

1. *Simple information dissemination (one way communication)* - this stage is the same as the catalogue stage of Layne and Lee's model (2001).

2. *Two way communication (request and response)* - interaction begins at this stage between governments and customers.

3. *Service and financial transactions*- this stage resembles what is known as G2C and G2B; meaning that both citizens and business can do online services.

4. *Vertical and horizontal integration*- again this stage is adopted from Layne and Lee's model where different systems are brought together within the same agency or department (*vertical*) and from different departments (*horizontal*).

5. *Political participation*- this phase encourages the spread of e-democracy through online voting, for example.

❖ **Siau and Long Synthesize e-Government Stage Model.** Siau & Long (2005) have synthesized a new maturity model from different models using the meta-synthesize approach, which is relatively new in the field of information technology. This was done by combining several maturity models and joining the similarities; a four-stage model has been created, consisting of the following stages:

1. *Interaction*- this step provides customers with their first connection with the government e-services through simple technical steps such as: e-mail system, basic search engines and downloading official forms.

2. *Transaction*- All the customers will be able to conduct from A to Z transaction, like license application, tax filling, personal information updates.

3. *Transformation*- this stage presents a crucial step in achieving the goals of the e-government projects, as it seeks the change of the operations in which the government presents the services rather than changing just the services. This phase includes both "vertical and horizontal" integration to offer seamless and integrated services. To reach this stage, governments should start a total change

of the old-fashion existing processes which will lead to a more effective and free-intermediates performance.

4. *E-democracy*- this stage is the ultimate one, when a government provides its citizens with the chance to have their say in the political issues by voting or participating in surveys; then the concept "transparency" at all levels could be easily reached. On the other hand, this would change the way in which the people look at or deal with the government.

A Comparison of the Researchers' Models: These researchers presented their models in four or five stages. All of them share the first stage which is the web-presence, which ranges from static to dynamic. While Layne & Lee (2001) have both the interaction and the transaction as one stage; Moon (2002) presents them as separate stages. On the other hand, West (2004) refers to these two stages as one stage, simply refereed to as interaction, while Siau & Long (2005) also refer to them as one stage but named as transaction. All the models, except for Layne & Lee (2001) who refer only to seamless, have the seamless and integrated services as their third stage. The final stage also has a distinctive difference between Layne and Lee (2001) and the other three models (Moon, 2002; West, 2004; Siau & Long, 2005) since Layne & Lee (2001) refer to the services integration as the final stage while the others develop a more complicated stage to include the e-political or e-democratic stage.

3.5 The 6I Model

In developing the 6I maturity model, we utilise a qualitative meta-synthesis methodology to synthesize different e-government stage- models. Meta-synthesis is a research method that

is used to integrate multiple studies and examine them critically in order to produce comprehensive and interpretative findings through discovering underlying themes and metaphors, so as to advance the current knowledge and produce a broad and comprehensive view (Siau & Long, 2005). The approach adopted by Siau & Long (2005) in arriving T their synthesised model was broadly followed; however, we arrived at our own synthesis independently.

We use meta-synthesis in this research to compare, interpret, translate, and synthesize different e-government maturity models to produce a new model: the 6I model. However, most maturity model stages were established depending on qualitative studies, and many by picking up on the literature because the same terms apply through out all the different models without having empirical evidence or quantitative studies to build up the maturity model or underpin it. In addressing this gap in literature, we considered taking the building up of the model a step further by presenting an empirical evidence to underpin the proposed model through a quantitative research that will be highlighted in chapter 6. However here we discuss the process of building up the model using the following seven steps of the meta- ethnography (Bryman & Bell, 2007):

1. ***Getting started***- At this stage we identify our intellectual interest as studying the development of e-services stages.

2. ***Deciding what is relevant to the initial interest***- At this stage we identify current literature related to e-services development. Ten studies focusing on maturity models stages were identified. These studies were presented from the year 2000 to 2005 and they include: Gartner's Four-Stage Model (2000), Deloitte's Six-Stage Model (2001), Accenture Five-Stage Model (2003), UN's Five-Stage Model (2001), World Bank's Three-Stage Model

(2002), Asia Pacific Six-Stage Model (2002), Layne & Lee's Four-Stage Model (2001), West's Four-Stage Model (2004), Moon's Five-Stage Model (2002), Siau & Long Synthesize e-Government Stage Model (2005).

3. ***Reading the studies***- This stage is the foundation for further exploration of themes, here we studied and analysed the different chosen stage models.

4. ***Determing how the studies are related***- This stage enabled us to put together the various models to determine the relationships between them. Moreover an analysis of the key concepts and metaphors of each stage helped in identifying the similarities and differences between all of them as follows:

The comparison of all the models that were identified earlier in section reveals the similar stages they have, and it also highlights some differences between them. The first three stages (online presence, interaction, transaction) are found in all the models, with the exception of the Asia Pacific model, which does not have the online presence. Furthermore, Layne & Lee (2001) and West (2004) omit the interaction stage. However, all of them refer to the integration stage, except that of the World Bank. Moreover, only four models refer to the political participation, those models are: Moon (2002), West (2004), Asia Pacific (2002), and Siau & Long (2005).

The well-known maturity models which are considered to be used for benchmarking, whether those suggested and developed by researchers (e.g. Layne & Lee, Moon), global companies (e.g. Gartner Group, Deloitte & Touche), or international institution (e.g. the UN, the World bank) all present stages of growth with one common point, i.e. the

implication of "maturity" that is with the evolution of e-services in the series of stages embodying the notion of continual process improvement. However, these maturity models have their own shortcomings in terms of ignoring some dimensions such as the political dimension or the e-participation. This is clear in Gartner's four-stage model, Layne and Lee's four-stage model, and the UN five-stage model. Moreover, some models have left out the process of re-engineering the governmental back office. This is clearly shown in the UN's five-stage model, Deloitte's six-stage model. In addition, some maturity models were not concise enough like that of Deloitte and Touche.

5. *Translating the studies into one another* -& 6. Synthesizing translations

Here we combine steps 5 & 6 together to conduct a comparison of key concepts and metaphors between different studies so as to synthesise a comprehensive and integrated account. The simplest form of translation is to treat varied accounts as analogies, i.e., similarities and differences of key concepts between different studies. This will show the similarities and the overlapping content of the stages. Based on that, the stages can be translated to each other which give a more comprehensive model. Therefore, in our proposed model we synthesize the different stages in all the models to coin new terms or words that would each time encompass the different yet overlapping stages. Table 3.2 shows our terms that describe the 6 stages in our proposed model and how these stages encompass one or more stages in other models. The numbers in brackets in this table refer to the different stages in the chosen maturity models.

Table 3.2: Coining of the 6I model stages through analogies with other models' stages.

Involve	Integrate	Individualize	Intercommunicate	Interact	Inform	6I Model stages / models' stages
___	Transformation (4)	Transformation (4)	Transaction(3)	Transaction(2)	Web presence(1)	**Gartner**
___	Clustering of common services (5)	Portal personalization (4)	Full integration & Enterprise transaction (6)	Official two-way Communication (2)	Information Publishing (1)	**Deloitte**
___	transformation (4+5)	Customer centric (3)	Basic capability (2)	___	Online presence(1)	**Accenture**
___	Integrated presence (5)	___	Transactional presence (4)	Interactive presence(3)	Emerging & Enhanced presence (1+2)	**UN**
___	___	___	Transact (3)	Interact (2)	Publish (1)	**World Bank**
Digital democracy (5)	Jointed up government (6)	___	Allowing exchange of value (4)	Allowing 2 way communication (3)	Inter-organizational & public access (1+2)	**Asia Pacific**
___	Vertical &horiz. Integration (3+4)	___	Transaction (2)	___	Catalogue (1)	**Layne & Lee**
Democracy (4)	Portal (3)	___	___	The partial service (2)	Billboard (1)	**West**
Participation (5)	Vertical &horiz. Integration (4)	___	Service & Financial transaction (3)	Two way communication (2)	Simple Information Dissemination (1)	**Moon**
E-democracy(4)	Transformation (3)	___	Transaction(2)	Transaction(1)	___	**Siau &Long**

7. Expressing the synthesis- at this stage the conceptual model: the 6I model is explained and translated further to make it more comprehensible. However, since each stage model is unique in its evaluation of the e-services within the e-government initiatives. The use of the meta-synthesized approach, which is mainly a comparative approach, allows us to gain an understanding of each model and establish its relationship to the other models. This helps in producing a new framework called the 6I model (Hjouj Btoush et al., 2008) that reveals the characteristics of each stage for one can argue for an important shortcoming in all the proposed models; that is the lack of sufficient description of what is happening in each stage, what does each stage mean? What is the process or how is the e-service characterized? Based on that, we have proposed a 6I model to evaluate the e-services in the government. Each dimension will give a clear description and characterization of the e-service to help establishing an in-depth understanding of e-services maturity stages. In determining our choice of the number and names for dimensions, we argued as follows: The former models were straightforward; however, we wanted to ensure that every stage was incorporated and therefore we took the maximum number of six. In relation to the names, one important factor was that the dimensions should be actors that convey services being delivered and therefore we choose verbs that would correspond to the activities. The dimensions corresponding to *Inform*, *Interact* and *Integrate* suggested themselves from phrases used by others. Having developed names beginning with the letter I, *Involve* and *Individualise* were relatively straightforward to arrive at, and these capture the desired actions. *Intercommunicate*, involved some judicious searching for a term that begins with I and conveys the required action. Following is a detailed description of the stages of this model.

1. Inform: This dimension indicates that there is a content that tells or informs the user with information, about the organizations. This is usually formal, limited and static, such as: the hours of operation, address, some regulations and the organization's function. Included in this dimension can be content that is dynamic instead of static, specialized and regularly updated, that is the content will be changed every now and then to present new information that is totally dedicated to the organization's activities, and what e-services it presents. Moreover, refreshment in terms of updating the information could make the site more vivid and that will encourage the user to the informative e-services once again.

II. Interact: Here there is simple group ware or ICT features functionalities, which allow two way transaction or communication in which interaction flows between governments and users. That could be within two levels: either full interaction in which there is a request on the user's side and a response from the e-service provider via email, or half interaction when there is an inquiry or a request from the user without a response from the governmental provider. Additionally, this dimension allows the possibility of downloading information or forms as well as having linkage to other relevant sites.

III. Intercommunicate: A full or complete transaction online is carried out, which means you can conduct a whole process of procedures from the start to the end online. This may range from filling the form electronically to updating birth and death records to paying taxes and fees, to submitting bids for procurement contracts to getting certificate.

IV. Individualize: This dimension was overlooked in most of the stage-models, although it is of great importance. With individualization the users will be allowed to be identified to the department they are dealing with, or it allows the user to manage the e-service by

activating the PIN or changing an account details and/or the e-services can be personalized to meet the users' needs in a certain context.

V. Integrate: This refers to the combination of different services from separate departments; this may range from clustering of common services to become one unified service to a seamless service oriented around user services, where a "one-stop" portal offering a comprehensive menu of services specifically tailored to the profile of the individual user. This will need aligned systems and some level of intra-departmental collaboration.

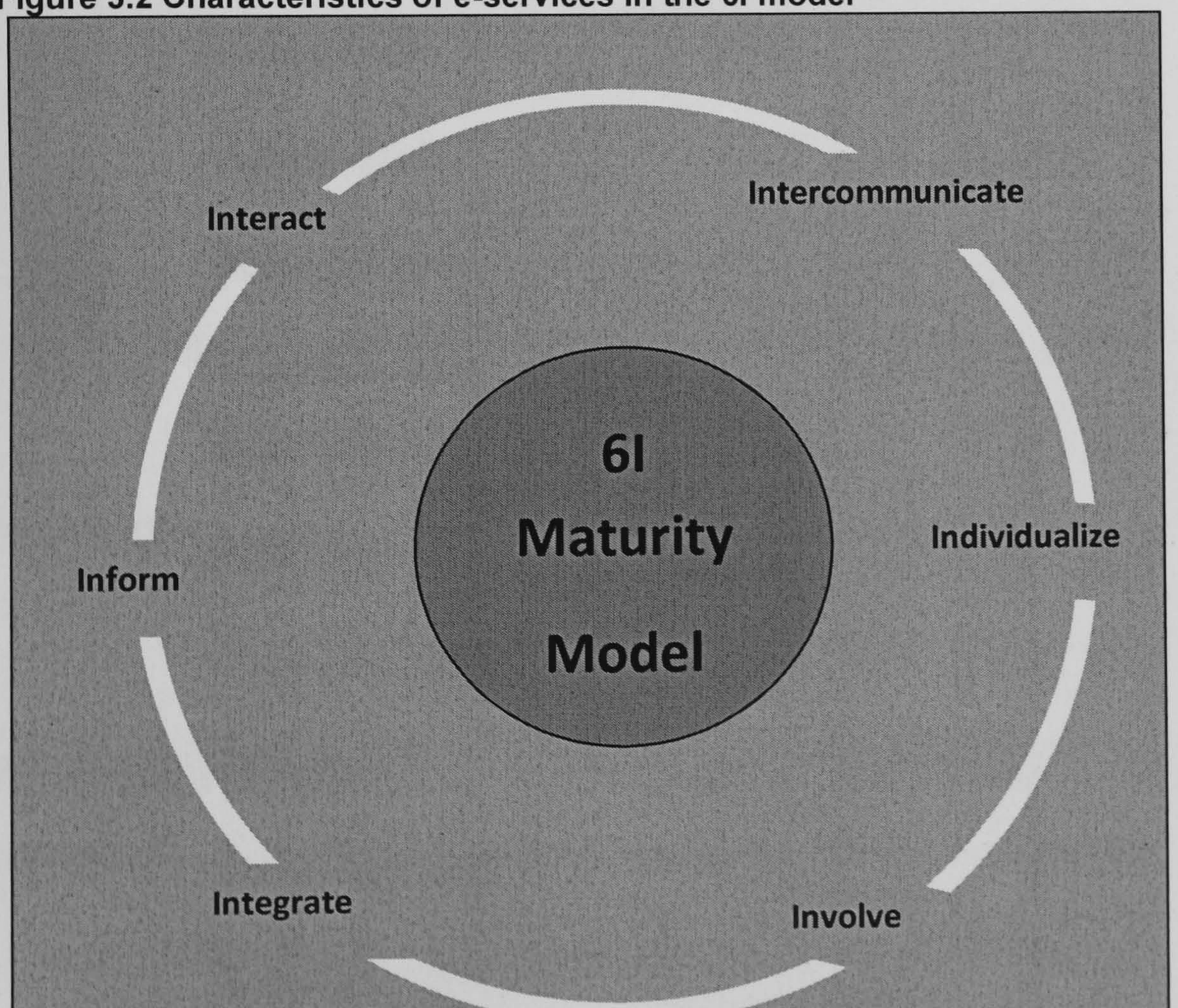
VI. Involve: This is the ultimate dimension where users are given the opportunity to participate in the design and transformation of services via survey, interviews, e-voting, opinion poll and focus groups. Moreover, this dimension allows users to have a say in the decision making and policy shaping, which reinforces the democratic practice of openness and transparency with issues relating to the users' own life and relation with the government.

From the previous description, it is clearly shown that the 6I model functions as a parameter which can explain the different evolving stages of the e-government, since each stage is characterised by a range of features. The evaluation of the e-services according to the stage models does not give enough description of the characteristics of the e-services in each stage. The new 6I model that could be used to evaluate the e-services of any government is believed to give a more comprehensive idea of what the e-service looks like according to each dimension. In this new model, the e-services could be characterized from the Inform dimension to the Involve dimension or in any one of the dimensions in between.

This model will be used in chapter 6 to evaluate the e-services within the research context. Moreover, we argue that this model represents the e-services, not in terms of stages that should follow each other, but rather it describes thoroughly any e-service and the facilities it presents without adhering to the ladder or stage evolution of e-services. However, this is also another difference between the 6I model and the maturity stage models, since the 6I model does not treat e-services in terms of maturity concepts of a more advanced stages in comparison with initial less mature stages, rather its main purpose is to give detailed description of each stage.

Figure 3.2 shows our perspective of how this model evaluates e-services at any point without classifying the dimensions into stages.

Figure 3.2 Characteristics of e-services in the 6I model



A comparison of the all the aforementioned maturity models with the 6I model shows how it encompasses a more comprehensive characteristics of e-services than the other models. Furthermore, it is the only model that represents the important dimension of Individualize.

Table 3.3 presents tabular benchmarking of each of the reviewed models. The table demonstrates that the proposed 6I model not only incorporates e-service features of all the other models, but provides a standardized characterization of each of them.

6I Model		Inform	Interact	Intercommunicate	Individualize	Integrate	Involve
Category	**Model name**						
Private company	**Gartner (2000)**	✓	✓	✓	✓	✓	
	Delloite (2001)	✓		✓	✓	✓	
	Accenture(2003)	✓	✓	✓		✓	
Researchers	**Layne&Lee (2001)**	✓		✓		✓	
	Moon (2002)	✓	✓	✓		✓	✓
	West (2004)	✓		✓		✓	✓
	Siaua&Long(2005)	✓	✓	✓		✓	✓
International Institutions	**UN (2001)**	✓	✓	✓		✓	
	World Bank (2002)	✓	✓	✓		✓	
	Asia Pacific (2002)	✓	✓	✓		✓	✓

Table 3.3: Comparisons between the 6I model & the stage models.

3.6 New Trends of E-Services' Evaluation

Many researchers suggest that governments of developed countries, in general, assume that people demand e- services. Therefore, governments tend to supply people with what governments think is important while neglecting users' actual needs. This, in effect, is creating a mismatch between the demand and the supply of e-services (Sealy, 2003; Tung & Rieck 2005; Reddick, 2005). This kind of mismatch or gap is expected to be larger in developing countries due to the quality, and the usability of e- services (UN, 2002; UNPAN, 2005). Moreover, this gap is due to the failure to address users' real needs, requirements and expectations (Wei & Zaho, 2005). Reinforcing this point, Reddick (2005) points out that countries, which have regular surveys of the needs and requirements of e-services' users, such as Canada, have succeeded in their efforts to infuse e-services within their societies. Taking this fact as a point of departure for this research, the need to address users' needs and requirements in developing countries becomes a potential requisite if these countries want to make e-services part of their culture.

Therefore, this research is addressing the users' true needs and expectations within the Jordanian context. Jordan is a developing country that has adopted and implemented e-government strategies to facilitate delivery and access to government services. The introduction of the e-services under the paradigm of e-government was stated in the e-government mission to "manage the transformation of the government towards a more "citizen-centric" approach in the delivery of services by means of appropriate technology, knowledge management and skilled staff" (MoICT, 2006a). In its endeavouring to present e-services to the different stakeholders, Jordan launched many e-services since 2000.

Nevertheless, an evaluation of e-services development is needed to help making them more efficient and effective. By evaluating e-services, we do not mean measuring the number of services provided online; rather the evaluation should contribute in understanding users-related issues. Therefore, we believe that using our proposed conceptual model, the 6I model, as a benchmark to evaluate these e-services from users' perceptions would contribute in understanding the true needs and expectations of users.

Moreover, we suggest dividing the types of e-services within the research context into two kinds: current status, which represents the e-service in its actual stage at the time of conducting this research. The other type is called desired status, which represents what is not there, but what users aspire to have in the future. To achieve these aims, the following research questions were proposed:

RQ 1. Are there any significant relationships between the usability of the public e-services and the demographics?

RQ 2. Are there any significant relationships between the 6I maturity model-stages and the demographics?

R.Q 2.1 Are there any significant relationships between the current 4I stages (Inform, Interact, Intercommunicate, Individualize) and the demographics?

R.Q.2.2 Are there any significant relationships between the desired 2I stages (Integrate, Involve) and the demographics?

3.7 Conclusion

This chapter provided an understanding of the e-service concept in the pubic sector as one of the many outcomes of the e-government. A reviewed of the literature associated with public e-service has revealed that most studies, which dealt with this subject tended to adopt concepts and practices of the private sector and introduce them in the public sector context. Furthermore, most of the studies in the developed countries have taken as their

primary concern to study and evaluate e-services in isolation from the users' perceptions. However, this trend has changed recently into a more engagement of users' perceptions when evaluating public e-services. Nevertheless, as the introduction of e-services is still relatively new in developing countries, the evaluation of e- services' functionality and usability is still in its infancy stage. This last issue has determined one key direction of focus in this two-fold research. This is the investigating of users' perceptions of e-service in Jordan in an attempt to explore users' requirements and needs from e-services and hence increase the awareness of how e-services should be tailored to meet users' true expectation and, consequently, increase the potential use of e-services within the research context.

The other fold of this research aims to understand the barriers that might hinder the implementation or/and the development of the e-services in the Jordanian public sector from the providers' perceptions. But first a literature review of the barriers that might face e-services is presented in the next chapter before starting to explore the stakeholders' perceptions within the research context in the successive chapters.

Chapter Four:

Barriers and Challenges of E-Government Services

4.1 Introduction

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 poses complex challenges and requires a fundamental transformation or reinvention of both the structure and the functionality of any government. Therefore, it becomes inevitable to understand what hampers or blocks the realization of a full potential of e-services. In this chapter, a review of the literature that analyses the barriers and challenges to e-service provision and development experienced in public sector organizations is presented.

Subsequently, an identification of a framework that would be used in analysing the related research question is proposed.

4.2 E-Government Barriers Definition

It is believed that technology alone will not warrant a successful implementation and diffusion of e-services (Ebrahim & Irani, 2005). Other factors underpin the accomplishment of having infused e-services in users' life. However, the promise of transformation traditional services into e-services is faced with a broad range of obstacles or barriers. Eynon & Dutton (2007: 229-30) define e-government services` barriers as:

"*Characteristics—either real or perceived—of legal, social, technological or institutional contexts which work against developing networked governments*

because they: (a) impede demand, by acting as a disincentive or obstacle for users to engage with e-government services; or (b) impede supply, by acting as a disincentive or obstacle for public sector organizations to provide e-government services; or (c) constrain efforts to reconfigure access to information, people and public services in ways enabled by ICTs".

The previous definition encompasses the different categories that form the barriers to effective implementation and adoption of e-services. It addresses the legal, social or cultural, technical and organizational constraints that could restrain the advocating of e-services. Furthermore, the definition takes into its consideration the obstacles that may face the stakeholders who attempt to use e-services. However, while this definition is a comprehensive and detailed one, it fails to address the financial barriers, which are considered as major constraints to the implementation and adoption of e-services (Ebrahim & Irani, 2005; Lam, 2005).

Lau (2003) defines the e-services barriers by dividing the barriers into '*external*' and '*internal*'. The external barriers include: legislative and regularity barriers, budgetary barriers, and the digital divide, while the internal barriers are closely linked to the organizational barriers; and involve lack of collaboration and coordination, officials' skills, public-private partnership, leadership, and monitoring and evaluation. However, although this clarification of the barriers helps to understand them better, there is a need to address the relationship between these barriers and the stakeholders involved in e-services' provision. The available literature on the e-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. The next section reviews the literature that discusses each barrier thoroughly.

4.3 E-Services Barriers

4.3.1 Economic Barriers

Financial barriers could hinder e-service progress on both supply and demand sides. Ebrahim & Irani (2005) emphasise the importance of the financial barrier on both the providers' and users' sides. They contend that on the providers' side enough resources are needed to cover the cost of the adoption and the transformation of services, while users are also very likely to be hindered by financial barriers when they, for example, become unable to afford using the Internet to get e-services. Edmiston (2003: 36) contends that the transformation of traditional services to e-services is a magnitude transition, which requires immediate expenditure for very large fixed costs, he summarises the dilemma of the financial barrier within the public sector by stating that: "*the pain is immediate while the gain is distant*"; meaning that the need of huge funding to transform and develop traditional services into e-services would cause a financial burden on governments' budgets, but it would reduce the operation costs eventually. Reinforcing this point, Heeks (2003) argues that most of these costs are intangible, and that an awareness of their existence would lead to deal with them sufficiently, or even reduce or eliminate their presence in the reality, as barriers that might cause partial or full failure of e-services' provision.

The costs discussed by Edmiston (2003) and Heeks (2003) reflect a broad area of costs associated with the e-services initiatives; and these include budgets to pay for the costs of hardware, software and public officials' trainings, ICT centers, network and other kinds of infrastructure. Norris et al. (2001) consider that the problem with the public sector is that it

is funded through the government budget, which might lead to a lack of financial resources from central government for e-services development. Reinforcing the previous point. Lam (2005) argues that the way of managing funds for e-services initiatives can be an obstacle, especially when funds are released in stages depending on the achievement of milestones in previous stages, so projects that do not take this into consideration are very likely to face financial shortage. Ebrahim & Irani (2005) identify the main expected expenditure requirements that the governments face as '*operational costs*'; this includes: shortage in financial resources in public organizations, high cost of IT professionals and expertise, cost of installation, operation, and maintenance of e-government system, and cost of training and system development. Therefore, if costs are not met, they can seriously slow down the implementation of e-government (West, 2004). However, the difficulty to guarantee the flow pump of financial resources for developing e-services is due to the difficulty of a clear measurement of the benefits of investing in systems and equipments, especially when the benefits are of a long-term kind. Thus, they become difficult to define due to their intangibility or the fact that they are set in the future (Oxford Internet Institute, 2005).

Moreover, the cost on the other side of the equation is by no means less important, for even if governments manage to overcome the high cost of implementing and providing e-services, they still need to ensure that their citizens can afford to get these e-services. This issue is more obvious in developing countries where the low income is encountered by high IT cost of the Internet and the PCs. (Ebrahim & Irani, 2005; Akman et al., 2005). This fact would lead to deprivation of users' right to benefit from the available e-services due to their inability to afford buying PCs or paying for using the Internet networks. Therefore, the cost

of implementing and using e-services might complicate the whole process of transforming traditional services if not planned adequately.

4.3.2 Skill Barriers

Although many countries around the world have managed to transform many traditional services into online ones, the fact remains that more digital services does not necessarily mean more take up (Pilling & Boeltzig, 2007). The skill barriers remains an important obstacle to the e-service acceptance and use. However, the skill barriers does sometimes have an interlocked relationship with the financial barriers. Ho (2002) states that different socioeconomic backgrounds influence the extent to which citizens use the Internet and computers. To illustrate this, we should realize that there are usually certain groups of societies that are described as "heavy users" of the traditional governmental services; those are people on low incomes, the elderly and people with disabilities. However, those groups do not usually have an access to e-services due to the lack of financial resources and technical skills, which leads to what is known as the digital divide. A term that is defined as:

"*The gap between individuals, households, businesses, and geographic areas at different socio-economic levels with regard both to their opportunities to access Information and Communication Technologies (ICTs), and to their use of the internet for a variety of wide activities*" (OECD, 2001: 5).

In brief, it is the gap between the "*technology haves*" and "*have-nots*" (Sipior & Ward, 2005). The exclusion of certain groups due to the digital divide deprives them from getting any benefits of service quality enhancement and the availability of greater choices through online services according to Lau (2003). Furthermore, he argues that governments could

provide services through other channels to their citizens, but the inability to provide online services to all could be a barrier that holds back e-services projects. However, although access to ICT is a basic requirement to engage with e-services, it is not the only thing: rather there is a need to have a motivation and skills to use ICT as Pieterson et al. (2007) argue. Therefore, the need to couple ICT skills with motivations to use e-services is inevitable to overcome skills barriers.

However, the lack of human infrastructure is also another obstacle in developing e-services; Chen & Gant (2001) & Ho (2002) consider the shortage of IT skills, for example, as a potential barrier that obstruct the governments' plans to deliver e-services. Echoing this point, Ebrahim & Irani (2005) acknowledge that the lack of capable IT staff, effective IT training and support as major impediments that hinder to a great extent any real progress in the provision of e-services. They attribute this shortage to different reasons; such as, the improper technical training, the increased turnover rate of IT staff from public sector organizations to the private sector due to payment and work conditions.

4.3.3 Technical Barriers

Technical barriers can be major practical impediments to effective e-government systems (Eynon & Dutton, 2007). A major technical barrier is the lack of architecture interoperability between the governmental agencies. According to (Lam, 2005; Ebrahim & Irani, 2005; Eynon & Dutton, 2007), the inability to exchange and use information between different governmental agencies when their services go online, is an impediment to the integration of the different services, this, virtually, limits the efficiency and effectiveness of the public services. A European Commission report (2004: 5) defines interoperability as:

"the ability to share information and technology through using common policies and standards." However, the lack of standardised way to connect data resources, information technology, and business process in the government agencies leads to what is known as "*islands of IT*" or "*Islands of Automation*" (Lam, 2005: 519), or to what is described as public sector fragmentation, which stands in the way of improving e-service quality through integration(Ebrahim & Irani, 2005).

Another technical barrier is the inadequate technical design of the user interface (Vassilakis et al., 2005; Eynon & Dutton, 2007). This barrier emphasises that if the e-service usability is inadequate, which means that it does not provide information and content in a way that suites all, regardless of their abilities; the users' experience in using online services might become a source of frustration due to the experienced difficulty in access and use, leading eventually to the total abandonment of the e-services' usage. Moreover, the lack of technical infrastructure is another impediment. This includes the existence of a well-developed public key infrastructure and reliable Internet connections (Vassilakis et al., 2005).

4.3.4 Policy Barriers

Any plan for electronic service adoption, employment, and development should include a suitable legal framework of appropriate laws, regulations and directives that facilitate the services' provision and use in a safe and secure electronic environment (Vassilakis et al., 2005; Faisal & Rahman, 2008).

The lack of such a framework causes potential barriers at different levels. For instance, Vassilakis et al. (2005) consider that the inadequate laws that cannot address effectively the proof-of-identity and the integrity of the documents online cause a serious hurdle in the way of developing e-services. Other issues in the electronic environment are also in need to be addressed clearly through a set of regulations that would make e-services development goes smoothly. Lau (2003) and Vassilakis et al. (2005) acknowledge the importance of secure identification, authentication systems, privacy and security applications to ensure handling sensitive transactions and personal information. The weakness in these areas is considered an impediment to gain users' trust to use e-services.

Ebrahim & Irani (2005) point out that many users are actually not keen to use electronic services because of the lack of trust in this form of services; especially when it comes to revealing sensitive issues like personal information, and making financial transactions that are most likely to be shared between more than one government agency. Eynon & Dutton (2007) confirm this by noting although growing use of the Internet and e-commerce in the private sector is establishing more general trust in the use of ICT-enabled networks, e-government raises particular trust concerns as so many public services require the handling of highly sensitive personal information in digital forms. Accordingly, this can lead to 'trust tension' between governments' need to collect data on individuals to provide services, and users' fears of misusing their personal information. Therefore, the need to establish privacy and security polices from early stages becomes very important to avoid loosing users' confidence in using e-services.

Moreover, different regulations between government agencies could hinder the progress of e-government. This could be understood when multiple agencies with different legislations are involved in the provision of an e-service, which might delay or even prevent the e-service provision, adding to this, the liability issue of who holds responsibility if things go wrong due to technical failure, which is another legally unsolved issue. Liability risk can also arise when there is a breach of intellectual property, privacy or confidentiality rights (Lau, 2003; Vassilakis et. al. 2005; Eynon & Dutton, 2007).

4.3.5 Organizational Barriers

Public sector organizations represent mammoth bureaucratic units or what Lam (2005) refers to as legacy of government processes and applications established over many years. The novel presentation of electronic services to replace the traditional ones is likely to be resisted by the civil servants who might be sceptical about the effects that this change would bring. Fear of jobs' loss or privileges' diminishment is one of the administrative impediments to welcome the introduction of e-services in public sector (Themistocleous & Irani, 2001). The feelings of the employees when e-services are presented in their organizations are described by Lam (2005) as a "*cultural shock*" because there is not enough awareness of what the concept is about and employees find it hard sometimes to cope with the fast changes that take place in their organizations. Therefore, a strong government leadership and responsive management processes must support this transformation of traditional legacy of services (Ebrahim & Irani, 2005). Furthermore, the role of the leadership is crucial to develop and diffuse e-government vision, guide transformation, enhance co-ordination of initiatives, and provide incentives for agencies to join in (OECD, 2003b).

Vassilakis, et al. (2005) suggest another important impediment which is "*complex policies*", as government organizations' policies are oriented towards "*organizational comfort*" rather than "*citizen service*"; meaning that the lack of integration between the different government agencies forces the user to fill, for example, enormous documents for different organizations with the same information. Ebrahim & Irani (2005) also refer to this as lack or poor communication and coordination between functional departments. Nevertheless, organizational barriers are major hindering factors in the adopting and diffusion of e-services. Plans and strategies should think beyond the mere presentation of technology in government organization, a need to change the management environment and the attitudes of the employees towards e-government initiatives are among the ways to lessen organizational barriers (Leitner, 2003; Vassilakis, et al., 2005).

However, it is worth taking notice of the fact that the previous barriers tend to overlap, sometimes a barrier can lead to another one, for instance, the inability to afford e-services due to low income, which is a financial barrier, can lead to a digital divide which is seen as skills barriers. Moreover, sometimes the same barrier can be classified under two categories, for example, privacy and security can be related to skill barriers, technical barriers, or even policy barriers Nevertheless, all of them remain major barriers that do hinder the implementation and development of e-services.

4.4 E-Services Barriers in Developing Countries

Many researches and studies have addressed the barriers facing e-services implementation in developing countries. Barriers in these countries are highly correlated with the socioeconomic and political environment. The image about the developing countries is

usually associated with poor economy, corruption, bureaucracy, illiteracy, etc. Obviously, all these are major factors in hindering e-service deployment and development.

Ndou (2004) considers that the multidimensionality and complexity of e- services implies the existence of a wide variety of challenges and barriers to its implementation and management. The lack of proper ICT infrastructure, according to Nodu is a basic impediment; however, she argues that it is not only technology that matters but also the human who should have ICT literacy, education, freedom and desire to access the information and e-services. Echoing this, Basu (2004) asserts that the development of e-government is associated with ICT infrastructure, which is capable of supporting and enabling the execution of e-government. However, he argues that many developing countries do not have the infrastructure necessary to deploy e-government services.

Moreover, ICT infrastructure and its effect on e-services' take up, is also addressed by Chen et al. (2006). They consider that the size and abilities of infrastructure between developed and developing countries differ dramatically. This in turn has its effects on the access to the Internet and the telephone for the dial up connections; so while almost all residents of developed countries have an easy access to the Internet and the telephone, the weak or deficient infrastructure in developing countries, which is a normal result of poor economic or political conditions, makes it hard to provide reliable access to all.

Another important barrier to a successful implementation of e-services in developing countries, which is cited a lot in literature, is an organizational barrier. Hierarchy is a traditional feature of public organizations in developing countries, the presentation of e-services initiatives in such organizations, means a sharing of information and knowledge

that are most likely to be resisted by government officials. Nodu (2004) argues that resistant to change by government officials is the biggest barrier to successful change within public organizations. However, Chen et al. (2006) consider that government officials of developed countries are more familiar with IT, thus, they can realize its potential benefits in the public sector, while those of developing countries are usually unwilling to accept the change e-government brings, and they find it difficult to direct the already scarce resources to apply something they are not familiar with.

Moreover, the scarce resources to fund the costly e-government initiatives are among the important factors that hamper the e-services implementation and development in developing countries. Heeks (2003) does not only describe this as a barrier, but actually ascribes failure to the whole e-government paradigm in developing countries. According to Heeks, a key issue that leads to that failure is the lack of awareness of the intangible costs which are to hamper the success of the e-government. Another financial difficulty in developing countries is the need to give a priority to more critical demands such as building roads and schools, especially when competing for scarce resources, rather than allocating these scarce financial resources to IT investment, or more particularly, to the transformation of traditional services to e-services (Akman et al., 2005).

Acknowledging the financial barriers as an important impediment; Salem (2003) argues that weak governance and a dominant role of the public sector in economic activity, the political conflicts that consume much of the public resources, which are mostly directed to military expenditure, the security threats of terrorism and war, as well as the politically motivated commercial or technological embargos all lead to high perceived investment

risks, brain drain, outward capital movement and capital flight. Accordingly, it would become more difficult to provide successful e-services. Reinforcing this, Chen et al., (2006) argue that while many developed countries have stabilized economic and governmental systems, most developing countries either gain their independence relatively recently, or are still in a war state; this is the case especially in the Middle East and Asia (e.g. Iraq and Afghanistan), which weaken the economic and government structure of these countries and those around them.

Saidi & Yared (2002) also emphasise that the slow economic growth has caused slow rates of technological progress and innovation, which in effect cause a large digital divide in information and communication technologies. They further argue that while technologies have imposed extensive economic and financial linkages or integration in developed countries, developing countries in general have failed to respond to such a challenge. Salem (2003) emphasises an important obstacle that springs from the financial shortage of resources in developing countries, which have very limited resources to adopt e-services, therefore, they depend on loans from other developed countries, which tend to dictate the best practices of deploying e-services; ignoring that these practices may not be suitable for developing countries' context.

Moreover, Basu (2004) indicates the importance of the existence of a legal framework to guide the e-services legislative side in developing countries. New laws that deal with e-services must be adopted and passed. However, the lack of a socio technical vision is most associated with developing countries; since these countries often perceive e-services

adoption as a technology mission which has contributed to unrealistic plans being deemed null and void (Salem, 2003).

From the review of the literature concerning the e-services barriers in both developed and developing countries, it seems that many barriers are shared. However, since this research is interested in exploring the stakeholders' perceptions of barriers, we consider moving from pure theoretical assumptions about the barriers in developing countries to a more explicit empirical investigation of what hinder the provision of e-services according to the providers themselves as an important step. Zhang et al. (2005) argue that although the evaluation of barriers according to the providers may vary because of the differing levels of participation in decision-making, changes that may occur to the providers' organizations and jobs, previous experiences working relationships with other participating organizations. Yet, working in different levels of government or different types of organizations may provide participants with varying, yet relatively important perspectives.

We take this argument as a departure point for this study, we argue that providers and users often exhibit different goals and concerns, and that providers tend to have more influence in deciding the direction and processes of the e-services' development because they are more involved in the decision-making processes, thus, it becomes important to investigate their perceptions of the barriers facing them in providing citizen-centric e-services. However, there is a paucity of work that provides empirical evidence connecting barriers to their providers; this is another hallmark of this research in addition to investigating users' perceptions.

Moreover, we propose a framework that encompasses these barriers, our framework resembles that of PEST analysis, which is simply a framework that categorizes environmental influences as: Political, Economic, Social and Technological forces that are likely to influence the supply and demand levels (Jan, 2002; Johnson et al., 2008). Our framework has an additional factor that could highly influence the e-services adoption in the public sector, which is the organizational factor. Accordingly, adding this factor creates PESTO that refers to: Policy, Economic, Skill, Technical and Organizational framework. To validate the framework, a survey was conducted to capture the providers' perceptions of the barriers that hinder e-service development. This would help in addressing and analysing our proposed third research question that was developed from the previous discussions of barriers:

RQ 3: What are the e-services' barriers and what is their order of importance within the research context?

Moreover, since this research is concerned with multi-stakeholder or multiview perspective of e-services provision, the need to incorporate multiple viewpoints into systems development and implementation explain the progress of this research, in which users' evaluation of e-services would be presented in chapter 6, followed by providers evaluation of e-services' barriers in chapter 7, and finally our own evaluation of the e-services within the research context, which would complete the picture of the multiview perspective of e-services. For our evaluation we propose this research question:

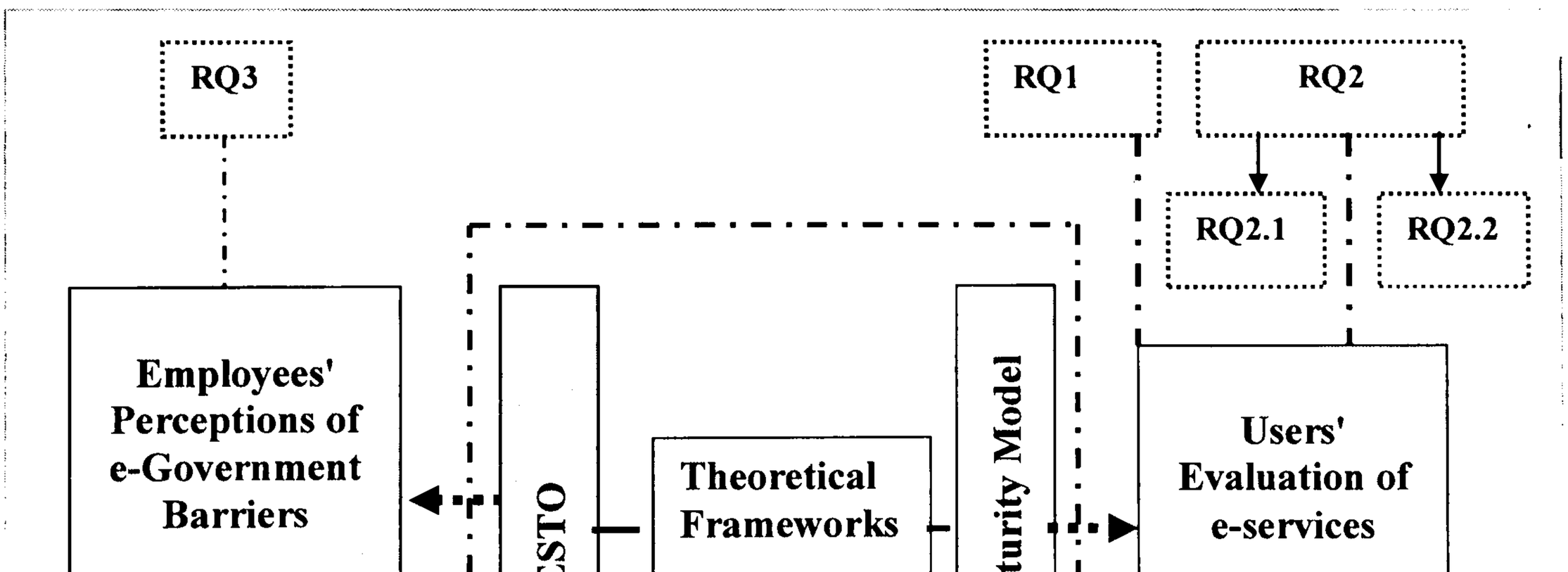
RQ 4: What is the actual state of play in the Jordanian e-government services?

4.5 Conclusion

This chapter reviews the literature concerning the e-services barriers in both developed and developing countries. It presented the main impediments to e-services which include: economic, skill, technical, policy and organizational barriers. The chapter proposes analyzing these barriers within one framework PESTO. It concludes with a reinforcement of the multiview perspective of stakeholders in the evaluation process of e-services. Two research questions were proposed here to achieve, along with the research questions proposed earlier in chapter two, the overall aim of this research.

Based on the review of literature presented in the last three chapters and the research questions that were proposed, figure 4.1 shows the research conceptual framework.

Figure 4.1 Research Conceptual Framework.



This model aims to assess associations between demographical characteristics and users' perceptions of e-services. It also suggests a possible relationship between users' perceptions of the e-services and the providers' perceptions of e-services barriers. It also accounts for both perceptions of users and providers by evaluating the state of play in the Jordanian e-government services. The next chapter looks closely at the research methodology, which is adopted for this research to accomplish its overall aims.

Chapter Five:

Research Design and Methodology

5.1 Introduction

This chapter explains the research and design methodology, which is utilised to assess the users' perceptions towards the public e-services in Jordan, and to asses the providers' perception of the e-services barriers within the context of JGOs, as well as to identify the relationship between users' evaluation of the e-services and providers' evaluation of the barriers on one hand, and the actual state-of-play in the public Jordanian e-services on the other hand.

This research is using the quantitative research of a survey design to assess both users' and providers' perceptions of the public e-services. However, the present study did not adopt a fixed paradigm. Veal (2005) argues that different paradigms can coexist in the same study to support and complement each other. Mingers (2003) concludes that the vast majority of information system research adopts a mixed paradigm approach, which is exactly what this research utilised to produce rich and reliable results. In the following sections, the issue of methodology and a justification of the selected methodology are discussed. Then the research design that will form the basis for conducting the current study is outlined, in which the design reflects the blueprint or plan for the data collection. A detailed explanation of the measurement, procedures, instruments, subject population, and analysis of data are also discussed in this chapter.

5.2 Scientific Paradigms

This section addresses the scientific paradigm, which is the overall conceptual framework, cluster of beliefs and dictates, which influence researchers' work of what should be studied, how research should be done and how results should be interpreted (Bryman, 2008). This is done not only in choices of methods but ontologically and epistemologically (Denzin & Lincoln, 2000).

In order to determine the appropriate scientific paradigms, it is essential to examine the ontological and epistemological characteristics of the research context. Ontology means *what* can be discovered about the nature of reality or phenomenon of the study (Guba & Lincoln, 2000). Epistemology means *how* knowledge of reality or phenomenon becomes known to researchers (Parkhe, 1993). Both *ontology* and *epistemology* lead to *methodology*, which is a set of theories and methods that exhibit the same patterns or elements in common (Creswell, 2003). Methodology is the overall approach of the research process starting from theoretical underpinning to the collection and analysis of data (Collis & Hussey, 2003). However, the concept of methodology should not be perceived as a watertight approach that adopts and follows a fixed pattern or procedure in a prescribed way; on the contrary, it is a combination of different approaches that take into consideration the conceptual framework of the study (Gill & Johnson, 2002). Therefore, methodology could be seen as a paradigm under which there is an integration of all the elements that constitute the research process including: the philosophy of the research, its general framework, steps that should be taken, and a justification of these steps. Thus, the selection of an appropriate methodological approach for a particular research project requires understanding and evaluation of the various methodological approaches or concepts which

include mainly: inductive and deductive methodology, and qualitative and quantitative research methods.

5.2.1 Deductive and Inductive Research Methods

Schutt (1996) distinguishes between inductive and deductive research by pointing out that deductive research proceeds from general ideas, usually existing theories, infers specific expectations from these ideas, and then tests these expectations with empirical data. However, inductive research proceeds in a different direction; meaning that it begins with specific data to develop generalisations or theories to explain the data. The same differentiation between the two research methods is referred to by Collis and Hussey (2003). They consider that the deductive research begins with developing a conceptual or theoretical frame work, which is then tested by empirical observations; whereas the inductive research method develops a theory from the observation of empirical reality. However, this traditional detachment between the two methodological research approaches created criticism of both. Deductive research was seen as highly structured by adhering to a predetermined conceptual framework, allowing no place for human subjectivity in the process of the research (Gill & Johnson, 2002). Nevertheless; in this research the deductive approach was employed to build the theoretical research model that would be tested later. Actually, one can argue that the researcher's objectivity and his or her awareness of the context of the study are fundamental requirements that support the use of the deductive approach in social context. In other words, perceptions of people in the social context should be taken into consideration and compared to the suggested theory without the purpose of limiting these perceptions to that theory. In contrast, inductive research method is criticised for, obviously, the opposite reasons; that this approach allows human

subjectivity and bias to interfere with the study's results by being unstructured, and depending mainly on observations.

5.2.2 Quantitative and Qualitative Research Methods

Quantitative research methods were originally developed in the natural sciences to study natural phenomena (Myers, 1997). Through the quantitative approach, the social reality is viewed as objectively measured. Thus, quantitative approach is defined as "a formal, objective, systematic process in which numerical data are utilised to obtain information about the world" (Burns & Grove, 2007: 17-18). The purpose of the quantitative methods is to generate precise measurements of phenomena that can be explained by the accumulation of statistical data (Bryman & Cramer, 2008). Its strategy emphasises a deductive approach to the relationship between theory and research, and it involves the use of structured procedures and formal instruments such as: surveys, statistical analysis, and data modelling. Moreover, Bryman & Cramer (2008) point out that to enhance objectivity, recognise faulty conclusions or potentially biased manipulations of the information, an analysis of the collected data must be done using statistical procedures. In this research, a structured questionnaire was used to collect data which was susceptible to statistical analysis.

However, the alternative tradition, which is qualitative research method, was developed in the social sciences to enable researchers to study social and cultural phenomena (Myers, 1997). Qualitative research strategy is much more subjective than quantitative research and uses very different methods of collecting information, mainly individual, in-depth interviews and focus group (Collis & Hussey, 2003). The nature of this type of research is exploratory, inductive and open ended.

However, Bryman (2008) argues that although qualitative research aims mainly at generating theories, it can also be employed for testing theories. Qualitative research can be classified into two main perspectives: interpretive research and critical research (Locke et al., 1998). Interpretive researchers start out with the assumption that access to reality (given or socially constructed) is only through social constructions such as language, consciousness and shared meanings (Myers, 1997). Interpretive studies generally attempt to understand phenomena through the meanings that people assign to them, and interpretive methods of research in IS are "aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context" (Walsham, 1993: 4-5). Thus, the interpretive researcher aims to understand the social context through accumulating data, which represents the participants' perceptions, and which would be a basis of inductive generation of explanatory theory. Whereas, critical researchers assume that social reality is historically constituted and that it is produced and reproduced by people. Although people can consciously act to change their social and economic circumstances, critical researchers recognize that their ability to do so is constrained by various forms of social, cultural and political domination. The main task of critical research is seen as being one of social critique to bring about emancipation (Myers, 1997).

Table 5.1 summarise the differences between quantitative and qualitative research approaches.

Quantitative	Qualitative
Objective	Subjective
"Hard" science	"Soft" science
Literature review must be done early in study	Literature review may be done as study progresses or afterward
Tests theory	Develops theory
One reality: focus is concise and narrow	Multiple realities: focus is complex and broad
Reduction, control, precision	Discovery, description, understanding, shared interpretation
Measurable	Interpretive
Mechanistic: parts equal the whole	Organismic: whole is greater than the parts
Report statistical analysis. Basic element of analysis is numbers	Report rich narrative, individual interpretation. Basic element of analysis is words/ideas.
Researcher is separate	Researcher is part of process
Subjects	Participants
Context free	Context dependent
Hypotheses	Research questions
Reasoning is logistic & deductive	Reasoning is dialectic & inductive
Establishes relationships, causation	Describes meaning, discovery
Uses instruments	Uses communication and observation
Strives for generalization	Strives for uniqueness
Designs: descriptive, correlational, quasi-experimental, experimental	Designs: phenomenological, grounded theory, ethnographic, historical, philosophical, case study.
Sample size: 30 to 500	Sample size is not a concern; seeks "information rich" sample
"Counts the beans"	Provides information as to "which beans are worth counting

Table 5.1: Differences between quantitative and qualitative research (Burns & Grove, 2007: 18) & (Speziale, & Carpenter, 2007: 20)

Although most researchers do either quantitative or qualitative research work, some researchers have suggested combining one or more research methods in any study (Myers, 1997). The adoption of mixed method research has grown in popularity in recent years. Henn et al. (2005) note that there is an increasing number of social researchers, who recommend the adoption of more flexible approaches to research method in studies rather than adherence to either a positivist-quantitative or an interpretive-qualitative style of research. A justification for this view rests on the grounds that it helps to facilitate a more

valid and holistic picture of society than that which could be acquired by remaining true to only one set of methods (Henn et al., 2005). The mixed methodology approach can be used to verify the quality of the information being collected and its validity and reliability (Henn et al., 2005; Brewer & Hunter, 2006; Bryman, 2008). Thus, it better enables the researcher to understand what is happening in the real world.

5.3 Research Design

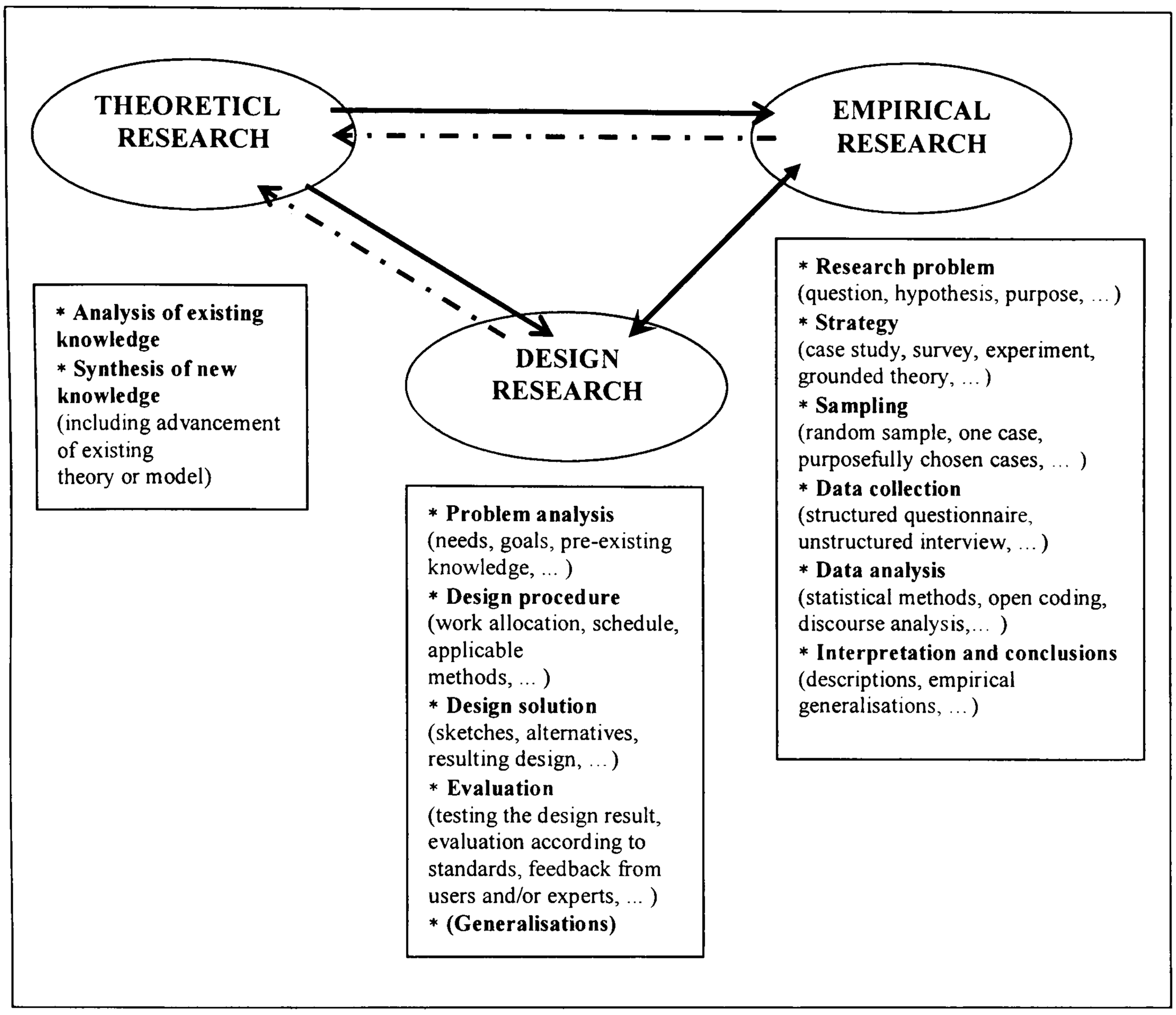
While the process of conducting a research can be classified as *qualitative* or *quantitative*, the purpose of conducting a research can be classified as: *exploratory*, *descriptive*, *analytical* (*explanatory*), and *predictive* (Collis & Hussey, 2003). *Exploratory* research is conducted when there are few or no earlier studies to which references can be made for information. The aim is to look for patterns, ideas or hypotheses rather than testing or confirming a hypothesis. In exploratory research the focus is on gaining insights and familiarity with the subject area for more rigorous investigation later (Saunders et al., 2006). Case studies and observations are examples of the techniques used in this kind of research. *Descriptive* research describes phenomena as they exist. It is used to identify and obtain information on the characteristics of a particular issue. The data collected are often quantitative, and statistical techniques are usually used to summarise the information. Descriptive research goes further than exploratory research in examining a problem since it is undertaken to ascertain and describe the characteristics of the issue (Collis & Hussey, 2003). However, analytical or explanatory research is a continuation of descriptive research. The researcher goes beyond merely describing the characteristics, to analyse and explain why or how something is happening. Thus, analytical research aims to understand phenomena by discovering and measuring causal relations among them (Ibid.). Finally,

there is the predictive research, which goes further by forecasting the likelihood of a similar situation occurring elsewhere. It aims to generalise from the analysis by predicting certain phenomena on the basis of hypothesised, general relationships (Saunders et al., 2006; Collis & Hussey, 2003). However, in the research design that is suggested by Cooper & Schindler (2003), the following essentials should be included in the research design:

- The design is an activity and time-based plan.
- The design is always based on the research question (s).
- The design guides the selection of sources and types of information.
- The design is a framework for specifying the relationships among the study variables.
- The design outlines procedures for every research activity.

Creswell (2003) points out that while certain strategies are traditionally predominantly either qualitative or quantitative, the design for particular study can be combined either by integrating two sub-designs with different strategies into one research project, or by integrating divergent methodological aspects within one overall strategy. . Keeping close to this, it would then be feasible not to structure the study into two or three distinctive parts as qualitative methods, quantitative methods and mixed methods, but to build the study on explaining the logic of different research strategies (or designs) like survey, interviews, action research, etc. Figure 5.1 describes the methodological stages of an empirical study, which were also used in this research.

Figure 5.1 Three types of research (Niglas, 2004: 28).



The next sections outline the choice of methodology and the processes of conducting this study.

5.4 Selection and Justification of the Research Methodology

The researcher`s own perceptions, his/ her personal and professional experience, as well as his/her familiarity with the research's context, and the available information concerning the area of interest and focus are all factors that help in determining the most appropriate methodology to conduct the study (Hoepfl, 1997).

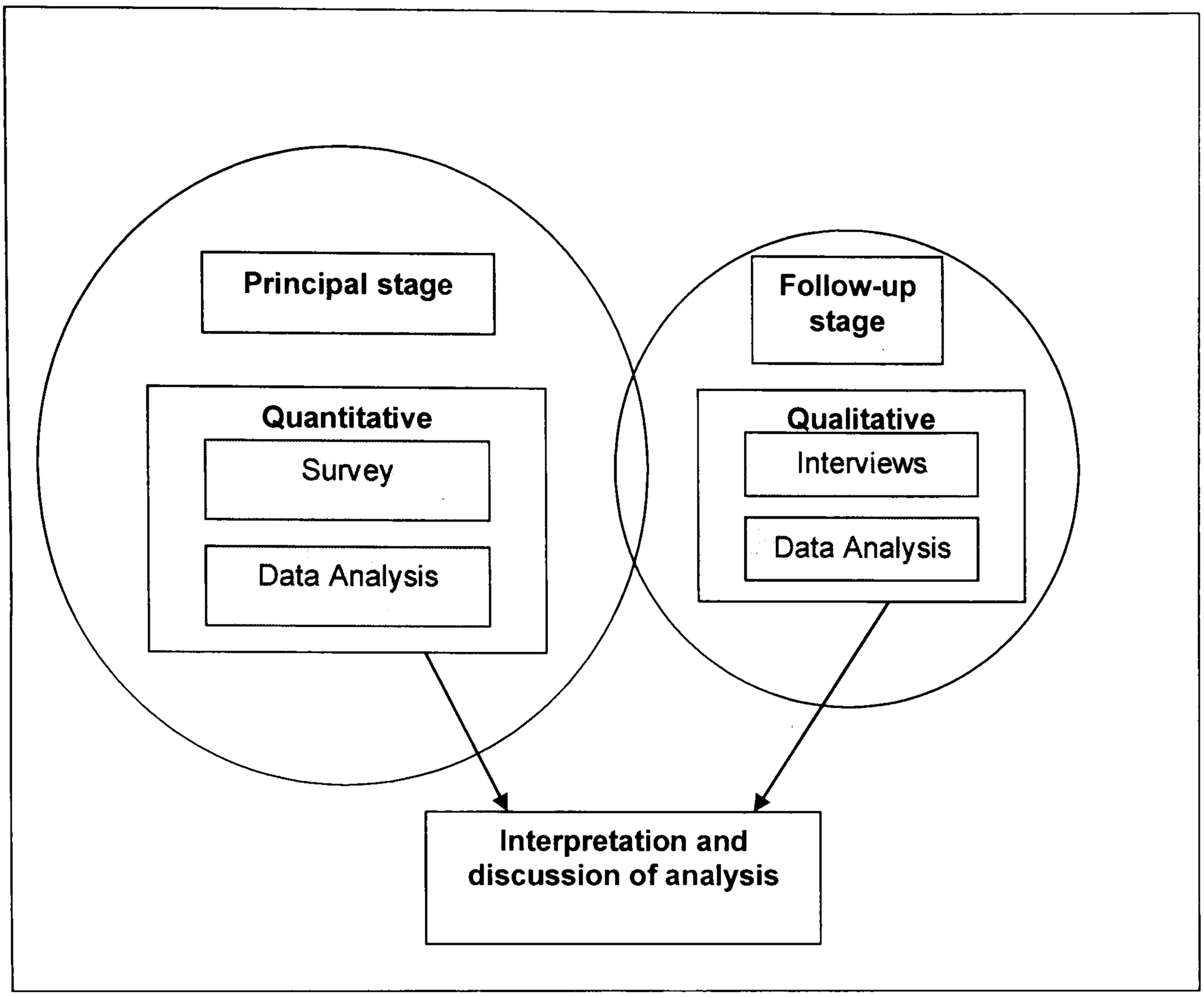
Because the main focus of this research is to investigate and interpret the perceptions of users and providers of public e-services within a context that has never been investigated, the purpose of this research becomes an exploratory research that utalises quantitative approach technique. However, it also has some qualitative approach elements through the use of interview method, which proved to enhance, enrich, and validate the interpretation of the quantitative findings. Perceptions of public e-services' users according to demographic characteristics and their relationship with the 6I model were justified and conduced based on five interviews that were conducted with some participants. Four interviews that were also conducted with some e-services providers help clarify the weight that was ascribed to certain e-services' barriers than the others, and they also helped in clarifying the results of the evaluation we conducted in chapter 8. Despite the small number of the interviews conducted, they proved to be very useful concerning the interpretation of the observed relationships among quantitatively measured variables. This, in turn, enhances my ability to explain the quantitative data, and increase my confidence in the findings revealed by the survey. Furthermore, the research findings' interpretations were enhanced by the effective use of relevant literature and documentary review. This helps to make this research part of an on-going research of e- government in general, and e-services in particular, thus making it more worthy and practical.

However, since positivism is one of the dominant paradigms in science research, and many social science researchers also prefer this approach, in which positivists generally assume that reality can be objectively described and used for theory testing. This research adopts this approach. According to the positivists, the purpose of science is simply to accept only those facts that we can observe and measure, and knowledge of anything beyond those is impossible (Tsoukas, 1989).

In the information systems area, research is classified as positivist if there is an evidence of formal propositions, quantifiable measures of variables, hypothesis testing, and the drawing of inferences about a phenomenon from the sample to a stated population (Orlikowski & Baroudi, 1991). This approach is suitable for this research as it is for the further development and testing of the research model. An objective of the positivist paradigm is to measure the relationships among variables that are nomothetic across time and context; it suggests the collection of data based on controlled experiments and surveys (Wicks & Freeman, 1998). For the theory testing stage of this study, the *positivist* paradigm has been employed to enable wide coverage of the stakeholders groups which constitute of: users and providers of public e-services

However, since the major interest of this research is not only to obtain and report an observable phenomenon, but to understand the phenomena under investigation through an understanding of the perceptions of the stakeholders groups, which constitute of users and providers of public e-services, concerning some issues that were discussed within the scope of this research, both quantitative and qualitative approaches were utilised in data collection to gain a more in-depth understanding of the cited results. Mainly quantitative research method was used, and its analysis has clearly revealed an outcome of certain trends. In some cases, however, qualitative analysis was used to confirm some results and gain more in-depth understanding of the quantitative results. Figure 5.2 shows that the principle stage in this research depended on quantitative research approach, and was to a lesser degree followed up by qualitative research approach.

Figure 5.2: Approaches taken in data collection and analysis in this research.



The integration of the two approaches in this research: quantitative and qualitative, although by different degrees, contributes to avoiding the limitations that one approach might produce. Thus, it becomes clear that the use of integrated or combined approach of both quantitative and qualitative elements provides more accurate view of a phenomenon, increases validity and confidence of the researcher by avoiding the weakness of adopting a single approach (Bryman, 2008). This is because it allows us to measure the views of stakeholders "from two different positions" (Veal, 2005: 39).

Moreover, it could be argued that there are different factors that contribute to the overall grasp of what is being investigated. Thus, the researcher's background of experience, knowledge, skills, and personal objectives are all important and play a crucial role in reaching a more comprehensive understanding of what the researcher is studying.

In relation to the design of this research, it adopts a survey design, which is widely used research method in answering exploratory questions related to a particular context. Survey questionnaires have certain advantages according to Black (1999) and Zikmund (2003).

- They reach a geographically dispersed sample simultaneously and at a relatively low cost.
- Standardised questions make the responses easy to compare.
- They capture responses people may not be willing to reveal in a personal interview.
- Results are not open to different interpretations by the researcher.

Moreover, when survey research design is used within the context of social sciences, generalisation of the research outcomes can be supported by the use of a large sample size as well as through examination of the differences and similarities between different clusters of subjects. This issue will be demonstrated in the sampling section.

Intellectually, the use of the quantitative methodology can be justified based on several factors including theoretical and practical considerations. Theoretical considerations include: the scarcity of the previous studies within the research context, and the generalizability of the research outcomes within the Jordanian context.

The nature of the research context and the scarcity of the available studies make identification of major trends very important prerequisite for more in-depth studies. Through this research, we aimed to identify major trends and to identify possible areas of concern within the research context in regard with the public e-services. This was possible using quantitative methodology which enables the involvement of a larger number of organizations and individuals participants. Moreover, the generalizability of the findings of the research was improved. Considering the number of organizations (30), as well as the number of participants from these organizations, which is (484). Also the number of users' venues (Universities and Internet Cafés) which is (20), and the number of public e-services users (450), this means that the use of quantitative research methodology and survey design in particular as a major research method was more appropriate since it enables collecting a huge amount of data from a larger number of participants. That, virtually, makes the generalization of the research findings reliable because it includes all Jordanian public organizations as the providers of the public e-services, as well as different segments of the public e-services' users. Practical constraints, which include the level of accessibility available to the researcher and the issues that were investigated also have a significant impact on our selection of a quantitative approach.

The researcher was located in the United Kingdom but conducted his fieldwork in Jordan from (May to August 2007). Thus, long and full access, which would involve continuous physical attendance in the research context, was not available. In addition, this research is an exploratory research aiming to explore some issues that have never been investigated within the same research context before. Therefore, my aim was to collect as much data as

possible from as many participants as possible. The use of quantitative research methodology and survey design, in particular, as major research methods was more appropriate since it enables collecting a huge amount of data from larger number of participants. It also enabled generalization of the findings on the research context. The use of exploratory research design was useful to investigate untested phenomena within a particular unique context. Although this approach does not provide conclusive answers to problems or issues investigated, it provides new insights concerning the current and desired status of the Jordanian public e-services. Moreover, exploration of some correlations among the investigated variables enabled the use of predictive design of research, which was used to predict the users' and /or providers' perceptions when one of them is identified.

Nevertheless, specific limitations exist in relation to both methodological approaches employed and the empirical investigation. These limitations are discussed elsewhere in this thesis (see chapter 8). The next section discusses and evaluates in details the methods that were used in data collection.

5.5 Data Collection and Instrumentation

5.5.1 Survey Method

This research utilised a sample survey to explore and investigate the research questions, and to test the research conceptual model. It was considered as the main method of data collection in this research. It involves the application of two questionnaires; the first one was used to evaluate the current and the desired status of the Jordanian public e-services by the users, while the second was used to identify the barriers, according to the providers' perceptions, that hinder the development of the public e-services. The two questionnaires

were designed after a Likert scale. A 'Likert' survey is made up of a series of statements, which are related to individuals' perspectives in relation to a single or multiple objects. In this case the users' and providers perceptions of the public e-services.

The form of the survey used in this research can be classified as exploratory aiming to explore the nature of existing circumstances. This method was conducted through two-part self-completion different questionnaires that were designed for the purposes of this research, and were distributed directly for each group of the stakeholders (i.e. the users and the providers).

The users' questionnaire comprised of two parts (a copy of which is included in appendix A). The first part aimed to acquire general demographics concerning the participants' age, gender, the highest level of education, expertise with ICT skills like the internet, and the usage rate of public e-services. It also includes the definition of the term public e-services because it was felt that participants might need to know what exactly a public e-service is; so as to avoid any possible confusion. Each of the demographic characteristics, which captures information about some independent variables was coded as appropriate to distinguish the participants through categorising them into mutually exclusive and collectively exhaustive groups. The second part is a modified version of the WebQual 4.0 instrument, which was developed originally as an instrument for assessing user perceptions of the quality of e-commerce web sites. The instrument has been under development since the early part of 1998 and has evolved via a process of iterative refinement in different e-commerce and e-government domains (Barnes & Vidgen, 2003). The overall questionnaire was originally written in the English language and then translated into Arabic, which is the

native language of the participants. A detailed description of the second part is provided next. (see appendices B & C for research sample and frequencies of demographics).

5.5.1.1 Users' Perception of the Functionality and Usability of the E-services

In order to develop this questionnaire, certain procedures were followed. The research questions to be answered through this part were formulated clearly in order to understand the objectives of the questionnaire. Then, the specifications of the target population were identified. This was followed by a review of the relevant literature which enabled identifying the dimension of the investigated subject. Next, questions were selected based on consideration of research environment, participants, and objectives. The questionnaire was divided into six subscales that resemble the facilities of conceptual framework; the 6I Model, and these were further divided in to current status of public services, which include (Inform, Interact, Intercommunicate, Individualize) and the desired status of the public e-services including (Integrate and Involve). A subscale for the usability was added. So at this phase, this questionnaire aims to explore the relationships between these subscales and the five demographic characteristics, which provides in-depth analysis of users' perceptions of the public e-services by answering the following research questions:

- Is there any significant relationship between the usability of the public e-services and the demographic characteristics?
- Is there any significant relationship between the current status of the public e-services and the demographic characteristics?
- Is there any significant relationship between the desired status of the public e-services and the demographic characteristics?

Moreover, since the research was conducted in a different context and the main purpose of it was to evaluate the public e-services depending on a conceptual framework, the 6I model, some modifications on the WebQual 4.0 was undertaken. WebQual 4.0 is a well established technique and highly validated instrument that can provide both wide- and fine-grained measurements of organizational Web sites. However, we do not think, to the best of our knowledge that it has been used in terms of factor analysis. It is based on quality function deployment and has been extensively used (Barnes & Vidgen, 2003; Eleanor T. Loiacono et al. 2007). Basically it is looking at the quality of websites, but we extended it or modefied it to be used for invistigating users' perceptions of e-services. WebQual 4.0 originally consists of 23 questions, however some of these were adapted for the questionnaire utilised in this research, specifically, questions numbers: [3, 4, 5, 9, 14, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26] were adapted with slight modification on some questions. However, some questions were added depending on extensive literature review, and, more specifically, depending on the developed conceptual framework, these questions are: [1, 2, 6, 7, 8, 10, 11, 12, 13, 15, 23, 27, 28, 29, 30, and 31]. The final modified version of the users' questionnaire that was used in this research consists of 31 items. Moreover, the original instrument recorded responses on a seven-point Likert scale. This study used a five-point scale to encourage a complete response and provide more flexibility in analysing the data. Respondents were asked to express their agreement or disagreement with the item through selecting one of the following: strongly agree, agree, neutral, disagree, or strongly disagree.

5.5.1.2 Providers' Perception of Public E-services Barriers

The second questionnaire that was developed aimed to identify the main barriers that hinder the implementation and the development of the public e-services. At this phase of the research, the questionnaire aims at identifying and classifying the prevalent e-services barriers according to their order.

The questionnaire was adapted from the Oxford Internet Institute's Online Survey of Barriers to eGovernment (2005). The original instrument is divided into six sections; each section represents one type of barrier (e.g. technical, economic, organizational, etc.).

The questionnaire was adapted in its original format but with the addition of the following questions that would best suit the context of the research: [8, 9, 15, 16,17,18,19, 20, 27, and 30] a copy is included in appendix D. For sample distribution and frequencies (see appendices E & F).

5.5.2 Interviews

Interviews are a systematic way of talking and listening to people, and are another way to collect data from individuals through conversations (Zikmund, 2003). Semi-structured interviews were employed in this research as a complementary and supportive mode of enquiry. This kind of interviews allows the researcher to get further details and discussion concerning the issue under study. It is, in fact, preferable to the structured interviews that do not give the researcher any space of freedom to deviate from the questions prepared beforehand, and to discuss any issues that might arise during an interview (Bryman, 2008).

The issues that were to be discussed during the interviews were prepared beforehand through an initial analysis of the questionnaire. However, since the interviews are semi-structured, flexibility of the issues addressed was guaranteed. Nine in-depth recorded interviews were carried out. Five interviews were conducted with public e-services' users, while the rest of the interviews (four) were carried out with the providers of the public e-services. Key themes, issues, and questions were identified and used to gain more knowledge and validate the results of the questionnaires. Various issues were covered during the interviews, and these include: promoting the public e-services, impediments to public e-services, and the actual and desired status of the public e-services. Although, the interviews were small in number, they proved to be very useful in supplying an explanation of the quantitative research findings.

Through interviews, the researcher is given an opportunity to understand the social world because the researcher can probe for views and opinions of the interviewee into a given situation (Bryman, 2008). However, interviews have some drawbacks such as: the respondents being influenced by the interviewer presence; and talk about irrelevant and inconsequential issues or become biased, especially, when the issues being raised involve providing personal information, or even reluctant to provide confidential information (Zikmund, 2003; Bryman, 2008). However, these drawbacks were not applicable in this research since the issues that were discussed were general and had no personal relevance to the interviewees. Moreover, the issues were confined to the key themes investigated in this research through conducting the semi-structured interviews rather than unstructured ones.

5.6 The Sample

Since this research aims to investigate the perceptions of both users and providers of the public e-services, the sample for each stakeholder differs. The one for the users was drawn from a list of Jordanian universities, community colleges and Internet Cafes because it was believed that the staff and the students at these educational institutions, and the citizens at the Internet Cafes have the skills of the ICT that enable them to use the public e-services, and, therefore, to answer the research questions. Moreover, the slogan of the MoICT (The Ministry of Information and Communications Technology), which is responsible for fostering e-services' adoption, is customer-centric or citizen-centric approach to e-services' provision (MoICT, 2006a). Yet, the potential users' perceptions of the public e-services have not been taken into consideration. This fact provides a strong motivation to investigate the perceptions of the users to whom these e-services are directed.

Whereas, the sample that represents the providers was drawn from a list of Jordanian public services organizations. The employees of the department, which is responsible for providing public e-services in each organization or ministry, were chosen as the most suitable ones to fill out the second questionnaire since they have direct contact with users of the public e-services. Therefore, their perceptions concerning the barriers that hinder the implementation and the development of the public e-services should be taken into consideration.

The diversity of both samples ensures that a good representation of both users and providers from different geographical areas is achieved. This, in fact, was done through two stages of sampling for each group of stakeholders. The first stage was to choose the

educational institutions and the public organizations, where the study can be conducted. This was made through the use of stratified sampling, a method that is used when there are a number of distinct subgroups, within each of which it is required that there is a full representation. A stratified sample is constructed by classifying the population in sub-populations (groups or strata), base on some well-known characteristics of the population, such as age, gender or socio-economic status. Then, a sample is drawn from within these strata (Black, 1999). Accordingly, the sampling frame is the complete list of clusters rather than the complete list of individuals within the populations. Based on this, and considering the geographical distribution of the educational institutions, Internet Cafes, and the public organizations, educational institutions and Internet Cafes were selected from different clusters that represent variety of educational levels and geographical areas to conduct the users' survey in, whereas organizations were also selected from different clusters that represent various types of public services and geographical areas. The representativeness of the two samples ensures that the results of the study can be generalized beyond the two selected samples of the users and the providers.

The second stage involved the selection of the participants who were expected to take part in the study. At this stage, simple random technique was used and data was collected randomly from students and staff of educational institutions, and users from Internet Cafes the same applied to providers of the e-services in public organizations. A total of 500 questionnaires were distributed to the users and 450 were collected from the same group. Whereas 550 questionnaires were distributed to the providers and 484 were collected. This represents a relatively high response rate for both samples (88%) and (90%) respectively. (see appendix D for frequency and coding of demographic characteristics).

5.7 The Analysis of Data

The analysis process was undertaken based on a theoretical framework that includes five levels of analysis. The first level included: coding, entering, cleaning, and transformation of the data collected from both users and providers. The second level included: a general description of the participants according to their gender, age, level of education, expertise with ICTs like the internet (for both users and providers), the usage rate of public e-services (for the users), and the level of progress of e-government within the organization (for the providers). The third level of analysis included: exploration of the three research questions that are related to the users' perceptions of public e-services concerning the usability, current and the desired status. This was done through the use of factor analysis, correlations or bivariate analysis, and error bars. The fourth level of analysis included: the analysis of public e-services barriers through the use of factor analysis, and means of extracted barriers. This provided answers to the research question that is related to the e-services' barriers, their order and proportions in the research context. The final level included: analysis of the state of play in the Jordanian public e-services. This was carried out through the use of the 6I model as a framework that gauges the fulfilment of one or more facility of the model by each of the examined public e-service. This analysis provides a solid foundation that would account for the users' and providers' perceptions of the public e-services, and it provided answers for the fourth research question. The different levels of analysis enabled the achievement of the overall aim of this research.

The identification of the relationships between different variables was facilitated through the use of SPSS, which is one of the most common and powerful packages for statistical analysis of data (Field, 2005). SPSS 15 was used to analyse data from the two

questionnaires. It proved to be very useful in all levels of analysis within the scope of this research.

However, no statistical method was employed to analyse the interviews. Data from the interviews were transcribed, translated from Arabic into English, and then classified according to major themes they covered. Important inferences from these themes were used to provide an explanation and validate the quantitative findings.

5.8 Ethical Considerations

Ethical issues were taken into consideration throughout all the stages of this research, and particularly, during the survey phase of this research. Ethical considerations relate to the proper conduct of the research process and are critical for any research (Bryman, 2008). It is generally accepted that they should usually be considered as part of a research design (Black, 1999). Furthermore, it is considered that each person involved in research has certain roles and responsibilities. There are certain rights and obligations of the researcher. While researchers should maintain high standards to ensure that data is accurate, and they should not misrepresent data, they are also required to protect the right to confidentiality of research participants (Zikmund, 2003). Thus, it is considered that the primary ethical consideration of researchers is to protect participating organisations and individuals from any possible disadvantages or adverse consequences that may result from the research (Black, 1999; Zikmund, 2003; Bryman, 2008). In this research, for the survey, there were ethical statements in the covering sheet that was attached to the questionnaire. The respondents to the questionnaire were assured that their responses would be kept confidential. The participants were not asked to provide their names or that of their

organizations; this ensures anonymity. Individual differences concerning the questionnaires understanding and interpretation were respected. The acknowledgment of ethical practices has enhanced the quality of this research.

5.9 Conclusion

This chapter established the research methodology of data collection to answer the research questions identified earlier (see chapter 4- Research Conceptual Framework). This research is mainly deductive and involves the use of quantitative methodology as a primary mode of enquiry. The issue being researched was the main factor that determined the best method to gain our data. Questionnaire survey method was used to achieve two objectives: identification of users' perceptions of the public e-services' status, and identification of providers' perceptions of public e-services' barriers within the research context. Qualitative approach was also employed using the secondary data gained through nine interviews with both users and providers to enrich the explanation of the quantitative findings. Moreover, SPSS was used to analyse the relationship between the research variables.

The next chapter explores users' perceptions of e-services within the research context by analysing the questionnaire that was used to identify these perceptions, and eliciting the explanation of the obtained results.

Chapter Six:

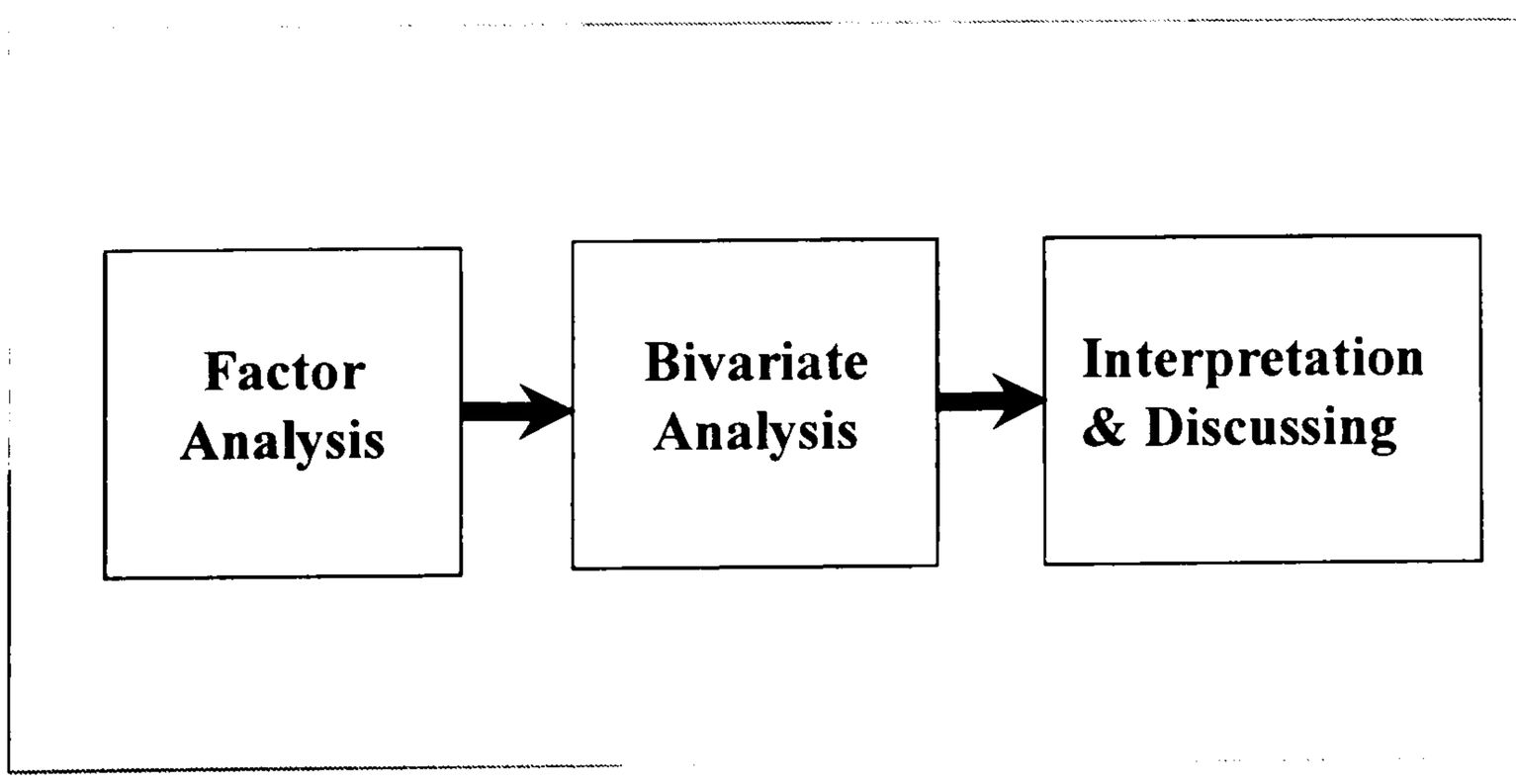
Analysis of Users' Evaluation of Public E- Services

6.1 Introduction

In this chapter, the questionnaire that aims to explore the users' perceptions of the public e-services within the Jordanian context is analysed. This analysis will provide answers for the research questions that were proposed in chapter 3.

The analysis is conducted on two levels. The first is based on the use of factor analysis, and aims to identify dimensions that are related to e-service usability and the different dimensions that constitute the proposed 6I maturity model as discussed in chapter 3. The second level is based on bivariate analysis, which provides an indication of the relationship or the correlation between the independent (demographic) variables, and the dependent variables. Finally, an interpretation and discussion of the results are also provided by the end of this chapter.

Figure 6.1: Main analysis process of users' evaluation of e-services



6.2 Factor Analysis

Factor analysis (FA) is a technique for identifying groups or clusters of variables, it is used to understand the structure of a set of variables by reducing a data set to a more manageable size while retaining as much of the original information as possible (Field, 2005). In other words, it is used to identify items that represent each dimension in the questionnaire whether a maturity stage or usability dimension(s) in this research. This is based on the identification of the patterns that underline the correlation between a number of variables (the 31 items that assess the public e-services), which enables reducing a data set from a group of interrelated variables into a smaller set of factors according to their correlations (Field, 2005). Consequently, the extracted (artificial) dimensions or factors that represent all the items (variables) of the questionnaire can be used in any subsequent analysis (Bryman, 2008).

Factor analysis can be classified into two types according to its purpose: (**a**) Exploratory factor analysis where the purpose is to identify the underlying dimensional structure, if any, of a set of measures. (**b**) Confirmatory factor analysis where the researcher states what he/ she expect to find before doing the analysis (Stewart, 1981).

In this research, confirmatory FA was used since we already have a conceptual framework, or a prior dimensional structure, we conducted the analysis to see if the suggested conceptual framework the 6I model is consistent with the structure obtained in a particular set of measures, i.e. the items of the questionnaire. Overall, confirmatory factor analysis was used to achieve two primary objectives: the first was to achieve technical efficiency of data reduction, which enables us in this research to present a summary of the relatively

large data set that is composed of 13,950 pieces of data which consists of 450 participants each with 31 questions. The second objective was to identify a broad brush measure termed: the usability dimension and the more detailed measures termed: the six maturity stages dimensions.

The extracted dimensions that represent both the usability and the 6I stages have been used in a subsequent analysis to find out any significant relationship between them and the demographical characteristics of the public e-services' users. Clustering of the items in dimensions was based on their correlation with other items within the same dimension. For example, items that load on the stage named integrate were supposed to measure Integrate stage in the 6I maturity model and so on.

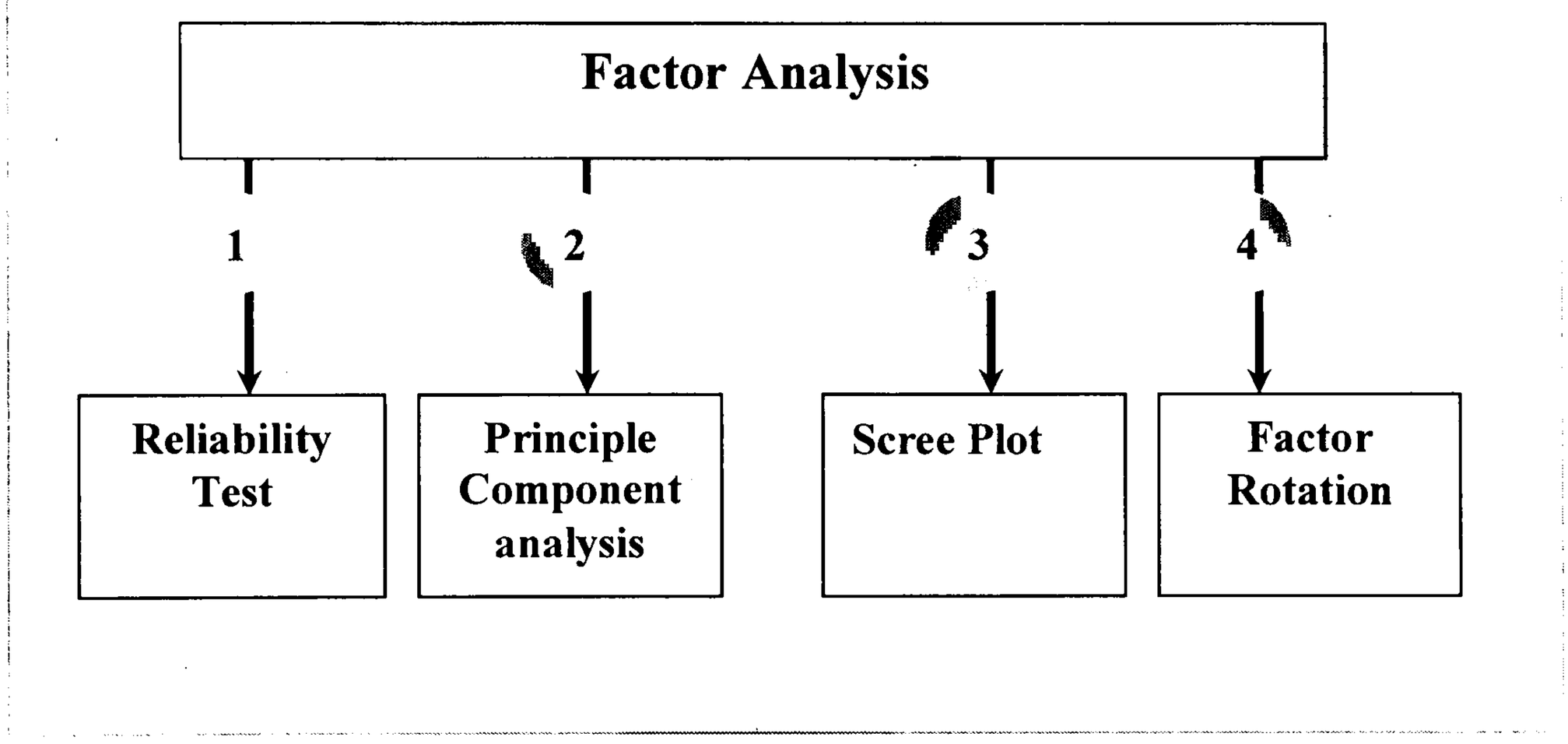
In fact, there are two approaches to locating underlying dimensions of a data set: factor analysis and principal component analysis (Field, 2005). However, Stevens (1992) has demonstrated that with 30 items or more, the two techniques generate basically identical results when used. In the case of this research, the questionnaire includes 31 items which makes the use of any of the previous technique (factor analysis or principal component analysis) the same. However, FA has been used in this particular analysis to refer to the general guiding method of analysis, while principal component analysis is, in this research, an outcome of the factor analysis. The overall outcomes of FA include one usability dimension and six maturity stages dimensions. The next section discusses the extraction of these dimensions.

There are several frameworks for the purpose of design and evaluation of e-services. They strongly emphasise different levels of complexity and maturity of e-services, however, they

are driven from an organizational point of view (Albinsson et al., 2006). We, however, question whether this is what different users of e-services consider as important qualities. Thus, we develop a questionnaire with 31 items that assesses e-services from users' perspective.

The extraction of the research's dimensions using factor analysis was conducted in four stages, see figure 6.2.

Figure 6.2: Stages of factor analysis to extract dimensions from the data



6.2.1 Reliability Test

To assure that the items of the questionnaire that is used in this research form a reliable instrument, a test of internal reliability and validity was conducted. This test is Cronbach's alpha test, which is the most common measure of scale reliability (Field, 2005). Cronbach`s

alpha test is a reasonable indicator of the internal consistency of instruments that do not have binary (yes, no) answers, but have or involve the use of scales (Black, 1999). Accordingly, it was used to measure the internal consistency of the items that measure the maturity stages and the usability of the public e-services based on the average inter-item correlation to assure that all items are homogeneous and highly correlated; which means that alpha (α) can reach values of 0.80 or above (Bryman & Cramer, 2008). According to this test, alpha (α) = 0.81 for the questionnaire used for data collection of our research, which was considered as an acceptable level of internal reliability.

6.2.2 Principal Component Analysis

The correlation between each item and the total score of its dimension was obtained through the examination of the component matrix using principal component analysis, which is a technique that is used to combine two or more correlated variables into a single factor (Corston & Colman, 2003). So it reduces redundancy in the data by identifying and combining those items that are highly correlated into a new factor which suggests that these items constitute that factor or that they could be aggregated to form a factor (Bryman & Cramer, 2008).

This method is part of factor analysis output and provides the loading of each item on the general dimension. It also assesses the suitability of each item for measurement of its identified dimension; which means it clusters items into dimensions; therefore, it may suggest the elimination of some items. However, loading represent the strength of each item in defining the factor- in this case usability and maturity stages dimensions- (Miller et al., 2002).

Accordingly, the higher the loading of the item is, the more important it is in measuring its dimension. All loading less than 0.20 have been selected for possible elimination; the selection of 0.20 as a salient loading is supported by the relatively large sample size (450 participants) used in this research (Green et al., 2000).

All the items that measure the seven dimensions (usability and maturity stages) were found to have higher loading than 0.20 on the general factor that represents these dimensions. Table 6.1 shows the factor values ranging from 0.345 to 0.835, which means that all were significantly above 0.20. Accordingly, no elimination of any of the items, which form the questionnaire, was needed; this confirms that all the items do represent these extracted dimensions.

Table 6.1 represents the loading of the 31 items on the general factor (usability and the six maturity stages).

Component Matrix a

	the General Factor
(Q1)	.816
(Q2)	.816
(Q3)	.813
(Q4)	.845
(Q5)	.822
(Q6)	.569
(Q7)	.558
(Q8)	.625
(Q9)	.581
(Q10)	.533
(Q11)	.531
(Q12)	.541
(Q13)	.404
(Q14)	.813
(Q15)	.804
(Q16)	.832
(Q17)	.816
(Q18)	.815
(Q19)	.812
(Q20)	.835
(Q21)	.810
(Q22)	.664
(Q23)	.587
(Q24)	.542
(Q25)	.671
(Q26)	.652
(Q27)	.703
(Q28)	.677
(Q29)	.672
(Q30)	.679
(Q31)	.345

Extraction Method: Principal Component Analysis
a. 7 component extracted.

Table 6.1 Loading of items that represent e-services maturity stages' dimensions, and usability dimension

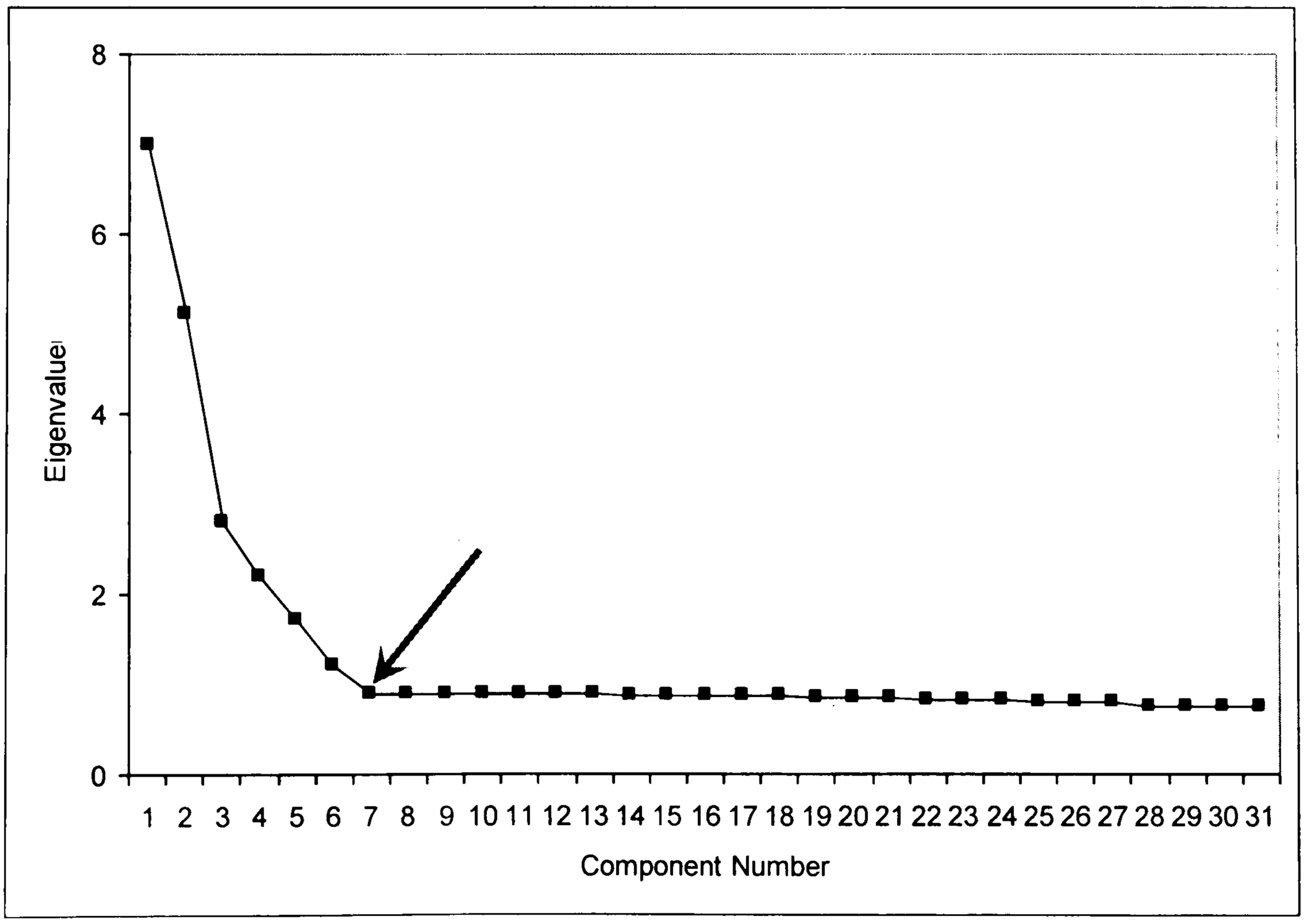
6.2.3 Scree Plot

To determine whether all factors are to be retained in an analysis or not since it is usually the case to retain only factors with large eigenvalues (Field, 2005), and to decide whether an eigenvalue is large enough to represent a meaningful factor we use a graphical scree plot

technique, which is visual criteria that shows a break between the steep slope of the initial factors and the gentle one of the later factors (Bryman & Cramer, 2008). Thus, it helps in determining the number of factors to be extracted by considering the cut-off point for the factors' selection at the point of inflexion of the curve. In other words, the factors to be retained are those which lie before the point at which the eigenvalues seems to level off (Field, 2005; Bryman & Cramer, 2008). However, the choice of these factors is also based on previous theoretical knowledge, and on the assumption that with a sample of more than 200 participants (450 in this research) the scree plot provides a fairly reliable criterion for factor selection (Stevens, 1992).

Figure 6.3 represents clearly the extraction of seven factors before the plot starts to flatten or straighten out.

Figure 6.3: Scree plot test – seven dimensions



6.2.4 Factor Rotation

Factor rotation is another technique which is often used to support the scree plot results in deciding which factors are to be retained (Bryman & Cramer, 2008). It is also used to simplify the factor structure and interpretation as well as to make it more meaningful. More specifically, factor rotation is a technique used to discriminate between factors. In other words, when the initial extraction of the factors suggests the existence of two or more factors, which is consistent with the extraction of the seven factors that represent the maturity stages and the usability in this research, rotation becomes necessary to provide a clearer separation of the previous factors (usability and maturity stages) in order to increase the interpretability of them. *Varimax* rotation method was used in particular; it proved to be very productive as an analytical approach in obtaining uncorrelated (*Orthogonal*) rotation which produces factors that are unrelated to or independent of one another, in which the meaning of the factor is determined by the items which load most highly on it (Field, 2005; Bryman & Cramer, 2008).

However, items or variables which correlate with less than 0.3 with a factor are omitted from consideration (Bryman & Cramer, 2008). The rotation of maturity stages and usability factors reduced the overlap between the maturity stages and simplified the interpretation of the extracted stages, and it also confirmed the existence of the usability dimension. However, no significant differences were found when using (*Oblique*) or correlated factors method of rotation.

Table 6.2 represents the results of the loading of each item (variable or question) on its factor. It means that these items under usability are clustered together because they could be measuring aspects of the usability. The same can be said about the other items

(questions) which are also clustered under each stage of the 6I model, because each group of them is measuring the aspects which are related to the stage it belongs to. In other words, the loading of every item or variable in its stage is presented to clarify the relative importance of each item in measuring its dimension i.e. the usability and the 6I stages.

Rotated Component Matrix[a]

	Usability and E-Services Maturity Stages						
	Service Usability	Inform	Interact	Intercommunicate	Individualize	Integrate	Involve
Q1	.907						
Q2	.907						
Q3	.904						
Q4	.917						
Q5	.888						
Q6			.777				
Q7			.858				
Q8			.811				
Q9			.833				
Q10					.779		
Q11					.774		
Q12					.763		
Q13					.582		
Q14		.817					
Q15		.835					
Q16		.843					
Q17		.835					
Q18		.826					
Q19		.857					
Q20		.849					
Q21		.818					
Q22				.733			
Q23				.784			
Q24				.801			
Q25				.814			
Q26				.755			
Q27						.812	
Q28						.787	
Q29							.877
Q30							.902
Q31							.465

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 6 iterations.

Table 6.2 Loading of each item on its maturity stage and loading of five items on its usability dimension.

6.3 Confirmatory Factor Analysis Outcome

We can see from the outcomes of the confirmatory factor analysis that seven factors have been identified.

The first is usability (Q. 1, 2, 3, 4, and 5), which is a factor that we see as a broad brush perception of the effectiveness of the e-services (see table 6.3)

Service Usability
1. I can easily find the public e-service I need.
2. I find the sites easy to learn to operate.
3. I can easily use the public e-service.
4. I find the sites easy to navigate.
5. I find the sites easy to use.

Table 6.3 Classification of the items that represent public e-services' usability

The remaining six factors that have been identified can be categorised into two parts. First, those which represent the current status: Inform, Interact, Intercommunicate, and individualize (see table 6.4). These six identified factors are in consistent with the dimensions of the proposed model.

Inform	Interact	Intercommunicate	Individualize
14. The sites provide accurate information. 15. The websites provide up to date information. 16. The sites provide believable information. 17. The sites provide timely information. 18. The sites provide relevant information. 19. The sites provide easy to understand information. 20. The sites provide information at the right level of detail. 21. The sites present the information in an appropriate format	6. Phone/fax support was readily available when online help was insufficient. 7. I can easily download an application form. 8. I can easily get a feed back about the e-service when I need. 9. The sites make it easy to communicate with the organization.	22. I can update records online. 23. It feels safe to complete transactions. 24. I can easily fill a form online. 25. My personal information feels secure 26.Services will always be carried out as promised.	10. The sites provide the information in different languages (Arabic, English). 11. The services are tailored to meet my exact needs. 12. Getting pre-filled forms where data about me is already filled is available. 13. There is a possibility to create a short cut to the often used e-services.

Table 6.4 Classification of the items that represent the current status of public e-services

Second, those that represent the desired status: Integrate and Involve (see table 6.5)

Integrate	Involve
27. I would like to be able to issue certificates online. 28. I would like to get seamless services in one-stop shop.	29. I would like to be engaged in forums, debates that promote the e-participation. 30. I would like to be involved in decision making and policy shaping. 31. I would like my comments to be considered and to have an impact on the presented e-services.

Table 6.5 Classification of the items that represent the desired status of public e-services

6.3.1 Current and Desired Status

We divided the e-services within the research context into two categories, as presented in the previous section. However, here we explain what is meant by each category. The current status of the e-services is part of the 6I model and here it represents the actual state of the e-services within the research context. It identifies the available facilities that each e-service provides to the user, whereas the desired status, which is also part of the 6I model, represents what is not available in any of the provided e-services, and what users would like to have in the future. A summary of the characteristics of each stage within the two categories is presented in table 6.6.

State	6I Model Stages	Characterization of e-services
Current	Inform	Provides content that informs the user, ranges from formal, limited static content to dynamic specialized and regularly updated information.
	Interact	Two way communication in which interaction flows between government and users via ICT features range from downloading information to email communication possibility using security technique like keys password...etc.
	Intercommunicate	Carry out and complete transaction online. This may range from filling and updating forms electronically to processing payments and issuing of certificate. A complete chain of activities or transaction.
	Individualize	Allows users to be identified and /or services to be personalized, so that services that are offered are tailored to the individual's needs.
Desired	Integrate	Combine different separate services ranging from clustering of common services to a unified and seamless service (So that the parts are hidden from the user)
	Involve	Promotion of citizens' participation and empowerment. This can range from survey to voting to focus groups, and opinion polls. This could have either direct or indirect influence on decision-making and policy shaping.

Table 6.6 E-Services' Characteristics according to the 6I Model

The next section presents the analysis of users' evaluation of the e-services in Jordan.

6.4 Bivariate Analysis

Bivariate analysis or correlation analysis is an analysis that shows or measures a supposed linear relationship between two variables by showing the strength and the direction of the relationship between these two variables (Kinnear & Gray, 2008).

In this research bivariate analysis was employed using SPSS to identify the correlations between the four demographic characteristics and the seven identified factors. As gender is classified into two discrete group (male and female), difference, not correlation, between these groups and their evaluation of the public e-services should be assessed. Accordingly, error bar graph was used for that purpose.

However, the bivariate analysis was carried out in three phases. One phase for each factor:

(I) For Usability and each of the four demographic characteristics (education level, ICT expertise, usage rate of e-services, and age).

(II) For the four current stages (*Inform*, *Interact*, *Intercommunicate*, *Individualize*) and each of the four demographic characteristics (education level, ICT expertise, usage rate of e-services, and age).

(III) For the two desired stages (*Integrate*, *Involve*) and each of the four demographic characteristics (education level, ICT expertise, usage rate of e-services, and age).

However, in relation to the level of association between variables, we followed Field (2005) who suggests that when r is ±0.1, it represents a small correlation, while when r is ±0.3; it represents a moderate correlation, and finally when r is ± 0.5, it represents a strong correlation.

Moreover, whilst the testing in some cases revealed a statistically significant level corresponding to significance at 0.05 or highly significance at 0.01, the value of r is what actually determines the strength of the association. This will be demonstrated in the analysis that follows.

6.4.1 Usability and Demographics

Our first research question is concerned with the usability of the e-services. The usability will provide us with an overall picture or a broad brush of users' perceptions of the e-services within the research context. So our first research question was:

"Is there any significant relationship between the four demographic characteristics and the usability of the public e-services?"

Table 6.7 shows the results of the bivariate correlations, which was conducted to find an answer to this question.

Correlations

		Usability
Education level	Correlation Coefficient	-.234**
	Sig. (2-tailed)	.000
ICT expertise	Correlation Coefficient	-.064
	Sig. (2-tailed)	.178
Usage rate of e-services	Correlation Coefficient	-.021
	Sig. (2-tailed)	.663
Age- group	Correlation Coefficient	-.329**
	Sig. (2-tailed)	.000

** Correlation is significant at the 0.01 level (2-tailed).

Table 6.7 shows correlation between the usability of the e-service and the demographics.

Table 6.7 shows that the variables usability and education level have strength of statistical association that corresponds to a small correlation, even though this appears to be a highly statistical significant level. The same also applies to the variables usability and the age-group, where there is strength of statistical association that corresponds to moderate correlation.

The result about the age group is not quite unexpected for it could be argued that mature people tend to be more discerning. However, in the research context, this could suggest that mature people are having higher expectations, as one respondent stated:

"To consider the usability of the public e-services efficient and sufficient, it should take into consideration social and cultural need of all. For example, e-services should be named and given 'addresses' that are natural to the users. The usability of the e-service must achieve an inclusion of all the society members especially the elderly and those with disabilities"

However, there are also studies (Becker, 2005; Choudrie & Ghinea, 2005) that support what the findings of this study suggest that mature people usually find usability of e-services poor. Nevertheless, the negative significant relationship between education level and the usability contradicts findings of a study by (Choudrie & Ghinea, 2005) where they find that there is no relationship between the educational background and the e-services

usability. We would once again argue that higher education levels could lead to higher expectations.

6.4.2 Current Status and Demographics

To assess the current status of the public e-services, each time a research question was proposed to find out any significant relationship between the four current stages of the 6I maturity model (*Inform, Interact, Intercommunicate, and Individualize*), and the demographics. So our second research question was:

"*Is there any significant relationship between the Inform stage and the demographics?*"

Table 6.8 shows the results of this analysis.

Correlations

		Inform
Education level	Correlation Coefficient	.102*
	Sig. (2-tailed)	.031
ICT expertise	Correlation Coefficient	.156**
	Sig. (2-tailed)	.001
Usage rate of e-services	Correlation Coefficient	−.076
	Sig. (2-tailed)	.108
Age_group	Correlation Coefficient	−.016
	Sig. (2-tailed)	.729

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Table 6.8 shows correlation between Inform and the demographics

Table 6.8 shows a significance level for users with higher education and those with better ICT ; however, both have a small association with the *Inform* stage; i.e. perceiving the current e-services to be informative.

Actually, one highly-educated respondent describes this by stating that:

"*Most of the Jordanian e- governmental websites' information is up to date, and dynamic, although few governmental websites are still hanging at the static level of the web presence of the e-government.*"

However, no statistically significant relationships were found between the *Inform* stage and both the usage rate and the age-group which needs further research.

In relation to our third research question:

"*Is there any significant relationship between the Interact stage and the demographics?*"

The same analysis, bivariate correlations was employed.

Correlations

		Interact
Education level	Correlation Coefficient	-.155**
	Sig. (2-tailed)	.001
ICT expertise	Correlation Coefficient	-.362**
	Sig. (2-tailed)	.000
Usage rate of e-Government website	Correlation Coefficient	.200**
	Sig. (2-tailed)	.000
Age_group	Correlation Coefficient	-.073
	Sig. (2-tailed)	.122

** Correlation is significant at the 0.01 level (2-tailed).

Table 6.9 shows correlation between Interact and the demographics

Table 6.9 shows high levels of significance for users with greater educational level and ICT expertise; however, the strength of association is small to moderate where they have unfavorable perceptions of the *Interact* of the e-services.

Once more, the education-level seems to be the common factor between what we have discussed so far. This time we have a total agreement of unfavorable perceived level of satisfaction of both *usability* and *Interact*.

However, the table also shows that users with higher usage rate of e-services have a statistical level of significance that corresponds to a small association with the *Interact* stage. An explanation of this could be that with increased use, they overcome what ever difficulty arises; having no other alternatives; they become more accustomed and more forgiving in that they allow room for errors or deficiencies. However, this needs further exploration.

However, no significant relationship was obtained between the *Interact* stage and the age-group which could also suggest further exploration through qualitative research.

The next current stage is *Intercommunicate*, to assess the perceived level of satisfaction of the *Intercommunicate* stage of the e-services, we proposed this research question:

"Is there any significant relationships between the Intercommunicate stage and the demographics?"

Table 6.10 shows the results of this analysis:

Correlations

		Intercommunicate
Education level	Correlation Coefficient	-.166**
	Sig. (2-tailed)	.000
ICT expertise	Correlation Coefficient	-.278**
	Sig. (2-tailed)	.000
Usage rate of e-services	Correlation Coefficient	.079
	Sig. (2-tailed)	.096
Age_group	Correlation Coefficient	-.048
	Sig. (2-tailed)	.311

** Correlation is significant at the 0.01 level (2-tailed).

Table 6.10 shows correlation between Intercommunicate and the demographics

Table 6.10 shows significant level for users with greater education level and better ICT expertise; however, both have a small association with the *Intercommunicate* stage where they have unfavourable perceived level of satisfaction of this stage. However, the trend in this stage is totally the opposite of the one in the *Inform* stage. This could suggest that users might become more critical when their expectations of the e-services increase.

That is probably emphasised by what one of the participant, who has excellent ICT expertise stated:

"*Conducting financial transactions online is a milestone in the e-services development, yet such highly secured and complicated transactions are not deployed, the need to address issues like the digital signature, privacy of personal information, and security of financial transactions are still hampering the potential progress of the e-services that this stage might bring about.*"

And another one stated that:

"*In Jordan we have been talking about e-government services for really long time. And still there is not much talk about on the ground especially when it comes to financial transactions.*"

However, no significant relationships were found between the *intercommunicate* stage and the rest of the demographic characteristics (usage rate of e-services, and age-group).

Returning to our research questions; the fourth questions was:

"Is there any significant relationships between the Individualize stage and the demographics?

Table 6.11 shows the results of bivariate correlation analysis:

Correlations

		Individualize
Education level	Correlation Coefficient	−.092
	Sig. (2-tailed)	.051
ICT expertise	Correlation Coefficient	.033
	Sig. (2-tailed)	.485
Usage rate of e-services	Correlation Coefficient	−.023
	Sig. (2-tailed)	.634
Age_group	Correlation Coefficient	−.003
	Sig. (2-tailed)	.942

Table 6.11 shows correlation between the Individualize stage and the demographics.

Table 6.11 clearly shows no significant relationships between the *Individualize* stage and the four demographic characteristics (Education level, ICT expertise, usage rate of e-services, and age-group). This might suggest that users may not see it as an important criterion, since the insufficient usage has not yet led to raise expectations of Individualized service. Moreover, we believe that the shift towards personalisation needs further research.

To sum up the evaluation of the current status of the e-services within the Jordanian context, the analysis indicates that there is an overall small to moderate suggested trend or a recurrent pattern; this trend is associated with the cohort who has higher level of education and ICT expertise. A classification of this trend is that while they both have shown a favourable perceived level of satisfaction of the *Inform* stage of the e-services, they show unfavourable perceived level of satisfaction of both *Interact* and *Intercommunicate* stages.

Moreover, all groups show no significant relationship with the *Individualize* stage of the e-services in the research context.

6.4.3 Desired Status and Demographics

At the following two stages, we are changing our focuses because the questions will ascertain what users require or desire from the e-services, rather than what they are currently having and assessing. So our fifth research question was:

"*Is there any significant relationship between the Integrate stage and the demographics?*"

Another bivariate correlation analysis was used. Table 6.12 illustrates the results of this analysis.

Correlations

		Integrate
Education level	Correlation Coefficient	.131**
	Sig. (2-tailed)	.006
ICT expertise	Correlation Coefficient	.085
	Sig. (2-tailed)	.071
Usage rate of e-services	Correlation Coefficient	-.025
	Sig. (2-tailed)	.600
Age_group	Correlation Coefficient	.104*
	Sig. (2-tailed)	.027

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 6.12 shows correlation between Integrate and the demographics

Table 6.12 shows a significant statistical level for both mature users and those with higher educational level; however, the strength of the association with the *Integrate* is small, in which it could suggest a favourable desire for the *Integrate* stage, but once again this needs to be explored further.

The results about the highly educated and the more mature willingness to have integrated e-services could be explained by the fact that integrated e-services bring about a convenient use; i.e. a better quality of service when all the different e-services are conducted from one place or a portal without the need to look for the different organizations that offer these services. Hence, e-services definitely become simpler and more effective through integration. This is also confirmed by the opinion of one participant who stated that:

"*Collaboration between public sector organizations to reach a particular target group, especially the mature people would be very effective.*"

However, there are no statistically significant relationships between the *Integrate* stage and the other demographic characteristics (ICT expertise, usage rate of e- services).

Our next proposed research question is concerned with the second aspect of the desired e-services, and it was:

"Is there any significant relationship between the Involve stage and the demographics?"

A bivariate correlation was conducted. Table 6.13 shows the results of this analysis.

Correlations

		Involve
Education level	Correlation Coefficient	.096*
	Sig. (2-tailed)	.042
ICT expertise	Correlation Coefficient	-.004
	Sig. (2-tailed)	.940
Usage rate of e-services	Correlation Coefficient	-.017
	Sig. (2-tailed)	.720
Age_group	Correlation Coefficient	-.137**
	Sig. (2-tailed)	.004

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 6.13 shows correlation between the Involve stage and the demographics

Table 6.13 shows a statistical significant level for users with higher level of education but with a small association for the *Involve* stage The desire by the highly educated to be engaged in the public e-services could be due to the fact that better-educated users usually expect more direct engagement in the government-decision-making. In addition they tend to be already more engaged in the policy processes and see e-participation as facilitating more informed discussion. Moreover, better educated people might be more e-participative because *Involve* requires a high level of literacy. It might also be a truism that educated people tend to be more politically aware and thereby participative in general. It could also be argued that the desire to have a greater *Involve* in e-services is in agreement with their perceptions of the current status in that they want to effect a change in the current e-services through having a better role of engagement that would empower them to make the e-services more consistent with their requirements.

Clearly, the lack of interest in the *Involve* stage among the more mature people, where the association with the *Involve* stage is moderate, might be due to their lack of familiarity with ICT (Choudrie & Dwivedi, 2005; Ekelin, 2007). It might also be that the more mature do not wish to engage because they are satisfied to leave it or do not believe their involvement would be effective. However, both suggest further areas for exploration.

Finally, no significant relationships were obtained between *Involve* and both (ICT expertise and usage rate).

6.4.4 Trends of the Analysis

Clearly from the results three cohorts of users stand out:

- Those with high level of education
- Those with greater ICT expertise
- The group of users, who are more mature

However, it should be noted that the strength of the associations that we determined were small to moderate for what follows:

I. The first cohort (i.e., those with higher levels of education) had a negative level of satisfaction with usability. In relation to the detailed analysis of the current stages they had a positive level of satisfaction with *Inform*; however, they had negative levels of satisfaction with *Interact* and *Intercommunicate*.

   In relation to the desired stages this cohort had a favourable attitude towards high quality/*Integrate* stage as well as towards more participation and engagement.

II. The second cohort (i.e., those with higher levels of ICT expertise) had no significant association with usability, but like the previous cohort had a positive association with *Inform* but a negative association with *Interact* and *Intercommunicate*. However, unlike the "educated cohort", they did not have any significant preference for the desired stages (*Integrate* & *Involve*)

III. The third cohort (i.e., the more mature group) shared with the "educated" cohort a negative level of satisfaction as measured by usability. However, they did not share the trend of the other two in relation to *Inform*, *Interact*, or *Intercommunicate*, but did share with the "educated" cohort the favourable level of satisfaction for *Integrate*.

Table 6.14 summarises the suggested trends that appear in users' perception of the e-services, where upward or ascending arrows refer to the users' favourable perceptions of the e-services, and the downward or descending arrows to the users' unfavourable perceptions of the e-services in the research context.

Demographics	Broad Brush	**6I** Maturity Model				
		Current Status **4Is**			Desired Status **2Is**	
	Usability	Inform	**2Is** (Interact, Intercommunicate)	Individualize	Integrate	Involve
Education Level	− ↘	+ ↗	− ↘		+ ↗	+ ↗
ICT		+ ↗	− ↘			
Age	− ↘				+ ↗	− ↘

Table 6.14: a summary of the analysis' trends

Our first analysis revealed that the users with higher levels of education and those who are more mature perceive the levels of satisfaction with e-services as measured by our broad brush measure of usability decreases; i.e. There is a negative trend.

Detailed analysis with the current e-services offerings of Inform, Interact, and Intercommunicate show that the above mentioned negative trend is reflected in relation to the Interact and Intercommunicate stages, but for higher levels of education and ICT expertise the more detailed analysis clearly provides a richer and more accurate picture of this earlier negative trend in that the more mature; and those with higher levels of ICT expertise and education level has a positive trend with the Inform stage, but have a negative trend with Interact and Intercommunicate.

Further detailed analysis of the desired e-services offerings of Integrate and Involve shows once again that higher levels of education have higher expectation on a quality of service (i.e. an integrated service) as well as a desired to be more engaged in the decision making. Yet, interestingly, the more mature appeared to be less willing to engage or to be involved.

The results about the Inform stage are consistent with the findings of the few studies that have investigated the public e-services in developing countries, for example (Akman et al., 2005; AlAwadhi & Moriss, 2008; Bouaziz, 2008) have reported that users who have greater level of education and ICT expertise are more likely to use public e-services to obtain information. However, the findings about Interact and Intercommunicate contradict the same previous studies that have also reported that the same group of individuals i.e. those with greater education and ICT expertise are the ones to Interact and Intercommunicate more with government using public e-services. The contradiction could be justified by the fact that none of the studies have considered the nature and characteristics of the Interact or Intercommunicate of public e-services and the perceived level of satisfaction of the different users with these e- services. The findings might also indicate potential concerns of

those with greater level of education and ICT over risks of security and privacy, which are usually seen as crucial and salient for the implementation and adoption of the Intercommunicate stage of the e-services in many studies, for example, (Hiller & Bélanger, 2001; Warkentin et al., 2002; Holden & Millet, 2005; Irani et al., 2006).

In relation to the desired status of e-services, no studies, to the best of our knowledge, have examined users' perceptions of the Integrate or Involve stages. However, Siddiqi et al. (2006) and Grimsley & Meehan (2007) consider these as new potentials that users are seeking from their engagement with e-services; mainly: to feel more empowered to take charge of the e- services they use and influence policies that affect them.

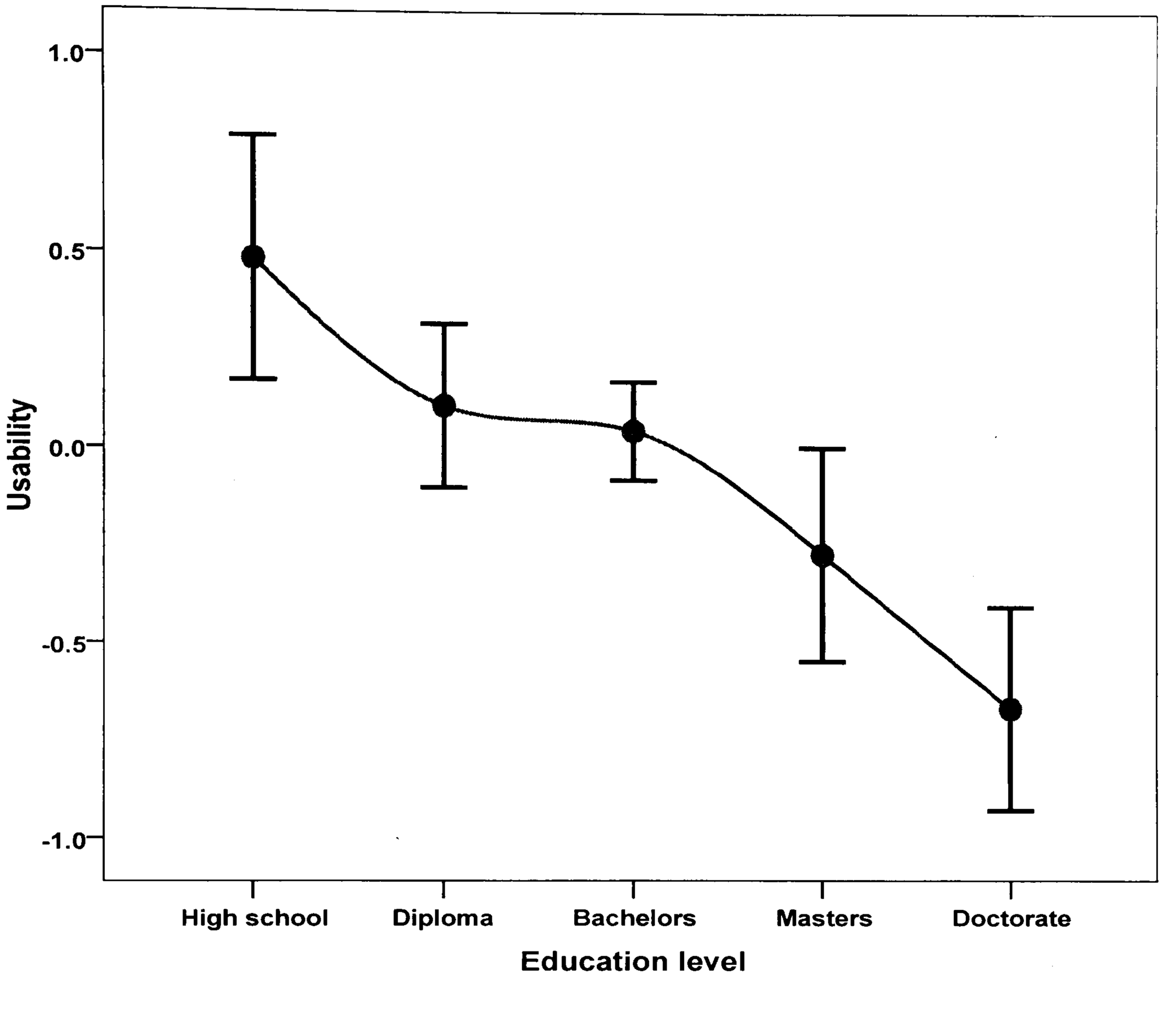
6.5 Classification of E-services' Users Using Error Bar

In order to examine the differences regarding the evaluation of the e-services according to the users' gender, level of education, ICT expertise, usage rate of the e-services, and age, error bar charts were obtained. An error bar chart is a graphic that displays the mean scores along with the 95% confidence interval of the mean (Field, 2005; Kinnear & Gary, 2008). The use of these graphs helps in identifying and providing confirmatory evidence of earlier results obtained.

6.5.1 Broad Brush –Usability.

I. Education Level.

Figure 6.4 Education levels & usability evaluation error bar



Classification of participants according to their educational level shows that as the level of user's education gets higher, users consider the usability of the public e-services to be poorer. The error bar (figure 6.4) offers an explanation of the education attainment of the respondents' in relation to usability; it suggests that those with the doctorate degrees are the ones whose perception of the usability is the least favourable. This confirms the trend that we reported earlier.

II. Age.

Figure 6.5 Age –group & usability evaluation error bar

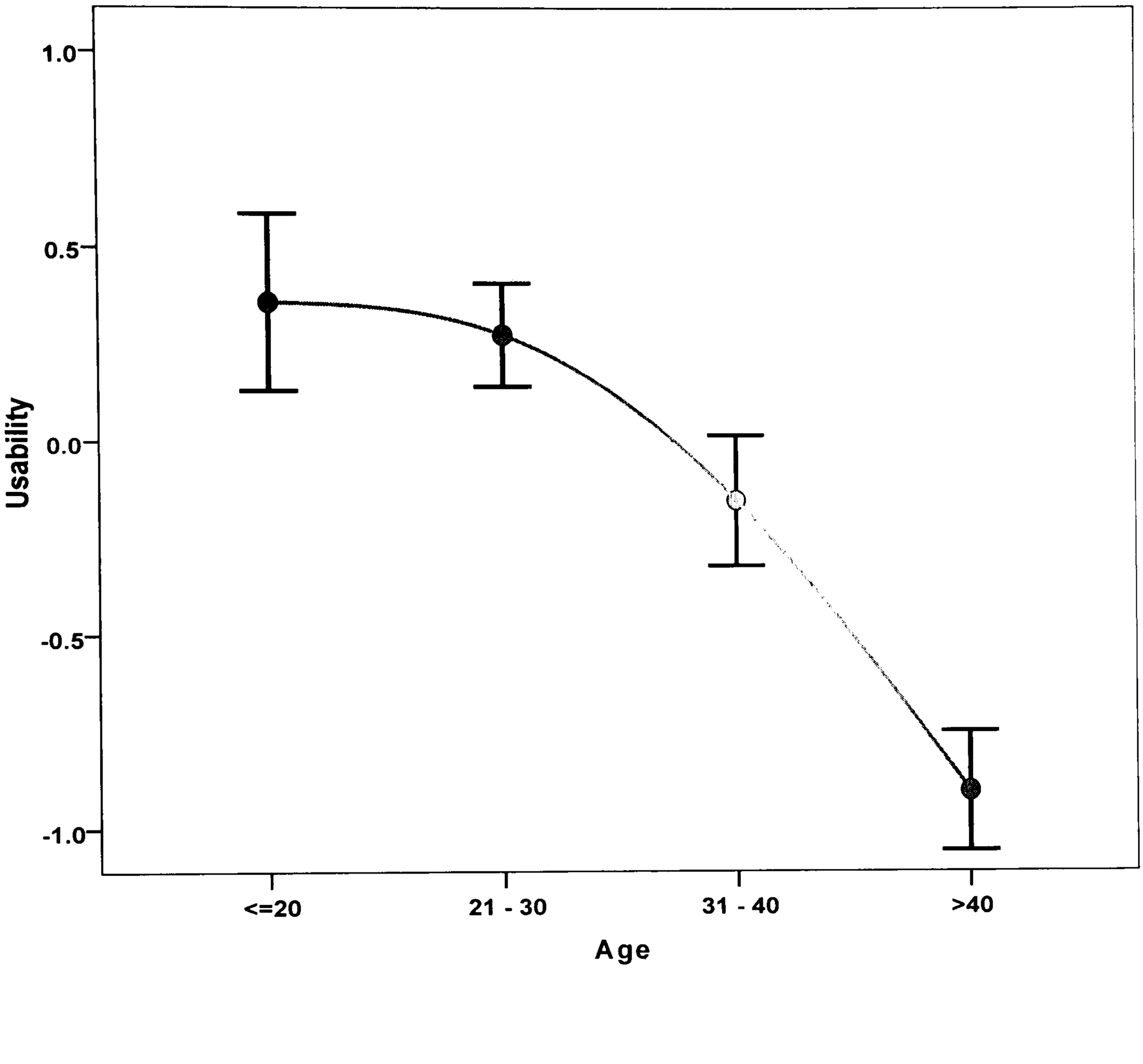


Figure 6.5 shows the trend clearly: as the age of users increases, their perceptions of *usability* decrease, which confirms our earlier result.

6.5.2 Current Status (Inform, Interact, and Intercommunicate).

I. Education Level.

Figure 6.6 Education level & current status (Inform)

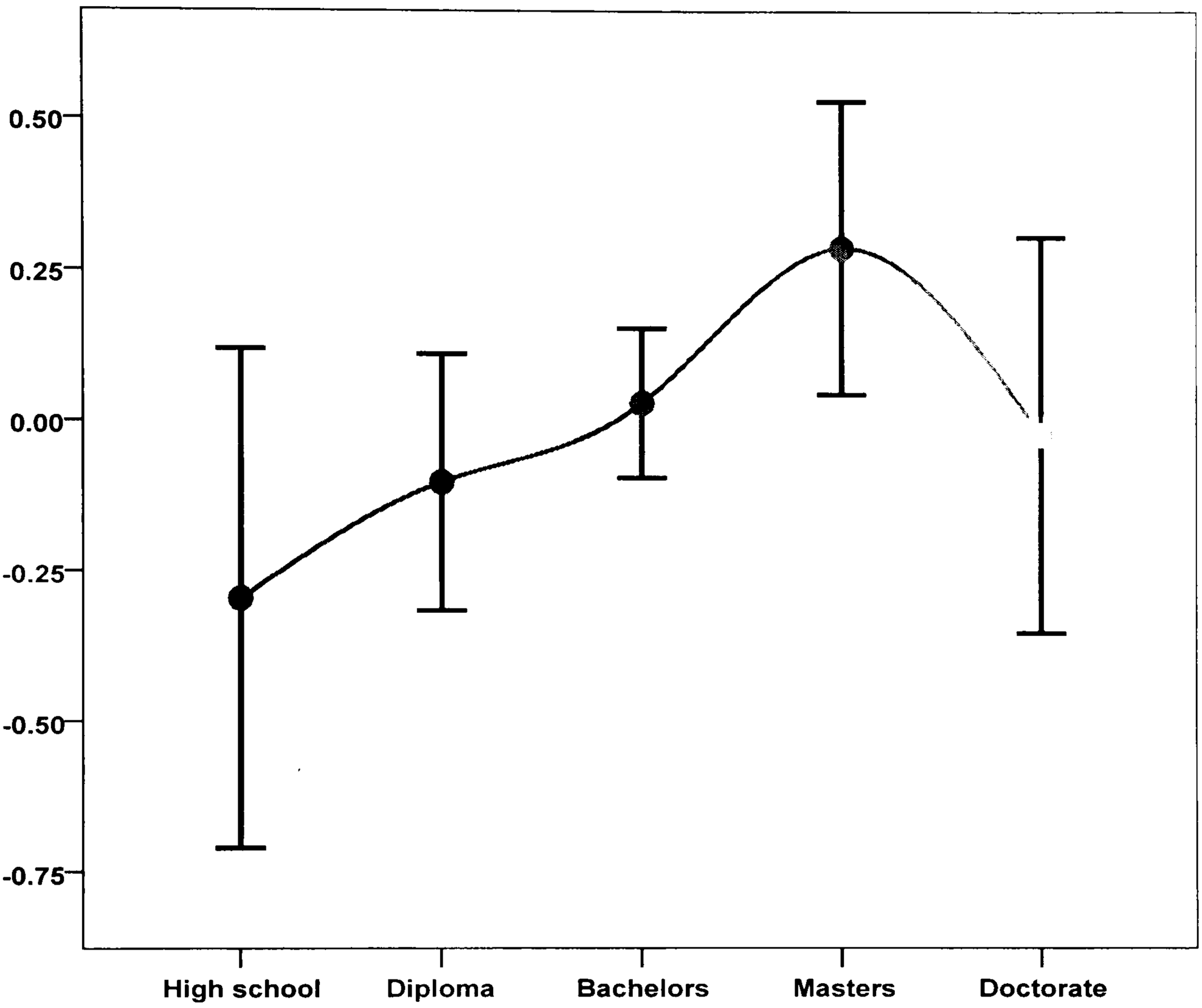


Figure 6.6 shows that those with higher degrees of education, especially (bachelors and masters) are the ones, who were most satisfied with the informative stage of the public e-services. This suggests that the quality of the information provided is high. As found earlier, the positive trend of the level of education for the Inform is confirmed as previously but, interestingly, there is a "drop-off" between Masters (11.8%) and Doctorate level (7.8%).

Figure 6.7 Education level & current status (Interact & Intercommunicate)

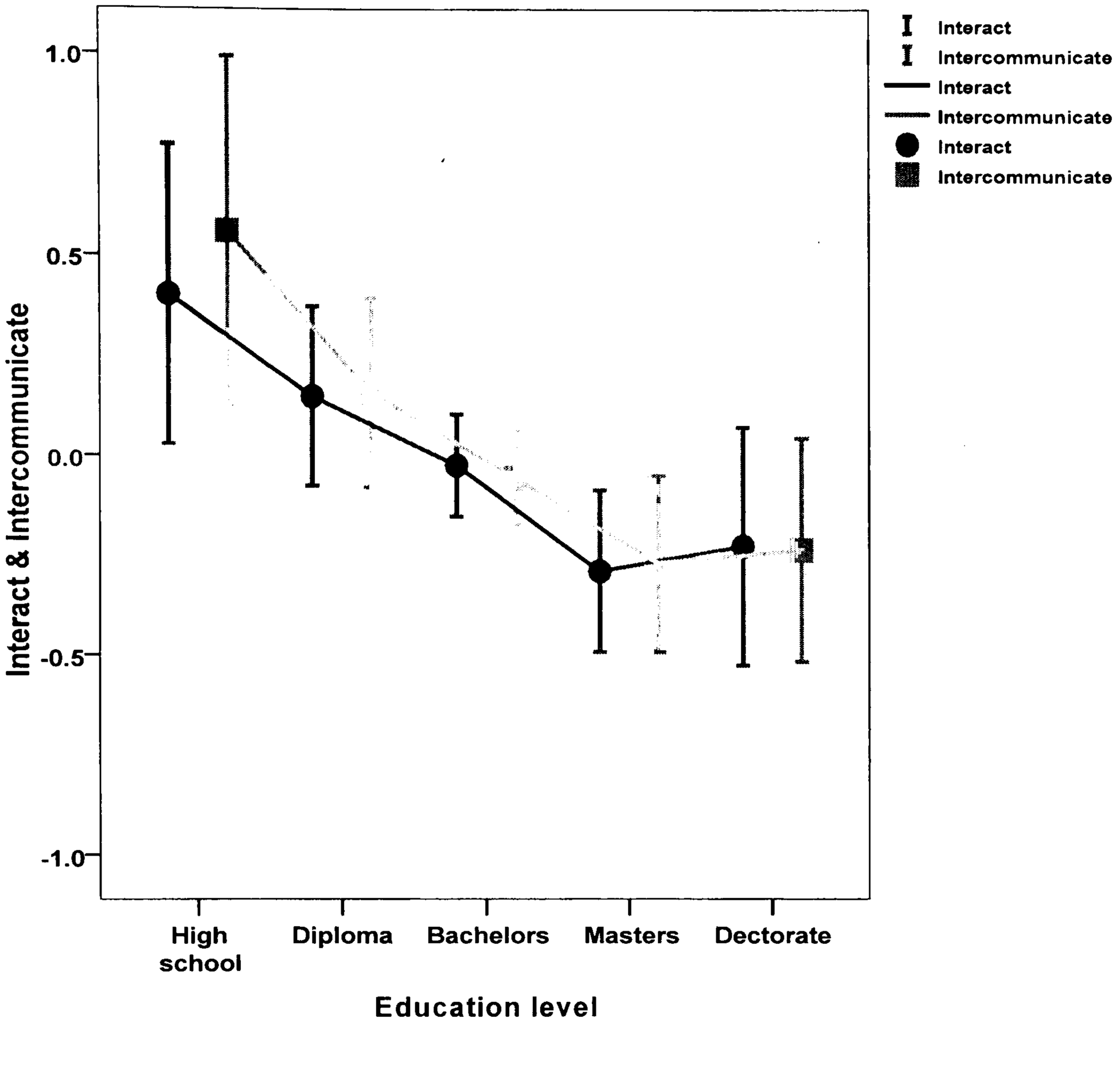


Figure 6.7 shows the same group of individuals, especially, those with (bachelors and masters) were not satisfied with Interact and Intercommunicate stages of the e-services. This may suggest that as the education increases, users' become more discernment, and, thus, have greater needs and expectations. As previously our negative trend of level of education and perceived level of satisfaction with Interact and Intercommunicate is confirmed. Once again, interestingly, there is a plateau from masters to doctorate.

II. ICT Expertise.

Figure 6.8 ICT expertise & the current status (Inform)

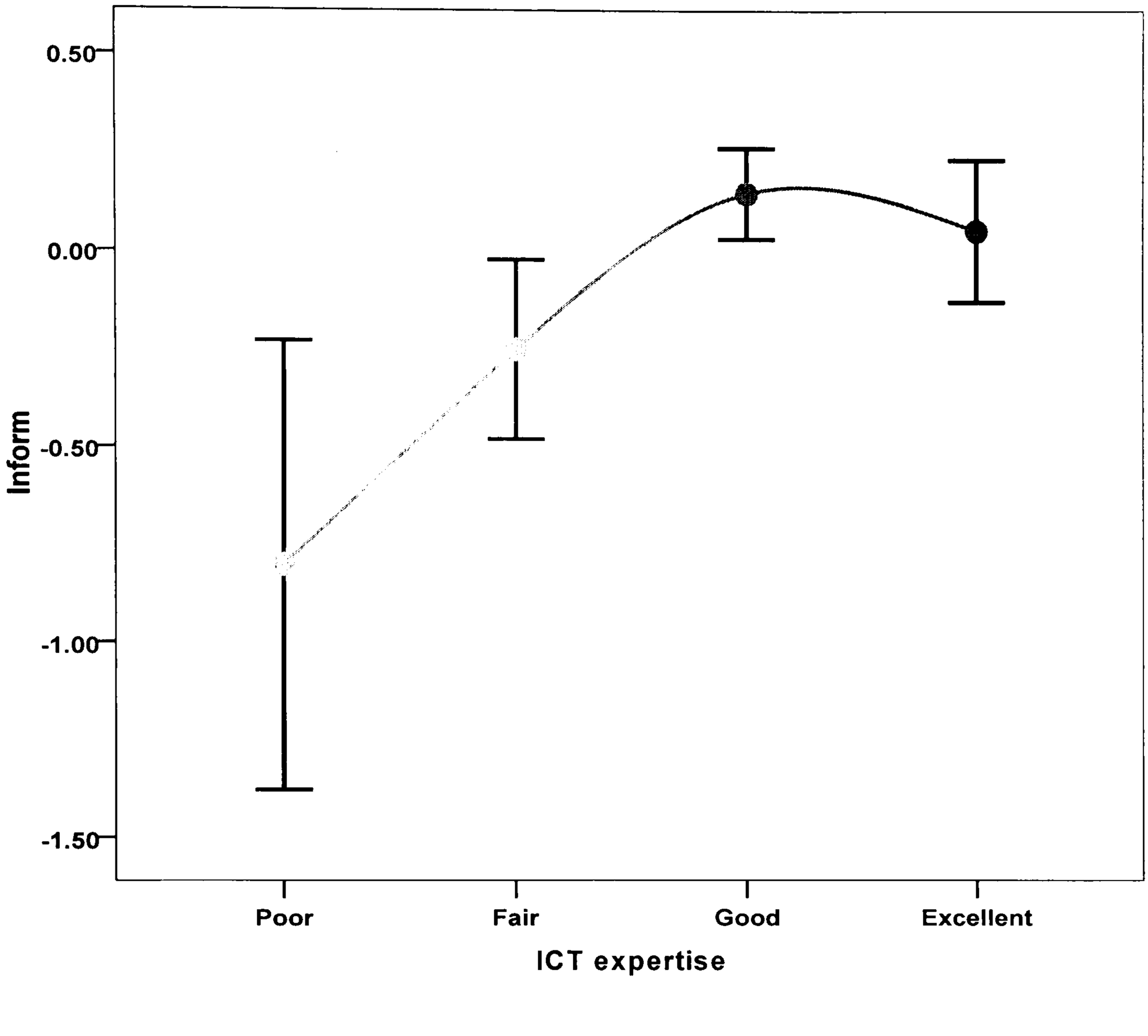


Figure 6.8 confirms our previous results that that those with high level of ICT expertise perceive the first stage of current status of e-service Inform to have a positive trend.

Figure 6.9 ICT expertise & the current status (Interact & Intercommunicate)

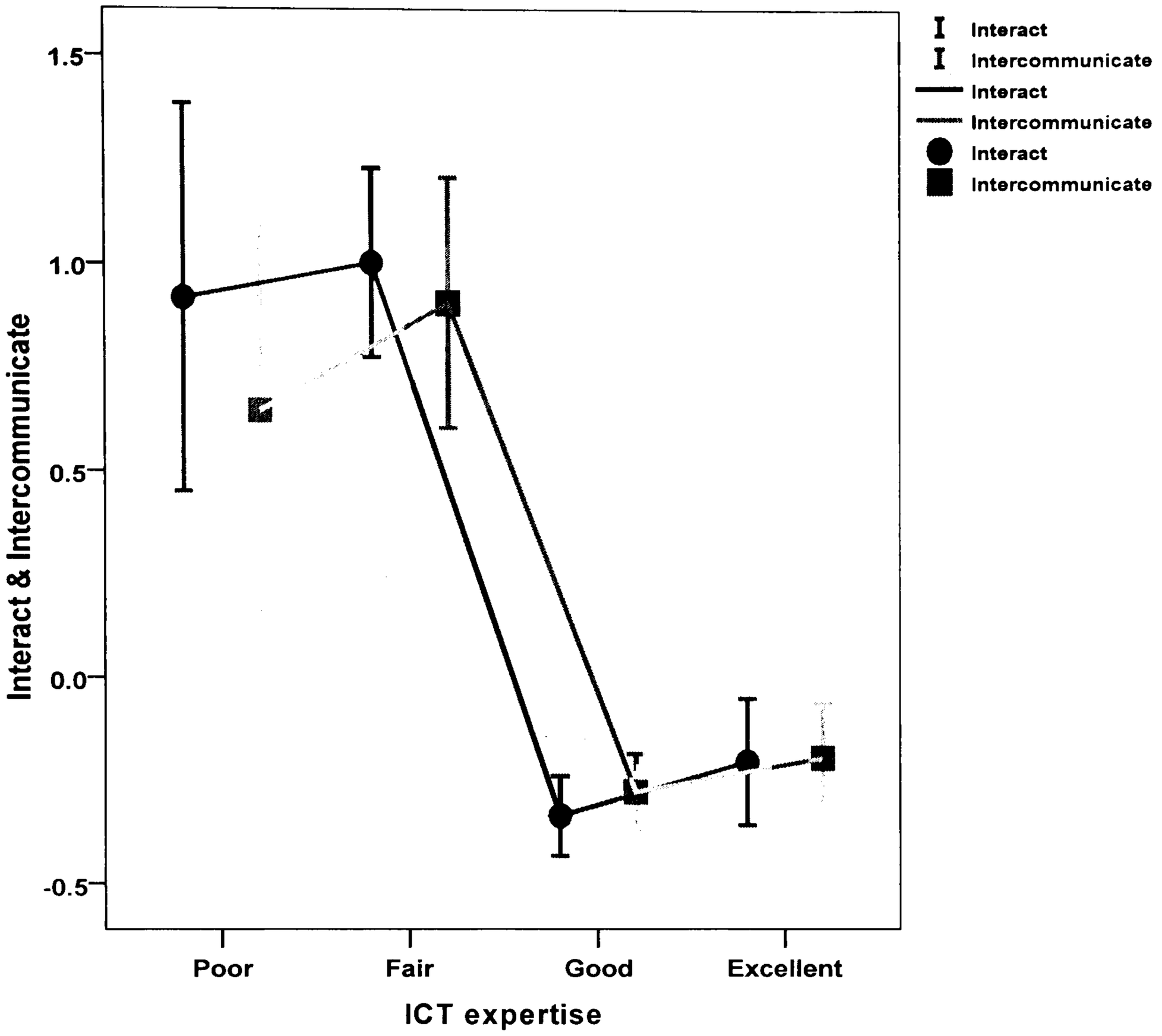


Figure 6.9 confirms our previous result that those with high level of ICT expertise have critical or unfavourable perception level of satisfaction of the Interact and Intercommunicate stages.

6.5.3 Desired Status (Integrate, Involve).

I. Education Level.

Figure 6.10 Education level & the desired status (Integrate & Involve)

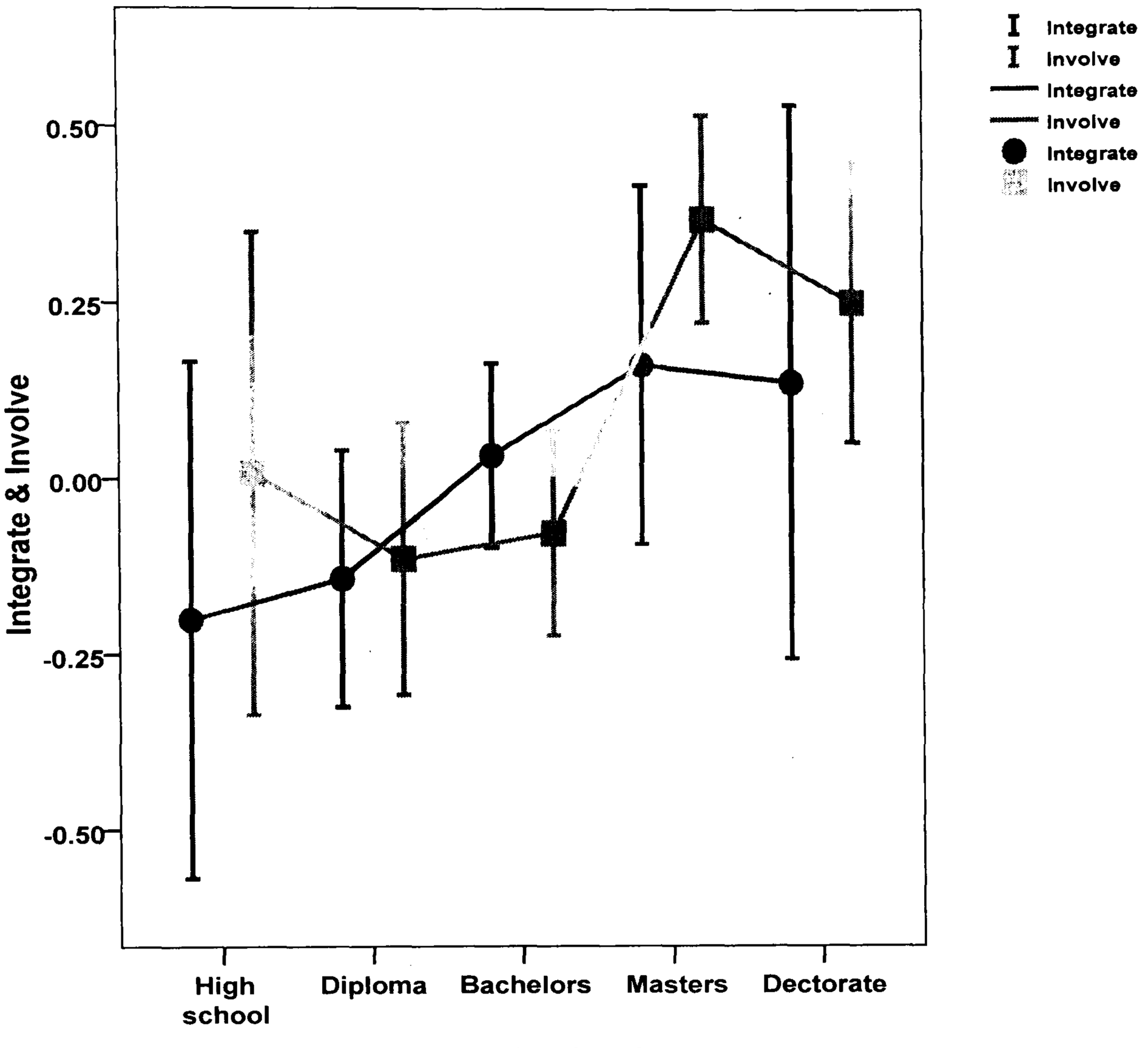


Figure 6.10 shows that there is a general positive trend in that as education level increases, there is a greater proclivity or desire to want services that are integrated and involve a greater level of engagement as was confirmed earlier.

II. Age.

Figure 6.11 Age-group & (Integrate and Involve) evaluation error bar

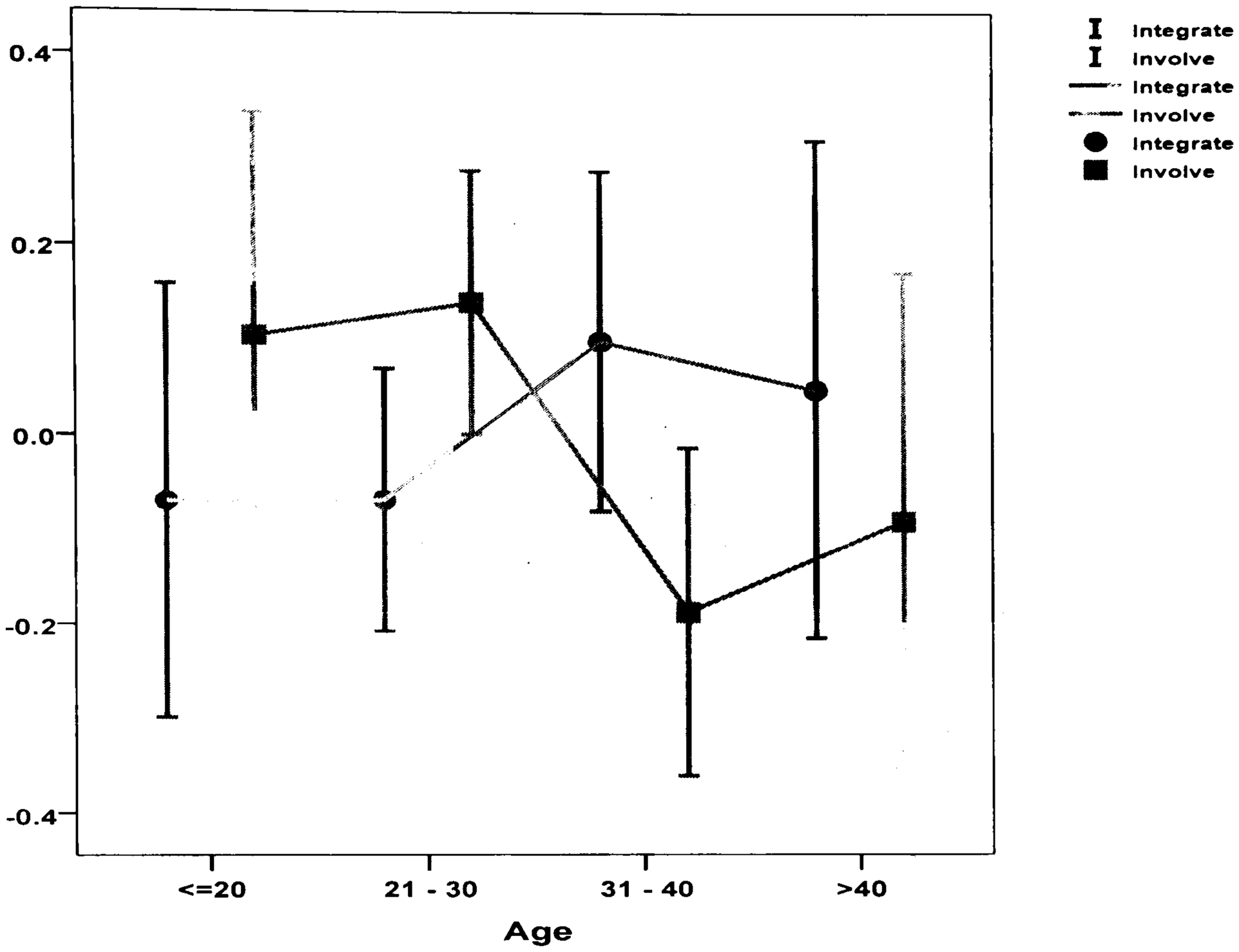


Figure 6.11 shows that mature people have a high perception level of satisfaction of *Integrate*. However, the same group shows lower desire for the *Involve* stage. Interestingly, there is a drop-off in the *Involve* stage for those between (31-40), then there is an increase in those >40.

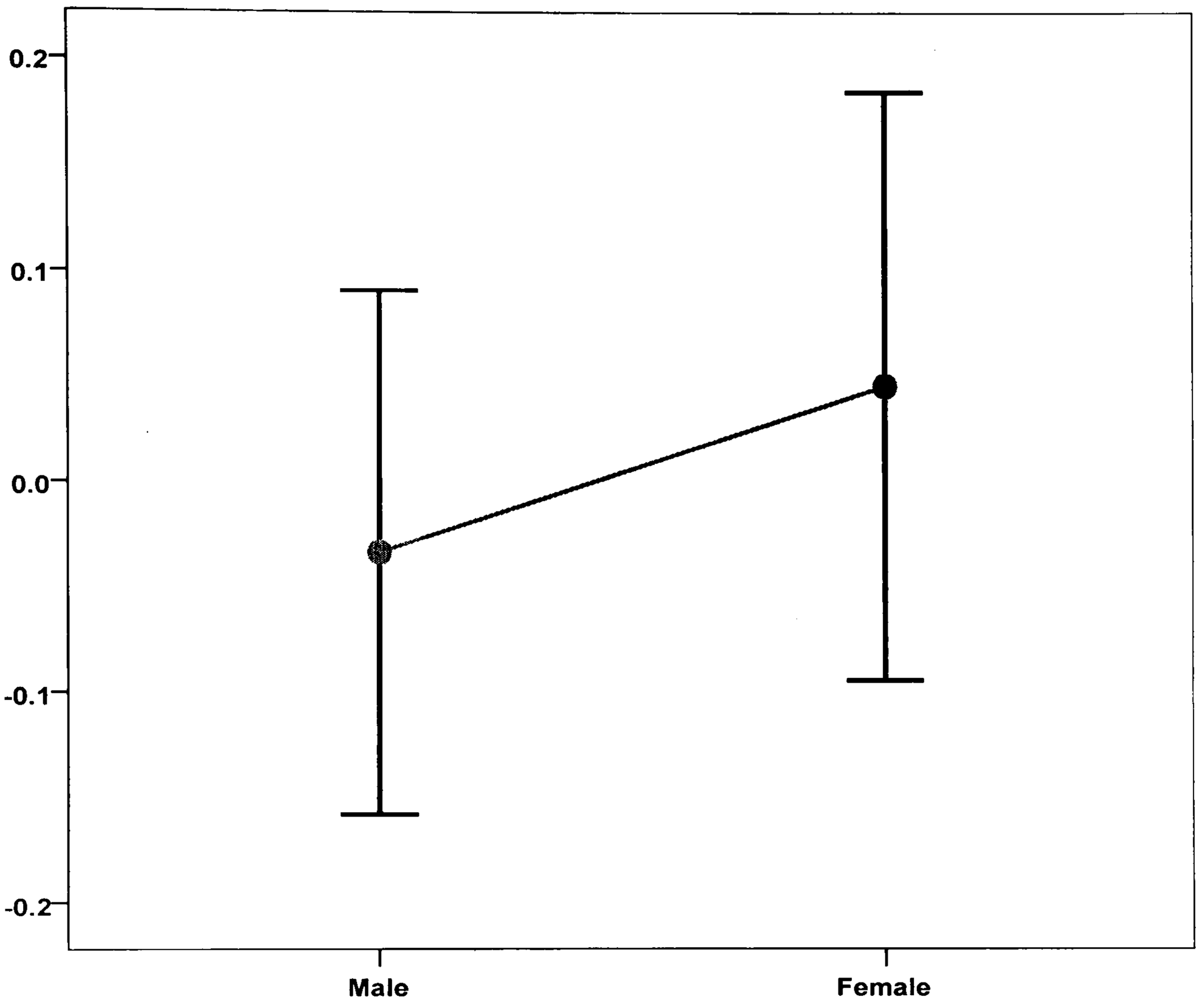
III. Gender.

As mentioned earlier, gender is classified into two discrete groups (male and female), difference, not correlation, between these groups according to their perception of the e-services should be assessed. This is explored in the next section using error bar.

Analysis of gender with usability and the four current stages of e-services shows that there is no difference between males and females in the current services offerings: Inform,

Intercommunicate, and Individualize, apart from Interact, where women appear to rate a more positive level of satisfaction as shown in figure 6.12.

Figure 6.12 Gender and Interact stage



The fact that women appear to rate a more positive level of satisfaction for the *Interact* stage suggests the need for further exploration.

Figure 6.13 Gender and Integrate stage

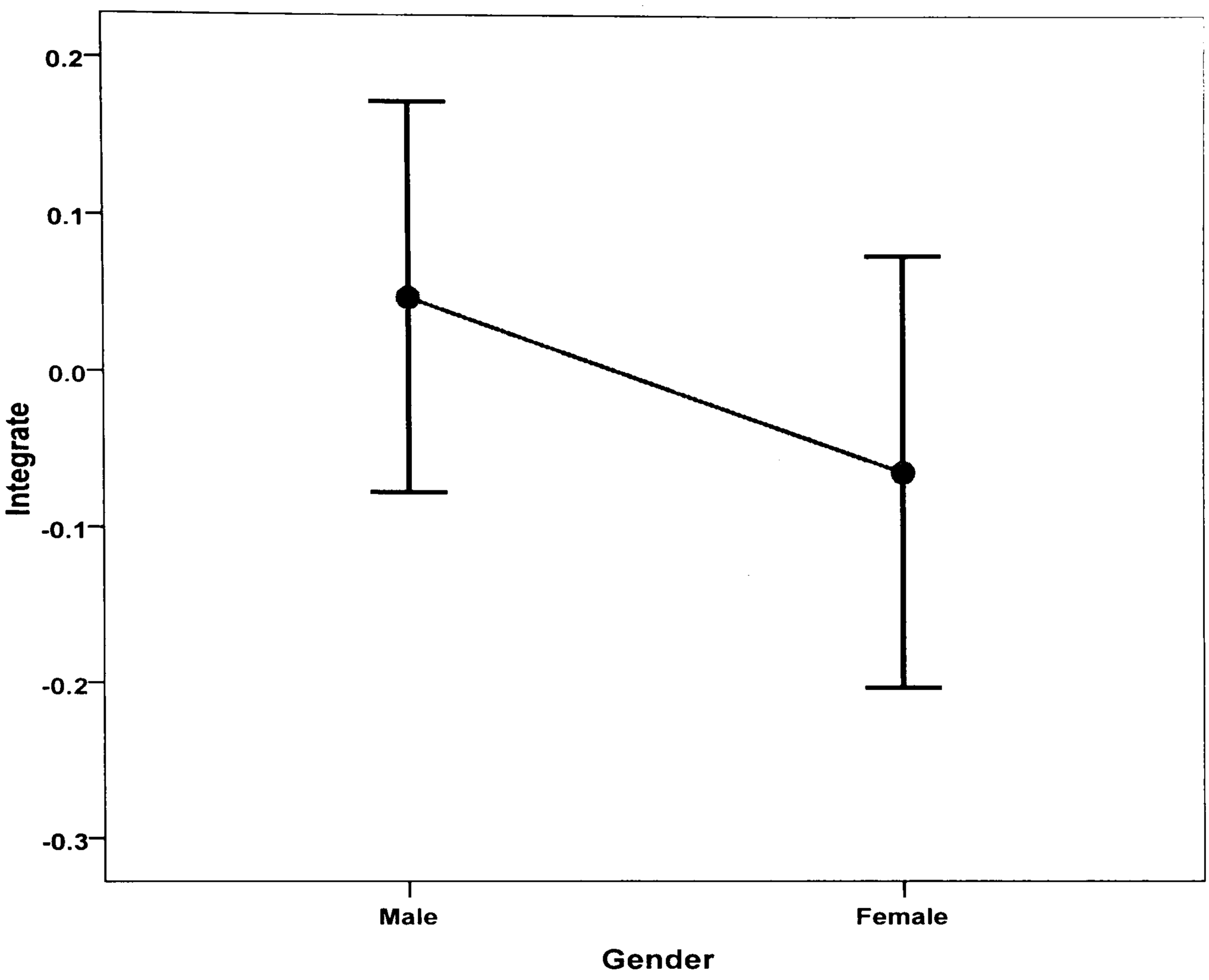


Figure 6.13 shows the analysis of gender with desired status. Overall, there does not appear to be a significant difference between male and female for all the stages. However, the significant difference revealed for the current stage (*Interact*) and the desired stage (*Integrate*) needs further exploration to see what the nature of the difference is. A possible explanation or direction for investigation might be derived from a social and cultural perspective; since males not females in the Jordanian society are usually the ones who deal with the governmental agencies to conduct transactions, for example, paying bills, obtaining certificates, etc., it is more likely that they look forward to changing the traditional way of handling these governmental transactions through having a one-stop-shop via *Integrate* to make their task more convenient.

There are a few studies that address the gender differences in public e-services adoption and use in general in developing countries, for example, (Akman et.al, 2005; Islam, 2005), both have reported that there are differences between males and females in the use of public e-services. According to these studies, men are most likely to use public e-services than women. However, neither study has referred to the certain stages of the public e-services, nor they have clarified where that difference lies in terms of the purpose of using public e-services. The findings of this research suggested that differences between males and females in the Jordanian context can be found in two particular stages (Interact and Integrate), which appears to suggest that those need further exploration, which could be of a qualitative nature.

The use of the graphic error bar charts enabled having a clearer description of the relationship between the users' evaluation of the public e-services and their demographic characteristics. It also confirmed the results that were obtained earlier using the bivariate analysis.

6.6 Summary

The results reported in this chapter revealed that users of the public e-services in Jordan were satisfied with some of the current status of the e-services and not happy with others. Yet, that did not prevent them from wanting better public e-services. Some users were also found to have negative evaluation of the usability of the e-services.

A review of the available literature confirms that this is the first in-depth study within the Arab countries, and more specifically within the Jordanian context, A report by OECD (2007: 10) points out that there is "a lack of evaluation culture" of e-services within the

Arab countries. This study takes a step towards that direction of creating an evaluation culture by accounting for the users' evaluation of the public e-services; according to their stages, which are suggested by the proposed 6I model. To the best of our knowledge, this study would be the first to investigate what is affecting the e-services' adoption and use, not for the organizations but for the users themselves. In doing so we are tackling how in reality the e-services are designed and provided for citizen-centric approach.

Moreover, this study is also concerned with the usability as the overall way of evaluating the level of satisfaction from again the users' perspectives. Although, there are some studies that address the issue of usability of public e-services within the Arab countries for example (Abanumy et al., 2005). Nevertheless, this study differs that it accounts for the users' evaluation rather than depending on different methods and tools to evaluate the public e-services and to see whether these e-services meet the requirements of these tools. Therefore, the findings provide a valuable contribution to the body of knowledge within the Jordanian context. They suggest some practical and theoretical implications for public e-services implementation and development, which are to be discussed later in this thesis.

The next chapter explores the barriers that hamper the development of e-services in the Jordanian context from the providers' perspective. More specifically, the next chapter will look into the barriers to e-services implementation or /and development from the providers' perspective.

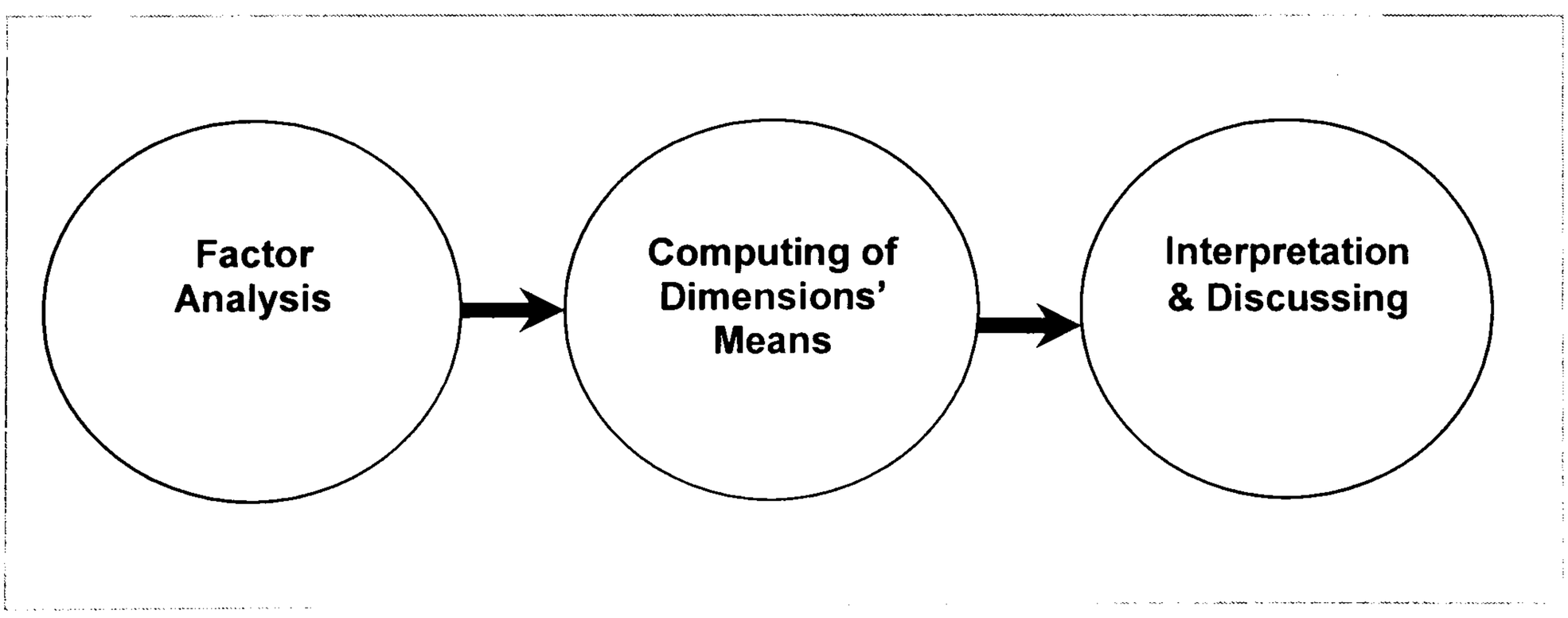
Chapter Seven:

Analysis of Providers' Perception of E-Services Barriers

7.1 Introduction

This chapter presents an analysis of providers' perception of the barriers that impede the implementation and the development of the e- services within the Jordanian context. In the first part of this chapter factor analysis was used to assess the appropriateness of the questionnaire that was adopted from the Oxford Internet Institute (2005), to determine the barriers that impede the development of e-services from providers' perception. Further analysis involved computing of means of e-services barriers and their order and proportions according to their prevalence within the Jordanian public organizations. An interpretation and discussion of the results are also provided by the end of this chapter.

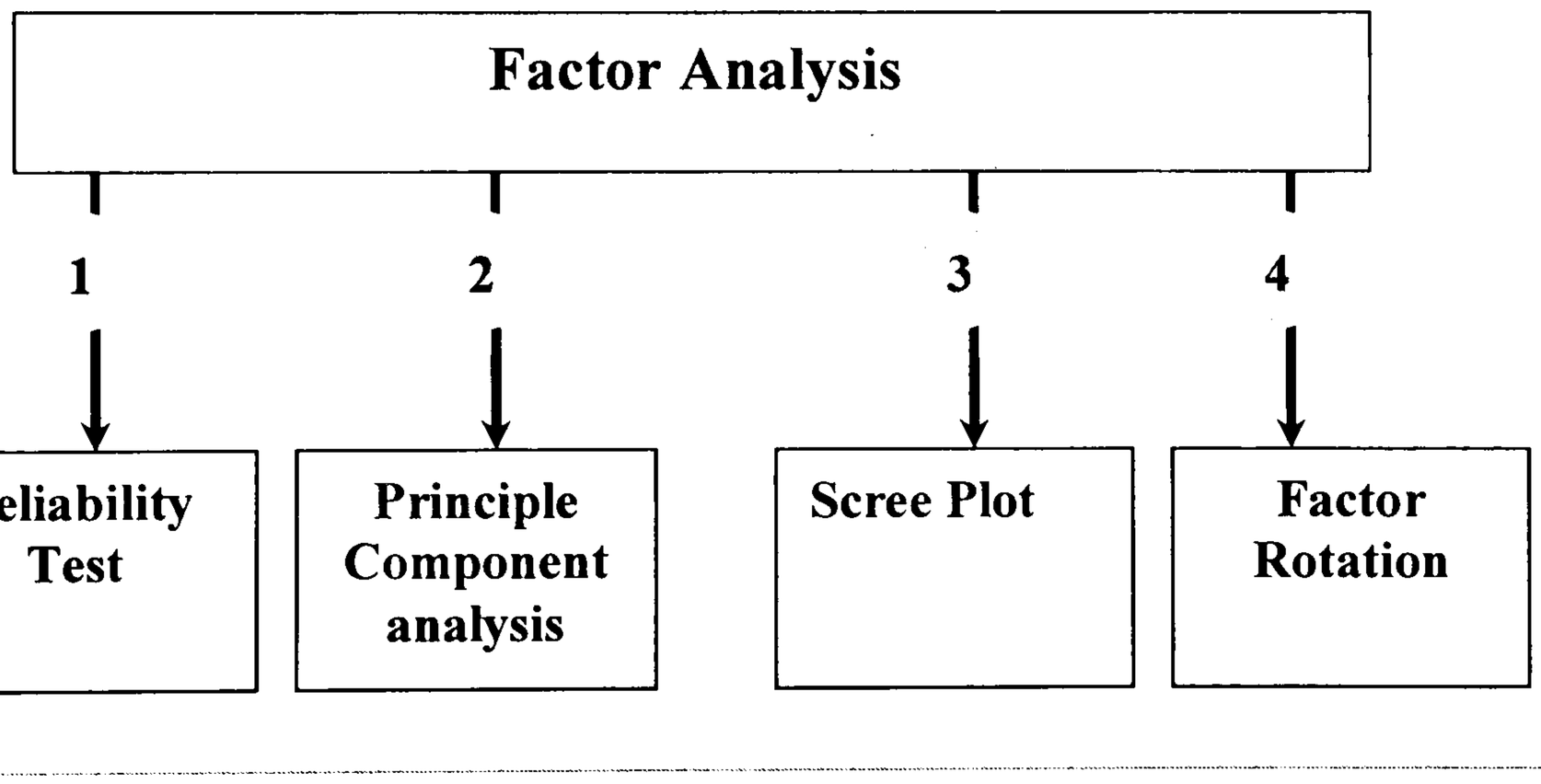
Figure 7.1: Main analysis process of providers' Perception of E-Services Barriers



7.2 Factor Analysis

Factor analysis is a technique used to determine whether groups of indicators tend to cluster together to form distinct groups, referred to as factors, sometimes it is also used to establish whether the dimensions of a measure (a questionnaire) which are expected to exist can be confirmed (Bryman, 2008). In this research, factor analysis was employed for two purposes: Firstly, to manage in an effective and reliable way the relatively large set of data which is composed of 14520 pieces of data, which consists of 30 questions and 484 respondents. Secondly, to identify the barriers' dimensions, which hinder the e-services development within the Jordanian context. Figure 7.2 shows the stages of extracting the dimensions of e-services barriers using factor analysis.

Figure 7.2: Stages of factor analysis to extract dimensions of e-services barriers



The use of factor analysis confirmed the existence of five barriers (Policy, Economic, Skills, Technical, and Organizational) suggested earlier in Chapter 4. However, to assess

the reliability of this questionnaire, Cronbach's alpha test was used. (see Ch.6. section 6.3.1), according to this test, alpha (α) which indicates the reliability of this questionnaire = 0.86. This was considered as an acceptable level of internal reliability, as the rule of thumb is that the result should be 0.80 or above (Bryman & Cramer, 2008).

7.2.1 Five Dimensions of E-services Barriers

The research suggested the existence of five different barriers to the implementation and the development of e-services. These barriers are: Policy barriers in which the concern is over legislations that do not infringe civil liberties. Economic barriers, these refer to the shortage of resources or funds for adopting, implementing, and developing e- services. Skills barriers, those are related to the lack of skilled staff and users. Technical barriers, these are mainly concerned with the unreliable IT infrastructure in public sector organizations. Finally, Organizational barriers which are related to the government's business process, management strategy, organizational culture, etc.

To assess the internal reliability of the items that measure each dimension, the correlation between each item and the total score of its dimension was obtained through the examination of the component matrix using principle component analysis. The loadings of the items (questions) on the general factor that represents all the five dimensions mentioned earlier, are shown in table 7.1. All the 30 items were found to have higher loading than 0.20 which was considered as a salient loading that is also supported by the relatively large sample size (484 participants) used in this research (Green et al., 2000).

Component Matrix a

	The General Factor
(Q1)	.470
(Q2)	.416
(Q3)	.443
(Q4)	.437
(Q5)	.449
(Q6)	.597
(Q7)	.485
(Q8)	.432
(Q9)	.413
(Q10)	.611
(Q11)	.627
(Q12)	.480
(Q13)	.544
(Q14)	.509
(Q15)	.556
(Q16)	.549
(Q17)	.384
(Q18)	.531
(Q19)	.588
(Q20)	.570
(Q21)	.493
(Q22)	.572
(Q23)	.529
(Q24)	.584
(Q25)	.647
(Q26)	.475
(Q27)	.560
(Q28)	.537
(Q29)	.526
(Q30)	.570

Extraction Method: Principal Component Analysis
a. 5 component extracted.

Table 7.1 Loading of items that represent e-government barriers.

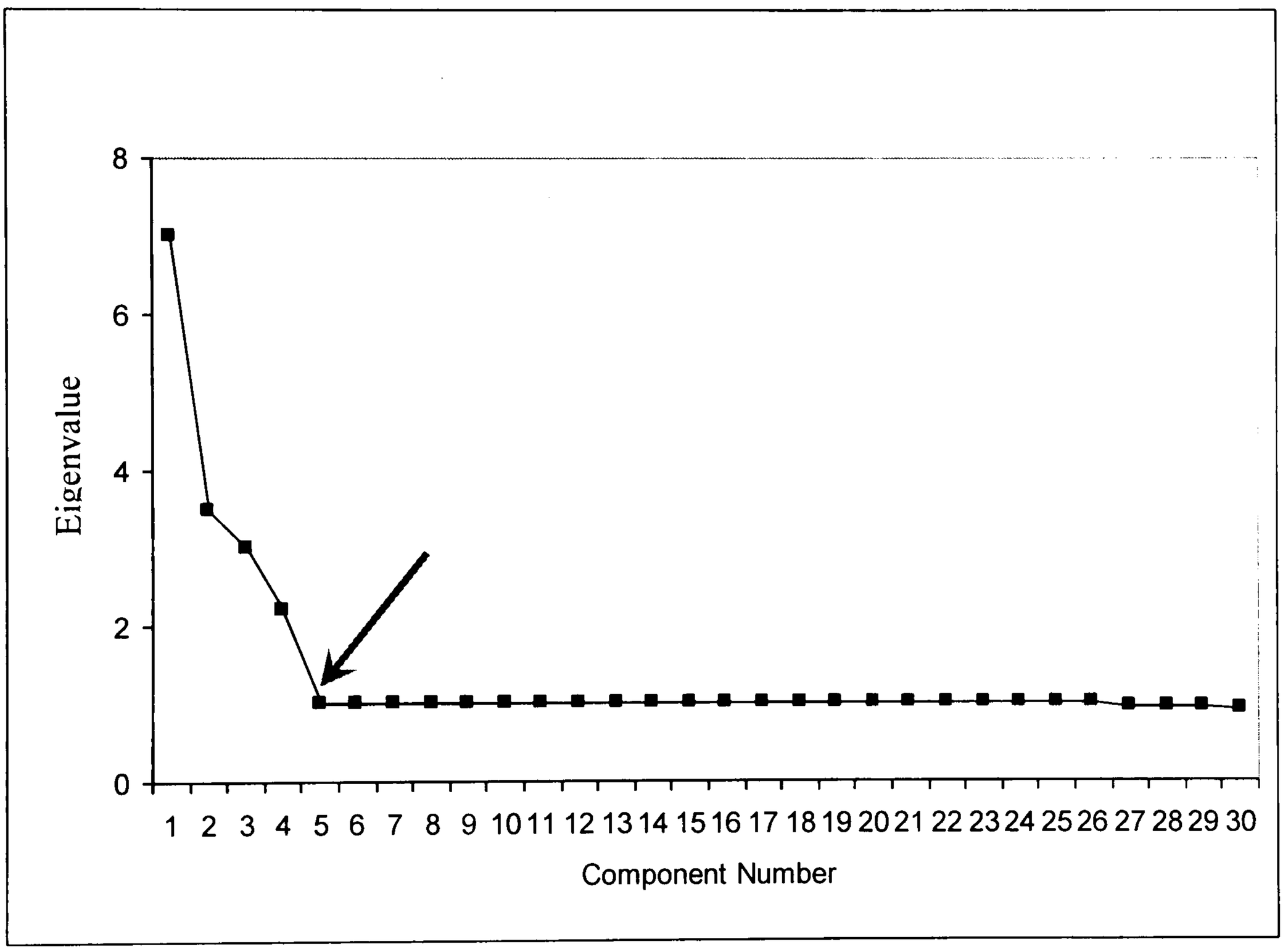
7.2.2 Scree plot

The next step is to decide how many factors should be retained for the subsequent analysis.

This was done through the use of the scree plot, which helps in providing a visual criterion, which illustrates the extraction of five dimensions before the curve begins to flatten out.

Figure 7.3 shows those five dimensions (five e-services barriers) that were extracted using the scree plot technique before the curve starts to straighten out.

Figure 7.3: Scree plot test – Five dimensions.



However, the choice of these factors is also based on previous theoretical knowledge, and on the assumption that with a sample of more than 200 participants (484 in this research) the scree plot provides a fairly reliable criterion for factor selection (Stevens, 1992).

7.2.3 Factor Rotation

The other technique that was used to determine the number of the factors that should be kept for the subsequent analysis is factor rotation, which clarified the factors or the five dimensions of the e-services barriers, and reduced any overlapping between them. It also increased the interpretability of these barriers. *Varimax* rotation method was used first (see Ch.6. section 6.3.4). However, items or variables which correlate less than 0.3 with a factor are omitted from consideration (Bryman & Cramer, 2008). *Varimax* rotation of the 30 items (questions) that constitute the questionnaire used in this research produced five factors of e-services barriers'. However, no significant differences were found when using (*Oblique*) or correlated factors method of rotation.

Table 7.2 represents the results of the loading of each item (variable or question) on its factor. It means that these items under economic barriers are clustered together because they could be measuring economic barriers. The same can be said about the other items (questions), which are also clustered under each type of e-services barriers because each group of them is measuring the same aspects which are related to the e-services barrier it belongs to.

Rotated Component Matrix[a]

	E-Services Barriers				
	Policy	**Economic**	**Skills**	**Technical**	**Organizational**
Q1		.732			
Q2		.776			
Q3		.758			
Q4		.711			
Q5		.725			
Q6		.710			
Q7			.756		
Q8			.741		
Q9			.770		
Q10	.847				
Q11	.870				
Q12				.675	
Q13				.758	
Q14				.701	
Q15				.718	
Q16				.699	
Q17				.583	
Q18			.697		
Q19			.687		
Q20			.707		
Q21	.662				
Q22	.580				
Q23	.545				
Q24	.587				
Q25	.875				
Q26					.522
Q27					.630
Q28					.734
Q29					.726
Q30					.755

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 5 iterations.

Table 7.2 Loading of each item on its e-services barrier dimension

7.3 Factor Analysis Outcome

The outcomes of this analysis confirm that five factors have been identified. They are Policy, Economic, Skills, Technical, and Organizational.

Policy Barriers	Economic Barriers	Skills Barriers
10. Public perception of risks to privacy and civil liberties. 11. Public concerns over potential for online theft and fraud. 21. Differences in laws and regulations across ministries. 22. Absence of clear data protection guidelines for sharing of information. 23. Heightened risks of liability. 24. Shortage of regulation and legislation within the e-government framework. 25. Differences in administrative traditions and processes within JGOs.	1. Cost of implementing and developing e-government services. 2. Cost for government of providing services through multiple channels (e.g. over-the-counter, mail, TV, phone, SMS, email and Internet). 3.Increased costs for governments of meeting laws and regulations relating to e-government 4. Cost of training programs in ICT in public sector. 5. High cost of internet. 6. High cost of PC.	7. Low level of Internet use among certain groups (e.g. relating to age, literacy, education, etc.) 8. Low level of ICT skills among citizens. 9. Low level of ICT skills among government officials. 18. Absence of local suppliers of certain high-end application. 19. Lack of technology/web staff. 20. Lack of technology/web expertise.

Technical Barriers	Organizational Barriers
12. E-government applications are difficult to use. 13. Lack of secure electronic identification and authentication. 14. Lack of interoperability between IT systems. 15. Lack of common entry point of government websites. 16. Lack of a citizen centric focus of e-government services. 17. Lack of infrastructure.	26. Resistance to change by government officials. 27. Absence of coordination between government entities. 28. Lack of political officials support for e-government. 29. Wish to avoid changing services that already work well. 30.Short-term policies due to political ministers changing

Table 7.3 Classification of the items according to the e-services barrier they represent.

For subsequent analysis, and in order to represent a composite of all items loading on each barrier, and to avoid the representation of a single item from each barrier, the mean of all items that measure each barrier were computed and used to examine the order and proportions of the identified e-services barriers. Since the number of the items that measure

each barrier differs, the use of mean instead of the total score can eliminate any bias concerning the different number of items, which represent each barrier.

7.4 Examination of the E-Services Barriers

To explore the relative importance of the aforementioned identified barriers, further analysis was performed; this included computing of the mean of the items that represent each barrier and comparing them together, since we were using a scale of 1-5; the normative mean would be 3.

Table 7.4 shows the means of the identified e-services barriers. Clearly, the table shows that all the barriers are closely grouped together around a mean of 4, which means that there is no significant difference between them.

E-Services Barriers	Mean
Technical Barriers	4.17
Organizational Barriers	4.02
Economic Barriers	4.00
Policy Barriers	3.95
Skills Barriers	3.93

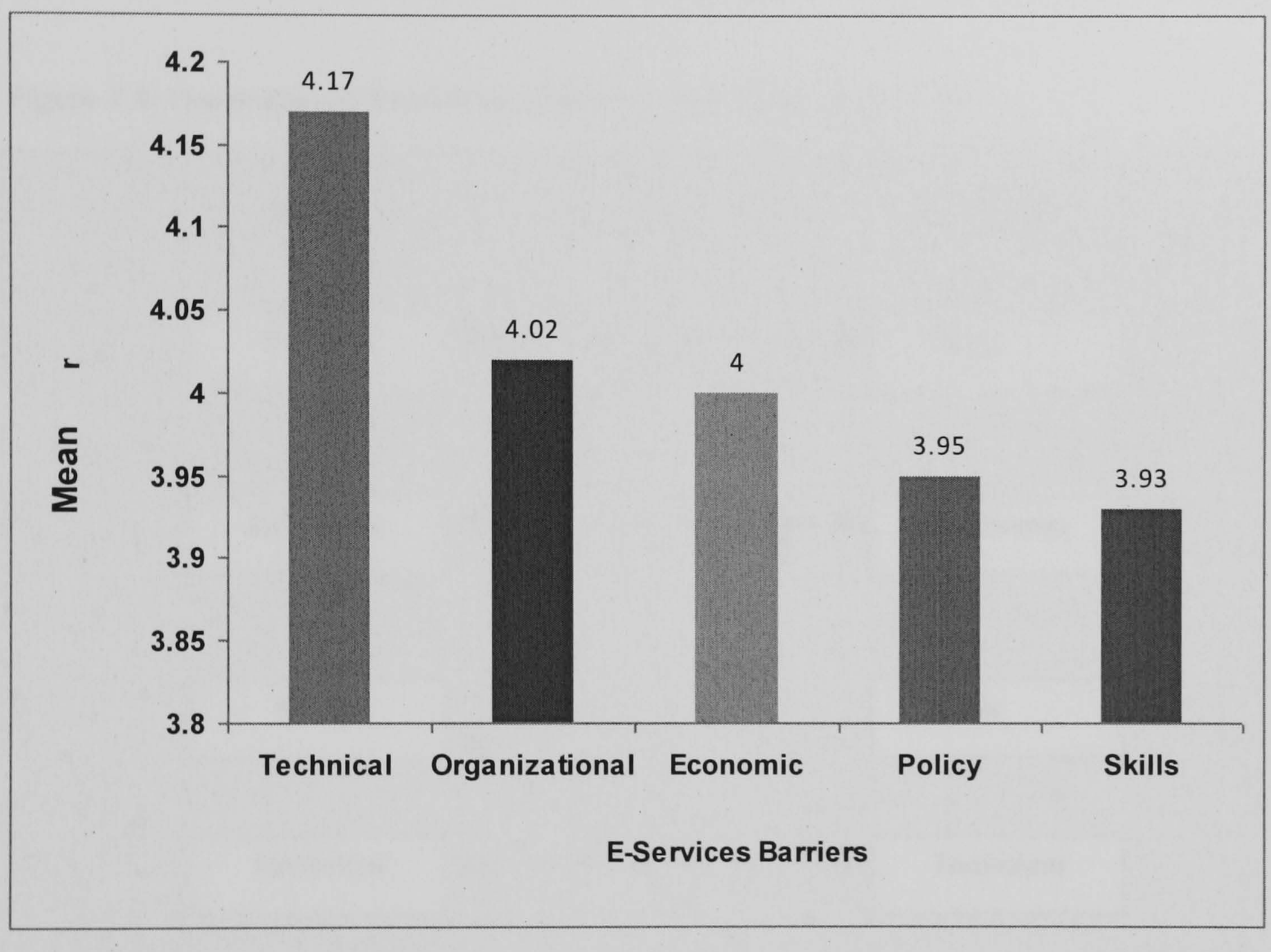
Table 7.4 Means of E-Services Barriers

A bar chart or bar diagram was used to allow us to see data series relationships and make comparisons based on multiple categories. The bar chart presents a column for the number or percentage of cases relating to each category (Bryman & Cramer, 2008). In this research it is used to plot means of the different barriers.

The bar chart (figure 7.4) provides a pictorial display of the frequency distribution for the e-services' barriers, and illustrates the structure and the order of them within the research

context. The results suggest that the Technical barriers are seen as marginally more important (4.17). Though, clearly, both Organizational and Economic barriers were close: (4.02 & 4, 00) respectively, while Skills and Policy barriers came last with (3.93 & 3.95) respectively.

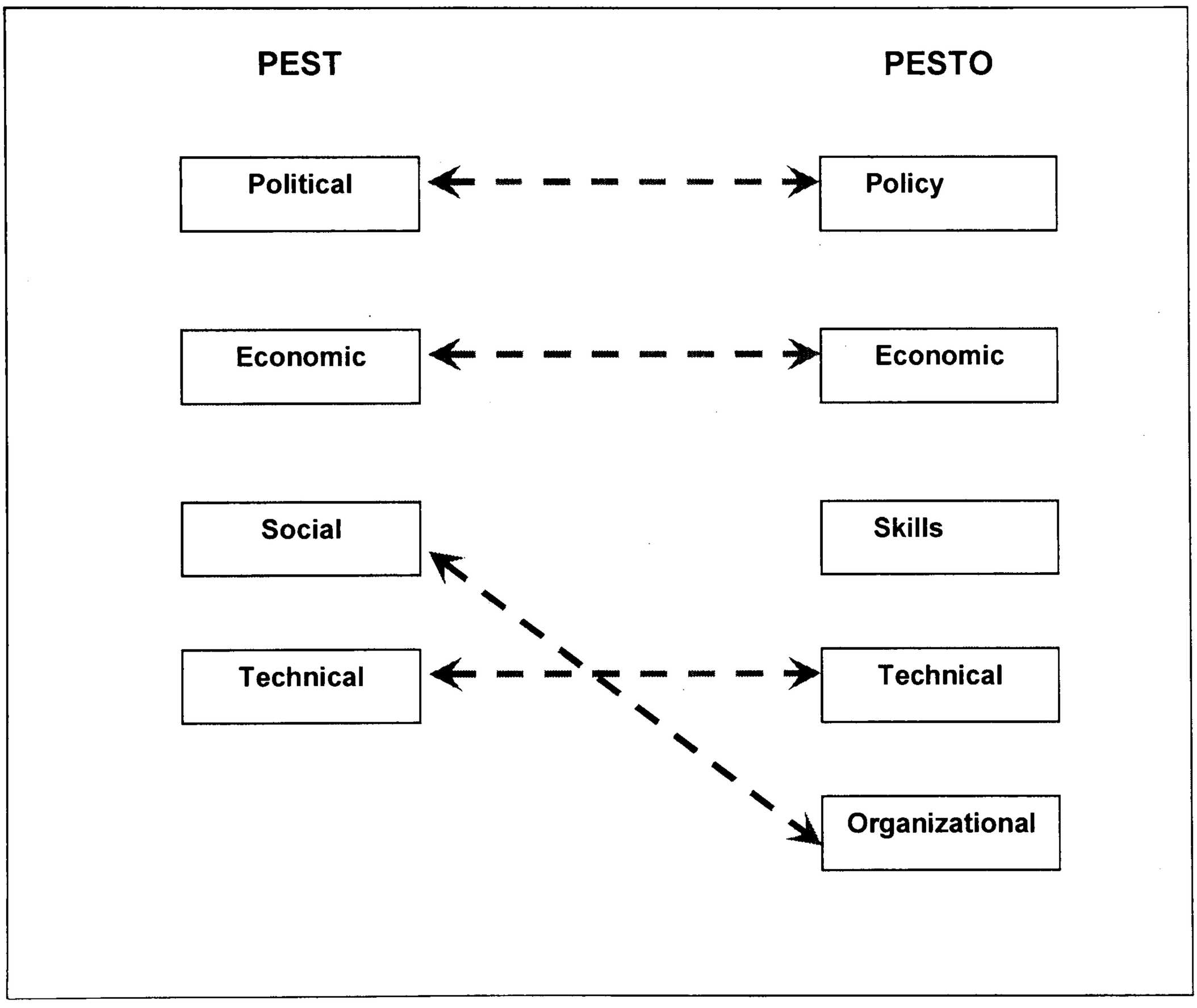
Figure 7.4: Bar Chart that shows the order of the e-services barriers in Jordan



Next, we present an explanation of these results within the framework that we suggested earlier to encompass all these different barriers: PESTO: that stands for Policy, Economic, Social, Technical, and Organizational. This framework resembles the PEST (Political, Economic, Social, and Technological) factors' analysis framework or tool, which was originally designed as a business environmental scan that helps to analyse the external macro environment in which business operates (Jan 2002; Johnson et al., 2008). In the same way, we consider it crucial to understand the factors that will probably affect the

development of e-services. PESTO, which stands for similar factors that affect business, with the addition of skills, which is absent in PEST but is relevant to understand the barriers to e-services; because the level of expertise or skill stands clearly as a strong indicator of the quality of services, and, as has been argued in the literature of e-services in developing countries, skills barriers are one of the most significant barriers to e-services implementation and adoption (Ho, 2002; Basu, 2004; Ndou, 2004; Dada, 2006).

Figure 7.5: The proposed framework PESTO in comparison with PEST



7. 5 Discussion of e-services barriers through PESTO

The above results identify the different e-services' barriers within the research context according to the perceptions of the providers of these e-services. The computing of the means of these barriers shows the perceived importance of each of the barriers within the research context. Employees of Jordanian Governmental Organizations (JGOs) have perceived the technical barriers to be marginally more important than the other barriers in impeding the e-services' development. Other barriers have also been seen as important as they hamper the e-services' progress to different degrees, the barriers that have been seen as the least in affecting e-services' progress are the skill barriers.

However, to understand the importance of the barriers to e-services' implementation and development within the Jordanian context, it is necessary to understand that these barriers are the outcome of different factors that affect the national strategy of e- government in general, and consequently the provision of e-services, in particular. Following is a discussion of these barriers within PESTO framework.

7.5.1 Policy Barriers

Policy barriers were found to be significant within the Jordanian context. Policy can be defined as "a set of interventions from policymakers to policy implementers that spell out both goals and the means for achieving them" (Nakamura & Smallwood, 1980: 13) or "a set of ideas and the practical search for institutional arrangements for their realization" (Hjern, 1987: 3). The lack of clear strategies that would guide the process of transformation from traditional regulations to electronic environment is an important impediment (Schware & Deane, 2003). In the Jordanian context although the transformation of public services

into e-services under the paradigm of e-government is supported by the political leadership of King Abdullah II, the government comes short of translating that support into tangible results. For example, the government has enacted the Electronic Transaction Temporary Law No. 85 (ETL 85) in the year 2001 (Al-Ibraheem & Tahat, 2006). This law is applied to all electronic transactions, records, and signatures, where it is decided to adopt and use electronic means. However, this does not mean the exclusion of the application of traditional law. This is observed when many e-services that are related to the life cycle were excluded from this law by insisting that they must be conducted physically, for example, notifications regarding contract detachments of water, electricity and insurance, initiation and modification of a will, and notifications of decelerations, and procedures and pleadings and court judgments (Al-Omari & Al-Omari, 2006). This in effect hinders the development of e-services that are citizen-centric. Therefore, more supportive acts, legislations, and regulations are still needed to facilitate change and help guide implementation of e-services in Jordan (Al-Omari, 2006).

Moreover, within the Jordanian context the issue of privacy intersects with security issues, so whereas Jordanians are worried over their right of privacy when conducting a public e-service, and how the government would use their private details, the government, on the other hand, is concerned that the unfettered access to public information and e-services would undermine national security, and thereby social stability as Al-Omari (2006) and Al-Ibraheem & Tahat (2006) point out. Moreover, they consider that Jordan has missed great opportunity to effect the online activities by not incorporating protection instruments and principles regarding transparency, security, privacy, and protection of online activities.

This lack of adequate online regulations of privacy and how it undermines users' trust of the e-services was emphasised by a senior employee, who was interviewed, and stated that:

"If we want to increase users' acceptance and utilization of e-services, we should address more adequately the privacy concerns; it is the only way to build users' confidence and trust in e-services."

7.5.2 Economic Barriers

In the Jordanian context, the economic barriers were found to be significant. This is highly justified in a country that has middle income and scarce natural sources (Al-Jaghoub & Westrup, 2003). The financial barriers to the development of e-service have received much attention in the literature, for example (Ho, 2002; Irani et al., 2003; Ebrahim & Irani, 2005; Heeks, 2006) all these studies, among others, have pointed out that the transformation of services to e-services through the adoption of e-government requires a huge budget to install, operate and maintain the systems, pay the IT consultant, and train the public personnel. However, this is usually faced with shortage of financial allocations in the public sector. In Jordan, this barrier becomes visible when we realize that Jordan is a country with very limited resources, 95% of its government budget comes from loans and grants (Ciborra & Navarra, 2005).

However, the services sectors accounted for around 49% of GDP in 2003, with the IT sector contributing USD$295 million, or 2.9% of GDP according to INTAJ (Int@j, 2007), this, however, has increased according to a recent report by The Jordan Times (2008a) which shows that the Jordanian information and communication technology revenues accounted for 12 per cent of the gross domestic product (GDP). This could be due to the fact that the government, which is the principal domestic client, is implementing a number

of e-initiatives. Yet, the virtually total dependence on external funds implies a great risk; for if the external funds decrease for one reason or another, the government will not be able to afford the expensive expenditures of the e-services' provision. This fact is highlighted by one respondent, who states that:

"*Although there are scarce financial resources in Jordan, the government has allocated a huge budget for the e-services development, however, if the process of developing the e-services is not managed financially well, we are at the stake of losing the trust of our donors when they realize that all we do is in fact perpetuating the old practices of poor project management.*"

7.5.3 Skills Barriers

Although many initiatives have endeavored to make the Internet part of the Jordanian social and cultural life at a national level, skill barriers were found to be a significant barrier in the Jordanian context. Many initiatives that have been undertaken to tackle this problem, for example: PC@ every home, launched in 2004 aiming at raising Internet penetration by removing the barrier of possessing a PC barrier especially for the deprived areas. Another example is the Knowledge Station Initiative, launched in 2000 and its main purpose has been to enable segments of the Jordanian society, irrespective of their locations or economic status, to acquire the necessary new age ICT skills. Another initiative was directed towards the public sector employee is ICT Literacy Program, which provides the opportunity for the employees to be trained on worldwide proven and accredited standards in IT education, such as: ICDL, Cambridge training course, IT fundamentals, file management, word processing and computer networking and the Internet (MoICT, 2006b). Although the effects of such initiatives are to a certain extent tangible, the fact remains that a huge digital divide still exists within the Jordanian context; this digital divide can widen the skill barriers among the various stakeholders. One of its causes is due to the low level of the Internet penetration among the Jordanian citizens; this is because no policy has been

in place to reduce the costs of broadband Internet access (Ciborra & Navarra, 2005). Actually Jordan's Internet prices are amongst the highest in the Arab region because the government imposes a sales tax of 16% on Internet, apart from the actual Internet prices that depends on the Internet speed (The Jordan Times, 2008a). In a nutshell; Internet in Jordan is available only to those who can afford it (Jordanian Telecommunications Regulatory Commission, 2008). This fact becomes understandable if we take a look at the annual income in Jordan. According to the latest survey that was conducted by the Department of Statistics (Dos) between the years 2002 and 2006, the annual income per person, on average, is JD1, 082 (The Jordan Times, 2008b), that is a GDP per capita of $ 2.850 which is relatively low (USAID, 2007). Another survey by the Department of Statistics (Dos) has shown that around a third of Jordanian households have PCs, but only 16 per cent of these are connected to the Internet, that is only 5.7 percent of households access Internet (The Jordan Times, 2007). Therefore, to a large proportion of the Jordanian society the Internet becomes unaffordable, which could unquestionably impede the use of the Internet and consequently the e-services. A respondent confirmed this conclusion by stating that:

"The high prices of the internet are incompatible with the government tendency to create an e-society; if the prices will stay the same, we cannot expect the public to use the e-services effectively and constantly. The e-services use would not become part of our cultural practices if we cannot afford it."

Another cause for the digital divide is the lack of the necessary skills among certain groups of people, like the elderly, language–limited persons, less-well educated (Bonham & Seifert, 2003). All these factors could also be applicable to the Jordanian context making the digital divide widespread and can seriously hamper the utilisation of the e-services. Donini (2006) argues that although Jordan endeavours to avoid a growth of a digital divide

that rests on a social, cultural, or geographic basis, the self-evident fact that such a goal remains a simple declaration of intents, with no binding force. This might explain why the lack of skills is considered a barrier since socio-economic factors mean that a significant portions of the Jordanian citizens lack computer skills and will remain on the margins of e-services' use.

7.5.4 Technical Barriers

Technical barriers were found to be the most significant barriers to the development of e-services within the Jordanian context. Although Jordan has made promising steps in building IT infrastructure that would support its adoption of e-government and provision of e-services, such as the e-government models that were adopted by MoICT, which are well aligned with the current models of e-government in Western countries (Ciborra & Navarra, 2005), there are, however, many challenges within the IT infrastructure (Al-Jaghoub & Westrup, 2003) that would make it another barrier. These challenges are: the problems of incompatibility, implement solution, system interoperability and data exchange between the Jordanian Ministries and the government agencies that are attached to each ministry, so while ministries are using the latest state–of–the-art technologies, their related agencies are using refurbished PCs (Ciborra & Navarra, 2005). Another challenge is the lack of an adequate civilian telecommunications "backbone" network nationwide (Al-Omari, 2006). Moreover, the lack of IT experts is another related issue here. Ciborra & Navarra (2005) argue that the lack of high qualified specialists in IT in the public sector means that the ultimate say on the design of the infrastructure would be that of the vendors, thus any breakdown is likely to seriously hinder the functioning of the broken e-service. In addition, any downgrading in the level of the security of the region may provoke the sudden evacuation of key experts and maintenance personnel, as it has recently happened with the

Iraq war. Moreover, Al-Jaghoub & Westrup (2003) point out that although Jordan invests heavily in ICT education and training to produce suitable workforce for an emerging ICT sector, this does not reflect much change because once people are trained and have gained experience, they are attracted outside Jordan where much higher wages are available.

7.5.5 Organizational Barriers

Organizational barriers were found to be very significant within the Jordanian context. Like most of the developing countries the public institutions in the research context are part of a larger chain of command and control in which there are levels of political decision making. Moreover, any national institutionalisation of e-government, and hence e-services usually includes the establishment of steering committees with the role of setting clear responsibilities and mandating for e-government development. However, e-services development in most Arab states has so far been largely project-based (Salem, 2007). The lack of coordination and integration between the different agencies, and the existence of different visions and attitudes threat the very essence of the effective and efficient implementation of e-services. In Jordan, there are still limited efforts of public sector organizations reforms (Al-Omari, 2006), a lack of proper institutional framework and operational leadership to drive e-services reduce government capacity to effectively coordinate and implement e-initiatives according to Ciborra & Navarra (2005). Another important barrier that is related to organizations is the resistance from the employees. Resistance before and during the use of new IT systems is a major reason for e-initiative failure in organizations. Initial forms of apathy and passive resistance such as indifference, lack of interest, and complaints could develop into more hostile forms of resistance to change the legacy governments such as: active resistive behaviors to stop system use (Lam,

2005; Ebrahim & Irani, 2005; Phang et al., 2008). However, Jordan is not an exception, when it comes to the various forms of human and institutional resistance, it is like most of the countries world wide where fear of job losses or anxieties about work and organizational restructuring could affect the employees' attitudes toward the implementation of e-services, this, in effect, would result in diminishing the efforts to make e-services part of the organizational culture. According to the European Training Foundation (ETF, 2005), Jordanian people prefer working in the public sector for the benefits it offers, such as: secure employment, favourable working hours, attractive retirements, social security benefits and high social statues. Therefore, it becomes expected that public sector employees will resist any change, and more specifically the transformation of traditional services to e-services in their organizations, because they fear that such a change will undermine their jobs' roles, or even cost them their jobs. Consequently, the organizational barrier becomes an important obstacle to the e-services' implementation and development.

7.6 Summary

For Jordan, the political will of King Abdullah II is an important component in policy terms so that the enouncement of ETL 85 provides support for electronic transactions but in practice hinders the development of citizen centric e-services.

Similarly, absence of adequate privacy regulations does not engender trust in e-services. In financial terms, it appears that the management of financial resources is a significant barrier. Skills and Technical barriers appear to be highly inter-related in that the level of Internet penetration clearly impacts the skill level of the Jordanian citizens, it is further

accentuated by the lack of ICT skills, though clearly the various initiatives are attempting to bridge this gap in skills.

In line with other developing countries, and indeed, most of developing countries the organisational barriers identified in the PESTO analysis appear to be the same. Clearly, resistance by employees that ICT could impact their life is related to their understood anxieties over job loss. However, a further prevalent component in Jordan and other countries is the lack of an institutional framework, operational leadership to coordinate and implement e-service effectively.

In summary this chapter has identified a framework incorporating five main impediments: Policy, Economic, Skills, Technical, and Organizational (PESTO). In contrast to most of the work in barriers to e-services this research empirically connects these barriers with the perceptions of providers to validate the proposed framework to the Jordanian context, which provides a rich interpretation and discussion of the results.

The next chapter investigates the state of play in Jordanian e-services. The chapter will reinforce the multi-view approach adopted in this research by accounting for both the users' and providers perceptions. It will also present an interpretation of the results in the context of the Jordanian e-government services.

Chapter Eight:

The State of Play in the Jordanian E-government Services and the Interpretation of Results

8.1 Introduction

In this chapter, an evaluation of the state of play in the Jordanian e-government services is presented to account for the two perceptions of e-services within the research context, which were presented earlier in chapters 6 and 7 for the users' perceptions and providers' perceptions, respectively.

An overview of the ICT strategy in Jordan, the emergence of the e- initiatives, the e-government project, and more specifically the public e-services are discussed. Then an analysis of these e-services in the proposed conceptual framework, the 6I model, is conducted.

8.2 ICT in Jordan

From the start of 1999, Jordan has taken some major steps towards transforming the country into an e-country, and towards being a part of the international ICT sector. Jordan believed that one solution that could be used to develop the country and overcome its limited resources was to join the global economy and promote sustainable human development by transforming Jordan into a knowledge-based economy (Al-Jaghoub & Westrup, 2003). The ICT initiatives in Jordan started with the REACH initiative, which is the most significant step towards a realistic goal in developing ICT. The REACH initiative is a marriage of the public and private sectors working together to create a dynamic and

workable plan. REACH stands for and embraces actions in the following areas: (REACH, 2001: 3).

1. Regulatory Framework

2. Enabling Environment and Infrastructure.

3. Advancement of National IT Programs.

4. Capital and Finance.

5. Human Resource Development

The initiative was the core of an ICT programme intended to transform the country to e-Jordan. It promised to play a central role in economical and social improvement of the country. REACH laid out a goal to bolster Jordan's nascent IT sector and maximise its ability to compete in local, regional, and global markets (Nusseir, 2001). To comply with REACH targets, Jordan undertook major ICT programmes; one of them has been e-government, through which e-services are to be developed and provided. The next section discusses the main public e-services initiatives that have been deployed within the Jordanian context.

8.3 ICT Initiatives in Jordan.

8.3.1 Role of MoICT.

MoICT has undertaken various ICT initiatives in cooperation with other ministries, donor programs, and private sector in Jordan. These initiatives aim mainly to increase awareness of the advantages of using ICT, enable all the different segments of the Jordanian society to participate in the information society, bridge the digital gap, integrate ICT in the daily lives of the Jordanian people, and ultimately improve the economic, social, and cultural prospects for all citizens. MoICT (2006b) lists some of these initiatives:

•**National Technology Parade:** This initiative aims at unleashing the potential of ICT students in providing technology solutions to challenges facing businesses, governments, civil society, and local communities in different areas of the world. The National Technology Parade held its first Annual Technology Parade in May-2008, in which more than a thousand students from leading Jordanian universities worked on designing and implementing innovative, technology-driven projects to be showcased during the event.

•**The e-Village Project:** The "e-Village" seeks to address the need to increase the capacity, awareness and economic opportunities of rural women in the field of information and communications technology within the villages of Lubb and Mleih (located in the Jordanian city: Madaba), as a model to bridging the country's digital divide through a gender-mainstreamed approach. The 'e-village' has formed a prototype in Lubb and Mleih, in which the range of its activities will be expanded and will be replicated in other areas of Jordan.

•**Laptop "Note Book" for every University Student:** This initiative aims to bridge the country's digital gap and support the usage of ICT tools in the educational process by providing a laptop for each university student in the Jordanian public and private universities at an affordable cost along with providing internet access and wireless technologies.

•**University Broadband Network Utilization:** This initiative provides the universities with the best solution for using the network, helps them to gain the maximum benefit from the network, and makes sure they get access to all the information available on the network concerning the educational material that exists.

•**Knowledge Station Initiative**: The "Knowledge Station" initiative enables all segments of the Jordanian society, irrespective of their geographical location or economic status, to acquire the necessary new age ICT skills that would allow them to enhance their socio-economic capabilities.

•**Capacity Development of Micro and Small Size Enterprises through ICT – Shabakat Tawasol:** The aim of the "Capacity Development of MSEs through ICT" project is to assist local enterprises from the areas of implementation in the cities of Zarqa, Irbid and Al-Balqa in strengthening their work processes and improving their business practices. The targeted beneficiaries are provided with a new set of technology based skills and applications, and they are guided on the integration of ICT tools into their work processes to enhance their performance, and improve the quality of their products and services.

•**Jordan e-Government**: The main thrust of this initiative has been the development and implementation of improvement strategies throughout government with emphasis on servicing Jordan's main national asset: its people by the provision of efficient and effective services.

Table 8.1 summarises the target group, the time frame, and the implementation status for each of the aforementioned initiatives. It shows that the aim of all these initiatives is the inclusion of all the different segments of the Jordanian society. Some of these initiatives have been completed, while others are still in the process of implementation.

ICT Initiative	Time Frame	Target Group	Implementation Status
National Technology Parade	Phase 1: 2007-08	Universities Students & Professors	On going
The e-Village Project	--------	Women in rural areas; Women entrepreneurs; Students, teachers and parents; Community centres in the two villages; Lub and Mleih Village residents; Jordanian ICT sector; General public	Planning for Phase II
Laptop "Note Book" for every University student	Four years	Public and Private Universities Students	On-going
University Broadband Network Utilization	2005	All 8 Public Universities of Jordan	Implementation
Knowledge Station Initiative	Launched 2000	Community members	Implementation
Jordan e-Government	Initiated end of November 2000	-Government is a holistic approach to enhance services offered from government to government (G2G), government to citizen (G2C), government to employee (G2E) and government to business sector (G2B).	Implementation
Capacity Development of MSEs Through ICT – Shabakat Tawasol	18 months(2007-08)	Local Micro and Small Size Enterprises (MSE's), Local youth , Knowledge Stations (KS): increase awareness of services provided by KS`s and contributing towards it's impact and financial sustainability.	On-going

Table 8.1: E-Initiatives in Jordan.

8.4 Jordanian Public E- Services Projects

E-government is a national programme initiated by His Majesty King Abdullah II in September of 2000. The Ministry of Information and Communications Technologies (MoICT), previously known as the Ministry of Post and Communication (the Ministry was renamed in the year 2003) started the e-Government programme towards achieving the e-government vision in the year 2005. The vision was that e-Government would be a contributor to Jordan's economic and social development by providing access to e-government services and information to everyone in the Kingdom irrespective of location, economic status, IT ability and education (MoICT, 2006a). E-government represents a major shift in the role of government towards the 'client-focused' or 'citizen-centric' delivery of services, rather than government as a collector of information solely for its own purposes. The national strategy of the Jordanian e-government initiative according to the MoICT (2006a) aims at the following:

1. Improve government performance and efficiency.

2. Ensure public sector transparency and accountability.

3. Enhance Jordan's competitiveness.

4. Reduce costs and increase ease of interaction with government.

5. Develop skills within the public sector.

6. Boost e-commerce activities.

7. Improve information security.

8. Promote development of Jordan`s ICT sector.

When the Jordanian government started the project deployment, it identified seventeen domains as the major domains for the e-government initiative. These domains included economics, education and training, health, industry, etc. Jordan focused on an initial set of

programs to serve as 'building blocks' for e-Government in what was called '"Fast Track" Vertical E-Services' (MoICT, 2006c); an initiative that aims to provide e-services in the following departments: Drivers and Vehicles Licensing Department, Income Tax Department, General Sales Tax, Department of Lands and Survey, Companies Control Department, and Telecommunication Regulatory Commission. These projects were chosen because of their high value but low risk, they would also deliver services to large segments of the society setting a positive example of e-Government. This was followed by the 'E-Services Wave 2 Project', which has resulted in the identification of priority cross-organizational e-services at national level. Further iterative prioritization exercises have led to the selection of 75 priority e-services. Some of these e-services include: Issuing visas and residency annual permits, registering individual institution , registering life events and amending civil status information, issuing Jordanian passport and extending its validity, issuing and renewing vocational license, issuing certificate of no criminal record, issuing and renewing work permits for foreign workers, and issuing certificate of origin. Moreover, there was the 'Shared Service Priorities' a project that aims at contributing to the establishment of a required bundle of services for expediting e-government in Jordan. Major steps achieved are related to the following Shared Services: e-Government Portal, e-Government Contact Center, Payment Gateway, Public Key Infrastructure, Secure Government Network (SGN), as well as the e-Government Enterprise Federated Architecture (MoICT, 2006c).

Table 8.2 presents the category of e-services within the Jordanian context.

Entities item	E-Government Program	Ministries /Public Stakeholders	Political Stakeholders
Vertical services	• Coordinate the prioritization of e-services with other entities • Provide government entities with a prioritization tool to prioritize their respective vertical services • Provide support services to government entities.	• Identify their top 3-5 priorities in terms of vertical services to migrate from traditional to e-service • Implement these vertical services.	• Provide political support. • Approve the vertical services priorities and agree on the selected vertical services to be implemented at national level.
Cross organizational services	• Portfolio management for cross organizational services • Provide leadership, sponsorship and high level management for cross-organizational services • Select services to be implemented by the Program, with the objective of implementing quick wins	• Implement the services that fall under their scope.	• Provide political support. • Provide direction and approval for the priority cross-governmental services.
Shared services	• Exercise ownership over shared services.	• Use shared services as a preferred option.	• Provide political support

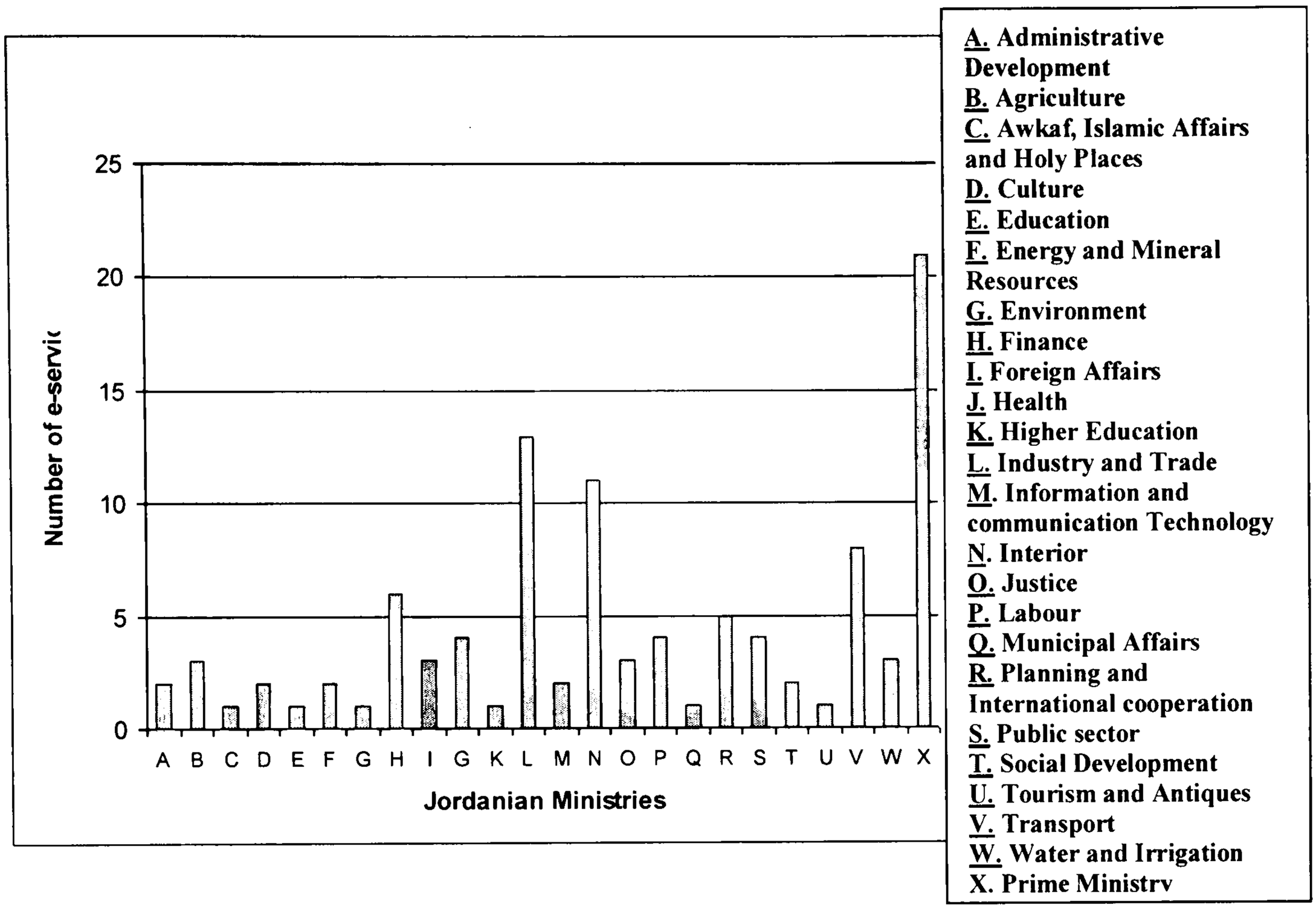
Table 8.2: Category of e-services (MoICT, 2006c).

8.5 Classification of Jordanian Public E-services

The official site of the Jordanian e-government www.jordan.gov.jo has a link directory that lists 143 different e-services in total. These different kinds of e-services are presented through organizations or departments that are attached to 24 main ministries. Some of the ministries have as few as five or less whilst larger ministries have as many as twenty or more. Our evaluation of these 143 e-services that are presented through the official Jordanian e-government site revealed that it has some inactivated e-services. However, another link directory that we found is provided by the site of the Embassy of the Hashemite Kingdom of Jordan, Washington, D.C. http://www.jordanecb.org/default.shtm which lists the actual activated e-services. This could be explained in terms of presenting a reliable picture of the public sector for two main reasons: the first is concerned with attracting foreign investment, while the second, we believe, is to present a reliable overall picture of the Jordanian public sector's activities in the United States, which is the major donator of financial loans and grants to the Jordanian government.

Figure 8.1 shows a graphic presentation of the number of e-services within each ministry.

Figure 8.1: Number of e-services presented by each Jordanian Ministry



The classification of the e-services under these 24 ministries helps to clarify the general purpose of the provision of each specific e-service. Table 8.3 that illustrates some examples of departments within ministries is shown next.

Classification of e-services' domain	Example Ministries/Departments	URL
Economic	Department of Income & Sales Tax.	www.incometax.gov.jo
	Customs Department	www.customes.gov.jo
	Companies Control Directorate	www.ccd.gov.jo
Education and Training	Ministry of Education	www.moe.gov.jo
	Ministry of Higher Education and scientific Research	www.mohe.gov.jo
Health services	Jordan Food and Drug Administration	www.jfda.jo
Registration records domain	Driver and Vehicle Licensing Department	www.dvld.gov.jo
	the Civil Status and Passport Services	http://www.cspd.gov.jo
	Civil Service Bureau	www.csb.gov.jo
	Border and Bureau	www.rbd.psd.gov.jo

Table 8.3: Classification of e-services' domain

8.6 Analysis of the Jordanian Public E-services into the 6I Model

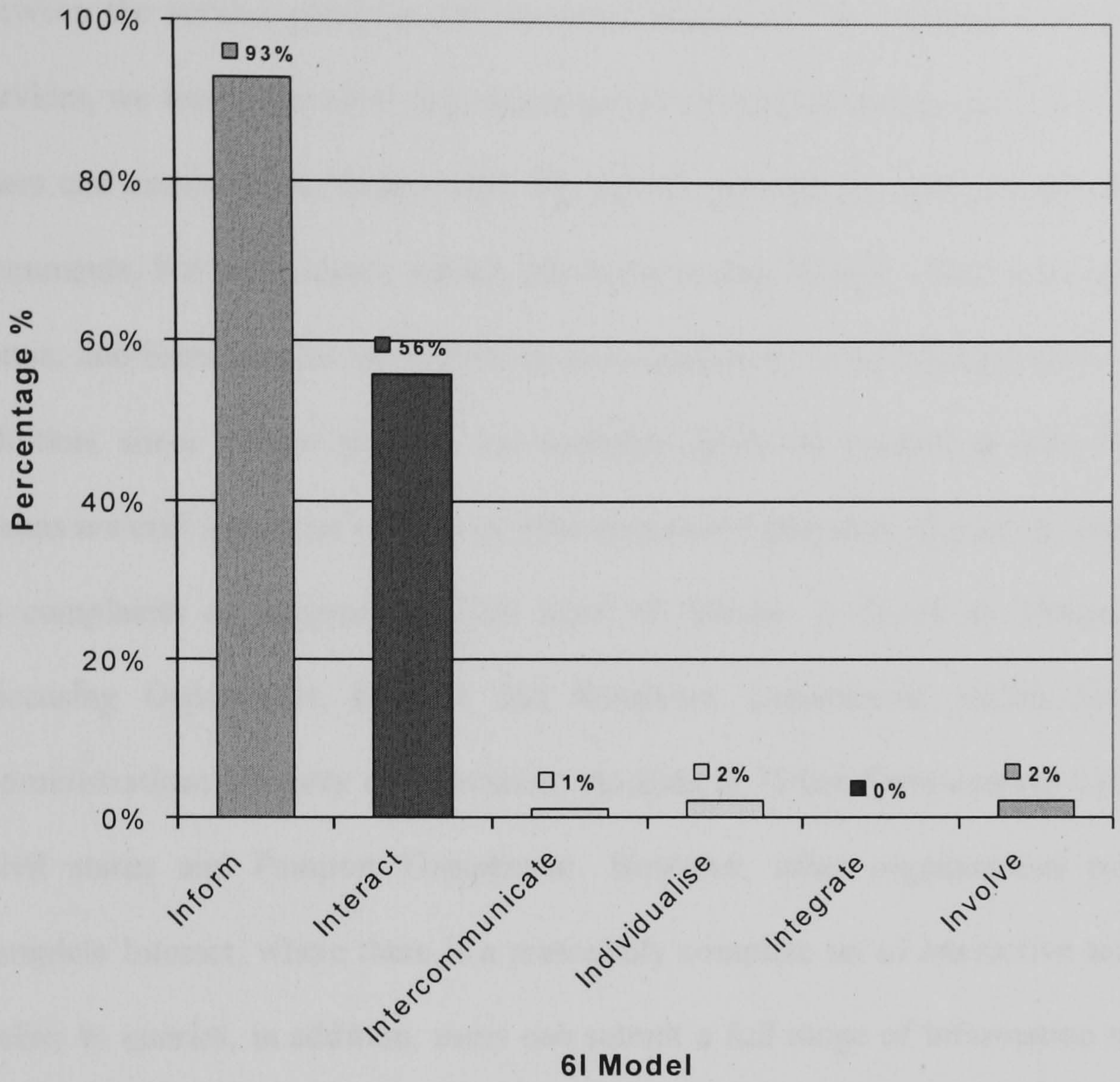
The e-services within each ministry were evaluated using the 6I maturity model framework to determine at which stage(s) of the 6I maturity model each e-service is situated, and to compare the actual state of the e-services with the users' and providers' perceptions on the other hand, which were presented in the previous two chapters. This was done by analysing each of the online government services and assessing how many of the stages of the 6I maturity model framework have been incorporated into the online resource. Whether any of the stages exist or not was easily identified except for Interact, in which an email was sent to each e-services provider to find out the availability of that stage (Hjouj Btoush et al., 2009). First, a summary of the 6I maturity model is presented in table 8.4 to recapitulate the main characteristics that each stage conveys.

State	6I Model Stages	Characterization of e-services
Current	Inform	Provides content that informs the user, ranges from formal, limited static content to dynamic specialized and regularly updated information.
	Interact	Two way communication in which interaction flows between government and users via ICT features range from downloading information to email communication possibility using security technique like keys password...etc.
	Intercommunicate	Carrying out and completing transaction online. This may range from filling and updating forms electronically to processing payments and issuing of certificate. A complete chain of activities or transaction.
	Individualize	Allows users to be identified and /or services to be personalized, so that services that are offered are tailored to the individual's needs.
Desired	Integrate	Combines different separate services ranging from clustering of common services to a unified and seamless service (So that the parts are hidden from the user)
	Involve	Promotion of citizens' participation and empowerment. This can range from survey to voting to focus groups, and opinion polls. This could have either direct or indirect influence on decision-making and policy shaping.

Table 8.4: A summary of the 6I maturity model.

Figure 8.2 represents the summary of the investigation, which aims to show the percentage of the e-services within the Jordanian public sector that have achieved one or more of the 6I maturity model stages. This figure shows clearly that the majority of the ministries have the Inform and the Interact stages, whilst very few of the ministries have the latter four stages of maturity. Furthermore, none of the examined e-services has the Integrate stage, where the user can have a seamless e-service in a one-stop-shop manner.

Figure 8.2: Percentage of e-services that have achieved one or more of the 6I maturity model



The detailed evaluation reveals the following: it was found that nearly all the e-services (93%) under the different domains have the Inform stage, which means summary information about the service is available on-line, for example, contact numbers, office locations and hours of operation, a general description of the service, and regulations or legislations about the department that provides the e-service. In addition, processes are being considered to ensure that on-line information remains well-managed, that it remains accurate and up-to-date, like for example the "Recall and Alerts" facility in Jordan Food and Drug Administration, which provides the latest information about different related issues such as banned food or drugs.

The second stage Interact (56%) of the e-services have this stage, where communication between the service provider and the users begins, in our evaluation of the previous e-services, we found that some organizations provide partial Interact of e-services, where the users can communicate online with the service provider by downloading basic forms or documents, but they cannot submit the forms online. Beside, there is no confirmation of status, and users receive the details of any outstanding issue through offline resources. In addition, some interactive tools are available online to respond to queries, but off-line means are still important sources of information and guidance, like for example responding to complaints or suggestions. This kind of Interact is found in: Driver and Vehicle Licensing Department; Borders and Residence Department; Jordan Food and Drug Administration; Ministry of Education; Housing & Urban Development Corporation; and Civil status and Passport Department. However, other organizations provide full or complete Interact, where there is a reasonably complete set of interactive tools to respond online to queries, in addition, users can submit a full range of information relating to any issue that needs confirmation of status, and receive online response to their submission. Users can also complete and submit forms online, as in the following e-services: Department of Lands & Survey, Greater Amman Municipality, Civil Service Bureau, Ministry of Higher Education and Scientific Research, Department of Income & Sales Tax, Customs Department, Jordan Investment Board, Companies Control Directorate, and again the Ministry of Education that has full as well as partial Interact facilities.

For the third stage, which is Intercommunicate (1%) of e-services achieved this stage where users can carry out and complete transactions online. This may range from filling and updating forms electronically to processing payments and issuing of certificate. In

evaluating the previous Jordanian public e-services, it was found that only the Income & Tax department provides the Intercommunicate stage; where the user can complete a binding Intercommunicate in real time. The user of this e-service can fill a self-assessment application to know the amount of the required taxation immediately. Users can also update their records to include any changes of personal information; they can as well apply online for exempt taxation. Moreover, this e-service allows the e-payment option, and users can get an electronic receipt online. In providing such a high quality of e-service, Jordan is perhaps like all the governments around the world, sees the collection of taxes as a highly important issue that needs a higher level of e-service.

The fourth stage of the 6I maturity model is Individualize, here we have found that (2%) of the public Jordanian e-services has this stage, one as mentioned earlier can be found in the Income & Tax department, which was launched in 2005, that is just two years before our survey took place in 2007, the other Individualize stage is found in Greater Amman Municipality, which has been recently added in 2008, which means after our survey took place. However, in both of these organizations, this stage allows users to create their own personalized file and save their information, so they do not need to refill the same information each time they use the e-service. The users can also update or modify their personal information or records.

No tangible online Integrate was found in our evaluation of the Jordanian public e-services. Although Jordan Investment Board focuses on the concept of one-stop-shop to encourage foreign investors to start their projects in Jordan, it facilities the visa application online, all the needed forms for licensing and registering the new projects can be downloaded, but the whole process is not done fully online, investors have to attach the required documents to

the filled forms and go personally to Jordan Investment Board, which will follow up the process with other agencies through off-line resources.

The other desired state is Involve. The users begin to participate in public issues, policy, and decision making. In our evaluation, we found that only two public organizations have the Involve stage. The first is: Companies Control Directorate and it asks users to rate the current companies' law. The other is Amman Greater Municipality, in which users are asked to give their opinions regarding the best way to solve the problem of the heavy traffic in the capital city Amman. (see appendix G for all e-services' evaluation).

In our larger study, in which we surveyed a large sample of users and providers, it was revealed, interestingly, that while users' perception of e-services in Jordan was mostly unfavourable with some current stages, in particular: Interact and Intercommunicate, this did not prevent these same users from aspiring to require/desire better e-services through desired stages of Integrate and Involve .

Our evaluation shows that the current status of the public e-services is perhaps as expected from a developing country in that off-line resources are still an important part of the public e-services (Heeks, 2003), the complete transformation to online services is not fully achieved and it does not even seem to be within hands for many public e-services, a fact that contradicts the announced national strategy by MoICT (2006a) for transforming traditional public services into e-services. The desired status of e-services, which includes Integrate and Involve, is far from being tangibly identified, no Integrate in which the users

conduct their e-services from one site or a one stop shop is found, whereas Involve is available in the form of voting. Yet, it is not clear enough whether this voting would have an impact on policy shaping and decision making.

8.7 Interpretation of Results

The providers' perception of the barriers hampering the improvement and development of public e-services may serve to point out the reasons that stand behind the ineffectiveness of most of the Jordanian public e-services. In chapter seven, it was revealed that the providers' identification of various barriers to the development of the e-services can explain why the public e-services are not providing much beyond the Inform and the Interact stages in most of the public organizations. For example, technical barriers, which were identified as the most important could be seen as an indicator of the quality of services' provision. This could be a strong explanatory factor for the absence of effective e-services beyond the Inform stage.

From our analysis and description of the barriers it is evident that there is a shortage of skills, resources, and infrastructure, therefore, it is not surprising that the state of e-services is relatively immature: i.e. all at Inform stage and half at Interact, while a very small presence of other stages could be confirmed. In relation to the providers' perception of e-services, we are able to say that the framework we have put forward is a strong analytical tool that could enable providers to assess the effects of these various barriers.

In interpreting users' satisfaction with the actual state of maturity of e-services in Jordan we have noted that nearly all services have an Inform stage and it would appear that the

discerning users, those with higher level of education and ICT expertise, have low perceived level of satisfaction of the Inform stage. This is clearly a very positive result for the Jordanian e-government services.

The perceived level of satisfaction with the other current stages: Interact and Intercommunicate is clearly between low to moderate. Arguably, this is problematic for the Interact stage, in particular; since this stage is present in over half of the e- services and it is, therefore, likely, based on actual experience of using e-services.

However, the negative perceived level of satisfaction for Intercommunicate is more likely to be based on the absence of such a feature rather than actual hands-on experience because only 1% of e-services provide it. It might have been better if we have asked the question whether they desired such e- service. The same can be said about the Individualize state which seems also to fall under the desired rather than the actual current status of the e-services within the Jordanian context.

Similarly, the very limited presence of Integrate and Involve validates our classification to ascertain from users their desire for these services, moreover, the strong desire of the more educated and more mature to want these stages necessitates the providers to seek ways that would ensure that e-services' provision can be tailored to meet these needs and expectations.

Moreover, the 6I maturity model has proved to be an important contribution that allows us to link the users' and the providers' perceptions of the e-services. The different six stages of

the model that convey a range of features enable us to get enrich insights of whether the e-services in Jordan have managed to achieve the G2C objectives that can be summarised in: providing users with versatile, efficient and effective e-services, improving the interactive communication between the Jordanian government and its citizen, and enhance the citizens' engagement in e-services and thereby their empowerment and involvement. However, the results of our evaluation of the e-services in the 6I model, which revealed that the e-services within the Jordanian context were far from being competent in the delivery of e-services, could be supported by these statements from two senior managers in two different governmental organizations, as the first one stated:

"*Jordan has launched several e-Initiatives at the same time. This has led to a loss of concentration and focus by the government on any specific initiative in spite of the fact that all the initiatives that have been introduced are completely new both to the Jordanian government and to Jordanian society*".

While the other manager stated that:

"*The Jordanian government did not have a well defined strategy for implementing e-government; one that responds to the country's and the people's needs and matches their profiles. Even when the government set up 'Fast Track Projects' they were imported from countries, which are leading the field in e-government and then applied to similar Jordanian institutions without ever trying to adjust them to suit the Jordanian context*".

These opinions justify the status of the e-services within the Jordanian context that was revealed through our evaluation of the public e-services in the 6I model.

8.8 Contributions of the research

One of the major implications of this research is for policy makers. Policy makers would benefit from the insight and information gained by this research as input to the development of policies in relation to e-services' provision and evaluation. Therefore, this research has the potential to allow policy makers in Jordan to be well-informed when developing and providing e-services initiatives. Moreover, the framework developed in this study, the 6I model, gives insights into what stakeholders perceive as important characteristics of e-services, this should influence policy maker to endeavour to provide e-services that are aligned to users' expectations and needs by keeping the focus of e-services' provision within the citizen-centric track. In particular, the research has the following contributions:

(I) It follows the strong tradition in Information System (IS) of taking a multi-stakeholder perspective, but it reaches its conclusion through strong empirical evidence.

(II) It is a major empirical study and the only piece of research looking into users' perceived level of satisfaction in Jordan and, thereby, provides a significant contribution to the field of e-government in developing countries. In particular, it 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.

(III) It reinforces, empirically, how the lack of skills, resources and infrastructure is a major barrier that could explain the absence of later stages of e-services.

8.9 Limitation of the Research

The study was constrained to Jordanian organizations; therefore, the conclusions drawn from this study may have a potential problem on generalisability. However, there is some evidence suggested that the differences of e-services' provision and evaluation issues among Jordan and other Arab countries, in particular, and other developing countries in general are likely to be minor. Although the results of this study are only drawn from the Jordanian context there might be similar results if a study was conducted in other Arab/ developing countries. Whether or not there are similarities and differences that are needed to be further investigated, it is acknowledged that cultural differences may have an impact upon the results, but these are beyond the scope of this research, and those issues could be addressed by further research.

Another limitation is the use of the quantitative methodology, and particularly questionnaire survey method of data collection, which tends to limit the researcher's ability to further interpret and explain the findings of the research. Therefore, some potentially interesting interpretation of the research context may be missed or excluded. Interpretation of some of the findings of this research would have been largely improved if greater contribution of qualitative approach was considered. These findings, which need further in-depth understanding and interpretation, are outlined next.

8.10 Recommendation for Further Research

One of the recommendations of this research is coming from an obtained result in chapter 6. That is, the lack of interest in the *Involve* stage among the more mature people which was identified earlier and ascribed to their lack of familiarity with ICT, or to the suggestion

that the more mature do not wish to engage because they are satisfied to leave it, or do not believe their involvement would be effective, either way, it is believed that this could lead to a very fruitful area of exploration, which would be better explored using a qualitative approach. Another result that was also obtained in chapter 6, wherein females appear to be more interested in the Interact stage while they show lack of interest in the Integrate stage could also be another area that needs further exploration.

The general recommendations could be in a replication of this study in other countries; particularly in other Middle Eastern countries which might give interesting insights especially that this study has accounted for the perception of both users and providers of e-services.

However, while much of extant e-government research focuses on developed countries, relatively few studies explored e-government in Middle Eastern Arab countries including Jordan empirically. These studies that underpin empirical approach to evaluate the state of play in Arab countries focused on the demand side; i.e. users of e-government services and they include: A study by Al-Shafi & Weerakkody (2007), in this study of e-government in the State of Qatar, citizens' perception of e-services were explored, the researchers found that e-services in Qatar have not fully transformed the way government deals with its citizens in terms of e-services' provision; meaning that off-line procedures are still playing an important role of all the 21 e-services provided so far.

In another empirical study of e-government in Oman, AlShihi (2006) surveyed a limited sample of e-government services' users, in his study he found that many e-initiatives in

Oman are still in their early stages, users in many cases have no awareness of what is provided online, moreover, he revealed that even the very initial stage of e-services, i.e. having a web-presence is not attained yet for certain ministries.

Finally, in an empirical investigation of public-centric e-governance in Jordan, Belwal & Al-Zoubi (2008) offered in their research citizens' perceptions of e-governance: in particular, issues of trust and corruption; however, in their research they point out that the basic e-government services that touch the daily life of the common man have not yet reached the transaction-oriented level. Moreover, they emphasise that the informational content remains unutilized in the absence of electronic payment systems and related regulations within the Jordanian context.

However, although these aforementioned studies point out similar results about the inadequacy of the state of play of the e-services in Arab countries, the comprehensiveness of our model is that it can be used to explain or accommodate the findings of these studies in the Middle East. In other words, our theoretical model confirms that the state of play of e-services in many Arab countries is still in the early stages of maturity, i.e. the *Inform* stage; so much more is still needed to be done in terms of providing better, more value-added and user-friendly services that meet the citizens' high expectations of e-government. However, the poverty of data concerning users' actual hand-on-experience of e-services in the Arab countries points out various areas that merit further study.

However, we believe that to boost the use of e-services in Arab countries, the services should be tailored around users' needs and expectations. This cannot be done if e-

government initiatives are developed and implemented in the absence of users' participations. Moreover, Instead of theoretically evaluating e-services in Arab countries through the well-known maturity models, the framework that is proposed in this research, which is in fact a synthesized maturity model, the 6I maturity model was used to evaluate empirically e- services from users' perspective and it can be used to identify users' perceptions in other Arab countries. The same could be applied on identifying the e-services barriers, again this study took a further step by evaluating empirically the barriers from providers' perceptions and analysing them through a proposed framework PESTO referring to Policy, Economic, Skills, Technical and Organizational. This also could be conducted in other Arab countries to gain in-depth and comprehensive picture of the barriers from the ones who are in real contact with services provision. The development of the systems, networks and infrastructure is necessary to make e-government work, but successful initiatives require the re-alignment not only of the government, but also of the social and cultural frameworks of the country. Thus stakeholders, the true representative of the social and cultural dimension of the country are the ones who should matter when providing and developing e-services.

The research on multi-view of e-services stakeholders is very important and useful for theory building as well as for practical implications. It does not only advance the literature but also provide a useful benchmark for real-world practice, as countries nowadays need to have e-knowledge societies to be part of the global economic world.

8.11 Conclusion

As the final chapter, this chapter provided an evaluation of the actual status or the state of play of the Jordanian public e-services using the conceptual framework: the 6I Model to account for the two perceptions of both the users and the providers of the public e-services within the research context, which were presented in the previous two chapters. It discussed the major findings of the research. Finally, the limitations of the research and recommendations for further research directions were outlined.

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Appendix A: The Questionnaire (User)

Overcoming Obstacles to expand effectiveness of e-government services:
A Developing country context

This questionnaire aims to evaluate the e-services in the JGOs and identify the barriers facing them within Jordanian Governmental Organizations. It is a part of comprehensive study to find out how the e-services are evaluated from different perspectives, what are the obstacles that may hinder their development and what could be the solutions for such obstacles. The whole study will be documented in a PhD research.

Your contribution is sincerely and highly appreciated and it is of crucial importance to the success of this research as well as to the contribution that this research aims to achieve in order to improve the implementation of the e-services which are introduced in the JGOs. Any information you provide will be confidential and will only be used for the purpose of this research.

The survey includes two sections. The first section is designed to obtain general demographic data. The second section is designed to evaluate the functionality and usability of the e-services.

e-service means ***"Delivery of public services to citizens, business partners and suppliers, and those working in the government sector by electronic media including information, communication, interaction and contracting, and transaction."*** (Buckley, 2003).

section One: General Information.

Please provide your age, and then check the blank that applies to you.

1. Age: ☐

2. Sex: ☐ Male ☐ Female

3. Highest level of education:

☐ High school ☐ Diploma ☐ Bachelors

☐ Masters ☐ Doctorate

4. Expertise with ICTs like the internet:

☐ Poor ☐ Fair ☐ Good ☐ Excellent

5. Usage rate of e-government websites:

☐ Daily ☐ Weekly ☐ Monthly ☐ Rarely

Section two: Users' evaluation of the functionality and usability of the e-services in JGOs.

Below are a series of statement. There are no correct answers to these statements. They are designed to allow you to indicate the extent to which you agree or disagree with the ideas expressed. Please check all items and place a checkmark in the space under the label, which is closest to your agreement or disagreement with the statements.

Statement	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
1. I can easily find the public e-service I need.					
2. I find the sites easy to learn to operate.					
3. I can easily use the public e-service.					
4. I find the sites easy to navigate.					
5. I find the sites easy to use.					
6. Phone/fax support was readily available when online help was insufficient.					
7. I can easily download an application form.					
8. I can easily get a feed back about the e-service when I need.					
9. The sites make it easy to communicate with the organization.					
10. The sites provide the information in different languages (Arabic, English).					
11. The services are tailored to meet my exact needs.					
12. Getting pre-filled forms where data about me is already filled is available.					
13. There is a possibility to create a short cut to the often used e-services.					
14. The sites provide accurate information.					
15. The websites provide up to date information.					
16. The sites provide believable information.					
17. The sites provide timely information.					
18. The sites provide relevant information.					
19. The sites provide easy to understand information.					
20. The sites provide information at the right level of detail.					
21. The sites present the information in an appropriate format					
22. I can update records online.					
23. It feels safe to complete transactions.					
24. I can easily fill a form online.					
25. My personal information feels secure					
26. Services will always be carried out as promised.					
27. I would like to be able to issue certificates online.					
28. I would like to get seamless services in one-stop shop.					
29. I would like to be engaged in forums, debates that promote the e-participation.					
30. I would like to be involved in decision making and policy shaping.					
31. I would like my comments to be considered and to have an impact on the presented e-services.					

Appendix B: Research sample and the number of distributed and collected questionnaires .

Organisation	Area	Distributed	Collected
1. University of Jordan	Amman	20	19
2. Jordan University of Science & echnology.	Irbid	20	15
3. Yarmouk University	Irbid,	20	18
4. The Hashemite University	Zarqa	20	14
5. Philadelphia University	Amman	20	18
6. Mu'tah University	Karak	20	20
7. Al-Balqa Applied University	Amman, Karak, Aqaba, Irbid, Tafila, Zarqa	70	60
8. Arab Academy for Banking & financial Science	Amman, Karak	20	18
9. Applied Science University.	Amman	20	19
10. Al al-Bayt University	Mafraq	20	20
11. Al-Hussein Bin Talal University	Ma'an	20	18
12. Zarqa Private University	Zarqa	20	17
13. Tafila Technical University.	Tafila	20	20
14. Princess Sumaya University for Technology.	Amman	20	18
15. Al-Isra Private University	Amman	20	20
16. University of Petra	Amman	20	18
17. Amman Arab University for Graduate Study.	Amman	30	28
18. Al-Ahliyya Amman University	Amman	20	19
19. The university of Graduate Studies	Amman	10	10
20. Internet Cafe	Amman, Karak, Aqaba, Irbid, Tafila, Zarqa, Salt	70	61
Total 90% Response Rate		**500**	**450**

Appendix C: Frequencies of demographic characteristics

Gender

		Frequency	Percent
Valid	Male	257	57.1
	Female	193	42.9
	Total	450	100.0

Age_ groups

		Frequency	Percent
Valid	<=20	73	16.2
	21 – 30	175	38.9
	31 – 40	144	32.0
	>40	58	12.9
	Total	450	100.0

Education level

		Frequency	Percent
Valid	High school	37	8.5
	Diploma	96	21.3
	Bachelors	229	50.9
	Masters	53	11.8
	Doctorate	35	7.8
	Total	450	100.0

ICT expertise

		Frequency	Percent
Valid	Poor	25	5.6
	Fair	78	17.3
	Good	227	50.4
	Excellent	120	26.7
	Total	450	100.0

Usage rate of e-Government website

		Frequency	Percent
Valid	Rarely	178	39.6
	Monthly	112	24.9
	Weekly	75	16.7
	Daily	85	18.9
	Total	450	100.0

Coding of demographic variables on the working file

Gender

Value	Label
1.00	Male
2.00	Female

Age groups

Value	Label
1	<=20
2	21 – 30
3	31 – 40
4	>40

Educational level

Value	Label
1	High school
2	Diploma
3	Bachelors
4	Masters
5	Doctorate

ICT Expertise

Value	Label
1	Poor
2	Fair
3	Good
4	Excellent

Usage rate of e-Government website

Value	Label
1	Rarely
2	Monthly
3	Weekly
4	Daily

Appendix D: The Questionnaire (Provider)

Overcoming Obstacles to expand effectiveness of e-government services: A Developing country context

This questionnaire aims to evaluate the e-services in the government and identify the barriers facing them within Jordanian Governmental Organizations. It is a part of comprehensive study to find out how the e-services are evaluated from different perspectives, what are the obstacles that may hinder their development and what could be the solutions for such obstacles. The whole study will be documented in a PhD research.

Your contribution is sincerely and highly appreciated and it is of crucial importance to the success of this research as well as to the contribution that this research aims to achieve in order to improve the implementation of the e-services which are introduced in the JGOs. Any information you provide will be confidential and will only be used for the purpose of this research.

The survey includes two sections. The first section is designed to obtain general demographic data. The second section is designed to obtain some data about the barriers facing the e-services' implementation and/or development.

Section One: General Information.

Please provide your age, and then check the blank that applies to you.

1. Age: ☐

2. Sex: ☐ Male ☐ Female

3. Highest level of education:

☐ High school ☐ Diploma ☐ Bachelors

☐ Masters ☐ Doctorate

4. Expertise with ICTs like the internet:

☐ Poor ☐ Fair ☐ Good ☐ Excellent

5. Progress on e-Government within your Ministry-Department:

☐ Poor ☐ Fair ☐ Good ☐ Excellent

Section two: Identifying barriers to e-government in JGOs.

People differ in their views on the major barriers to e-government. Below is a list of 30 potential barriers to e-government in five areas. Please indicate your rating of each in terms of their significance in blocking the development of e-government (Please Check All Items. There is One Response for Each Item).

Statement	A very important barrier	An important barrier	Don't Know	A minor barrier	Not a barrier
1. Cost of implementing and developing e-government services.					
2. Cost for government of providing services through multiple channels (e.g. over-the-counter, mail, TV, phone, SMS, email and Internet).					
3.Increased costs for governments of meeting laws and regulations relating to e-government					
4. Cost of training programs in ICT in public sector.					
5. High cost of internet.					
6. High cost of PC.					
7. Low level of Internet use among certain groups (e.g. relating to age, literacy, education, etc.)					
8. Low level of ICT skills among citizens.					
9. Low level of ICT skills among government officials.					
10. Public perception of risks to privacy and civil liberties.					
11. Public concerns over potential for online theft and fraud.					
2. E-government applications are difficult to use.					
13. Lack of secure electronic identification and authentication.					
14. Lack of interoperability between IT systems.					
15. Lack of common entry point of government websites.					
16. Lack of a citizen centric focus of e-government services.					
17. Lack of infrastructure.					
18. Absence of local suppliers of certain high-end application.					
19. Lack of technology/web staff.					
20. Lack of technology/web expertise.					

Statement	A very important barrier	An important barrier	Don't Know	A minor barrier	Not a barrier
21. Differences in laws and regulations across ministries.					
22. Absence of clear data protection guidelines for sharing of information.					
23. Heightened risks of liability.					
24. Shortage of regulation and legislation within the e-government framework.					
25. Differences in administrative traditions and processes within JGOs.					
26. Resistance to change by government officials.					
27. Absence of coordination between government entities.					
28. Lack of political officials support for e-government.					
29. Wish to avoid changing services that already work well.					
30.Short-term policies due to political ministers changing					

Appendix E: Research sample and the number of distributed and collected questionnaires

Organisation	Area	Distributed	Collected
1. Income and sales tax Department.	Amman, Karak, Aqapa, Zarqa, Irbid, Tafila, and Salt.	35	29
2. Social security corporation	Amman, Karak, Aqaba, Zarqa, Irbid and Tafila	37	34
3. Ministry of interior	Amman, Karak, Aqaba, Irbid, Tafila, AL-Mazar, Al-Qaser, Jerash	30	26
4. Companies Control Directorate	Amman	10	10
5. Ministry of Industry & Trade	Amman	10	8
6. Jordan Customs Department	Amman	25	20
7. MoICT	Amman	20	20
8. Agriculture credit corporation	Amman	10	8
9. Ministry of Finance	Amman, Karak, Irbid, Aqaba	20	17
10. Ministry of Justice	Amman, Karak, AL-Mazar, Al-Qaser, Irbid	10	9
11. Greater Amman Municipality	Amman	20	18
12. Jordan Audit Bureau	Amman, Karak, Aqaba, Irbid, Tafila, AL-Mazar, Al-Qaser, Jerash	35	30
13. Ministry of Water & Irrigation	Amman, Karak	15	14
14. Housing & Urban Development Corporation.	Amman	10	10
15. Jordan Investment Board	Amman	13	13
16. Ministry of Labour	Amman	10	7
17. Department of Land & Survey	Amman, Karak, Aqaba, Irbid, Tafila, AL-Mazar, Al-Qaser, Jerash	40	37
18. General Supplies Department	Amman	10	8
19. Free Zones Department	Amman	10	7
20. General Budget Department	Amman	10	9
21. Ministry of Higher Education & Scientific Research.	Amman	10	8
22. Ministry of Public works	Amman, Karak	10	8
23. Ministry of Social Development	Amman, Karak, Zarqa	15	13
24. Ministry of Transport	Amman	10	8
25. Ministry of Education	Amman, Karak, Aqaba, Irbid, Tafila, AL-Mazar, Al-Qaser, Jerash	30	27

26. Civil service Bureau	Amman, Karak	20	18
27. Borders & Residence Department	Amman	10	10
28. Civil Status & Passports Department.	Amman, Karak, Aqaba, Irbid, Tafila, AL-Mazar, Al-Qaser, Jerash	40	37
29. Ministry of planning & International Cooperation.	Amman	10	8
30. Driver & Vehicle Licensing Department.	Amman	15	15
Total 88 % Response Rate		**550**	**484**

Appendix F: Frequencies of demographic characteristics

Gender

		Frequency	Percent
Valid	Male	309	63.8
	Female	175	36.2
	Total	484	100.0

Age_groups

		Frequency	Percent
Valid	<=30	210	43.4
	31 – 40	178	36.8
	>40	96	19.8
	Total	484	100.0

Education level

		Frequency	Percent
Valid	High school	33	8.5
	Diploma	89	21.3
	Bachelors	304	50.9
	Masters	52	11.8
	Doctorate	6	7.8
	Total	484	100.0

ICT expertise

		Frequency	Percent
Valid	Poor	52	10.7
	Fair	75	15.5
	Good	161	33.3
	Excellent	196	40.5
	Total	484	100.0

Usage rate of e-Government website

		Frequency	Percent
Valid	Rarely	76	15.7
	Monthly	131	27.1
	Weekly	222	45.9
	Daily	55	11.4
	Total	484	100.0

Coding of demographic variables on the working file

Gender

Value	Label
1.00	Male
2.00	Female

Age groups

Value	Label
1	<=30
2	31 – 40
3	>40

Educational level

Value	Label
1	High school
2	Diploma
3	Bachelors
4	Masters
5	Doctorate

ICT Expertise

Value	Label
1	Poor
2	Fair
3	Good
4	Excellent

Progress

Value	Label
1	Poor
2	Fair
3	Good
4	Excellent

Appendix G: Ministries and related departments through 6I Model.

6I Model	Ministries and related Departments
Inform	• Ministry of Administrative Development www.adm.gov.jo [The National Institute for Training www.nit.gov.jo] • Ministry of Agriculture www.moa.gov.jo [Agriculture credit corporation www.acc.gov.jo; National centre for Agriculture www.ncartt.gov.jo]. • Ministry of Awkaf, Islamic Affairs and Holy Places www.awqaf.gov.jo . [Awqaf Properties Development Corporation, General Ifta' Department, Zakat Fund Directorate www.zakatfund.org] • Ministry of Culture www.culture.gov.jo [National Library www.nl.gov.jo Royal Cultural Centre] • Ministry of Education www.moe.gov.jo . • Ministry of Energy and Mineral Resources www.memr.gov.jo [Natural Resources Authority www.nra.gov.jo]. • Ministry of Environment www.moeno.gov.jo. • Ministry of Finance www.mof.gov.jo [Department of Land & Survey www.dls.gov.jo ; General Supplies Department www.gsd.gov.jo ; Jordan Customs Department www.customs.gov.jo ; Jordan Income & Sales Department www.incometax.gov.jo, Jordanian Free Zones Department www.free-zones.gov.jo; General Budget Department]. • Ministry of Foreign Affairs www.mfa.gov.jo [Department of Palestinian Affairs www.dpa.gov.jo ; Jordan Institute of Diplomacy www.id.gov.jo] • Ministry of Health www.moh.gov.jo [Jordan Food and Drug Administration www.jfda.gov.jo : Jordan Nursing Council www.jnc.gov.jo : Royal Medical Services www.jrms.gov.jo].

- Ministry of Higher Education www.mohe.gov.jo
- Ministry of Industry and Trade www.mit.gov.jo

[Amman Trade Point www.atp.jedco.gov.jo ;
Companies Control Directorate www.ccd.gov.jo ;
Daman Program www.daman-program.com.jo ;
EAN Numbering and Barcoding System www.gs1jo.org.jo;

Horticultural Export Promotion and Technology and Technology Transfer Project www.jordanhorticultural.com ;
Insurance Regularity Commission www.irc.gov.jo ;
Jordan Civil Service Consumer Corporation www.jcscc.gov.jo
Jordan Enterprise Development Corporation www.jedco.gov.jo;
Jordan Industrial Estates Corporation www.jiec.com.jo ;
Jordan Institute for Standards & Metrology www.jism.gov.jo ;
Jordan Investment Board www.jordaninvestment.com ;
Jordan's Agreements with the World www.agreements.jedco.go.jo/new_agree/home.html]

- Ministry of Information and communication Technology www.moict.gov.jo
  [National Information System www.nic.gov.jo
  Postal Saving Fund www.psf.gov.jo].
- Ministry of Interior www.moi.gov.jo
  [Anti-Narcotics Department www.anti-narcotics.psd.gov.jo,
  Borders & Residence Department www.rbd.psd.gov.jo ;
  Central Traffic Directorate www.traffic.psd.gov.jo ;
  Civil Status and Passport Department www.cspd.gov.jo ;
  Driver & Vehicle License Department www.dvld.gov.jo;
  Family Protection Department www.familyprotection.psd.gov.jo ;
  Jordan Traffic Institute www.jti.jo ;
  Procurement Directorate www.psd.gov.jo ;
  Public Security Directorate www.psd.gov.jo].
  Civil Defense Directorate www.cdd.gov.jo].

- Ministry of Justice www.moj.gov.jo .
  [Legislation & Opinion Bureau www.lob.gov.jo ;
  Supreme Judge Department www.sjd.gov.jo
  Judicial Institute of Jordan].

- Ministry of Labour www.mol.gov.jo
  [National Employment centre www.nec.jo;
  Social Security Corporation www.ssc.gov.jo ;
  Vocational Training Corporation www.vtc.gov.jo ;
  The Investment Unit for Social Security Corporation
  www.ssiu.gov.jo].

- Ministry of Municipal Affairs www.mmagov.jo .
  [Cities and Villages Development Bank
  www.nic.gov.jo/cvdb]

- Ministry of Planning and International cooperation
  www.mop.gov.jo
  [Competitiveness Team www.competitiveness.gov.jo ;
  Department of Statistics www.dos.gov.jo ;
  Enhanced Productivity Program www.epp.gov.jo ;
  Trade & Investment Information System
  www.jotiis.dos.gov.jo].

- Ministry of Public sector Development
  www.mopsd.gov.jo;

- Ministry of Public Works & Housing www.mpwh.gov.jo
  [Government Tenders Directorate www.gtd.gov.jo ;
  Housing & Urban Development www.hudc.gov.jo].

- Ministry of Social Development www.mosd.gov.jo
  [National Aid Fund www.naf.gov.jo].

- Ministry of Tourism and Antiques www.mosd.gov.jo .
  [Department of Antiques; Jordan Tourism Board].

- Ministry of Transport www.mot.gov.jo
  [Aqaba Ports Corporation www.aqabaports.gov.jo ;
  Aqaba Railway Corporation www.arc.gov.jo ;
  Jordan Civil Aviation Authority www.jcaa.gov.jo ;
  Jordan Hijaz Railway Corporation www.jhr.gov.jo ;
  Jordan Maritime Authority www.jma.gov.jo ;
  Jordan Meteorological Department www.jmd.gov.jo ;
  Public Transport Regulatory Commission
  www.ptrc.gov.jo]

- Ministry of water and Irrigation www.mwi.gov.jo
  [Northern Governorates Water Administration
  www.ngwa.gov.jo , Water Authority; Jordan Valley
  Authority; Program Management Unit
www.pmu.gov.jo].

- Prime Ministry www.pm.gov.jo

[Aqaba Special Economic Zone Authority
www.aqabazone.com;
Central Bank of Jordan www.cbj.gov.jo ;
Civil Service Bureau www.csb.gov.jo ;
Development & Employment Fund www.def.gov.jo :
Electric Regulatory Commission www.erc.gov.jo ;
Executive privatization Commission www.epc.gov.jo :
General Intelligence Department www.jid.gov.jo
Greater Amman Municipality www.ammancity.gov.jo
Jordan Armed Forces www.jaf.mil.jo ;
Jordan Audit bureau www.audit-bureau.gov.jo :
Jordan Cooperative Corporation www.jcc.gov.jo ;
Jordan Securities Commission www.jsc.gov.jo ;
Petra Region Authority www.petra-pra.com.jo ;
Royal Jordanian Air Force www.rjaf.mil.jo ;
Securities Depository Centre www.sdc.com.jo ;
Telecommunication Regulatory Commission
www.trc.gov.jo ;
The higher council for science & Technology
www.hcst.gov.jo,
Badia Research & Development Program www.badia.gov.jo
National Energy Research Centre www.nerc.gov.jo ;
Higher council of Youth www.youth.gov.jo.
Economic Social Association for Retired servicemen and
Veterans www.mil-retired-jo.com,
Electricity Distribution Company www.edco.jo ;
Higher Council for Youth www.youth.gov.jo
Higher Media council;
House of Representatives www.parliament.jo,
Amman Chamber of Commerce www.jocc.org.jo,
Amman Chamber Industry www.jci.org.jo,
Amman Stock Exchange www.exchange.jo,
Central Electricity Generation Company www.cegco.com.jo,
Department of Press and Publication www.dpp.gov.jo,
Deposit Insurance Corporation www.dic.gov.jo,
Joint Procurement Department www.jpd.gov.jo.
Jordan Chamber of Commerce www.jocc.org.jo,
Jordan Chamber of Industry www.jci.org.jo,
Jordan News Agency www.petra.gov.jo,
Jordan Post www.jp.gov.jo,
Jordan Radio and Television Corporation www.jrtv.gov.jo.
King Abdullah II Centre for Excellence www.kace.jo.
Legislation and Opinion Bureau www.lob.gov.jo,

	National Electricity Company www.nepco.com.jo , Orphans Fund Development Foundation www.orphansfunds.gov.jo, Royal Jordanian www.rj.com, Royal Jordanian Geographic Centre www.rjgc.gov.jo Royal scientific Society www.rss.gov.jo, Securities Judge Department Telecommunications Regulatory Commission www.trc.gov.jo, The Ports Corporation www.aqabaports.gov.jo, The Senate www.parliament.gov.jo .
Interact	• Agriculture credit corporation www.acc.gov.jo; • Ministry of Education www.moe.gov.jo . • Ministry of Finance www.mof.gov.jo [Department of Land & Survey www.dls.gov.jo ; Jordan Customs Department www.customs.gov.jo ; Jordan Income & Sales Department www.incometax.gov.jo Jordanian Free Zones Department www.free-zones.gov.jo] • Ministry of Foreign Affairs www.mfa.gov.jo. • Jordan Food and Drug Administration www.jfda.gov.jo ; • Royal Medical Services www.jrms.gov.jo]. • Ministry of Higher Education www.mohe.gov.jo • Ministry of Industry and Trade www.mit.gov.jo [Amman Trade Point www.atp.jedco.gov.jo ; Companies Control Directorate www.ccd.gov.jo ; Insurance Regularity Commission www.irc.gov.jo ; Jordan Civil Service Consumer Corporation www.jcscc.gov.jo Jordan Enterprise Development Corporation www.jedco.gov.jo; Jordan Industrial Estates Corporation www.jiec.com.jo ; Jordan Investment Board www.jordaninvestment.com ; • Ministry of Information and communication Technology www.moict.gov.jo [National Information System www.nic.gov.jo]. • Ministry of Interior www.nic.gov.jo [Anti-Narcotics Department www.anti-narcotics.psd.gov.jo, Family Protection Department www.familyprotection.psd.gov.jo ; Jordan Trafic Institute www.jti.jo ; Public Security Directorate www.psd.gov.jo].

	• Ministry of Labour www.mol.gov.jo [National Employment centre www.nec.jo; Social Security Corporation www.ssc.gov.jo ; Vocational Training Corporation www.vtc.gov.jo ; Department of Statistics www.dos.gov.jo ; • Ministry of Public Works & Housing www.mpwh.gov.jo [Government Tenders Directorate www.gtd.gov.jo ; Housing & Urban Development www.hudc.gov.jo]. • Ministry of Social Development www.mosd.gov.jo [National Aid Fund www.naf.gov.jo]. • Ministry of Transport www.mot.gov.jo [Aqaba Ports Corporation www.aqabaports.gov.jo ; Jordan Civil Aviation Authority www.jcaa.gov.jo ; Jordan Meteorological Department www.jmd.gov.jo ; Ministry of water and Irrigation www.mwi.gov.jo • Prime Ministry www.pm.gov.jo • Prime Ministry www.pm.gov.jo [Aqaba Special Economic Zone Authority www.aqabazone.com; Central Bank of Jordan www.cbj.gov.jo ; Civil Service Bureau www.csb.gov.jo ; Development & Employment Fund www.def.gov.jo ; General Intelligence Department www.jid.gov.jo Greater Amman Municipality www.ammancity.gov.jo Jordan Cooperative Corporation www.jcc.gov.jo ; Jordan Securities Commission www.jsc.gov.jo ; Royal Jordanian Air Force www.rjaf.mil.jo ; Securities Depository Centre www.sdc.com.jo ; The higher council for science & Technology www.hcst.gov.jo, House of Representatives www.parliament.jo, Amman Stock Exchange www.exchange.jo, Jordan Post www.jp.gov.jo, King Abdullah II Centre for Excellence www.kace.jo, National Electricity Company www.nepco.com.jo , Royal Jordanian www.rj.com, Royal Jordanian Geographic Centre www.rjgc.gov.jo Royal scientific Society www.rss.gov.jo,
Intercommunicate	Jordan Customs Department www.customs.gov.jo ; Jordan Income & Sales Department www.incometax.gov.jo ;
Individualize	Jordan Income & Sales Department www.incometax.gov.jo : Greater Amman Municipality www.ammancity.gov.jo
Integrate	
Involve	Companies Control Directorate www.ccd.gov.jo ; Greater Amman Municipality www.ammancity.gov.jo