



# **Evaluation of eGovernment Websites Usability in Jordan**

**A Thesis Submitted for the Degree of Doctor of Philosophy**

**By**

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## **Abstract**

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In the Information and Communications Technology era, eGovernment projects present a great opportunity for governments to offer better and quicker services to their users from the public. However, the success and the failure of these projects to achieve the expected goals depend heavily on some important aspects, mainly websites usability.

The research in this thesis focuses on the usability of eGovernment websites in Jordan as a case study, as it is one of the developing countries facing problems due to websites usability. Hence, the main aim of the research was to investigate the situation of the Jordanian eGovernment websites with a view to improving usability, as well as to propose a roadmap to reinforce websites usability in order to achieve better utilisation and a more successful eGovernment project in Jordan.

This research work achievement and major contributions have been accomplished through three stages; the first stage investigated the level of usability of eGovernment in Jordan from a manager's perspective. The study for this stage involved a sample of 37 managers who are in charge of managing and maintaining eGovernment projects in Jordan. The research revealed that the main problems undermining Jordanian eGovernment usability are the lack of the general usability awareness amongst management, the lack of clear usability standards and guidelines, the insufficient level of end-user involvement in the process of design and

maintenance of eGovernment services, limited budgets and the lack of expert web-designers.

The second stage was to build a clear overview about the status of eGovernment websites usability in Jordan by investigating main aspects related to design that affect the success of eGovernment websites in Jordan from an end-user's perspective. The study for this stage involved 155 participants for testing five Jordanian eGovernment websites. It was revealed that the Jordanian eGovernment websites generally do not have a high level of usability, and that there is a lack of understanding of the needs and requirements of the end-users. In addition, the study discovered a lack of testing and monitoring of the websites, a lack of involvement of end-users, poor collaboration and coordination among government agencies, poor standardisation, and lack of trust/satisfaction.

The outcome from the early mentioned studies was used in the third stage, which has been used to establish the model to improve the usability of eGovernment websites in Jordan through a clear roadmap. The model has four components: website manager and designer, end-users, usability committee (advisory, executive), design process (usability requirements, pre-implementation test, post-implementation and maintenance). The model which was established and evaluated can be very beneficial for promoting eGovernment websites usability, in Jordan particularly and in other countries with similar backgrounds and situations.

*Dedication*

*To my wonderful parents*

*To my fabulous brothers and sisters*

*To my precious nephews and nieces*

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## List of Publications

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### Journals:

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- AlFawwaz, B.M., Garaj, V. and Balachandran, W. (**Under Review**) “Evaluating the Usability of Government Websites in the Hashemite Kingdom of Jordan, End-Users’ Perspective”, Journal of Universal Access in the Information Society.

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- AlFawwaz, B.M., Garaj, V. and Nawaysa, M. (2011) “The Status of eGovernment Websites Usability in Jordan”, Proceedings of The IADIS International Conference e-Democracy, Equity and Social Justice 2011, 20-22 July 2011, ISBN: 978-972-8939-36-6 © 2011 IADIS, Rome, Italy.
- AlFawwaz, B.M., and Garaj, V. (2011) “Usability of eGovernment Websites in Jordan”, ResCon’11, 4th Annual Research Conference, 20-22 June 2011, Brunel University, London, UK.

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# Chapter One: The Introduction

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## 1.1 Introduction

The proliferation of Information and Communication Technology (ICT) over the last two decades has brought about a number of positive changes and delivered significant improvements in the interaction between citizens and their governments. One of the most outstanding effects of ICT is the existence of the phenomenon of Electronic Government (“eGovernment”).

By way of eGovernment, ICT has greatly enhanced the efficiency and effectiveness of the services that many governments around the world offer to the public - thus supporting economic and social development both locally and globally (Kumar et al., 2007).

Amongst all countries in the United Nations, over 95% of them have created and launched a web-based eGovernment system (UN Public Administration Programme, 2010). The speed at which these systems are developed is formed from the method by which eGovernment changes the working environment of the traditional government; by enhancing access and delivery of government services.

The availability of computers and the Internet are not the only factors to be considered in any eGovernment form, but rather the gap between the government and citizens' perspectives on eGovernment should also be considered. Heeks (2003) and

Choudrie et al. (2009) mentioned that in the implementation of eGovernment information systems there is a gap between the real needs and the systems' design. This gap is considered to be one of the main reasons behind the failure of eGovernment projects in most developing countries.

Usability gained importance as public agencies turn to eGovernment to facilitate users' access and minimize costs (Brown & Brudney, 2004). However, usability aspects of eGovernment websites have not been addressed enough. The website developers mostly focus on functional requirements and attempt to ignore the non-functional requirements concerning usability and acceptance of the website.

A number of studies regarding eGovernment services have described usability as the underlying catalyst for the projects' adoption (Bwalya, 2009; Kumar et al., 2007). By introducing an eGovernment with better usability features, civil service performance can be improved. As well as this, user satisfaction can increase and the users' engagement with eGovernment services is promoted.

According to Casaló et al. (2005), the failure to achieve acceptable levels of usability for eGovernment services threatens not only the eGovernment initiatives, but also the relationship between the government and citizens in general.

Usability is regarded as being one of the most important factors when determining the success of an eGovernment project and this should be reflected to the user via the eGovernment websites. Thus, any eGovernment project should pay sufficient attention in its strategy for designing a website, as it is the main cornerstone for the

project's success. According to Anderson (2002, p.1), "while few could complain about the amount of information on government sites, many have complained about the ease with which users can find that information".

The interfaces of the website are considered as one of the most important aspects of usability, because it is the medium for interaction and communication between the system and the users (Jeng, 2005). Good usability of any system should be the main goal of interface designers, and the website must be satisfactory and have an excellent appearance, as well as providing an enjoyable user experience (Van Welie et al., 1999; O'Cass & Fenech, 2003; Wei & Zhao, 2005). According to Wu et al. (2009), user interface design issues are highly significant for eGovernment success. So, without having good usability in eGovernment websites, eGovernment will continue to find problems when interacting with users.

## **1.2 Research Motivations**

While developing countries have become more interested in eGovernment, Elsheikh et al. (2007) cited Heeks and pointed out that 35% of eGovernment projects in developing countries are classified as being total failures, 50% partial failures and just 15% successful. Unfortunately, most of these governments have faced some challenges in making their websites usable (Soufi & Maguire, 2007).

Although usability is becoming one of the main reasons affecting users dealing with eGovernment (Choudrie & Ghinea, 2005), as well as affecting the success or failure of eGovernment (Barnes & Vidgen, 2004), there appears to be restrictions when



considering focusing on usability in the eGovernment website design (Huang, 2010). In addition, there does not appear to be much focus in studies, nor many studies that concentrate on eGovernment usability so far in developing countries, particularly in Jordan, which leaves a significant gap in the available literature needs to be filled.

One of the problems eGovernment websites face is not understanding or ignoring the users' needs, which will negatively affect the usability of websites. These issues are more significant in developing countries such as Jordan, where the digital divide is wider (Elsheikh et al., 2008), further inhibiting eGovernment implementation. This is in agreement with Mofleh (2008) and Mohammad (2009), who stated that in the construction and design of Jordanian eGovernment websites, the expectations and needs of end-users have been ignored, and no account has been given of what Jordanians want from the existing system.

In addition, Al-Soud & Nakata (2010) stated that Jordanian eGovernment websites are subject to a lack of consistency in relation to standards and features, as well as an absence of different features that improve interaction with the user, most likely due to a lack of consideration for the citizen's expectations and needs.

This investigation will help to identify some main points that could help in improving the usability of eGovernment websites in Jordan for future websites.

### **1.3 Research Aim and Objectives**

The main aim for conducting this research is to investigate the situation of the Jordanian eGovernment websites with a view to improve their usability for better utilisation and a more successful eGovernment scheme in Jordan.

This aim was achieved by performing the following objectives:

- Investigating the level of usability of the existing eGovernment in Jordan from the management perspective;
- Evaluating the status of usability of the existing eGovernment websites in Jordan from the end-users perspective;
- Proposing a model of the eGovernment websites usability in order to provide a guide on how to achieve a usable eGovernment websites in Jordan.

### **1.4 Contribution to Knowledge**

This research has provided an important contribution to knowledge, particularly for the eGovernment websites in Jordan. The following points are presented as contributions to knowledge:

- The findings from the studies reinforce the existing body of knowledge and they are applicable not only in Jordan, but also to those of other developing countries that might share the same culture and situation, particularly in the Arab states.

- The methodologies and research approach can be used for other countries that may share the same culture and situation, particularly Arab states and other developing countries.
- One of the main contributions is the presentation of the model (roadmap) to help people in order to make user friendly websites.
- The research outcomes and achievements have been published to an external audience through a number of journals and conference publications.

## **1.5 Structure of the Thesis**

This section provides the structure and the outlines of the thesis. The thesis is divided mainly into six chapters. The first chapter contains the introduction.

**Chapter 2** reviews the literature concerning the eGovernment and usability related to this study. The chapter contains general background of eGovernment, its usability and their importance, then the people's needs and benefits, as well as challenges faced by eGovernment. Following this, the usability problems and the general usability of eGovernment websites are outlined. This is followed by the background of the eGovernment in Jordan. Finally, it contains information about the usability of eGovernment websites in Jordan followed by related studies for the usability of eGovernment websites.

**Chapter 3** presents the level of usability of the existing eGovernment in Jordan from the management point of view, with an explanation to the methodology used for the study. Results are presented, discussed and a general conclusion is drawn presenting the facts about management views on the current level of usability of the eGovernment in Jordan.

**Chapter 4** presents the evaluation of the usability status for the existing eGovernment websites in Jordan from end-users' perspective, drawing on data collected through a specially designed questionnaire. An explanation that defines the methodology used during this study is given; the results and discussion are presented and conclusions drawn.

**Chapter 5** presents the proposed model to improve eGovernment websites' usability in Jordan. An explanation will present the approach adopted for creating the model.

**Chapter 6** presents the conclusion of this research and recommendations for future work.

## Chapter Two: Literature Review

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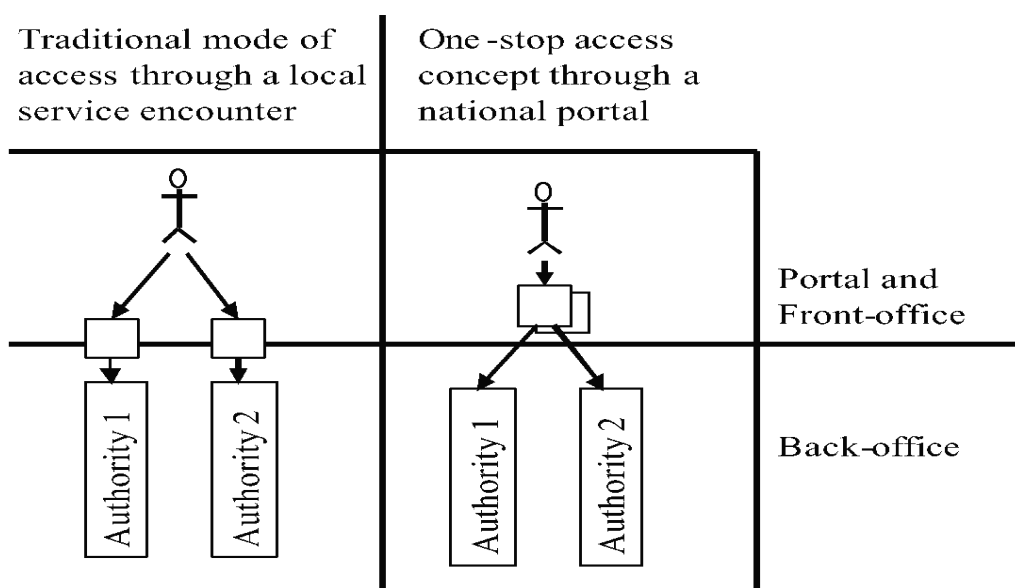
### 2.1 Introduction to eGovernment

The world is living in an era of Information and Communication Technology (ICT), which has impacted on every process in both the public and private sectors (SESRIC, 2009). Progress in information technology has created service delivery with eGovernment through the Internet (Baker, 2009).

The term 'eGovernment' does not have a unique definition. It is often defined as the use of any form of ICT (e.g. the Internet, Wide Area Networks etc.) to support the delivery of government-related information, services and transactions through seamless interactions between citizens and all governmental entities (Fagan, 2006; Beynon-Davies, 2007). The United Nations Public Administration Network defines eGovernment as *"utilizing the Internet and the world-wide-web for delivering government information and services to citizen"* (UNPAN, 2002, p.1), while the World Bank (2010) defines it as *"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"*.

In defining eGovernment, some authors emphasise the business facilitation role. For example, Buckley (2003) defined eGovernment as implementing cost-effective ICT models for all stakeholders (citizens, industry, federal employees) to conduct

business transactions online. Poon & Huang (2002) considered eGovernment to be the range of processes implemented by governments to provide the public with e-business solutions (e.g. buying, selling and conducting other types of business-related electronic transaction). In this context, eGovernment is seen as part of a wider sphere of so-called eDemocracy (i.e. the electronic communication between government and its users in any shape or form).



**Figure 2.1: One-stop Government to Access All kinds of Public Services (Wimmer, 2002)**

Governments in many countries around the world have adopted eGovernment as a tool in order to take advantage of the Internet to improve their service delivery to public, to support their development and to enhance the efficiency and effectiveness of government services (Gant & Gant, 2002).

eGovernment has come to decrease the use of the main means of traditional contact, such as phones, face-to-face and postal mail, with public agencies. There is no doubt that the adoption of eGovernment makes life easy for both citizens and the government. Implementing eGovernment improves the efficiency and effectiveness of internal government operations, provides a better and more efficient delivery of government information and services to the citizens, helps increase the efficiency between public servants, enables citizens to conveniently access government services and information through use of the Internet and other channels of communication 24 hours a day, 7 days per week, provides greater accessibility and allows the ability to obtain government services without the need to visit any government office. In addition, eGovernment can also provide a forum for citizen participation in government activities (Lenk & Traunmüller, 2002; Warkentin et al., 2002).

Enabling anytime, anywhere access, eGovernment gives society the ability to break down temporal and geographical barriers and efficiently bridge the gap between the ruler and the ruled. eGovernment provides the tool to exceed the barrier of time and distance (Moon, 2002; Thomas & Strieb, 2003; West, 2004; Baker, 2009). In short, eGovernment seeks to increase the effectiveness and efficiency to enhance the interaction between users and their governments (Mohammad et al., 2009).

According to Fang (2002), Beynon-Davies (2007) and Gant (2008) there are different forms of eGovernment; Government-to-Citizens (G2C), Government-to-Business (G2B), and Government-to-Government (G2G), all of which have the same

goal: to make relationships easy between the government and other stakeholders (Figure 2.2).

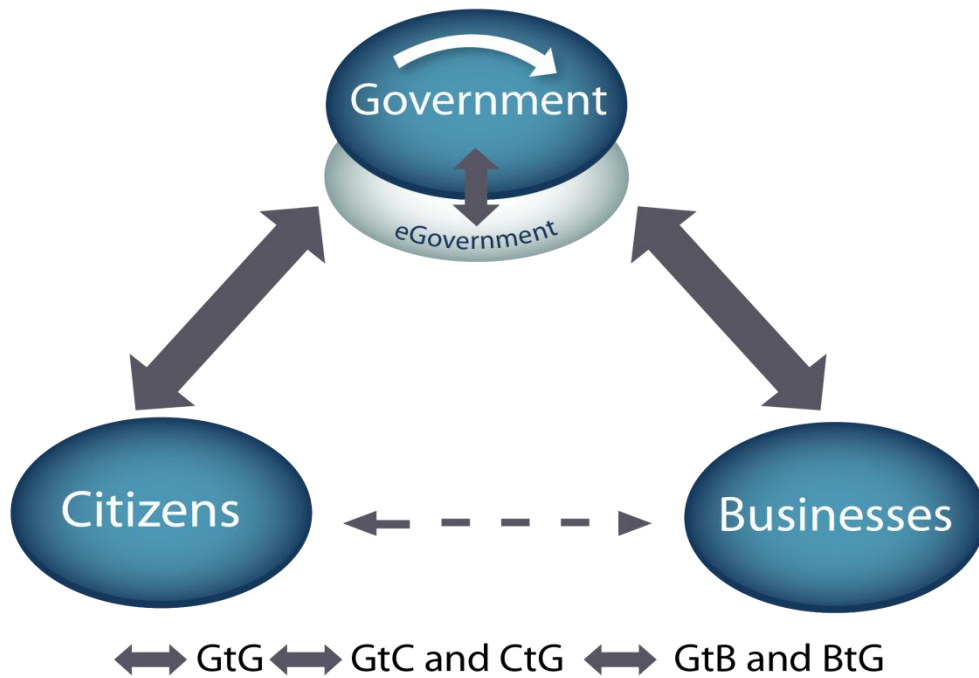


Figure 2.2: Interaction Between Stakeholders (Wei and Zhao, 2005)

- **Government-to-Citizen (G2C):** refers to interactions between governments and their citizens electronically (e.g. order birth/marriage/death certificates, obtain government information).
- **Government-to-Business (G2B):** refers to government and business in which a government can sell or provide to businesses some services, or businesses that can sell products and/or services to government (e.g. online business registration, downloading application forms).



- Government-to-Government (G2G):** This refers to a huge database for efficient and effective online cooperation and communication between units of the government. Government-to-Government (G2G), includes the relationship between the government and public employees and Government-to-Employee (G2E) organises the relationship between the government and its employees in terms of the eGovernment system, in order to improve the employee's ability in dealing with their work and in dealing with citizens (e.g. online career applications, paperless communication in e-office and government publications).

Electronic Government Forms	
<b>Government-to-Citizen (G2C)</b>	<p>Includes the interactions between governments and their citizens that can happen electronically.</p> <p>Government-to-citizens enables citizens to ask questions, pay taxes, receive payment and documents (e.g. e-Tax, e-License).</p>
<b>Government-to-Business (G2B)</b>	<p>Refers to e-commerce in which government sell to businesses or provides them some services, also to businesses selling products and services to government (e.g. online business registration).</p>
<b>Government-to-Government (G2G)</b>	<p>Consists of e-commerce activities between units of government, including those within one governmental body and those between governments (e.g. government publications).</p>

**Table 2.1: eGovernment Forms and the Main Characteristics of Each Form (Turban et al., 2006)**

## 2.2 People's Needs and Benefits of eGovernment

Several investigations have been carried out around the world with the purpose of finding out what sort of services users want to be provided with electronically. Although Governments are offering e-services, they have not known what sort of services the user wants, therefore the awareness of eGovernment and management of expectations amongst stakeholders should be increased (Mohammad et al., 2009).

According to Gustafsson & Fiedler (2004), there are some methods that can be applied to analyse and find out good services; the methods are done basically by answering the following questions:

- Does the organisation have a task that is carried out often?
- Is the task carried out by many people?
- Is the task time consuming and/or costly?

Studies conducted by research organisations in the US were mentioned by Cook (2000) as an answer to the question, "What government service would you want to be electronically provided?". As a result, the most popular answers were renewing a driver's license, voting electronically over the Internet, ordering birth, marriage and death certificates, one stop shopping access (all government services in one portal), filing state taxes and getting state park information.

Additionally, Al-Omari (2006) declared that the common eGovernment services are filing a personal income tax return, renewing a professional license, submitting

employment information, registering a complaint against a business or professional licensee and renewing a driver's license.

Reddick (2004) cited West who has conducted analysis of over 1,500 city government websites for 70 of the largest cities in America. The majority of online services were requesting services and information, filing complaints and paying traffic tickets.

Moreover, Cook (2000) cited Hart-Teeter's study, which is done for the Council for Excellence in the Government to ask people about the benefits of eGovernment. According to this report, people believe that the biggest benefits are increased government accountability to citizens (36%), more access to information for the public (23%) and a more cost effective and efficient government (21%). Some examples of general benefits are listed below:

- Avoidance of personal interaction: eGovernment provides opportunities to citizens to receive public services without any interaction with government staff (Hansen, 1995; Meuter et al., 2000).
- Control: eGovernment exercises more control over the delivery of the service than through another method (Dabholkar, 1996; Zhu et al., 2002).
- Convenience: government services are available and accessible anytime and anywhere by any method the citizen wants (Meuter et al., 2000; Zhu et al., 2002).

- Cost: eGovernment offers the opportunity to beat the time and distance barriers in public service delivery. Users are able to choose the time and the location to deal with their governments, whilst saving money as well (Liao & Cheung, 2001; Moon, 2002; Mohammad et al., 2009)
- Personalisation: citizens customise government services by use of ICT (Van Riel et al., 2001).
- Increase government efficiency and cost-effectiveness, accessibility of public information and makes government more accountable (Baker, 2004; Roach, 2007).

### **2.3 Challenges of eGovernment**

Despite the many benefits eGovernment brings, some governments face challenges when transforming from traditional government to eGovernment. There are five main categories of eGovernment initiative challenges as shown in Table (2.2): (1) information and data, (2) information technology, (3) organisational and managerial, (4) legal and regulatory, (5) institutional and environmental. The following table presents each category with some of its challenges.

Challenge Category	Challenge
<b>Information and Data</b>	<ul style="list-style-type: none"> <li>✓ Data challenges include data quality and data accuracy issues.</li> <li>✓ Data quality problems include inaccuracies, inconsistencies, and incompleteness of data.</li> <li>✓ The lack of appropriate data in terms of Information technology IT initiatives.</li> </ul>
<b>Information Technology</b>	<ul style="list-style-type: none"> <li>✓ <b>Usability.</b></li> <li>✓ Security issues.</li> <li>✓ Technological incompatibility.</li> <li>✓ Technology complexity.</li> <li>✓ Technical skills and experience.</li> <li>✓ Technology newness.</li> </ul>
<b>Organizational and Managerial</b>	<ul style="list-style-type: none"> <li>✓ Project size.</li> <li>✓ Manager's attitudes and behaviour.</li> <li>✓ User or organisational diversity.</li> <li>✓ Lack of alignment of organisational goals and project.</li> <li>✓ Multiple or conflicting goals.</li> <li>✓ Resistance to change.</li> <li>✓ Turf and conflicts.</li> </ul>
<b>Legal and Regularity</b>	<ul style="list-style-type: none"> <li>✓ Restrictive laws and regulations.</li> <li>✓ One year budgets.</li> <li>✓ Intergovernmental relationships.</li> </ul>
<b>Institutional and Environmental</b>	<ul style="list-style-type: none"> <li>✓ Privacy concerns.</li> <li>✓ Autonomy of agencies.</li> <li>✓ Policy and political pressures.</li> <li>✓ Environmental context (social, economic, demographic).</li> </ul>

**Table 2.2: Challenges when Transforming from Traditional Government to eGovernment (Ballou & Tayi, 1999; Jiang & Klein, 2000; Edmiston, 2003; Gil-García & Pardo 2005)**

## 2.4 Usability and its Importance

The term ‘usability’ refers to the ability to learn, interact with and use a product or service to achieve the purpose it is meant to facilitate. The International Organisation for Standardization (ISO) 9241-11 defines usability as “*the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in the specified context of use*” (Abran et al., 2003). Nielsen (1993) described usability as a combination of quality components depicting how easy the user interface for a product or service is to operate. These components include learnability, efficiency, memorability, errors and satisfaction. Some authors define usability as the movement towards making products or services easier to use (George, 1996).

According to Quesenbery (2008), usability means that people who use the product or service can achieve their tasks easily and quickly. Other authors define usability as “*the effectiveness, efficiency and satisfaction with which specified users can achieve specified goals in a particular environment*” (Jordan, 1998; Keevil, 1998; Usability.gov, 2010).

While usability is defined in a general context, web usability is more specifically defined as clarity, simplicity, and consistency in the website design, in order to allow users to perform their tasks easily (Cappel & Huan, 2007). Nielsen (2003) defined it as “*a quality attribute that assesses how easy user interfaces are to use*”.

Usability is considered to be an important factor for survival on the web. Usability describes the degree of ease in using a website to achieve a particular task by allowing users access and the ability to navigate smoothly (Gant et al., 2002; Baker, 2004; Roach, 2007).

Depending on differing human abilities, Carmien & Mohamad (2008) cited Nordby's pyramid (Figure 2.3) and consider good usability means that there are a large number of users being able to access all ICT services directly regardless of their abilities, while smaller portions of users are able to access services indirectly with some adaptation. A much smaller amount of users need some type of personal and technical assistance.

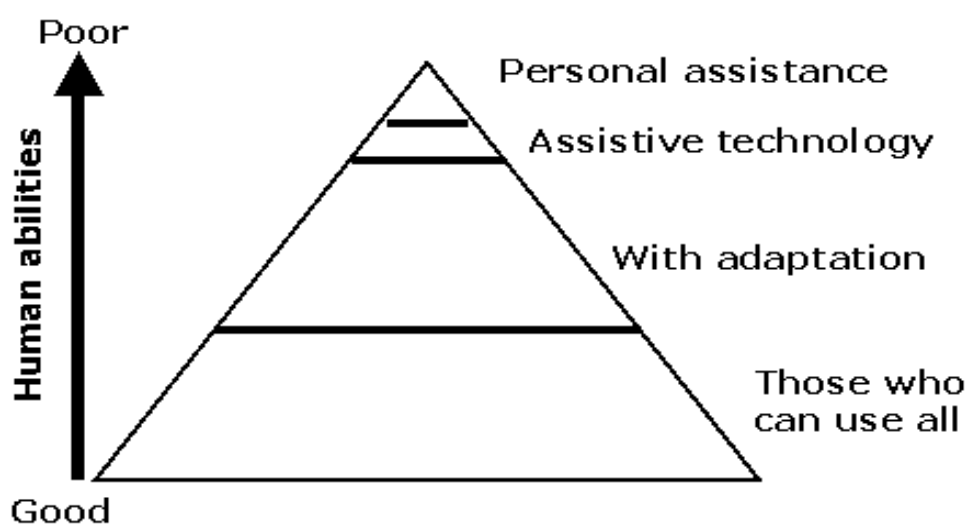


Figure 2.3: Nordby Usability Pyramid (Carmien & Mohamad, 2008)

Users will definitely leave the website and consider it to be unusable if it was difficult to use, if they found the information hard to read or not answer their questions, if they were to get lost on the website or the website was not clear.

According to Nielsen (2000), there are a number of main reasons behind users revisiting some websites and not others. The majority of elements demanded by users in most cases are called “**HOME**” elements and include:

- **H**igh quality content
- **O**ften update
- **M**inimum download time
- **E**ase of use

Chan (2005) cited Nielsen’s studies of user behaviour on the web and found a small level of patience amongst users if the websites are slow or have difficult designs. Moreover, people have to be able to grasp the function of the website directly after scanning the main homepage for a few seconds, therefore good usability of any system is the main goal of interface designers (Van Welie et al., 1999). The usability key is not only how well the website works, but also the degree to which the website meets user needs (Thompson et al., 2003).

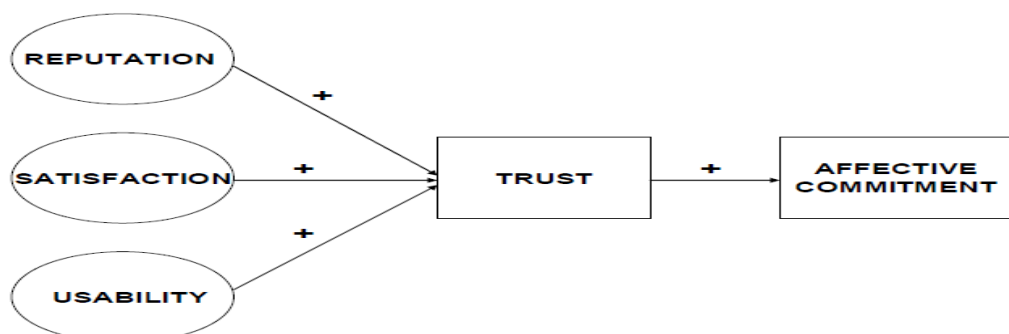
Casaló et al. (2005) cited Corritore to confirm that website usability helps to make information transparent, creates good interaction and communication between all the users, makes a simple transaction process, and allows users to find what they looking for at any moment, in a simple way.



Perspective	The Importance
User's Perspective	<ul style="list-style-type: none"> <li>High effectiveness in achieving a task correctly and completely or not, as well as enjoying the process or being frustrated.</li> <li>Can make a user safer.</li> </ul>
Developer's Perspective	<ul style="list-style-type: none"> <li>Can mean the difference between the success and failure of a system.</li> <li>Website with good usability will be able to increase the productivity of the agencies.</li> </ul>
In All Cases	<ul style="list-style-type: none"> <li>Lack of usability costs effort and time, and might decide the success or failure of a system.</li> <li>Usability makes financial implications such as product sales and productivity.</li> </ul>

**Table 2.3: The Importance of Usability in terms of Users, Developers' Perspective and All Cases (Jordan, 1998; Usabilityfirst, 2010)**

According to Gant et al. (2002) and Casaló et al. (2005), website usability indicates how simple and easy the website is to access and navigate, and considers the speed with the ability to find what users are looking for, control what users are doing, and where users are at any moment. Additionally, it indicates the ease of understanding the structure of the website and the website simplicity in terms of the use.



**Figure 2.4: Usability as Main Part of Any System (Casaló et al., 2005)**

## 2.5 Usability Attributes and Heuristics

Usability attracts different perspectives regarding its attributes (Table 2.5). Several researchers have varying views about the main attributes of usability, which are: effectiveness, efficiency, satisfaction, learnability, error tolerance and memorability (Brooke, 1991; Jordan, 1998; Becker, 2002, Abran et al., 2003, Nielsen, 2003, Jeng, 2005).

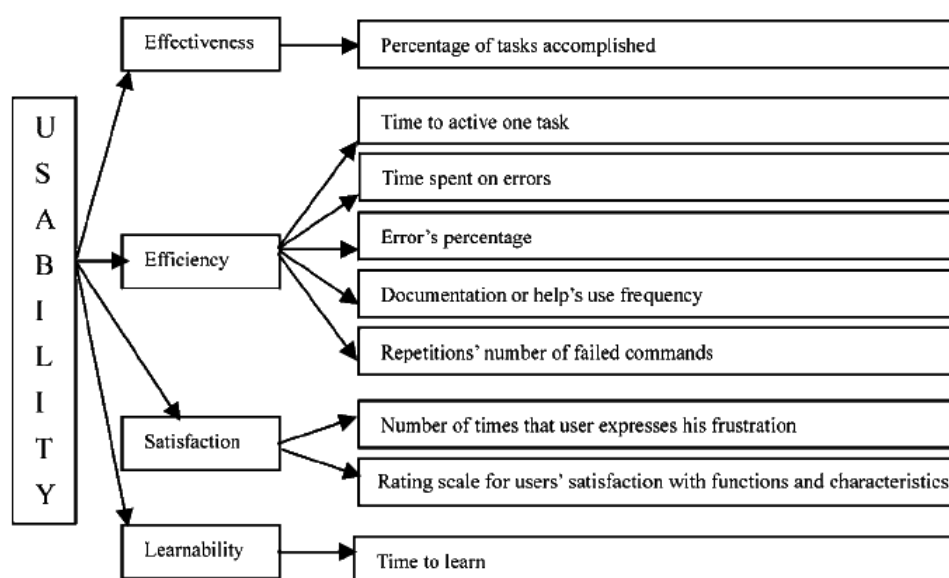
ISO 9241-11	Shneiderman
Efficiency	Speed of performance
	Time to learn
Effectiveness	Retention over time
	Rate of errors by users
Satisfaction	Subjective satisfaction

**Table 2.4: Usability in ISO 9241-11 (1998) and Shneiderman (1998)**

- **Effectiveness:** the capacity of the user to achieve the task by using a system and the quality of the output of this task.
- **Efficiency:** refers to the amount of effort needed to achieve a goal. Effort might be measured in terms of the time taken to complete a task or in terms of the number of errors that the user makes before a task is complete: The ability of the user to quickly achieve a task with ease and without frustration.
- **Satisfaction:** how do the users feel about their use of the system? How much do the users enjoy using the website?

- **Learnability:** how easy users understand the layout of the website when they visit the website on their first time.
- **Memorability:** how easy users can remember the process of the website to achieve the task after a period of not using it.
- **Error Tolerant:** how easy users can recover from the errors.

Brinck et al. (2002) mentioned that the design aims of usability take into account that the system should efficiently complete every task of the user. The system must be easy to learn and remember and it is necessary that users feel enjoyable when using the website and can deal with the errors if they happen. Van Welie et al. (1999) indicated that usability is split into three aspects, namely efficiency, effectiveness and satisfaction. However, as shown in Figure (2.5), Abran et al. (2003) pointed out that Nielsen considered that usability depends on four main pillars (effectiveness, efficiency, satisfaction and learnability).



**Figure 2.5: Nielsen's Usability Model (Abran et al., 2003)**

As for the heuristics, several usability studies have made reference to Nielsen and Pearrow's usability heuristics (usability guidelines). The guidelines consist of a combination of rules that allow assessing of all possible websites. Garcia et al. (2005) pointed out that any usability professional must look at the guidelines to assess the interfaces. Nielson (2006) made a set of usability heuristics for user interface design which consists of:

- Visibility of system status: the users should always be informed about what is going on. The website should transpire to keep users informed about what is going on through suitable feedback during a reasonable timeframe.
- Match system to the real world: the website should communicate with the users by their language using words and phrases that make the website recognisable to the users. The website must also pursue world conventions, and information should appear in a natural and commonsense order.
- User control and freedom: users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. It is also important to have an undo and redo feature.
- Consistency and standards: users should not have to wonder whether different words, situations or actions mean the same thing.
- Error prevention: Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

- Recognition rather than recall: minimise the user's memory load by making objects, actions and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.
- Flexibility and efficiency of use: accelerators - unseen by the novice user - may often speed up the interaction for the expert user, such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.
- Aesthetic and minimalist design: dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility. Put advanced options on a separate screen.
- Help users recognise, diagnose and recover from errors: error messages should be expressed in plain language (no codes), precisely indicate the problem and constructively suggest a solution.
- Help and documentation: even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search for, focused on the user's task, list concrete steps to be carried out and not be too large.

In addition, Pearrow (2000) extended Nielsen's usability heuristics and added more heuristics, which include:

- Use chunking: simplification of perceptions by grouping related items in meaningful and manageable ways.
- Use the inverted pyramid style of writing: the most important information appears first.
- Place important information ‘above the fold’: the most important information appears first on the web page to avoid the need to scroll beyond what is readily viewable (“above the fold”) to find it.
- Avoid gratuitous use of features: less is more in the clarity department. Websites should only feature that which they need.
- Make web pages easy to scan: this means that website usability design recognises that users scan websites.
- Keep download and response times low: sluggish website action and reaction evokes persistent complaints.

## **2.6 Decision of Use and Usability Problems**

There are some principles that encourage users to make a decision if they want to use the website or not. Quality of usability is an important role in making the user decides to leave or use a website. This definitely relies on usefulness of the presented information and the nature of the current information; is information readable, brief and not boring. With regard to the structure, the user looks for a clear, straightforward and well-organised website. In addition, the text must feature well labelled subsections and should have an excellent method of presentation. Users need good links with the website and other websites for related information and related

topics. Users seek for search tools to facilitate their tasks with minimum processing time for delivery in order to get a list of helpful websites or pages. Appearance is a very important factor for a website; therefore the website should be visually attractive. Graphics are not necessary for website use and page results should be printable in an attractive way. The ease of use and ease of navigation through the website should be available to ensure users do not get lost (Abels et al., 1998).

Nielsen (2006) declared that usability is a problem for websites and in usability tests 34% of users could not manage to achieve an assigned task at a particular website. According to Thomas & Schmidt (2006), there are some examples of usability problems in terms of value, navigation, presentation and trust.

In terms of value indicators, the homepage does not provide any evidence that the goals of a user can be completed. In addition, fundamental content is not available at any time and important content and function have not given priority on a main page.

Negative navigation indicators come through unclear category and subcategory names (users have trouble to decide where to go). Also subcategories do not come directly from their menu categories for more explanation, and search keyword is not comprehensive and precise.

Presentation problems can emerge from the website language (e.g. slang), icons, symbols or graphics that are not easy to understand. In addition, the text may be unreadable (too small or not blurred), which creates difficulty for scanning because

of the text formatting and layout. Also the form fields and interactive elements on the page are not placed logically.

Trust problems also have some indicators; absent privacy and security policies are given as a kind of weakness for the website and its functionality does not provide feedback in response to user actions. In addition, the website perhaps does not help users recover from errors as well as does not perform well.

Problem	Percentage
Do not find hoped for information	18%
Do not easily find information	16%
Feel confused about location in the website	23%
Do not find site map useful	29%
Website structure is in need of change	84%
Layout is distracting or hard to read	53%
Text is too small, too wordy or uses jargon	40%
Information is out-of-date, incomplete, inconsistent or confusing, or there is too much of it	65%
Links are difficult to pick out or their purpose/destination is unclear	43%
Response time is unacceptable	11%
Browser cannot present site content	6%

**Table 2.5: Summary of Problems (Thomas & Schmidt, 2006)**



## 2.7 Usability of eGovernment Websites

eGovernment still faces some big challenges when considering their interaction with users, largely due to the accelerated development eGovernment has faced (Følstad et al., 2004; Kumar et al., 2007; Yildiz, 2007). Current evidence cited in relevant papers suggests various reasons for this, including that usability is still one of the main problems influencing and hindering users' interaction and the adopting and development of eGovernment in many countries (Thompson et al., 2003; Stanziola et al., 2006; Al-Shafi & Weerakkody, 2007; Al-Sobhi et al., 2010; Asimwe & Lim, 2010; Donker-Kuijter et al., 2010). Beside poor usability often prevents eGovernment adoption and development, it affects the success or failure of eGovernment, and a low usability index is a major symptom of the failure of an eGovernment project.

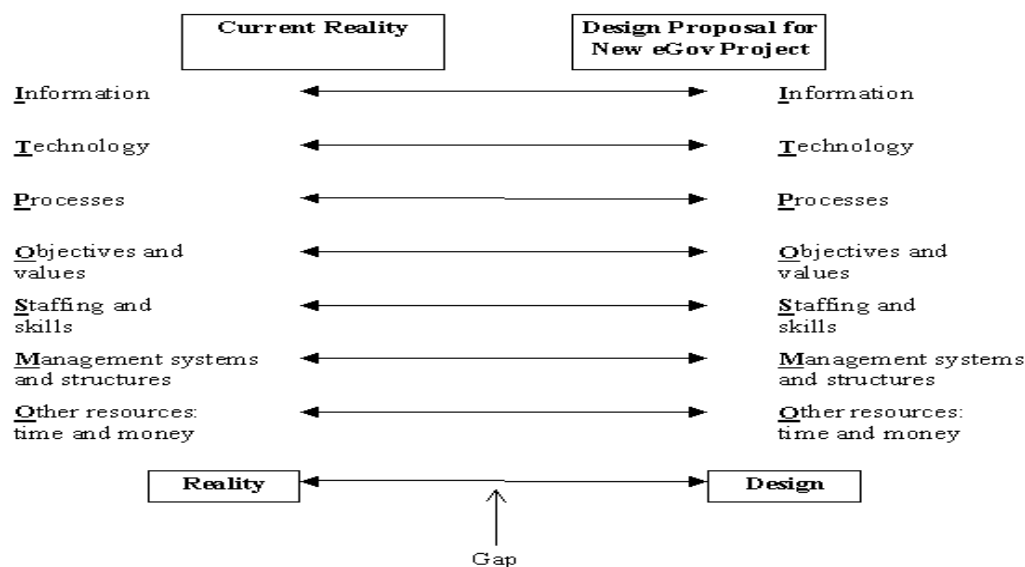
To moving forward and building a productive eGovernment services website, there is a need to focus on the eGovernment website's usability. However, it should keep in mind that services offered by eGovernment should be constructed from the viewpoint of the user; else the user will face difficulty when they come to use the website (Stanziola et al., 2006). A good level of usability for the eGovernment website does not measure by count the number of services provided but it is measure whether users' needs and expectations have been met.

Some eGovernment websites might have a number of excellent services, but if the website is not usable, only a small number of users will be able to take advantage of the available services (West, 2007). According to Pearrow (2000), "a website that is not usable is useless". By implementing better usability, eGovernment can provide a

better civil service performance, promote engagement between the user and the services and can also improve user satisfaction levels.

Fagan & Fagan (2001) and Silcock (2001) pointed out that more user-friendly and usable government websites indicate that a country is heading towards the full implementation of eGovernment services. With good usability, eGovernment websites will allow people to easily access the information only available from the government, as well as ensuring that users can use its websites irrespective of where, when or how they enter a website (Wilder, 2007; Baker, 2009).

Heeks (2003) and Choudrie et al. (2009) mentioned that in the information systems implementation, there is a gap between the reality and design and consider this to be one of the main reasons behind the failure of eGovernment projects in most developing countries. This happens despite some Middle Eastern Countries spending on eGovernment same or over other developing countries, but they do not get response when compared with other developing countries (Alsuwaidi, 2009). Users do not have much ability when using the websites to enable access of useful information and services.



**Figure 2.6: The ITPOSMO Dimensions of eGovernment Project Design-reality Gaps (Heeks, 2003)**

Although eGovernment websites should be designed with usability in mind, West (2007) mentioned that there are problems when accessing some government websites around the world due to usability. Baker (2009) pointed out that most of the users of eGovernment use websites for information services. In addition, many non-eGovernment users avoid eGovernment websites due to website usability issues.

According to Holden et al. (2003), usability plays a key role in ensuring that eGovernment fulfils its aims and eGovernment through the Internet revolution does not achieve full potential unless the website usability obstacle is acknowledged and bridged.

Weerakkody & Choudrie (2005) pointed out that website usability needs to be taken seriously in eGovernment projects, especially in the stages of planning, development and implementation. Without that, users may become frustrated and unlikely to adopt

or even use eGovernment services if they encounter problems while using a website (Carter & Bélanger, 2005).

There is no doubt that eGovernment has become a global fact and made a shift in public service delivery since its conception on the Internet (Ho, 2002; Jaeger, 2003). However, eGovernment websites have to focus on user control, needs, flexibility and satisfaction, because if websites fail to achieve these easily, from a usability perspective, the situation of eGovernment will be threatened with failure.

Usability measures not only how well the website works, but also the degree to which it meets user needs (Thompson et al., 2003). eGovernment services must be designed with ease of use being the primary design criterion in order to ensure they are accessible and easily operable by the widest possible pool of users - including people who are disabled (e.g. visual impairment) and those with less than average IT skills (Nielsen, 2000; Eynon, 2006; Stanziola et al., 2006; Shi, 2007).

A well-designed website gives hint to the user of how accessible and usable the features on the website are and can also show how the interface is enjoyable and easy to use. This ensures access to the website for users of different skill levels and abilities (Gant et al., 2002). Baker (2004) and Roach (2007) stated that friendly usability allows even the beginner users an opportunity to interact with eGovernment websites in order to achieve their goals and get the usefulness of the eGovernment website. Casaló et al. (2005) pointed out that the number of errors during the relationship between government and users would definitely be smaller with better levels of usability in eGovernment websites.

## 2.8 eGovernment in Jordan

The eGovernment program in Jordan was initiated as a national program in 2001. The goal of the program is to increase the overall quality of the services provided by the Jordanian government - by improving efficiency, accuracy, saving time and costs; and by increasing customer satisfaction, transparency and cross-government integration. It also aims to improve the interaction method and to accomplish governance tools. These improvements are expected to have a positive effect on government performance and to contribute to the relationships between the government, citizens and businesses.

Furthermore, the program is aimed at reducing the complexity for citizens when dealing with government administration and helping to make the government more transparent, accessible and responsive by providing information and services online (EDS, 2001; MoICT, 2006; Mohammad et al., 2009).

Some of Objectives of Various Governments that Deliver Electronic Services	
Country	Main Objective
Australia	Enhance economic competitiveness and government service delivery
Dubai	Reinvent government by enhancing the quality, convenience, accessibility and speed of government services
Portugal	Democratise government; emphasis on citizen services
Singapore	Enhance citizen services and stimulate information technology IT capacity development.
UK	Enhance services to citizens and businesses.

**Table 2.6: eGovernment Task Force (2000)**

The Program Management Office (PMO) was established by the Ministry of Information and Communications Technology (MoICT) to provide support for the program and manage its functions, which include e-services, shared services, operation management, technology services and change management (Elsheikh et al., 2007).

The United Nations eGovernment survey of national and ministerial websites (2010) showed that the Jordanian eGovernment percentage of utilisation of service delivery by stages of eGovernment growth model is as follows: Stage I (Emerging) = 80% of utilisation, stage II (Enhanced) = 67% of utilisation, stage III (Interactive) = 78% of utilisation, stage IV (Transactional) = 19% of utilisation, stage V (Connected) = 9% of utilisation) (UN Report, 2010).

According to Btoush (2009), almost all of the websites in Jordan are considered as being in the informative stage, which means they are only providing information about services such as contact numbers, office locations and hours of operation, a general description of the service and sometimes identifying the processes needed for a particular piece of bureaucracy.

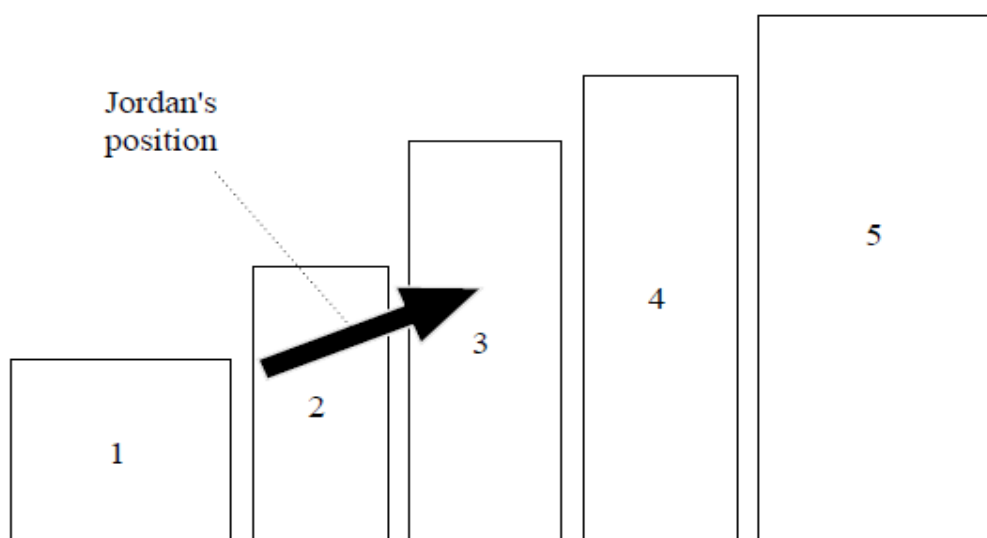
Moreover, around half of the websites can be categorised as being in the interactive stage, which provides communication with the service provider. In this stage, the user is able to communicate with the service provider by downloading basic forms or documents, but they cannot submit the forms online. In addition, although technical queries can be answered via websites, in reality, off-line methods (telephone, or more likely, going to an office in person) remain more reliable ways to obtain information

or guidance, such as responding to complaints or suggestions. The Driver and Vehicle Licensing Department, Ministry of Education, and Civil Status and Passport Department are the best examples of partial application of the interactive stage.

Some government websites provide complete interaction capabilities. These websites allow users to complete and submit online forms and provide tools for responding to online queries. The Department of Lands and Survey, Greater Amman Municipality, Ministry of Higher Education and Scientific Research and Customs Department are the best examples of the fully interactive stage.

The Income and Sales Tax department website is the only one that has reached the intercommunicative stage. In this stage users are able to access and complete transactions online. This includes filling forms electronically in order to make payments.

Elsheikh et al. (2008) mentioned that Jordanian websites provide users with downloadable forms for license renewal, and assist users when they want to contact and request some basic information, and some of the forms and applications can be submitted online; so that gives the impression of the current eGovernment system in Jordan is between stages II and III (Figure 2.7).



**Figure 2.7: The Position of eGovernment in Jordan (Elsheikh et al., 2008)**

Based on the five stages model (emerging, enhanced, interactive, transactional and connected), the services offered by the Jordanian government through the websites have so far scored the online service index of 0.53 (out of 1.00) on the United Nations eGovernment Survey (2010). The same report assessed Jordan's telecommunication infrastructure with an index of 0.18 (out of 1.00) in terms of the Internet users, PCs, main telephones lines, mobiles and availability of broadband. This measure reflects the basic level of the country's e-readiness especially the technological infrastructure readiness. (UN Report, 2010).

With comparison between the survey of UN on 2008 and the survey of UN on 2010 in Table (2.8), it is noticed that Jordan has not improved since the 2008 survey; and Jordan has in fact moved down one position.



COUNTRY	2010 INDEX	2008 INDEX	2010 RANKING	2008 RANKING
Republic of Korea	0.8785	0.8317	1	6
Singapore	0.7476	0.7009	11	23
Bahrain	0.7363	0.5723	13	42
Israel	0.6552	0.7393	26	17
Colombia	0.6125	0.5317	31	52
Malaysia	0.6101	0.6063	32	34
Cyprus	0.5705	0.6019	42	35
Kazakhstan	0.5578	0.4743	46	81
Argentina	0.5467	0.5844	48	39
United Arab Emirates	0.5349	0.6301	49	32
Kuwait	0.5290	0.5202	50	57
<b>Jordan</b>	<b>0.5278</b>	<b>0.5480</b>	<b>51</b>	<b>50</b>
Mongolia	0.5243	0.4735	53	82
Ukraine	0.5181	0.5728	54	41
Mexico	0.5150	0.5893	56	37
Saudi Arabia	0.5142	0.4935	58	70
Russian Federation	0.5136	0.5120	59	60
Brazil	0.5006	0.5679	61	45
Qatar	0.4928	0.5314	62	53
Peru	0.4923	0.5252	63	55
Belarus	0.4900	0.5213	64	56
<b>World Average</b>	<b>0.5746</b>	<b>0.5775</b>		

Table 2.7: eGovernment Development for some of the Developing Countries (UN, 2008 & 2010)

In addition, West (2006, 2007) also examined eGovernment in 198 nations based on the availability of publications, databases, and the number of online services. As shown in Table (2.9), West's study (2006) placed Jordan at number 78 with a percentage of 28.7% and in 2007 the study placed it at number 107 with a percentage of 29.6%. These results disagreed with the previous studies mentioned (UN Report, 2008 & 2010) and the reason behind this contradiction is that each study is based on different criteria and in different times.

Rank	Nation	Rating out of 100 Pts	Rank	Nation	Rating out of 100 Pts
101 (163)	Cook Islands	30.0 (22.0)	102 (164)	Cook Islands	30.0 (22.0)
103 (36)	Slovakia	29.8 (32.3)	104 (71)	Bosnia	29.8 (29.1)
105 (148)	Antigua	29.7 (23.7)	106 (74)	Maldives	29.6 (29.0)
<b>107 (78)</b>	<b>Jordan</b>	<b>29.6 (28.7)</b>	108 (60)	Nepal	29.6 (30.3)
109 (129)	San Marino	29.3 (24.3)	110 (57)	Latvia	29.0 (30.6)
111 (53)	Saint Lucia	29.0 (31.0)	112 (183)	Vanuatu	29.0 (20.0)
113 (125)	Congo	29.0 (25.0)	114 (83)	Lithuania	28.7 (28.3)
115 (22)	Ukraine	28.4 (35.0)	116 (131)	Uruguay	28.4 (24.2)
117 (52)	Nigeria	28.3 (31.1)	118 (169)	Micronesia	28.0 (21.0)
119 (75)	Mongolia	28.0 (29.0)	120 (142)	Mozambique	28.0 (24.0)
121 (180)	Niue	28.0 (20.0)	122 (167)	Samoa	28.0 (22.0)
123 (173)	Barbados	28.0 (20.0)	124 (96)	Sri Lanka	28.0 (28.0)

**Table 2.8: eGovernment Rankings 2006, 2007 (with 2006 in parentheses) (West, 2007)**

## **2.9 Usability of eGovernment Websites in Jordan**

The insufficient developments of eGovernment are stand behind not achieving eGovernment objectives in Jordan and some of the developing countries (Al-Soud & Nakata, 2010).

The majority of agencies who are working for the government and providing e-services put the majority of their focus into service delivery without considering user needs, which include the website's ease of use, the ability to assess and find the content wanted and the ability to effectively navigate and use the website.

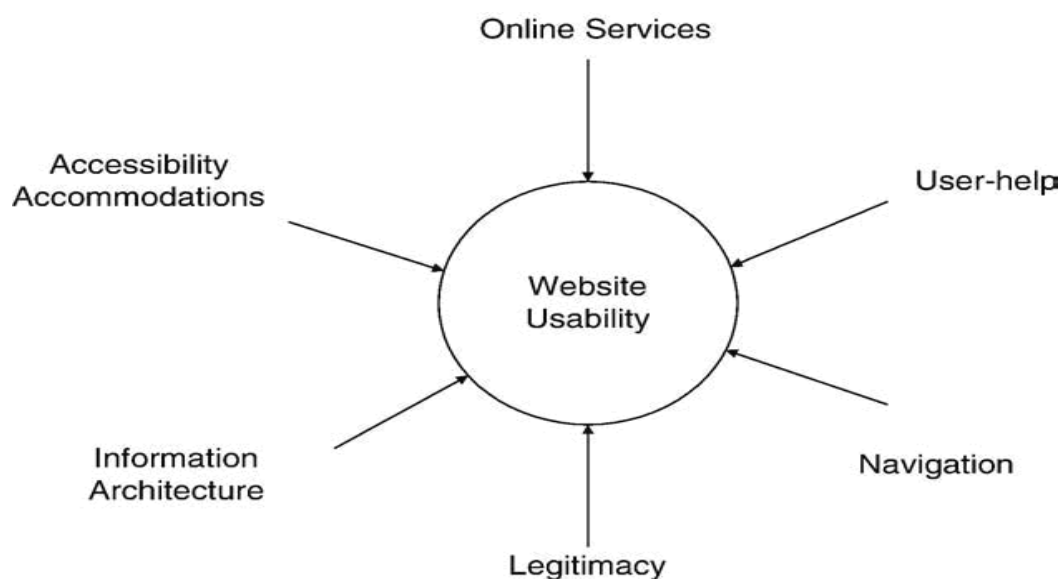
Developing countries such as Jordan have seen a gap between demand and supply of e-services, thought to be the result of a lack of achieving the user's real needs and expectations, including the usability of e-services (UNPAN, 2005; Wei & Zaho, 2005; Btoush 2009).

Reviewing the literature revealed that there are limited studies that refer to the usability of eGovernment websites in Jordan.

The study of Holzer & Kim (2007) examined some municipalities in the world in terms of privacy/security, usability, content, services and citizen participation. The usability of the websites were measured depending on criteria including user-friendly design, homepage length, targeted audience links or channels, navigation bar, website map, font colour, website search capabilities homepage, forms, search tool and regular updates of the website. The website of the Municipality of Amman

achieved 62% in terms of usability. The study concluded that there is a need for further attention in the area of website usability.

Moreover, Mofleh (2008) conducted a website content analysis study in order to measure the usability of eGovernment services websites in Jordan by adopting the same instrument that was used for the website content analysis studies for the most populated counties in the US by Baker in 2004, and for Trinidad and Tobago ministry websites by Roach in 2007. The instrument examines six dimensions of eGovernment websites. As shown in Figure (2.8), the dimensions included online services, user help provided, ease of navigation, legitimacy, information architecture, and accessibility accommodations.



**Figure 2.8: Website Usability Dimensions (Baker, 2004)**

The reported results for Jordanian Government websites showed a low usability status, averaging at 29%. This score is poor when compared with the usability average in the study of the most populated counties in the USA, which have an average of 70% (Baker, 2004), and Trinidad and Tobago ministry websites, which averaged 54% (Roach, 2007).

Mofleh's websites' content analysis of usability revealed that despite the Government in Jordan providing informative services, the reality is that the development of websites ignored the needs of the users and did not meet their expectations. Accordingly, this ignorance built a gap between the Government and users' perspectives about eGovernment. This result shows that Jordanian Government websites are in the informative stage, and have a poor design (hard to navigate, not user friendly) and do not meet citizens' needs. Moreover, there are problems with the construction of the websites, indicating a lack of understanding of basic standards to deliver well-constructed eGovernment services.

Comparing the website content analysis studies of Holzer & Kim (2007) and Mofleh (2008) reveals a contradiction regarding the usability of the Amman Municipality website; the former gave it 62%, while the latter awarded 41%. This contradiction is due to each study measuring the usability based on different aspects.

Another study conducted by Al-Soud & Nakata (2010) examined the governmental websites in Jordan in terms of their accessibility, usability, transparency, and responsiveness to citizens' request. The websites were examined manually for the presence of 12 features: offices phone numbers, offices address, online publications,

external links to other websites, delivery of information in multiple ways, availability of bi-lingual information, the website map, frequently asked questions, online services, email address, search capability and broadcast of events.

The main fact identified in the study is that websites appear to suffer from a lack of consistency in standards and features. In addition, it was also revealed that a lack of consideration of citizen expectations and needs also exists largely due to the absence of features to aid in the facilitation of user interaction.

The study also determined that there is a clear need to construct unified standards for all websites that provide online services to the public as a means to minimise user confusion when using a range of different services provided by one government.

It is worth mentioning that the most important limitation of the mentioned studies was that the end-user view point was absent.

## **2.10 Related Studies in Usability of eGovernment**

According to Cappel & Huang (2007), website usability is a broad concept that consists of many aspects of design. However, various studies have referred to design issues which affect websites usability.

### **2.10.1 Some Municipalities in the World**

Holzer & Kim (2007) conducted a study to evaluate the status of some municipalities in the world. The evaluation of the study stated that municipalities of Seoul, Hong Kong, Helsinki, Singapore and Madrid have scored as top cities in digital

governance. The study evaluated municipal websites by using five elements: (1) Privacy/Security; (2) Usability; (3) Content; (4) Services; and (5) Citizen Participation.

The usability of the websites were measured depending on varying criteria, which includes: user-friendly design, homepage length, targeted audience links or channels, navigation bar, website map, font colour, website search capabilities homepage, forms, search tool, update of website.

The study tried to understand if websites were “user-friendly”. The study claims that the websites of municipalities of Madrid, London, Seoul, Helsinki and Buenos Aires have scored the highest in terms of Usability.

Ranking	City	Country	Score
1	Madrid	Spain	18.75
1	London	UK	18.75
3	Seoul	Republic of Korea	18.13
4	Helsinki	Finland	17.82
5	Buenos Aires	Argentina	17.19
6	Singapore	Singapore	16.57
7	Hong Kong	Hong Kong	16.35
8	Toronto	Canada	16.25
9	Zurich	Switzerland	15.63
9	Sydney	Australia	15.63

**Table 2.9: Top 10 Cities in Usability (Holzer & Kim, 2007)**

With score of 18.75, London and Madrid took the first place and Seoul followed in the third place with a score of 18.13. Table (2.10) summarizes the top 10 municipalities in terms of usability evaluation.

As an example and as it received the first position in terms of usability, the city of Madrid's homepage is very user-friendly and attractive and provides targeted audience links that are available on each page. The website offers a searchable database that provides minutes of public meetings, budget documents in downloadable formats, city ordinance, city regulations and contact information for agencies and administrators.

At the end, Holzer & Kim (2007) concluded that there is a need for further attention in the area of usability via municipal websites.

### **2.10.2 New Jersey's 10 Largest Municipalities Websites**

In another study, Holzer & Melitski (2003) studied the usability of New Jersey's 10 largest municipalities (Table 2.11). The keywords of usability assessment were: user-friendly design, branding, length of homepage, targeted audience links or channels and website search capabilities. According to the study, municipal web pages were professional looking, the fonts and colours used were consistent, and bars of navigation were found and worked well. However, using more effective search tools is needed for municipalities' websites. Municipalities also need to offer advanced search features for their websites in order to allow users the option of narrowing or sorting results. The usability average score was 9.63 out of 20 for the municipalities analysed in the study.



Rank Order	Municipality	Usability	Security/ Privacy	Content	Service Provision	Citizen participation	Total
1	Hamilton	14.73	3.92	6.08	5	10	39.75
2	Trenton	13.15	0.71	2.60	3.18	6.5	26.16
3	Edison	7.89	0	3.26	4.09	6	21.24
4	Newark	7.89	0	1.52	3.86	7.5	20.78
5	Dover	8.68	0	3.04	2.27	6	20.00
6	Camden	9.73	0	3.47	4.09	0.5	17.80
7	Woodbridge	8.15	1.07	2.82	2.95	2	17.00
8	Elizabeth	9.47	0.35	2.17	2.27	2	16.27
9	Paterson	8.94	0	1.08	1.13	0	11.17
10	Jersey City	7.63	0	0.86	0.22	2	10.72

**Table 2.10: eGovernment Scores of New Jersey Municipalities (Holzer & Melitski, 2003)**

### **2.10.3 Department of Defence (DoD) and Social Security Administration (SSA) Websites in USA**

Also Wilder (2007) conducted a study to determine the usability of the Department of Defence (DoD) and the Social Security Administration (SSA) websites in the USA. According to the study, the DoD homepage has a professional appearance but the SSA homepage is simpler and its appearance more practical than the DoD.

All information on the DoD's page is wealth and related as well as the navigation options on the left and right. The SSA website has plenty of space white and all information is presented according to topic in smart groups.

As for navigation, when clicking on a news article on the DoD homepage the users will be sent to a new page without having a back button activated. The users should click on the title banner to back to homepage while SSA has link to return users to the homepage.

The DoD website does not have a feature that designates used links by using colour changes that indicate to users that a link had visited, while the SSA has and this feature increases user speed when finding information.

The use of a minimum font size of 12 on all webpages is standard and sometimes users over 65 may need a larger size such as 14 in order to avoid reading problems. The SSA website has large picture labelled “Need BIG Text?” to help its older users while DoD uses only larger font to attract the user’s attention for news headlines.

Both the Department of Defence (DoD) webpage and the Social Security Administration (SSA) webpage were in compliance with the majority of the usability guidelines. The results shown in Table (2.12) that both websites were compliant with government usability resources. The DoD website has taken 74% in compliance in terms of the guidelines while the SSA website has taken 84% in compliance with the guidelines as well.

Website	Number of Guidelines	Percentage
Department of Defence	15/20	74%
Social Security Administration	18/20	89%

**Table 2.11: Results of Website Analysis for DoD and SSA (Wilder, 2007)**

#### 2.10.4 The Basque Country and Madrid in Spain

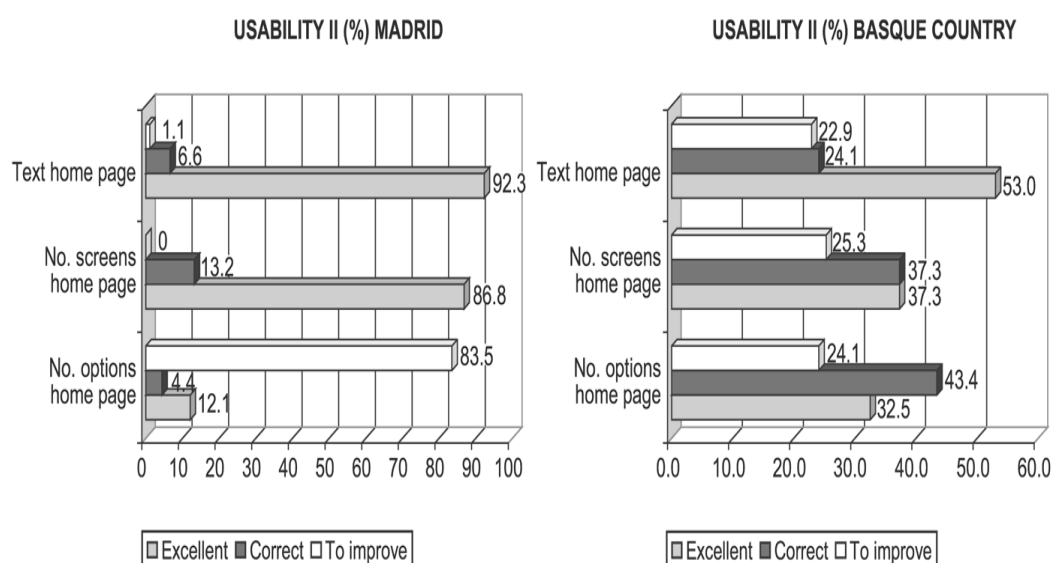
Criado & Ramilo (2003) conducted a study to determine the indicators about tools used to facilitate navigation and homepage information effectiveness in (the Basque country and Madrid websites) in Spain.

As shown in Table (2.13), the first group consisted of tools that can be applied in easy way to give advice about internal organisational structure (search engine, website map and overview diagram).

	Search Engine (%)	Website Map (%)	Overview Diagram (%)
Madrid	4.4	4.4	13.2
Basque	16.9	19.3	63.9

**Table 2.12: Indicators of Usability (Criado & Ramilo, 2003)**

The second group (as shown in Figure 2.9) consisted of the number of screens and options, and the text in the homepage proposes homepage efficiency to monitor users' visits (excellent indicates to up to one screen, up to seven options and no text but only options).



**Figure 2.9: Indicators of Usability II (Criado & Ramilo, 2003)**

Results described less attention to navigation tools than facilities within homepages. The first group indicated that there is a low percentage of presence (only the Basque Country reaches 64% in terms of overview diagram); in short, all offer an excellent opportunity to improve the usability of eGovernment for the citizens.

The second group of indicators measure the first gate of virtual organisations. The results were positive in the majority of cases; the main interest tested some indicators measuring website openness and closeness to the citizens from that accessing gate.

### **2.10.5 eGovernment Websites in Kenya, Tanzania and Uganda**

Kaaya (2004) conducted a study to determine the status of eGovernment websites usability of three East African countries - Kenya, Tanzania and Uganda. As shown in Table (2.14), usability attributes included important links, contact information,

interactivity and languages used. The study concluded that all the websites of the East African governments are at the early stages (first and second stage) of website development and eGovernment services.

Website	Kenya	Tanzania	Uganda
Hot-Linking contact	7	21	17
User searching features	0	4	11
Downloadable forms/materials	4	15	14
Feedback features	6	4	10
Online submission of downloadable forms/materials	0	1	0
Total	17	45	50

**Table 2.13: Number of Government Websites in East Africa that Exhibit User Interactivity Features (Kaaya, 2004)**

In addition, Asiimwe & Lim (2010) investigated the usability of four government websites in Uganda. The investigation looked at design layout, navigation and legal policies perspectives. Results show that websites are partially usable in terms of the design layout and navigation, but are rather weak in stating legal policies.

#### **2.10.6 Evaluation of the Usability of Saudi eGovernment Websites**

Al-Khalifa (2010) conducted a study to evaluate the usability of 14 Saudi eGovernment websites using the heuristic evaluation technique. The evaluation was based on fifty-seven questions covering six components including design and

consistency, navigation, data entry form, search functionality, content precision and information privacy, and help and feedback (Table 2.15).

Component	Description	Number of Heuristics
Design and consistency	Visually appealing design with consistent look and feel	10
Navigation	Proper navigation system that aids the user when browsing the website	11
Data entry forms	Clear and easy to fill forms	8
Search functionality	Effective search feature which enables users to locate the required information easily	7
Content precision and information privacy	Content must be precise and recent with clear information privacy policy	13
Help and feedback	The website has an effective mechanism to help its users and provide them with the proper feedback	8

**Table 2.14: Listing of the Number of Examined Heuristics (Al-Khalifa, 2010)**

Although the Saudi Arabian government is working tirelessly to provide a range of outstanding electronic services to their citizens, their websites have not fully met any of the proposed components. All of the components scored over half of the results, which may indicate a potential towards implementing the best usability practices.

Moreover, usability problems were identified, which helped to highlight areas for improvement. In addition, this study suggests that if the government was to improve their usability levels, there must be further evaluation assessments carried out in order to test usability with real people and to fix any problems these tests identify.

## 2.11 Recommendations for Better Websites Usability

West (2007) made several recommendations that might make eGovernment websites more accessible and usable, including:

- Standardise templates with consistent navigation: governments need to shift into standardisation between all the website agencies. However, to avoid confusion, it is important to differentiate between different agencies, such as showing the logo of agencies prominently and making significant colour differentials between websites.
- Create accessibility aids to reduce confusion: governments should implement some aids for users, as they sometimes need aids to customise their needs (i.e. change and choose the text size, line spacing, text colour).
- List when pages are updated: government should refer to when pages were last updated.
- Have personalised sections: it is very helpful when websites had personalised sections of their websites for main segments of the population (citizen, business and student).
- Have an online services menu: it is better for a government website to list everything it is able to achieve online in the same place, and to also create lists based on groups or categories.
- Make 'most popular' lists: government websites need to provide boxes with frequently required services to help users utilise the website quickly.

- Have interactive technological assistance: although advanced technology and eGovernments have come to leave dealing with real individuals, no matter if the website provides immediate message conversation with a service representative to ask questions about how to use the website during most office hours.
- Make it attractive or interesting: as far as possible without superfluous information and graphics, web pages should be interesting and engaging.
- Avoid commercial advertising: the goal of eGovernment website is not gaining profit, credibility and appeal are going down when the advertisements start to appear due to the users coming to the website in order to get services, information or help from government.
- Fix faulty links: government website should make sure all its links are not broken, and allow easy clicking and linking to avoid frustration.
- Improve language accessibility: any government website should offer multiple languages to allow any overseas users (i.e. students, tourists) to communicate and get their information.
- Do not sell domain names: the new users or might the old users who do not know about the new domain site may fall for a scam or trick website.

## **2.12 Summary and Conclusion**

From analysing the existing literature related to eGovernment usability, it was found that although there was a development of the eGovernment project, as well as there is a good relatively number of users willing to use eGovernment websites, there still



appears to be challenges that eGovernment faces relating to the interaction of users when accessing information and utilising the services.

In addition, there was clear evidence from existing literature that usability is considered as one of the principle factors to influence user interaction and adoption of eGovernment, which therefore determines eGovernment's success.

Furthermore, it was found that the existing research had not paid enough attention to investigating the usability of current eGovernments so far in developing countries, particularly in Jordan.

Although usability of eGovernment websites is useful for developing countries in general and Jordan as a case study, the existing literature highlighted that Jordanian eGovernment websites suffer from a lack of consistency in principles and features.

Due to the absence of various features that aid a user's interaction process, it has been determined that there is a distinct lack of consideration relating to citizen expectations and needs. In other words, during the construction and design of Jordanian eGovernment websites, the expectations and needs of end-users have been ignored, and no account has been given of what Jordanians want from the existing system. This indicates that there is still problem in eGovernment website usability in Jordan.

## **Chapter Three: eGovernment Websites Usability in Jordan, Managements' Perspective**

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### **3.1 Introduction**

The literature review chapter provided general and useful information about the general status of eGovernment websites usability in Jordan.

However, in order to expand on the existing studies and before starting into investigating the end-user views, this chapter was started by the views of eGovernment management in Jordan. This way achieves the objective of the study which is to investigate the level of usability of the existing eGovernment in Jordan from the management perspective.

The level of usability of the existing eGovernment infrastructure in Jordan was investigated by soliciting the views of the management, i.e. the professionals in charge of managing eGovernment projects. The management was addressed in order to gain an understanding of the root causes of the existing usability problems.

The study was based on administrated questionnaire which was distributed to managers from different institutions providing eGovernment services. The results of the study are believed to add to the existing body of knowledge by identifying some main points that could help in improving the usability of websites in Jordan for future websites.

Unearthing the views of those in the position to make a change, these findings are useful not only in the context of redefining the strategy for improving eGovernment in Jordan, but also in other developing countries.

This chapter is structured as sections, the next section includes methodology, it is followed by section which includes outcomes, then section which includes discussion and finally section which includes summary and conclusion.

### **3.2 Methodology**

Since the objective of this study is to investigate the level of usability of the existing eGovernment in Jordan from the management perspective, the study was focused on the views of professionals in charge of managing and maintaining eGovernment projects in Jordan.

The management was addressed in order to gain an understanding of the root causes of the existing usability problems. According to Wang & Huang (2009), professionals can carry out structured assessment and answer questions quickly and directly. This study took the same approach used by Roach (2007) in the study of Trinidad and Tobago ministry websites. In short, the following issues were examined in this study:

- The study participants' points of view on the existing state of eGovernment website usability, as well as their understanding of the usability concept.

- The factors affecting the successful eGovernment deployment. These factors include training and practice, incentives, users' feedback mechanisms, challenges and available resources.

### **3.2.1 Questionnaire Structure**

The questionnaire was organised into sections; the introduction section covered the demographics and professional status of the participants and the level of their engagement and experience with the eGovernment in Jordan. The second section addressed the understanding of the eGovernment and usability issues while the last section covered the factors affecting the usability of eGovernment in Jordan. The questionnaire items have been measured using a standard five point likert scale.

### **3.2.2 Sample**

As stated earlier, since the objective of this study is to investigate the level of usability of the existing eGovernment in Jordan from the management perspective, the study sample was based on the views of professionals in charge of managing and maintaining eGovernment project in Jordan.

The study involved a sample of 37 managers, in various capacities, and all were responsible for the uptake of eGovernment in Jordan.

The sample number of participants was not large. This is because recruiting such staff is not an easy task due to they are considered a limited number as well as limited accessibility into officials' managers and time availability. However, this has been more reliable since the questionnaire has been conducted face to face and

verbally administered. Fortunately, the participants represented the governmental institutions which are involved in typical types of public services in Jordan. All the institutions are located in Amman, the capital of Jordan.

### **3.2.3 Procedure**

As stated above, the study applied the questionnaire technique. According to Hsieh & Huang (2008) questionnaire is an easy, inexpensive, effective, and efficient ways to collect data in scientific investigations.

Studying the previous literature and related projects have lead to construct questionnaire which has been piloted then refine into final questionnaire. During building the questionnaire, questions were focused on the main issues with emphasis on using short, simple unbiased language.

The questionnaire was originally designed in English. Additionally, the questionnaire was translated into Arabic in order to offer a copy of the questionnaire for participants; especially those who have problems in English and prefer answering in Arabic to achieve the full understanding of the questions.

Questionnaire can be self administered, where the participant answers the questions alone, or researcher administered, where the researcher asks participant question by questions. In this study, the questionnaire was administered personally by the researcher to ensure the participants full understanding for all the questions. All the participants were visited by the researcher. Table (3.1) shows the Jordanian institutions which were involved in the study.

Government Institutions
Civil Status and Passport Department
Driver and Vehicle License Department
Education Ministry
Income and Sales Tax Department
Interior Ministry
Jordan Customs Department
Lands and Surveys Departments
Social Security Corporation

**Table 3.1: The Governmental Institutions**

The questionnaire took on average 20 minutes to complete. Upon completion of all the participants, the questions and their responses were coded to be analysed using SPSS software.

### **3.2.4 Ethical Considerations**

Ethical research requires having permission from people in order to conduct the research before it starts. The researcher should explain to all participants what the research is about and their role, in order to agree to participate in the research voluntarily. In this research, the importance of the research was explained to all the managers who participated in the first study and their permission was obtained to use the data gathered as part of the research with a guarantee that their personal information will remain confidential and will not be declared in any circumstances.

### 3.3 Analysis and Outcomes

#### 3.3.1 Sample Distribution

As shown in Table (3.2), the study participants were aged between 22 to 65 years, with the majority (over 60%) being between 22 to 40 years. 76% of the participants were male and 24% were female.

		Percentage
<b>Gender</b>	Male	76.0
	Female	24.0
<b>Age</b>	22-30	33.4
	31-40	31.0
	41-50	19.7
	51-65	15.9
<b>Educational Degree</b>	Postgraduate	32.0
	Bachelor	54.0
	Other	14.0
<b>Engagement and Experience with eGovernment Project</b>	Less than 1 year	13.0
	Between 1-2 years	22.0
	Between 2-4 years	41.0
	More than 4 years	24.0
	Total	100

**Table 3.2: Demographics, Professional Status and Experience with eGovernment Project**

The majority of the participants hold bachelor degrees (54%) in disciplines such as computer science, computer information systems, computer engineering, and management information systems; around 32% had postgraduate degrees.

24% of the participants have worked with the eGovernment project for more than 4 years, 41% for between 2 and 4 years, 22% for 1 to 2 years and 13% for less than 1 year. Roles of the participants varied from one institution to another, their positions were varied from manager of information technology, manager of eGovernment project to manager of administrative development and training.

### **3.3.2 Reliability**

According to Hair et al (2006) and Sekaran & Roger (2010), the level of consistency between multiple variables is data reliability. High reliability is determined if variables in the same measuring group are correlated within others. The most common test for data reliability is Cronbach Alpha which determines how closely each variable is related to the remaining variables' sum, using a multi-point scale for measuring consistency among individual items.

In this study, in order to ensure high data reliability, a pilot study was run and some changes and improvements to the draft questionnaire were made based on the feedback to final draft of the questionnaire. Afterwards, Cronbach Alpha test was carried out in order to assess the reliability of the obtained data. Cronbach alpha was found to be above 0.70 (varied between 0.87-0.94). Such values are considered acceptable according to Hair et al (2006).



### 3.3.3 The Outcomes

It was clear that nearly 67% of respondents think that usability is an important element of success or failure of eGovernment projects, while 8% of respondents thought the opposite, and 25% of respondents did not know much about usability.

The usability of eGovernment in Jordan was also addressed in terms of the issue of user interfacing. 59% of the participants have experienced average and below average satisfaction with the interfaces of eGovernment websites, while just 35% thought the interfacing was very good and good, and 6% poor.

The user's experience with eGovernment website (user's perspective) was measured from the feedback and complaints sent to the service providers.

It was found that 27% of the system users believed that the current website is a bit confusing to follow, and difficult to navigate. Additionally, 25% of the feedbacks which obtained from the users were not happy about the appearance of the website while 22% considered lack of customization as a major problem. Moreover, 19% of the system user's believed that the website does not have an efficient search to facilitate information acquirement.

The results also showed that around 59% of respondents did not pay attention to the end-user requirements before establishing the eGovernment websites (Table 3.3), while 35% did. Moreover, after launching the eGovernment system, only 45% of respondents investigated the requirements of the end-users for further developments.

	Yes, Possibly yes	Not sure	No, Possibly no	Mean	SD
Paid attention to the end user requirements before establishing the eGovernment website	35%	6%	59%	2.51	1.909
Surveyed the requirements of end user after launching eGovernment system for further improvement	45%	4%	51%	2.78	1.902

**Table 3.3: Paying Attention to End-users**

Moreover, it is observed that 57% of respondents believe that a mechanism such as email and FAQs is sufficient to address the problems encountered by the users, while 43% of respondents had the opposite views. As for the incentives, the majority of the respondents (78%) stated that the government in Jordan does not offer any incentives to encourage the usage of its eGovernment websites.

After asking the managers about their views on the biggest challenges of making a website usable to the end-users (Table 3.4), 73% thought that lack of awareness of usability amongst the management is the first challenge, followed by lack of involvement of the end-users in the state of design (62%). In addition, 54% focused on lack of budget as the main challenge, followed by 48% for lack of feedback from end-users. Finally, the lack of expert website designers and management problems were taken 48% and 29% respectively as the major challenges.

	Strongly agree, Agree	Not sure	Strongly disagree, Disagree	Mean	SD
Lack of awareness of usability	73%	8%	19%	4.72	0.450
Not involving end-user in the stage of design.	62%	11%	27%	3.56	1.385
Lack of budget	54%	16%	30%	3.45	1.282
Lack of feedback from end-users	48%	23%	29%	3.40	1.517
Lack of expert website designers	47%	26%	27%	3.08	1.299
Management problems	30%	14%	56%	2.62	1.497

**Table 3.4: Biggest Challenges of Making a Website Usable for End-users**

When the respondents were asked what resources they thought would be most helpful to enhance and increase usability of existing eGovernment websites (Table 3.5), 78% indicated for clear guidelines and standards, followed by 67% for involving end-users, then 66% increased budget, and finally 64% for more well-trained staff would have the biggest impact.

	Strongly agree, Agree	Not sure	Strongly disagree, Disagree	Mean	SD
Clear guidelines and standards	78%	12%	10%	3.97	1.166
Involving end-users	67%	19%	14%	3.83	1.236
More budget	66%	13%	21%	3.75	1.320
Trained staff	64%	14%	22%	3.64	1.274

**Table 3.5: Improving and Increasing Usability**

Staff training is considered as an important factor to execute project successfully. Hence, this was investigated with a focus on the usability aspects. As shown in Table (3.6), it was noticed that 62% of the respondents (this includes all staff who are in charge of running eGovernment services) did not attend any training on the usability of eGovernment websites before or after the project was established, while only 35% mentioned that they did some training sessions.

	Yes, Possibly yes	Not sure	No, Possibly no	Mean	SD
Attending training on usability of eGovernment websites before or after the project	35%	3%	62%	2.56	1.818

**Table 3.6: Attending Training**

### 3.4 Discussion

eGovernment services should be constructed from the viewpoint of the user; otherwise, users will face difficulty to use and learn (Stanziola et al., 2006). However, that contradicted the reality from the conducted study, which revealed that eGovernment websites in Jordan did not pay significant attention to the end users' requirements before establishing the websites or after launching them for further developments. This indicates that the existing system possibly does not satisfy the users' needs and is not considered sufficient. This is in agreement with Mofleh (2008) and Mohammad (2009), who pointed out that during the construction and

design of Jordanian eGovernment websites, the expectations and needs of end-users have been ignored, and no account taken of what they want from the existing system.

Although eGovernment project in Jordan does not pay much attention on users' needs and requirements, it does not also offer any incentives to increase and encourage the usage of its eGovernment websites. SESRIC (2009) pointed out that to encourage the use of eGovernment services, users should be provided with incentives in order to encourage them to carry out their needs online. The existing eGovernment websites in Jordan needs to increase incentives to persuade and encourage people to use online services, such as providing faster service delivery.

Implementing imported systems from developed countries has been perceived by the Jordanian government as an appropriate form of action to adopt such new services. However, this is considered as a clear indication that the requirements for the real users as well as other factors such as knowledge, culture and the different needs have been ignored. Mofleh (2008) mentioned that Jordanian government is importing methods applied in advanced countries with the belief they are adding value to citizens.

In addition, there is a lack of trust between the users and eGovernment project. This sometimes is considered as an encouraging reason for the users to be uncooperative in participation. Users believe that government will not consider their views seriously and will apply its proposal at the end. According to Szeremeta & Kerby (2005) users will not answer questionnaire or even not participate in eGovernment if there is no trust to deal with their views seriously by the government.

Furthermore, the responsible staff in eGovernment project in Jordan should consider involving end-users and consider their feedback in the initial stage of websites design seriously in order to achieve satisfied level of usability. Stanziola et al (2006) mentioned that the participation of users during the design process increases their feeling of not being ignored, and encourages the adoption of any new system.

Although two third of the respondents believed that the usability is an important factor for eGovernment project to become either successful or failure. However, the lack of usability awareness remains one of the biggest challenging factors for making websites usable for the Jordanian end-users. This strongly suggests a very limited understanding of usability and its importance for the success of the websites. On the other hand, this lack of usability awareness costs time and effort, with a detrimental impact on productivity, which could ultimately decide the success or failure of the system (Jordan, 1998).

This is not surprising as eGovernment project in Jordan has been facing problems with the majority of staff not attending any training on the usability of eGovernment before or even after the establishment of the project to understand the system within a limited budget. Therefore, eGovernment project in Jordan should direct its effort towards obtaining qualified staff, providing training schemes and other necessary skills as well as providing higher budgets in order to ensure a successful project implementation.

The conducted study also tried to know the respondents views about the websites interfaces of their institutions. Accordingly, it concluded that over half of

respondents experienced average and below average satisfaction of the interfaces of the current eGovernment websites in Jordan. It seems that the lack of applying the website usability standards affected the quality of the interfaces of the Jordanian governmental websites.

This is not surprising as Mofleh (2008) stated that eGovernment websites in Jordan were developed by the IT government departments' teams, and the rest were developed by different certified IT companies in Jordan, and each one has a different layout and architecture. This need to be changed and Jordanian government websites should follow the usability standards in order to make its websites usable and consistent.

Finally, the Jordanian government has invested in eGovernment, however it seems that the investment has not been accompanied with frameworks or guidelines on eGovernment usability to ensure the success of this project and to encourage both citizens and government to fully utilise them. The eGovernment in Jordan should adapt to users' needs and expectations, and this will not be achieved unless they prioritise the usability dimension.

### **3.5 Summary and Conclusion**

Despite several studies having been done about eGovernment in Jordan, there is still a lack of research to tackle usability issues. Therefore, this exploratory study is trying to fill this gap by focusing on the views of professionals in charge of managing eGovernment project in Jordan from the perspective of eGovernment usability.

Based on the results, it was concluded that the main problems which undermining the Jordanian eGovernment usability that there are still no clear guidelines with regards to websites usability that the websites managements should follow, particularly lack of usability awareness amongst the management and citizen participation at the website design phase. These are considered as challenges facing usability of Government websites in Jordan.

Although all the investment by the Jordanian government into the eGovernment project, the absence of clear guidelines to govern eGovernment project initiation and operation might inhibit many difficulties to take off.

In addition to the fact that Jordanian governmental websites have not accommodated usability standards, there is no awareness of users' needs and expectations. The limited budget of Jordanian eGovernment project and lack of expert web-designers are also considered as significant problems encountering the improvement of the usability of eGovernment websites in Jordan.

It is important at this stage that the Jordanian eGovernment should address the current problems to ensure the provision of usable eGovernment websites in Jordan.

The findings of this research has highlighted the need for further work in order to attract more attention to those identified as significant issues for failure or success eGovernment implementation. These issues are not important only from the perspective of Jordanian eGovernment but also to those of other developing countries.



The following chapter will present the further steps in this research in order to understand more about the situation of Jordanian eGovernment websites.

## **Chapter Four: eGovernment Websites Usability in Jordan, End-users' Perspective**

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### **4.1 Introduction**

The Findings presented in previous chapter which was focused on the views of professionals in charge of managing and maintaining eGovernment project in Jordan pointed out that there are number of problems facing the eGovernment websites in Jordan should overcome to be more usable.

However, before moving into focusing on building a roadmap or proposing any solution for improving the usability of eGovernment websites in Jordan, it is important to investigate the status of the usability of the existing eGovernment websites in Jordan from the perspective of end users. Therefore research presented in this chapter has tested five websites which were selected to provide a cross-section of typical eGovernment public services in Jordan. The study measurement includes navigation, search, customization, appearance, and overall satisfaction.

The results of the study are believed to add to the existing body of knowledge by identifying some main points that could help in improving the usability of websites in Jordan for future websites. In addition, it is useful not only from the perspective of improving Jordanian eGovernment services, but also to those of other developing countries which may share the same culture and situation, particularly in the Arab states.

This chapter is divided into sections. In addition to this section which has an introduction, the second section includes methodology, the third section includes analysis and the outcomes, while the fourth section includes discussion and finally the fifth section includes summary and conclusion.

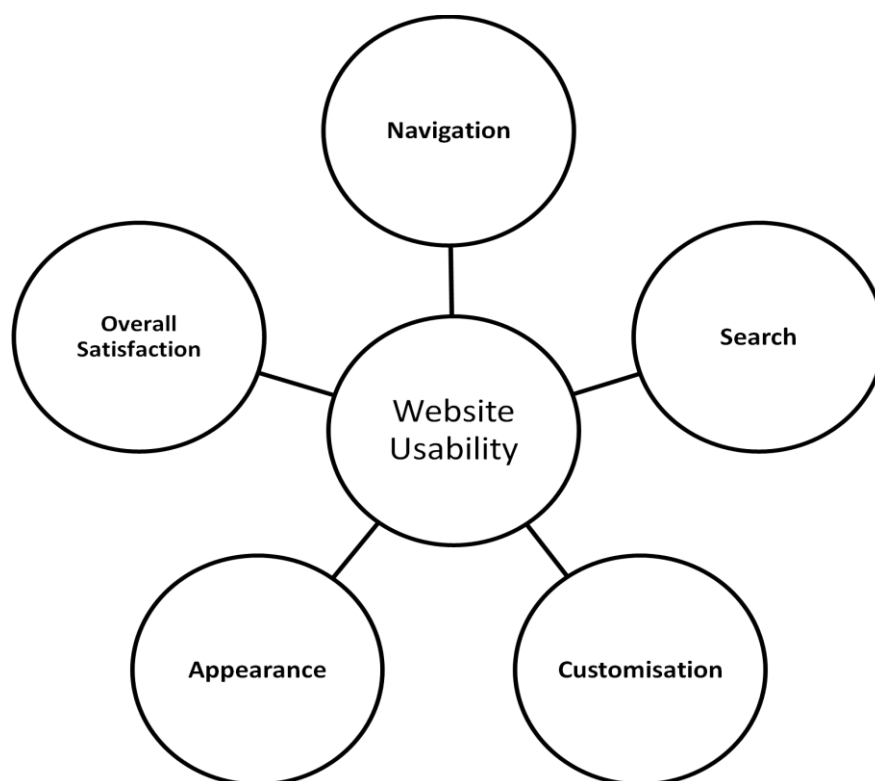
## **4.2 Methodology**

Since the objective of this study is to investigate the status of the usability of the existing eGovernment websites in Jordan from the perspective of end users, the approach was based on user testing.

According to Al-Soud & Nakata (2010), automated testing tools have mainly been used in studies of eGovernment websites. These tools identify potentially problematic errors. Despite their utility in identifying whether websites are accessible or inaccessible, the issues of functionality and usability remain undetected and unaddressed by non-human systems because there are many problems cannot be identified without real users.

The end-user experience is considered one of the most important factors affecting the success or failure of eGovernment websites usability. Hence, in investigating the status of usability of the existing eGovernment websites in Jordan, this study focused on the end-user perspective and assessed:

- **Navigation:** the users' ability to move through the website and find their way easily in order to get services and information with the ability of users to identify their location at any moment of the navigation.
- **Search:** determine if help is available for searching on website, and allow users to search directly for the desired services or information in the website and how its accuracy.
- **Customization:** the ability to meet the direct needs and allow users customize what they want or need without needing to ask for it to facilitate their visiting to the website in order to reach the needs and goals as fast as they can.
- **Appearance:** a visual appearance that helps to persuade users that website is the website they have been looking for. Good website appearance can be used also to help some people in remembering and learning; and might also help building trust.
- **Overall satisfaction:** How much does the user like or dislike using the website? (was it good or bad experience) does user recommend it to others? The aim is to find out what people think and feel about using a website.



**Figure 4.1: Usability Requirements**

These requirements which affect websites usability were identified through literature review (Baker, 2004; Banati et al., 2006; Byun & Finnie (2011); Cardello & Nielson, 2010; Holzer & Kim, 2007; Markaki et al., 2011; Reichheld et al., 2000; Roach, 2007; Teoh et al., 2009; Thorbjornsen et al., 2002).

Kumar et al. (2007) stated that paying more attention to such requirements helps attract users to visit the websites frequently. Therefore, such issues can help increase the usability of government websites. Regarding the customization, since it is not applicable to the existing websites in Jordan, the study participants were asked to

give their opinions in order to identify whether the customization should be implemented or not.

The participants were asked to carry out a number of pre-selected tasks on a given website and a questionnaire was administered accordingly to elicit their experience regarding the navigation, search capabilities, customization, appearance and overall satisfaction.

#### **4.2.1 Data Collection Method**

Usability testing refers to collecting data about users when they perform tasks. Data collection should be after allowing participants try the website and obtain their feedback at the end of the testing (Teoh et al., 2009).

Several methods have been suggested in order to measure usability of websites. The measurements here need to find out the usability of the websites from the user's point of view.

According to Jeng (2005) and Pearrow (2007) inspection method and the user test method are main forms methods to assess website usability. Literature mentioned to heuristic evaluation and cognitive walkthrough as example of inspection method (Nielsen, 1993; Thompson et al., 2003; Jeng, 2005). However, the role of the end-users is restricted in this method (Banati et al., 2006). The second method is called user testing method which is based mainly on the use of questionnaires (Hsieh & Huang, 2008; Thompson et al., 2003).

Banati et al (2006), Hsieh & Huang (2008) and Thompson et al (2003) suggested using the user testing methods such as questionnaires to collect data whilst users use the system in order to achieve selected tasks. User testing method is considered as an important and helpful way of measuring the websites usability because it gives direct information about end-users' interaction with the interfaces (Nielsen & Mack, 1994).

The aim of test questionnaire is to collect users' point of views, previous experience and demographic data from the users in the usability testing. According to Hsieh & Huang (2008) questionnaire is an easy, flexible, effective, and efficient ways to investigate the usability problems. Participants can be drawn to specific subjects by questionnaire, focussing attention on phenomena of interest, ensuring uniform areas are covered for each participant; and the responses can be obtained quickly. In this study, the questionnaire was used to collect users' views and about their experience after they use the websites in order to achieve selected tasks.

#### **4.2.2 Questionnaire Structure**

The questionnaire was organised into two parts: pre-test questionnaire, which covered the demographics and professional status of the participants in addition to their experience with the technology usage (7 questions); and post-test questionnaire, investigating navigation (8 questions), search (5 questions), customization (8 questions), appearance (10 questions) and overall satisfaction (7 questions). As customization is not applicable to the existing websites in Jordan, the study asked end-users to identify whether customization should be implemented or not in future

websites. The questionnaire items have been measured using a standard five-point Likert scale.

#### **4.2.3 Pilot Study**

Due to the questionnaire being distributed just once, it should be designed carefully. The pilot study is meant to ask a group of people the questionnaire questions before distributing it to the sample. Pilot study allows the potential problems to be identified in order to be avoided and corrected (Sharp et al., 2007).

Questionnaires must be designed to allow for all possible participant responses (in so far as possible), and should be easily comprehensible, direct and engaging (Oates, 2006). Feedback from reviewers should be taken into consideration to make changes and improvements to the questionnaire (such as wording and question order) in order to form a final copy of the questionnaire (Judd et al., 1991). Several changes were made to the questionnaire based on the recommendations and feedback of the reviewers such as changing the wording of some items to facilitate comprehension and altering the order of some questions to improve clarity. It is worth mentioning that the pilot study assists in improving the data reliability and validity of the study.

#### **4.2.4 Sample**

The study participants can be defined as a part of the study population being investigated in order to serve the main objectives of the research and to draw conclusions about the whole population (Pedhazur & Schemelkin, 1991).



As stated earlier, since the objective of this study is to investigate the status of usability of eGovernment websites in Jordan from end-users' perspective, the participants were selected randomly to reflect the Jordanian society make-up in terms of different age, experience, background and educational qualifications.

The research considers that end-users side is one of the most important parts affecting the success or failure of eGovernment websites usability. From this point the research will focus on the usability of eGovernment websites from the end-users perspective.

Many researchers suggest that the suitable sample size to test the website usability to get reliable data is 20 (Nielsen, 2006). However, Faulkner (2003) recommended using the largest cohort of participants possible (within budgetary and logistic limitations) in order to glean optimum data. This study involved 31 participants for each website; therefore, 155 participants in total were recruited to participate in testing the five websites. The selected websites were: Greater Amman Municipality (GAM) website, Interior Ministry (IM) website, Health Ministry (HM) website, Drivers and Vehicles Licensing Department (DVLD) website and Social Security Corporation (SSC) website.

#### **4.2.5 Procedure**

Studying the previous literature and related projects helped to formulate a draft questionnaire which has been piloted (as mentioned earlier) then refine into final questionnaire. During the questionnaire drafting, the questions were concentrated on the main issues with short and simple wording, avoiding unclear phrases.

The questionnaire was originally designed in English and it was then translated into Arabic, the mother tongue of the participants, in order to achieve the full understanding of the questions.

Moreover, conducting usability testing necessitates certain facilitators, such as computer hardware (PC or Laptop), Internet access and a suitable place. The test was conducted in different places. The researcher contacted some universities in Jordan in order to get permission to use their laboratories, and visited some Internet cafés in different major cities in order to ensure the diversity of the sample, and offered vouchers for free Internet sessions to the Internet café visitors in order to encourage them to participate in the study.

The pre-test questionnaire was completed at the beginning of the session by the participants, then (without time limitations) they navigated through five websites of the major Jordanian eGovernment websites after they were given specific tasks from typical types of public services provided by a particular governmental organization. Table (4.1) shows the websites and the selected tasks for the testing.

Website	Tasks
<b>Greater Amman Municipality (GAM)</b>	<ul style="list-style-type: none"> <li>• Obtaining the tenancy agreement</li> <li>• <b>By search:</b> Finding the permits act</li> </ul>
<b>Interior Ministry (IM)</b>	<ul style="list-style-type: none"> <li>• Checking the documents for obtaining the visas</li> <li>• <b>By search:</b> Finding the general licenses conditions for cafés</li> </ul>
<b>Health Ministry (HM)</b>	<ul style="list-style-type: none"> <li>• Checking the documents for obtaining exemption of treatment costs</li> <li>• <b>By search:</b> Finding procedures for entry and exit of the patient from hospital</li> </ul>
<b>Drivers and Vehicles Licensing Department (DVLD)</b>	<ul style="list-style-type: none"> <li>• Issuance of vehicle license instead of lost or damaged</li> <li>• <b>By search:</b> Checking conditions and documents necessary to obtain the driving license or renewal</li> </ul>
<b>Social Security Corporation (SSC)</b>	<ul style="list-style-type: none"> <li>• Accessing contact address and the telephone number for Al-Mafraq branch</li> <li>• <b>By search:</b> Finding information about the optional membership</li> </ul>

**Table 4.1: Websites and Tasks**

After finishing the task, the participants have been asked to fill a post-test questionnaire to assess the status of the usability of eGovernment websites in Jordan in terms of navigation, search, appearance and overall satisfaction as well as giving their opinions about whether the customization needs to be implemented in government websites in Jordan or not. The testing took on average 30 minutes to complete. Upon completion of the testing exercise, the questions and their responses were coded to be analysed using SPSS software.

#### **4.2.6 Ethical Considerations**

Ethical research requires having permission from people in order to conduct the research before it starts. The researcher should explain to all participants what the research is about and their role, in order to agree to participate in the research voluntarily.

Besides the fact that the importance of the study has been explained, all participants in this study were informed that their participation is voluntary and they are free to decline answering any question, they can also withdraw at any time if they feel it is necessary.

Furthermore, a cover sheet was attached to the questionnaire explaining the aim of the research plus a clear declaration that all the gathered information will be kept entirely confidential and will only be used for this research and will not be shared with any people not directly connected with this research project.

Finally, the participants were not asked to provide their names and confidentiality of participants' identities has been assured by the researcher that it will be not declared in any circumstances.

## **4.3 Analysis and Outcomes**

### **4.3.1 Sample Distribution**

As shown in Table (4.2), 59.7% of the study participants were male, while 40.3% were female. The highest percentage age group was 18-30 years old, with a percentage of 38.4%, followed by the age group (31-40) years old, with a percentage of 34.0%. The age group (51-65) years old and the age group (41-50) years old had percentages of 15.9% and 11.7% respectively.

As for the position level of the participants, 37.6% of the sample was employees in the public sector. Studying or in training came second with a percentage of 25.8% followed by private sector and self-employed with 14%, 12.9 respectively. At the final place, retired users came up with a percentage of 9.7%.

51.1% of the participants had bachelor's degrees followed by high school, postgraduate, diploma and no degree options with percentages of 19.8%, 15.3%, 10.6% and 3.2 respectively.

		Percentage
<b>Gender</b>	Male	59.7
	Female	40.3
<b>Age</b>	18-30	38.4
	31-40	34.0
	41-50	11.7
	51-65	15.9
<b>Work</b>	Studying or in training	25.8
	Public sector	37.6
	Private sector	14.0
	Self-employed	12.9
	Retired	9.7
<b>Educational Degree</b>	Postgraduate	15.3
	Bachelor	51.1
	Diploma	10.6
	High school	19.8
	No degree	3.2
	Total	100

**Table 4.2: Demographics and Professional Status**

As for the Internet use frequency (Table 4.3), using the Internet daily is 41.9%, weekly 35.5%, monthly and rarely 12.9% and 9.7% respectively. In addition, the self-declared level of the Internet expertise was 27% excellent, 35.5% good while fair and poor experience comprised 31% and 6.5% respectively. Regarding the level of using eGovernment websites, the results indicated: often 22.2%, sometimes 54.1%, rarely 17.4% and never 6.3%.

		Percentage
<b>Internet Use</b>	Daily	41.9
	Weekly	35.5
	Monthly	12.9
	Rarely	9.7
<b>Internet Expertise</b>	Excellent	27.0
	Good	35.5
	Fair	31.0
	Poor	6.5
<b>Use eGovernment Websites</b>	Often	22.2
	Sometimes	54.1
	Rarely	17.4
	Never	6.3
<b>Total</b>		100

**Table 4.3: Experience with the Technology Usage**

### 4.3.2 Data Analysis

In this study, some major data analysis techniques were carried out. These analyses were calculated using Statistical Package for Social Sciences (SPSS).

#### 4.3.2.1 Reliability

As mentioned in the previous chapter, the level of consistency between multiple variables is data reliability (Hair et al., 2006; Sekaran & Roger, 2010). High reliability is determined if variables in the same measuring group are correlated within others. The commonest test for data reliability is Cronbach Alpha which

determines how closely each variable is related to the remaining variables' sum, using a multi-point scale for measuring consistency among individual items.

In this study, to ensure high data reliability, as stated earlier, a pilot study was run and several changes to the draft questionnaires were made based on the feedback. Then, Cronbach Alpha Test was used to assess the data reliability. As shown in Table (4.4), the Cronbach Alpha was found to be above 0.70 (varying between 0.72-0.89). Such values are considered acceptable according to Hair et al (2006).

Construct	No of items	Alpha
Navigation	8	72
Search	5	86
Customization	8	77
Appearance	10	88
Overall Satisfaction	7	89

**Table 4.4: Reliability Analysis**

#### **4.3.2.2 The Outcomes**

Table (4.5) presents the obtained means and standard deviations for the tested eGovernment websites according to the tested categories of navigation, search, customization, appearance, and overall satisfaction.



	Item	Mean	SD
<b>Navigation</b>			
1	It is easy to navigate from page to another	3.67	1.061
2	It is easy to find the information/ service which related to the task	3.56	1.138
3	Sometimes I feel confused about where I am, where I have been and where I want to go	3.16	1.178
4	Navigation menu is simple and straightforward	3.71	0.914
5	The links are easy to find (e.g. underlined text to indicate links)	3.83	0.906
6	Headings on the website clearly identify their target pages	3.49	1.062
7	There is a clear link back on each page lead to the homepage	3.74	0.966
8	Information about the often used services is easy to find	3.46	0.936
<b>Search</b>			
1	It is easy to find the search feature	3.80	1.176
2	Using internal search facility was easy	3.26	1.168
3	Accuracy of internal search results was good	3.18	1.126
4	The site's search function was quick enough	3.21	1.105
5	Results of internal search were useful	3.27	1.175
<b>Customization</b>			
1	The website categories should be made based on groups (e.g. citizens, business, etc)	3.69	0.977
2	I would like to have the ability to move the webpage elements via "drag and drop"	2.78	1.162
3	The website should allow users to customize individual preferences and needs	3.82	1.041
4	I prefer to customize the colours	3.64	0.941
5	I prefer to customize the background	3.52	1.107
6	I prefer to customize the layout	3.50	1.041
7	I prefer to customize the font size	3.61	0.984
8	The website should be supported by more than one language	3.30	0.917
<b>Appearance</b>			
1	The website pages are consistent	3.49	0.963
2	Link titles/ headings are clear	3.58	0.997
3	I liked the interface of the website	3.33	1.088

4	The website avoids cluttered displays	3.51	0.997
5	The website places important items at clear places (e.g. centre, top of the list)	3.41	1.047
6	The images reflect the content of the website	3.55	1.001
7	The website creates a positive first impression	3.51	1.077
8	Appropriate colours are used	3.49	1.083
9	Appropriate fonts are used (fonts are easy to read)	3.36	1.060
10	The interface of the website is attractive	3.39	1.020
<b>Overall Satisfaction</b>			
1	The website is easy to use (user-friendly)	3.36	0.994
2	I would like to use this website frequently	3.39	1.052
3	I will recommend this website to others	3.19	0.986
4	I felt comfortable using the website	3.23	1.161
5	It is easier to use the website rather than contacting a representative	3.70	1.033
6	The overall impression of the website is good	3.42	0.989

**Table 4.5: Score of the Questionnaire**

### 4.3.3 One Way ANOVA Test

Based on the analysis requirements, Foster (2001) mentioned that one way ANOVA test is the most suitable data analysis technique for this study (Figure 4.2). This test is needed to identify the differences in the government websites' usability in terms of navigation, search, appearance, and overall satisfaction. In addition, the test is also needed to identify the differences among the participants' opinions about whether the customization needs to be implemented in Jordanian Government websites or not.

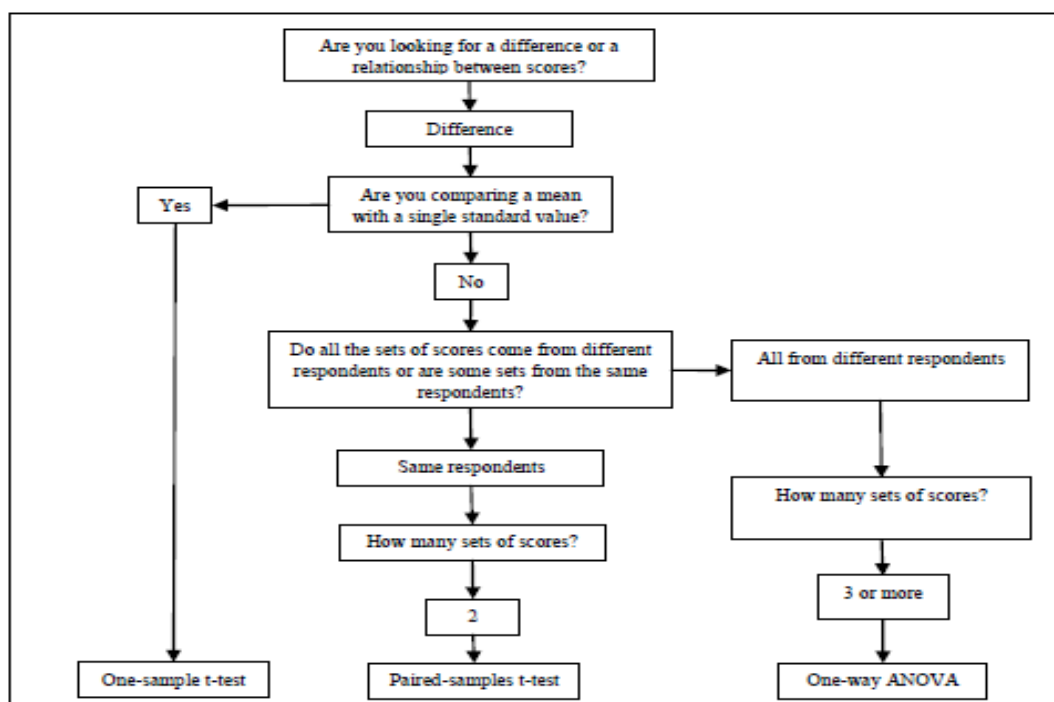


Figure 4.2: Deciding which Statistical Test to Use (Foster, 2001)

After using one way ANOVA Test, we note in Table (4.6) that significance values (sig.) for (navigation, search, appearance and overall satisfaction) are less than (0.05) while significance value (sig.) for customization is more than (0.05).

So we can conclude that there are statistical differences in terms of (navigation, search, appearance and overall satisfaction) of the existing eGovernment websites in Jordan. However, there is no statistical difference in terms of customization within the tested websites.

		df	F	Sig.
<b>Navigation</b>	Between Groups	4	10.162	0.000
	With Groups	150		
	Total	154		
<b>Search</b>	Between Groups	4	5.360	0.000
	With Groups	150		
	Total	154		
<b>Customization</b>	Between Groups	4	1.435	0.225
	Within Groups	150		
	Total	154		
<b>Appearance</b>	Between Groups	4	9.838	0.000
	Within Groups	150		
	Total	154		
<b>Overall Satisfaction</b>	Between Groups	4	14.156	0.000
	Within Groups	150		
	Total	154		

**Table 4.6: Significance of Variance of eGovernment Websites in Jordan**

Afterwards, in order to determine the differences in favour of any website, one of the post-hoc tests (Scheffe Test) was conducted.

Dependent Variable	(I) var00001	(J) var00001	Mean Difference (I-J)	Sig.
Navigation	SSC	IM	-0.61188*	0.000
		GA	-0.71326*	0.000
		HM	-0.71953*	0.000
		DVLD	-0.56720*	0.002
Search	GAM	IM	-0.57419*	0.000
		HM	-0.76129*	0.023
		SSC	-0.89032*	0.004
		DVLD	-0.84839*	0.007
Appearance	DVLD	IM	-0.71196*	0.001
		GA	-0.68439*	0.002
		HM	-0.70756*	0.001
		SSC	-0.93776*	0.000
Overall Satisfaction	DVLD	IM	-1.02919*	0.000
		GA	-0.95392*	0.001
		HM	-1.12750*	0.000
		SSC	-1.10753*	0.001
(*)The mean difference is significant at the 0.05 level				

**Table 4.7: Scheffe Test Summary**

Table (4.7) shows that the statistical differences are related to the differences between Social Security Corporation (SSC) website and all other websites in terms of navigation; Grater Amman Municipality (GAM) website and all other websites in

terms of search capability; Drivers and Vehicles Licensing Department (DVLD) website and all other websites in terms of appearance; and also Drivers and Vehicles Licensing Department (DVLD) website and all other websites in terms of overall satisfaction.

Table (4.8) illustrates the summary of the results obtained from the testing, while Table (4.9) illustrates the points and the corresponding status they represent.

Accordingly as shown in Table (4.8), the results revealed that IM website has the highest value in terms of navigation (3.81), which is described as “Good” according to the merit points used in Table (4.9). However, SSC website has got the lowest value (3.09), which is described as “Moderate” according to the same merit points used.

	HM	GAM	IM	SSC	DVLD
<b>Navigation</b>	3.80 (G)	3.71 (G)	3.81 (G)	3.09 (M)	3.66 (G)
<b>Search</b>	3.50 (G)	2.74 (M)	3.31 (M)	3.63 (G)	3.58 (G)
<b>Customization</b>	3.55 (G)	3.43 (G)	3.44 (G)	3.58 (G)	3.45 (G)
<b>Appearance</b>	3.61 (G)	3.59 (G)	3.61 (G)	3.84 (G)	2.90 (M)
<b>Overall Satisfaction</b>	3.66 (G)	3.58 (G)	3.75 (G)	3.73 (G)	2.63 (M)

**Table 4.8: Websites Results Summary**

Points (x)	Status
$1.0 \leq x \leq 1.8$	Bad( <b>B</b> )
$1.8 < x \leq 2.6$	Poor( <b>P</b> )
$2.6 < x \leq 3.4$	Moderate( <b>M</b> )
$3.4 < x \leq 4.2$	Good( <b>G</b> )
$4.2 < x \leq 5.0$	Very good( <b>V</b> )

**Table 4.9: Points and the Corresponding Status (Chiew & Sali, 2003)**

With respect to search, the results showed that SSC website was rated the highest in terms of search (3.63) and got “Good” status according to the merit points used, while GA was rated the lowest (2.74) and got “Moderate” status according to the same merit points used.

The results also revealed that all the websites were rated (“Good”) according to the merit points used in terms of demanding for implementing the customization in future websites.

In addition, the results indicated that SSC website achieved the most mean in terms of appearance (3.84) (“Good” status according to the merit points used), while the least mean was at DVLD (2.90) (“Moderate” status according to the merit points used).

Overall satisfaction achieved the highest level at IM website (3.75) which is described as “Good” according to the merit points used, while the DVLD website achieved the lowest level (2.63), which is described as “Moderate” according to the same merit points used.

## 4.4 Discussion

With reference to websites' usability, it seems that a lack of clear usability guidelines has negatively affected the usability of Jordanian Government websites. Based on some signs from the results, some examples in different websites have been identified.

- Regarding moving around the website, it was noticed that there is a need to improve the navigation system in order to let the users know where their locations are throughout the websites. The need comes as most of the participants felt confused about their location during the navigation. This was more obvious with the SSC website, due to the navigation bar not appearing on some pages. This is a disagreement with Mandel (1997) and Nielsen (2000, 2007) who pointed out that a good navigation system should provide users with an idea of their location within the website in order to let them know where they are, where they have been, and where they can go, to be able to control in which place and moment they are throughout the navigation. It is worth mentioning that using breadcrumb trail is one of the recommended techniques that help users keep track of where they are.
- In addition, the research revealed that headings of some tested websites in Jordan do not clearly identify their target pages (around the half of the participants at GAM website), although Wilder (2007) and Leavitt & Shneiderman (2006) and Chiew & Salim (2003) stated that the information contained in any category should be reflected by descriptive and meaningful



headings, and that saves the time of users by not diverting them to pointless destinations. IM and DVLD websites have some problems regarding misleading headings as well. For example, at IM website, there is a section called ‘nationality directorate and foreigners’, and any user would expect to find information which related to foreigners inside it. However, in services section the user can also find information about visas and residence permits with information regarding the development of Governorates. Furthermore, some headings at HM website are also not clear enough. For example, the information network of the health section does not indicate exactly where the user will be led from the page; users can find for instance some governmental and private hospitals but not all. In addition, the user will find Al-Albayt University, although this university does not have a university hospital, while it did not include the Jordan University and the Jordanian University of Science and Technology, despite both of these having university hospitals.

- In terms of a link back to the homepage, all the websites have this option but HM and SSC websites give the users two options to go back to the homepage through the “homepage” option in the navigation bar as well as through their logos. IM website just has the “homepage” option in the navigation bar while DVLD website has this option through its logo. The link back at GAM website is available through the navigation bar, but it is named by its official name without mentioning to users that this link will lead them back to the homepage. According to Chiew & Salim (2003) every page in a website

should have a clear link to send back the user to the homepage as well as back button to send them back also to the previous page.

- Appropriate use of fonts gives the website more advantages and builds a positive impression. However, it was noticed that the fonts used varied between 8.5 -10 points among the tested websites. This does not meet Nielsen's (2002) recommendations for the default font size, which is at least 10-point (and 12-point if the website is used by elderly people), nor Wilder's (2007) recommendation of at least 12-point on all web pages (and 14-point if the website is used by elderly users, to avoid eye strain and fatigue). This may be one of the reasons why users prefer to customise their individual preferences and needs.

On the other hand, despite Soufi & Maguire (2007) and Casalo et al (2008) pointed out that the characteristics of websites users must initially be identified and analyzed in order to meet their needs and expectations. However, it seems that one of the problems of Government websites in Jordan is a failure to lack of meet users' needs and expectations (Mofleh, 2008). Based on the results, some facts have been revealed, such as:

- As the availability of customization becomes one of the significant factors which influence the website performance (Tarafdar & Zhang, 2005), eGovernment websites in Jordan should provide the users with the ability to customize some services without needing to ask for them. By giving this ability, users will meet their direct needs and preferences and facilitate their

visiting to the websites in order to reach what they want as fast as they can. Although the fact that none of the tested websites have provided customization in their websites, however, the majority who participated in the study pointed out that the websites should allow users to customize individual preferences and needs such as colour, font, layout and background. Not offering customization does not satisfy the recommendations of (Mariage & Vanderdonckt, 2000; Nielsen, 2007; West, 2007; Wilder, 2007), who pointed out that users' preferences should be respected and they should be assisted in customizing some characteristics such as font, font size, etc, as they are effective means for improving the scannability and readability in order to accommodate every person (including people with special visual requirements).

- In addition, even though none of the websites have made the categories based on groups, most participants believed that government websites in Jordan should be divided into particular segments in order to allow them to choose their way directly. The view of participants is in agreement with the recommendations of Pearrow (2000) and Nielsen (2009) who pointed out that the usability of the websites will increase through simplification of perceptions by having categories and grouping related items in meaningful and manageable ways. This will help also a navigation system and making it more efficient.
- Moreover, despite the fact that advanced search helps users to find what they are looking for quickly and saving time and effort, none of the Government

websites offered an advanced search facility on their websites, although some websites pointed out that the accuracy of the internal search results was not good enough. This necessitates the provision of advanced search, as the absence of this feature contradicted the recommendations of some studies about eGovernment websites. According to Holzer & Melitski's study in the US in 2003, websites need to offer advanced searching features to allow users to minimize the range of a search to particular areas of the website. In addition, Nielson (2001) recommended providing an option for advanced search when users get the results from simple search.

- Furthermore, it was noticed that GAM website achieved the highest score in terms of finding information about the often used services easily. This is due to all the tested websites except the GAM website not providing a "Most popular" list service. Not having such a list is in contradiction with West's (2007) observations who pointed out that the "Most popular" list is one of the recommendations to achieve more usable eGovernment websites.

Additionally, it can be identified that the usability of eGovernment websites in Jordan has problems related to lack of testing and monitoring. This can be seen for example from the lack of accuracy of internal search results, as the study results revealed that the search accuracy in some websites was not good enough (and advanced search was unavailable). In addition, it can be seen that the non-availability of the navigation bar in some pages at SSC website is due to lack of monitoring.

Moreover, lack of testing could be noticed also since eGovernment management in Jordan does not know exactly the desired or needed information and services for users to be grouped under most popular/used list services. This was noticed as only one website provides this service. eGovernment management in Jordan should take into account that perhaps most users prefer using the same services; therefore the most used services/information should be identified by testing.

Another problem can be identified that there is a lack of involvement of end-users. In this study, despite customization not being applicable to existing eGovernment websites, the results pointed out that the mean (3.48) for obtaining customization is greater than the mean scale (which is 3). This is considered as a sign that the majority of the participants considered that the websites should allow users to customize individual preferences and needs.

This relates to the fundamental oversight that the users' role was disregarded during the establishment of eGovernment websites in Jordan. This is in agreement with Alomari et al (2009) and Elsheikh (2008) who stated that one of the main challenges and weaknesses of eGovernment in Jordan is the lack of user-centricity and lack of participation. This is also in agreement with Mofleh (2008) and Mohammad (2009) who pointed out that the needs of end-users have been ignored in eGovernment websites in Jordan.

Besides involving end-users from the inception of establishing websites, they can be effectively developed by getting and considering feedback from end-users (visitors of the websites) from functioning websites. Unfortunately, only the HM website (out

of the tested websites) offered the opportunity for users to leave feedback. This is another example of ignoring end-users even after the websites were established.

The lack of involvement of end-users before establishing the websites may have been affected by the lack of budget in the Jordanian eGovernment project (Elsheikh, 2008; Almahamid & McAdams, 2010). However, eGovernment in Jordan should understand that the involvement of a small group of end-users even with limited budget will help to improve the websites more than not involving users at all.

Interfaces play an important role in generating a positive reaction from the user (Flavián et al., 2008). However, some of the users who participated in the study did not like much the interfaces of the websites. It seems that the interfaces and layout in Jordanian eGovernment websites have been affected by poor standardization. This is in disagreement with West (2007) who recommended that eGovernments need to shift toward standardization templates with consistent navigation between all the website agencies. The failure of Jordan's eGovernment project to achieve this could be due to the lack of a clear framework of collaboration and coordination between governmental agencies. This is confirmed by each of the tested websites having a different interface and layout. According to Pontico et al (2008), coordination and collaboration should be taken into consideration in eGovernment to satisfy different backgrounds.

According to Weerakkody & Choudrie (2005) and Flavián et al (2006), usability has a significant effect on the degree of trust and satisfaction directly. A lack of trust/satisfaction might be involved in Jordanian eGovernment websites. This was

noticed as there is a bit of hesitation among users to use the websites frequently, as well as to recommend the websites to others.

Bearing in mind that good interfaces designing optimizes the trust; just a moderate level of participants expressed that they liked the interface of the website – taking into account the relative novelty of eGovernment services in Jordan, and the great ease it should bring to users compared to traditional bureaucracy.

According to Karvonen (2000), Wang & Emurian (2005) and Casaló et al (2008), the quality of web interface design is considered one of the features that affect usability by building and enhancing the feeling of trust about the website. In addition, Eynon (2006) pointed out that inappropriate interfaces may affect negatively the relationship between eGovernment and its users.

The eGovernment project management in Jordan should focus on websites' usability in order to improve user's trust and satisfaction, because if websites fail to achieve that, the situation of eGovernment will be threatened with failure, from a usability perspective. Accordingly, low quality and not meeting users' needs in the websites play an important role in widening the gap in terms of trust and satisfaction between government websites and its users in Jordan. In addition, it is worth mentioning that there is a lack of trust sometimes between end-users and eGovernment projects due to lack of participation. As stated earlier in chapter 3, this is sometimes considered as an encouraging reason for the users to be uncooperative in participation, because they believe that their views will not be considered by the government seriously.

According to Szeremeta & Kerby (2005) users will not participate in eGovernment if there is no trust that the government will sincerely consider users' concerns.

Finally, because of the awareness and experience of the Internet, Jordanian eGovernment websites are considered unsatisfactory to users who participated in the study. It was noticed that the level of using Internet among the participants is good. This leads to the assumption that users have visited lots of websites; therefore, eGovernment management in Jordan should pay more attention to designing its websites in the optimum way because it might be hard to satisfy its users easily.

#### **4.5 Summary and Conclusion**

The importance of the usability of eGovernment websites has been raised increasingly over recent years. This chapter presents the existing situation of the usability of eGovernment websites in Jordan from some aspects related to the design of website interfaces.

The study has concluded that lack of experience in developing usable eGovernment websites in Jordan reflects limited knowledge about user interfaces and lack of clear understanding about usability guidelines within the team responsible for the eGovernment project. This undoubtedly has a negative impact on the usability of Jordanian eGovernment websites.

The lack of guidelines or a coherent project in implementing eGovernment in Jordan has hamstrung the websites to be more useful, despite government investment in this field.



The findings indicate that there are some impediments to the improvement of the usability of eGovernment websites in Jordan such as lack of testing and monitoring, lack of involvement of end-users, lack of a clear framework of collaboration and coordination, poor standardization, and lack of trust/satisfaction.

It is imperative that eGovernment should pay more attention to those points to be addressed in order to ensure the provision of usable eGovernment websites in Jordan.

This study adds to the existing body of knowledge by identifying some main points that could help in improving the usability of eGovernment websites in Jordan for future websites as well as it is useful not only from the perspective of improving Jordanian eGovernment services, but also to those of other developing countries which may share the same culture and situation, particularly in the Arab states.

## **Chapter Five: The Proposed Model for Improving the Usability of eGovernment Websites in Jordan**

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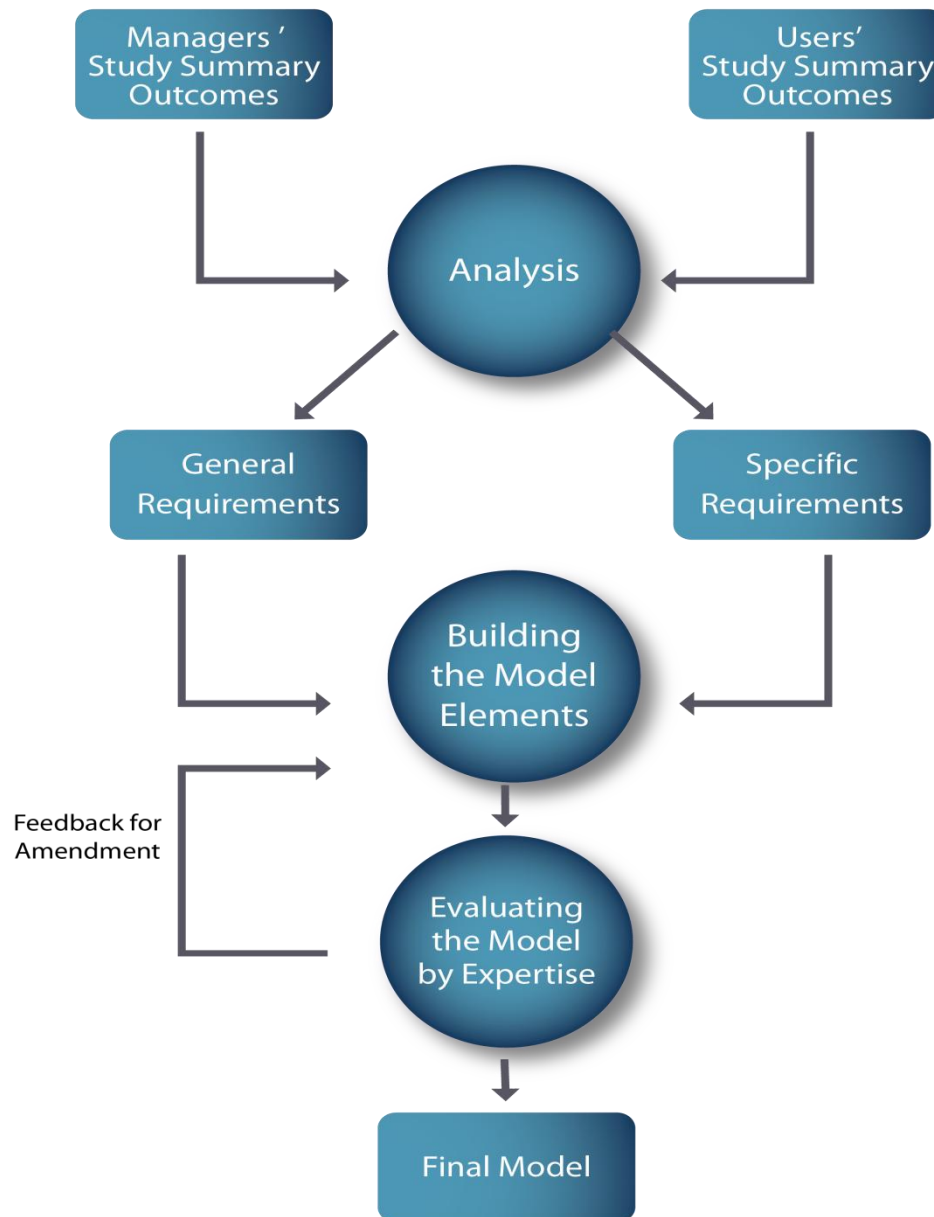
### **5.1 Introduction**

The Findings presented in previous chapters which were focused on the views of professionals in charge of managing and maintaining eGovernment project in Jordan as well as on the views of end-users, pointed out that there are number of problems facing the usability of eGovernment websites in Jordan.

Consequently there was a need to focus on building a roadmap or proposing a solution for improving the usability of eGovernment websites in Jordan. Therefore this chapter has proposed a model with a view of enhancing a usability of eGovernment websites in Jordan.

The model emerged after the conducted studies revealed a number of issues relating to eGovernment website usability. These findings have been analysed and translated into two sets of requirements, specific and general, which the model intends to satisfy.

The expert evaluation required to validate the model was conducted before adopting the final form. Figure (5.1) illustrates the approach that was adopted for creating the model.



**Figure 5.1: The Approach for Creating the Model**

It is believed that the proposed model will contribute to the existing body of knowledge by proposing a roadmap that assists in improving the usability of eGovernment websites for future websites. It is worth mentioning that the proposed

model is useful not only from the perspective of improving Jordanian context, but also to comparable contexts, such as other developing countries and Arab states in particular which may share the same situation.

This chapter is structured as sections; the next section includes the summary of the research findings, it is followed by section which includes the general and specific requirements then sections which include the model and the validation respectively and finally section which includes summary and conclusion.

## **5.2 Summary of Research Findings**

The main aim for conducting the study was to investigate the situation of the Jordanian eGovernment websites in order to improve their usability and to achieve a successful eGovernment project in Jordan.

Following an analysis of the results of the two studies (managers and end-users), the main issues identified as most essential for improving the usability of eGovernment websites in Jordan were identified.

### **5.2.1 Managers' Study**

The management of the eGovernment websites in any eGovernment project play a key role in the success of the project; therefore it is important for any eGovernment project to prepare its website management properly, and to ensure all of the needed elements are present before implementation. This factor is not taken seriously, as it

was found that Jordanian management still encounter some problems that need to more attention in order to reach the success of other websites' usability.

The purpose of this study was to investigate the level of usability of eGovernment in Jordan from a managers' perspective. The study focused on the views of professionals in charge of managing the eGovernment project in Jordan. Some of the results from this study proved to be successful and significant.

After analysing the managers' study, it was found that despite the majority counting usability as an important factor for the eGovernment project to be successful, a distinct lack of awareness regarding usability was identified amongst the management study group. This usability was identified as being one of the biggest challenges for Jordanian users of the website, which suggests that there is a limited understanding of the nature and important of usability and how this can impact a website's success.

In addition, the results revealed that the majority of respondents did not pay significant attention to the requirements before establishing the eGovernment websites, or after launching them for further developments.

Moreover, the user's perspective was measured from the feedback and complaints were sent to the service providers. It was found that the system users believed that the existing websites are confusing to follow, and difficult to navigate. Additionally the users were not happy about the appearance of the website, while others counted lack of customisation as a major problem. Moreover, the system users believed that

the website does not have an efficient search function to facilitate information acquirement.

Analysing the managers' views about the biggest challenges of making a website usable to the end users from their perspective reveals that the major problem behind that is lack of awareness of usability amongst the management, followed by lack of involvement of the end users in the design process. In addition, participants focused on lack of budget as the main challenge, followed by lack of feedback from end users. Finally, the lack of expert website designers and management problems were respectively seen as major challenges.

Another important factor in the successful conduct of a project is staff training; therefore this was an area that needed further investigation with a focus on the aspects of usability. It was noted that the majority of the respondents, including all staff who are in charge of running eGovernment services, did not attend any training on the usability of eGovernment websites before or after the project was established.

With reference to resources that would be helpful to enhance and increase the usability of existing eGovernment websites, the study found that reasons thought to have the biggest impact in improving the service were that clear guidelines and standards should initially be put in place, followed by involving end users, then increased budget, and finally better staff training.

### **5.2.2 Users' Study**

The success of any eGovernment project is measured by the degree of satisfaction found in its users. Satisfaction of the users plays a key role in determining the success of the project, therefore proper design of websites is of the utmost importance. In addition, preparation of all of the needed elements prior to the implementation of the project is also counted to be of high importance in order to ensure user satisfaction.

It is thought that this factor is neglected amongst members, as recent information found that the Jordanian government still has a number of problems that need to be addressed in order to improve the eGovernment usability successfully. Results from the users study also proved to be successful to the model.

The study used a user testing method, as this is seen to be an important and helpful way to give direct information about end users' interaction with the interfaces.

The purpose of the users study was to build a clear overview about the status of eGovernment websites usability in Jordan. This was achieved by investigating aspects related to design that affected the success of eGovernment websites in Jordan from end users' perspective. The study measurement included navigation, search, customization, appearance, and overall satisfaction.

After an analysis of the results it was found that the lack of clear usability guidelines has negatively affected the usability of eGovernment websites in Jordan. Some examples in different websites have been identified and are mentioned in chapter 4.

Despite any website traits, it is thought that an initial identification and analysis should be performed in order to meet any needs and/or expectations. It appears that amongst the problems encountered was a fundamental failure of eGovernment websites to meet users' needs and expectations. Some facts have been revealed, such as lack of customisation.

It was also indicated that some factors were impeding the ability to improve the usability of eGovernment websites in Jordan. These factors include lack of testing and monitoring, lack of involvement of end users, lack of a clear framework of collaboration and coordination, poor standardisation, lack of trust/satisfaction and a lack of budget.

The study concluded that this lack of experience in the development of a functional eGovernment website reflects the restricted knowledge of the Jordanian eGovernment in user interfaces. It is also determined that a lack of clear knowledge of usability guidelines was detrimental to the eGovernment project, which has a negative impact on the usability of the eGovernment websites in Jordan.

### **5.3 Specific and General Requirements**

Based on the previous studies, the findings have been divided into two groups of requirements: specific requirements and general requirements. The specific requirements are to be met by the specific elements within the model, while the general requirements are to be met by the whole architecture of the model (Table 5.1).

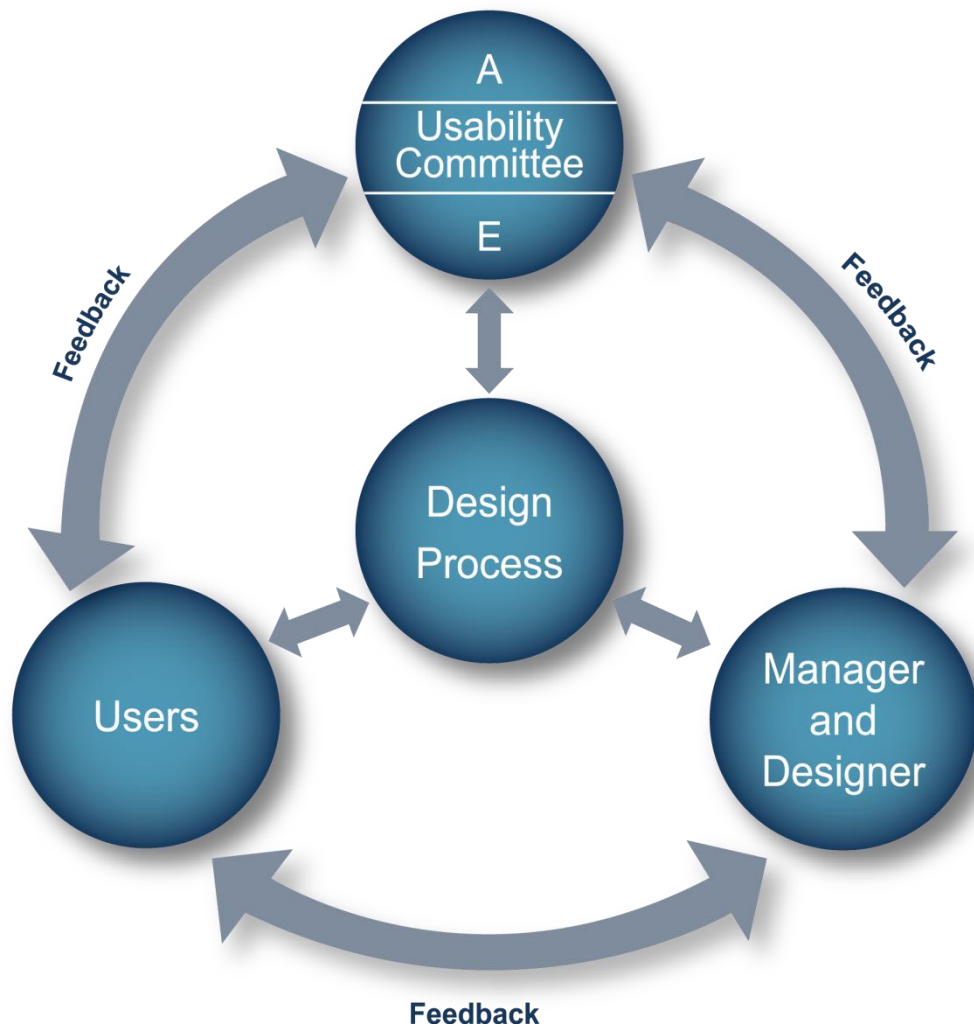


Specific Requirements	General Requirements
<ul style="list-style-type: none"> <li>✓ Better Management</li> <li>✓ Expert website designer</li> <li>✓ Promoting and increasing the awareness of usability amongst the staff</li> <li>✓ Establishing of clear guidelines and standards about usability</li> <li>✓ Training on usability of eGovernment websites</li> <li>✓ Avoid poor standardization</li> <li>✓ Solve the problem of Lack of testing</li> <li>✓ Pay attention to end-users</li> <li>✓ Involving end-users</li> <li>✓ Better attention toward meeting end-users needs</li> </ul>	<ul style="list-style-type: none"> <li>✓ Clear framework of collaboration and coordination among government agencies</li> <li>✓ Increased trust and satisfaction for eGovernment websites</li> <li>✓ Better monitoring</li> <li>✓ Improvement of the usability of eGovernment websites</li> </ul>

**Table 5.1: The Specific and General Requirements**

## 5.4 The Model

The eGovernment website usability model is an outline or a roadmap that will provide a guide on how to have a usable eGovernment website in Jordan. The model has four components: website manager and designer, end-users, usability committee (advisory, executive), design process (usability requirements, pre-implementation test, post-implementation and maintenance) (Figure 5.2).



Design Process:

- Usability Requirements
- Pre-Implementation Test
- Post-Implementation and Maintenance

Usability Committee

- A: Advisory
- E: Executive

**Figure 5.2: The Proposed Model for Improving the Usability of eGovernment Websites in Jordan**

The model can also be used by developing countries that might share the same culture and situation, with minor implementation or modifications. When successfully applied, the eGovernment website can be usable and achieve the main goal of implementing an eGovernment project.

The following subsection explains the roles of the components and demonstrates how they contribute to the model.

#### **5.4.1 Website Manager and Designer**

One of the main elements concerning the usability of eGovernment websites includes the roles of website managers and expert designers. These are considered to be one of components included in the model in order to improve the eGovernment website usability in Jordan.

There is undoubtedly a relationship between the success of eGovernment website usability and the availability of good management and expert designers. However, as mentioned earlier in the conducted studies in chapter 3, management problems and the need for expert website designers are considered to be the major challenges of making a website usable. In addition, the findings of the conducted studies revealed that only 41% of people in charge of managing eGovernment websites in Jordan have worked with eGovernment between 2 and 4 years, while 35% have worked for less than 2 years. This reflects a lack of experience amongst the people in charge of managing eGovernment websites in Jordan.

It is therefore needed that eGovernment website managers in Jordan should have certain characteristics, as they are able to negatively or positively affect the websites in general. It can be determined therefore that they should have a reasonable level of experience, knowledge and competence in order to participate in an eGovernment website's success.

The designers involved should also be considered to be experts in usability issues, and it does not matter whether they are government staff or third party as long as they have a good working knowledge of these processes. It is worth mentioning that the designers might play the role of managers as long as they have some of their characteristics.

In order for the eGovernment model to be successful, it is important to choose managers with certain personality traits as well as having good communication skills. They should also be able to be trusted and respected by other staff members, as well as being able to listen to staff and accept any feedback they might have in order to encourage their future work on the websites.

Moreover, the support and commitment of management are thought to be a large influencing factor in the improvement of the usability of any eGovernment websites. This is thought to be due to the perception staff have of their managers when they appear to be more serious in relation to the system, which results in the staff receiving the motivation to copy this behaviour. It is therefore important to lead by example.

When the manager has enough experience, knowledge and competence, they should be able to focus on the supervision of eGovernment websites, such as regularly checking work progress and quality in order to prove that it performs its job correctly. In addition, the website manager should supervise the designing unit regardless if it is from the government staff or a third party from outside the government to ensure they accomplish their tasks properly.

During the construction process, it is required that a website manager and the designers communicate effectively with information concerning building the websites in time.

Following this model is thought to be a positive approach, as it involves the website manager and designer in the website design, which will make usability issues easy to understand, which will therefore enhance their involvement.

#### **5.4.2 Users' Feedback**

Errors in the design can be created based on the fact that designers often do not notice flaws in their own work. As a result, it is incredibly important to collect feedback from the prospective end users before a website is launched, as has been previously mentioned.

The end user feedback is considered to be one of the main factors in how successful a website is, as it informs the team responsible for the website how people feel about their experience whilst using it. In addition, it can also increase the effectiveness of

the website as it solves any complications or frustrations the users experience and it will improve the website in general.

Website development can be directed through the collection of feedback, which is gained through listening to prospective users' opinions. This can also clarify any components of the website where work can be conducted to improve the experience.

Moreover, collecting feedback not only enables the improvement of usability, but also achieves eGovernment goals by matching the website to organised goals, and whether the design meets user requirements.

The end users' feedback component in the proposed model tries to address problems which have been revealed by the conducted studies. Success for the eGovernment program in Jordan can be achieved through obtaining and listening to any user feedback, which will lead to eGovernment management having a better understanding of how users interact with websites.

Focusing on the feedback of end users in this model became important due to the conducted studies revealing that the eGovernment project in Jordan did not pay significant attention to the end user requirements before establishing the eGovernment websites, or even after launching them (for further developments). This fact is supported by the users' study, which concluded that one of the problems of the Government websites in Jordan is a failure to meet users' needs and expectations. This conclusion is in agreement with the managers' perspective in the managers' study, as they considered the lack of involvement of the end users in the

state of design to be one of the major challenges of making a website usable. Based on this and on the managers' views, it is indicated that involvement of the end users would be a helpful resource to enhance and increase usability of existing or planned eGovernment websites; the model proposed model focuses on the feedback of end users.

Follow the proposed model and obtain users' feedback is considered as an essential base that can provide an accurate perspective of the way a prospective user sees the eGovernment websites in Jordan in terms of usability, in order to make any improving if necessary. The benefits of following the proposed model regarding obtaining website feedback are unlimited and include:

- Gaining an understanding of the overall end user perspective on website usability.
- Knowledge of any changing trends and demands of users.
- Determining the elements that are of the most wealth on the website.
- Revealing any behavioural trends amongst users.
- Involving any users in building the website show the importance of users' opinions and that give them a feeling of participation
- Providing new and exciting ideas that will improve the existing websites or aid upcoming websites
- Developing designer and developer skills as that make them a better in the future
- Providing a different perspective

- Being a simple way to ensure quality assurance.

In order to gain any benefits from these points, user views should be listened to and not be ignored and be regarded as highly important. In addition, users should lead the design and development process in order to create a more efficient website.

### **5.4.3 Usability Committee**

It has been determined that the opinion of experts in this area can have a positive impact on the usability of an eGovernment website and how successful the website may be. Experts are considered to be people with a high level of competence, skill and experience in usability issues and can therefore provide more accurate and effective suggestions and recommendations that will enhance the usability of the websites and therefore enhance the overall experience for the user. These opinions should be sought prior to the launch of the website.

The model suggested that there is a need to create a usability committee which consists of advisory members and executive members. The advisory is suggested to be controlled by responsible government body such as the Ministry of Information and Communications Technology (MoICT). As for the executive, it does not matter whether is from government staff or third party (hired from outside) as long as it has expertise and good knowledge in the eGovernment issues in general and in the usability issues in particular.

This committee would not only serve to strengthen the website's overall effect, but would also explore effective ways to provide recommendations and to implement the



enhancements. The committee (advisory) should consist of members who have expertise and/or interest in website usability, as well as managers from website administration and might contain designers. In addition, it should involve people who have an interest in eGovernment projects, as this will help the committee understand the community views. It is expected that all members of the committee will have a working knowledge of the eGovernment program, and/or experience in developing effective usability controls.

The usability committee will provide suggestions and recommendations according to usability principles and feedback from end users, with the goal of making websites easier to use, more effective and more pleasant for users. Moreover, as conducted studies revealed that there is a lack of budget, unlike other models, the idea of having a committee will help in cutting the cost through offering training to the staff about usability and promoting their awareness.

It is important that the user finds the website easy to use and easy to understand, therefore the usability committee should focus the majority of their efforts into this particular area of development. In this model, creating such a committee will help address some of the problems which have been identified by conducted studies, and bring other benefits. It is thought that a successful committee can:

- Promote awareness of website usability amongst staff through ongoing outreach, education, training opportunities and communication.
- Ensure standards of website usability are met.
- Help developers learn about usability principles and practices

- Maintain and create usable eGovernment websites through work with designers, developers, managers and content contributors.
- Provide feedback and guidance for design interfaces.
- Provide assessment, consultation and testing methods for developed websites.
- Recommend any appropriate changes following testing in order to correct errors and redesign.
- Resolve usability issues.
- Approve any designs.
- Ensure any recommendations are made regarding future directions of the project as needed and/or appropriate
- Set priorities for any development based on feedback received.

#### **5.4.4 Design Process**

##### **5.4.4.1 Usability Requirements**

According to the Jordanian context, the eGovernment is still in the information stage. Based on the complaints sent to the service providers, it has been identified that the key problems facing end users of the eGovernment management project in Jordan are navigation, search, lack of customisation and appearance.

As mentioned previously, 27% of the users believed that the existing websites are a bit confusing to follow and difficult to navigate. Additionally, 25% of users were not happy about the appearance of the websites, while 22% considered lack of customisation to be a major problem. Moreover, 19% of the system users believed

that the website does not have an efficient search to facilitate information acquirement.

In addition, These requirements that affect a website's usability were identified through a literature review (Baker, 2004; Banati et al., 2006; Byun & Finnie (2011); Cardello & Nielson, 2010; Holzer & Kim, 2007; Markaki et al., 2011; Reichheld et al., 2000; Roach, 2007; Teoh et al., 2009; Thorbjornsen et al., 2002). According to Kumar et al (2007), paying more attention to such requirements helps attract users to the websites more frequently. Therefore, such issues can help increase the usability of eGovernment websites.

Therefore, this model focuses on these requirements as well as on the overall satisfaction of the website.

- Navigation: the user's ability to move through the website and find their way easily in order to get services and information, with the ability of users to identify their location at any moment of the navigation.
- Search: determine if help is available for searching on the website, and allow users to search directly for the desired services or information on the website and how its accuracy.
- Customisation: the ability to meet the direct needs and allow users customise what they want or need without needing to ask for it to facilitate their visiting to the website in order to reach the needs and goals as fast as they can.
- Appearance: a visual appearance that helps to persuade users that the website is the website they have been looking for. Good website appearance can also

be used to help some people remember and learn; and may also help build trust.

- Overall satisfaction: ascertaining what people think and feel when using a website - how much does the user like or dislike using the website? Was it a good or bad experience? Would the user recommend it to others?

#### **5.4.4.2 Pre-Implementation Test**

The ultimate goal to keep in mind is the creation of a functional, usable and sustainable website. By testing a website before its launch one can ensure it is meeting its full potential. If during the testing users can use it without any problems, one has reached the goal. Any design issues that are faced by the user should be outlined via observation and participant responses (as opposed to speculation).

As lack of testing is one of the main problems identified in the conducted studies, the model has taken into account applying a test for website before its launch. This ensures that the best available testing method has been performed and the ultimate goal of a usable website can be achieved. Lazar (2006) stated that the evaluation methods needed in this instance are one of the attributes of User-Centre Design (UCD). UCD is an approach and philosophy for creating usable systems that keep the user at the centre of the entire process based on receiving any feedback from the user during the design process (Rubin, 1994). According to Dumas & Reddish (1993), number of tests should be carried out prior to a website release.

User-Centre Design approach, which the model has been recommended to be applied in the pre-implementation test, consists of many techniques, including:

- Think aloud: steps are articulated by the user as they are carried out.
- Videotaping: to review exactly what participants did and to identify specific problems in design.
- User satisfaction questionnaires and interviews: allows the designer to evaluate any likes and disliked of the design in order to get a deeper understanding of any problems.

Most tests require the user to perform a number of standardised tasks in a typical environment. The first test results are given to designers through usability committee, who then make changes to the website to reflect the comments given by the user. Then the website is tested again and again until all problems are resolved. Following all implementations being made one final test should be conducted and if successful, the website can be launched. It is thought that the more tests the better the result and evaluation should be continued once the website has been launched.

As mentioned earlier, applying the pre-implementation test in the proposed model will address one of the main problems to have been identified in the conducted studies, which is lack of testing. In addition, it is without doubt that applying pre-implementation test according to the proposed model will achieve the following benefits:

- Any actions of the participants can be observed and recorded.
- Data can be analysed and changed made accordingly.
- Involve real users in the testing
- The user can be provided with real tasks to accomplish.

- The overall website usability is improved as a result.

## **5.5 General Requirements**

As mentioned earlier, when the specific requirements are successfully applied, the general requirements will be achieved by the whole architecture of the model.

## **5.6 Validation**

In order to address its validity, the proposed model has been reviewed and assessed by three groups. The first group consisted of the specialists in the eGovernment project (15 participants). This represents the views of professionals in charge of managing the eGovernment project in Jordan. The second group consisted of technical professionals (computer engineers, people with computer backgrounds, web administrators, designers, technical managers) (10 participants). The third group consisted of academics to reflect a broader view about the model (13 participants). At the end, 38 participants in total were recruited to participate in the assessment.

Before the review and assessment by the mentioned groups, a draft of the questionnaire based on the model was formulated; then it was piloted and refined into the final questionnaire.

In addition to the aim of the research, the introduction section of the questionnaire explained the objectives of the conducted studies and the findings obtained. Moreover, with attached figure of the model, the introduction section explained how

the model emerged and the purpose of the questionnaire, which validates the proposed model.

The next section of the questionnaire covered the demographics, years of experience of the participants as well as their familiarity in websites. The last section included questions related to the proposed model in order to validate it. The questionnaire items were measured using a standard five-point Likert scale. The questionnaire was designed in English. On completion of all the participants, the questions and their responses were coded to be analysed using SPSS software.

#### **5.6.1 Analysis and Outcomes**

57.9% of the study participants were male, while 42.1% were female. Regarding the self-declared level of familiarity with websites was 47.4% very good, 42.6% good while fair 12.6%. As for the years of experience, 44.9% of the participants have experience in their fields for 2-5 years, 36.8% for between 5 and 10 years, 10.6% for more than 10 years and 7.9% for less than 2 years.

Cronbach Alpha test was conducted in order to assess the reliability of the obtained data. Cronbach Alpha was found to be above 0.70 (varying between 0.724-0.83.6). Such values are considered acceptable according to Hair et al (2006). Table (5.2) presents the obtained results of the questions.

Question		Mean	SD
1.	Using the proposed model makes it easy for the management to understand usability issues and therefore enhance their involvement	4.11	0.798
2.	Using the proposed model takes into consideration the need of skilled website designers	3.63	1.033
3.	Using the proposed model promotes and increases the awareness of usability among the staff	4.08	0.712
4.	Using the proposed model supports and keeps using clear guidelines and standards about usability	3.89	0.863
5.	Using the proposed model compensates and ease the training related to usability of website	3.71	0.867
6.	Using the proposed model helps in avoiding poor standardization in the websites	3.79	0.924
7.	Using the proposed model avoids the problem of lack of testing	3.92	0.912
8.	Using the proposed model enables better attention toward users usability needs	4.27	0.811
9.	Using the proposed model enables users to reflect their experience with the website and send their feedback	4.13	0.991
10.	Using the proposed model gives government agencies the opportunity to follow the same way, therefore improve collaboration and coordination among them	3.89	0.831
11.	Using the proposed model helps in increasing the website usability and therefore improve trust and satisfaction for eGovernment websites	4.05	0.837
12.	Using the proposed model enables and supports better monitoring of eGovernment websites	3.97	0.885
13.	Using the proposed model helps in improving the usability of eGovernment websites	4.22	0.689
<b>Average</b>		3.97	0.858

**Table 5.2: Score of the Questionnaire**



Based on the obtained results, it noted that the means varied between 4.27 and 3.63 (out of 5) for the related questions. It was clear that the assessors believed that the model is useful and applicable in order to accomplish usable websites in Jordan. It covers a range of important usability issues in relation to eGovernment website that were highlighted in the conducted studies.

In addition, the results pointed out that the assessments' average for the three groups are of similar range in values. As shown in Table (5.3), the mean for eGovernment specialists group is 3.99 (SD: 0.395) and the mean for technical group is 3.84 (SD: 0.256) while the mean for researchers group is 4.09 (SD: 0.408). Moreover, it has been noted that the obtained results are greater than the mean scale which is 3; this is considered as a good sign from the participants toward the proposed model generally. However, that does not grant an accurate assessment. To confirm the good indicator and in order to get better judgment we need another support.

Group	Mean	Std. Deviation
eGovernment Specialists	3.99	0.395
Technical	3.84	0.256
Researchers	4.09	0.408
Total	3.97	0.858

**Table 5.3: Mean Comparison Between the Groups**

The additional analysis involved one way ANOVA test to identify the differences between the groups. As shown in Table (5.4) below, an additional support comes

from the one way ANOVA test result of having the sig value (0.289) which is more than (0.05). So we can conclude that there are no significant differences between the groups' opinions (eGovernment specialists, technical and researchers) in terms of the proposed model. Therefore the proposed model has been accepted as a valid roadmap for improving the usability of eGovernment websites and takes it into consideration to eGovernment websites in Jordan for more improvements in the real world.

	Df	F	Sig.
Between Groups	2	1.285	0.289
Within Groups	35		
Total	37		

**Table 5.4: Significance of Variance Between Assessors Groups**

## 5.7 Summary and Conclusion

Considering the advantages offered by eGovernment websites, there is a need for usable eGovernment websites in Jordan. The eGovernment website usability model is an outline or a roadmap that will provide a guide on how to have usable eGovernment websites in Jordan.

The model is designed to enable the people who are in charge of eGovernment websites in Jordan to build usable and sustainable websites in order to allow their users to obtain governmental information and services easily.

The need of the model appeared as a result of studies, which revealed a number of issues related to eGovernment website usability.

The managers' study has revealed that the main problems which undermining the Jordanian eGovernment usability that there are still no clear guidelines with regards to websites usability that the websites managements should follow, particularly lack of usability awareness amongst the management and citizen participation at the website design phase.

In addition to the fact that Jordanian governmental websites have not accommodated usability standards, there is no awareness of users' needs and expectations. The limited budget of Jordanian eGovernment project and lack of expert web-designers are also considered as significant problems encountering the improvement of the usability of eGovernment websites in Jordan.

The end-users' study has found that lack of experience in developing usable eGovernment websites in Jordan reflects limited knowledge about user interfaces and lack of clear understanding about usability guidelines within the team responsible for the eGovernment project.

These findings, from both studies, have been divided into specific requirements and general requirements, which the model intends to satisfy.

The model addressed the main challenges highlighted in the conducted studies to ensure the success of eGovernment websites in Jordan in terms of usability.

The model highlights the components (website manager and designer, end-users, usability committee, design process) that should focus on the building up of usable websites in Jordan. In addition, it highlights the general requirements that will be achieved by the whole architecture of the model.

The proposed model was evaluated by three groups (specialists in eGovernment, technical side and academics) in order to ensure its validity. Based on the evaluation, it was concluded that the proposed model is capable of achieving usable websites in Jordan, as many of the assessors involved has a favourable view towards the proposed model. They believe that the model is a major contributor in aiding awareness and solving challenges highlighted in the main objective of the study.

The proposed model can be adopted in any developing countries that might share the same culture and situation as Jordan; however minor implementation modifications may be required.

## Chapter Six: Conclusion and Future Work

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### 6.1 Conclusion

This study has been conducted to investigate the situation of the Jordanian eGovernment websites in order to improve their usability for better utilisation and a successful eGovernment project in Jordan.

Based on the findings from the different tasks conducted within the framework of this research work, the following conclusions have been drawn.

From analysing the existing literature related to eGovernment usability, it was found that although there was a development of the eGovernment project, as well as there is a good relatively number of users willing to use eGovernment websites, there still appears to be challenges that eGovernment faces relating to the interaction of users when accessing information and utilising the services.

In addition, there was clear evidence from existing literature that supported the main aim of the research, which relates to usability being found as one of the principle factors to influence user interaction and adoption of eGovernment, which therefore determines eGovernment's success.

Furthermore, it was found that the existing research had not paid enough attention to investigating the usability of current eGovernments so far in developing countries, particularly in Jordan. Therefore, it was determined that further research into

usability evaluations of eGovernments is essential to be explored, as well as distinguishing any current problems with usability and offering specific prescriptions that will enable further improvement.

Although usability of eGovernment websites is useful for developing countries in general and Jordan as a case study, the existing literature highlighted that Jordanian eGovernment websites suffer from a lack of consistency in principles and features. Due to the absence of various features that aid a user's interaction process, it has been determined that there is a distinct lack of consideration relating to citizen expectations and needs. In other words, during the construction and design of Jordanian eGovernment websites, the expectations and needs of end-users have been ignored, and no account has been given of what Jordanians want from the existing system. This indicates that there is still problem in eGovernment website usability in Jordan.

Therefore, the aim of the study was achieved by conducting two studies and establishing proposed model based on the outcomes.

From managers perspective, research was conducted with the goal of investigating the level of usability of eGovernment in Jordan, it can be concluded that the absence of clear guidelines with regards to websites usability (which can engage and help websites management), lack of usability awareness amongst the management and citizen participation during the websites design phase are considered from the main reasons behind not having usable websites.

Besides the fact that Jordanian governmental websites have not accommodated usability standards, it was concluded from the outcomes that yet no awareness of users' needs and expectations has been achieved. In addition, the limited budget allocation to eGovernment websites and lack of expert web-designers are also considered as significant problems inhibiting the improvement of the usability of eGovernment websites.

Furthermore, from the outcomes of the study, it was concluded that not paying enough attention to the end-user requirements before establishing the eGovernment websites, or after launching the eGovernment system for further developments, is another problem for getting unusable eGovernment websites.

Moreover, based on the outcomes of the study, it was also concluded that not attending any training on the usability of eGovernment websites by the majority of the staff before or after the project establishment is one of the reasons behind not having sufficiently usable websites.

The users study was conducted in order to build a clear overview about the status of eGovernment websites' usability in Jordan from end-users' perspective. This was achieved by investigating main aspects related to design that affect the websites' success.

The study concluded that there is a lack of experience in developing usable eGovernment websites, which reflects limited knowledge about user interfaces and lack of clear understanding about usability guidelines within the team responsible for

the eGovernment project. This undoubtedly has a negative impact on the usability of Jordanian Government websites.

Furthermore, it was clearly evident that the Jordanian Government websites generally do not have a high level of usability, and that there is a lack of understanding of the needs and requirements of the end-users. In addition, this study discovered that there is a lack of testing and monitoring of the websites, the lack of involvement of end-users, poor collaboration and coordination, poor standardisation, and lack of trust/satisfaction.

Despite all the investment by the Jordanian government into the eGovernment project, the absence of usable websites inhibits the eGovernment project from moving forward; hence, from an analysis of the previous two tasks, it has been concluded that there is a need to establish a model to address all the factors related to the usability issues presented.

The evaluation of the proposed model showed that the vast majority of the assessors (specialists in eGovernment, technical side and academics) in favour of the proposed model any they see it as a major contributor to help in bringing awareness and solving the main challenges highlighted in the main objective of the study.

At the end, this research project has contributed in presenting some essential findings related to usability of eGovernment websites in general and Jordan in particular. The proposed roadmap can play a major role towards future usable websites, and can be modified to enhance usability in similar applications such as e-Learning websites.



Finally, on summary, the whole data presented from this study will be seen as a roadmap towards promoting and enhancing usability for better utilisation and a more successful eGovernment project in Jordan. In addition, the whole data presented from the study can be also contributed to further research.

## **6.2 Research Limitations**

As with any other research, this research has some limitations. One of the major limitations is the limited literature available for review about the studied field, particularly about Jordan. Another limitation concerns the target eGovernment websites that were used to measure usability in this study. This study selected five eGovernment websites in Jordan as the representative of eGovernment to investigate their usability. Although the results provide an insight into current eGovernment websites usability and enabled the exploration of a set of interesting issues, this study, choosing five target eGovernment websites, is a starting point. Further work may be carried out with more distributed eGovernment websites to have a more comprehensive evaluation.

The participants' responses in the end-users' study add another limitation. Unfortunately, not all of them volunteered to participate in the testing or to answer the questionnaire due to numerous reasons. Some of them did not have enough time or were simply uninterested. In addition to this, the researcher asked for assistance from two friends in order to help in preparing the websites testing, because the testing required good preparation and it was almost impossible to get the task of testing done without assistance.

The difficulty of getting access to official managers and the problems of working hours (8.00 am to 3.00 pm) constituted another limitation. The researcher had to visit all offices during this period the researcher was travelling daily from his village (Sabha) in the north-east of Jordan to the capital Amman, where all the departments/ministries are located. Additionally, departments/ministries are dispersed far from each other. The researcher had to visit departments/ministries several times and to use his personal relationships to fill the questionnaire. However, another approach of collecting more data distributed could improve and reinforce the outcome.

Generalization is another limitation. The study was restricted to the Jordanian context, which may enhance generalization for Jordanian websites but may not be generalized to the broader population of eGovernment projects in the developed world, because of the differences in environment, characteristics and context. However, generalization is possible to countries with similar profiles to Jordan in other Arab states or developing countries.

### **6.3 Future Work**

Regarding the future work, the research has raised some ideas and suggestions for future work that can be developed in further studies.

As this research focused mainly on the evaluation of the websites on a user-based method (i.e. User Testing) (Nielsen & Mack, 1994), other future research could use other methods such as an evaluator-based method (i.e. Heuristic Evaluation) (Nielsen

& Mack, 1994) or a software-based method (i.e. Google Analytics Software) (Brinck et al., 2001).

In addition, because this research focused on highlighting aspects related to design, further research is necessary and should be focused on a variable's influence on websites usability, such as website contents.

Future research should focus to investigate the model for the possibility of using it to other sectors and find out if it is appropriate, for example in schools and universities. Moreover, research should focus to investigate the model for the possibility of using it in other applications, such as e-learning applications. Besides they can be compared with eGovernment websites (with differences being observed).

The research conducted here can be repeated in other developing countries with a view to examining whether this produces similar results that can aid in the enhancement of the generalisation. Alternatively, further research may be able to apply the model in other countries to discern whether it can be repeated successfully. These studies can also be repeated on different websites to allow for a deeper insight into usability, and it could also be conducted in other companies to ascertain whether there are any further differences.

Finally, the evaluation of the model was subjectively done, so it will be useful to deploy the model and conduct an extended evaluation in real life, and then perform the necessary alignment.

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## Appendices

### Appendix A: Stages of eGovernment Evolution UN (UN, 2008)

**Stage I - Emerging:** A government's online presence is mainly comprised of a web page and/or an official website; links to ministries or departments of education, health, social welfare, labour and finance may/may not exist. Much of the information is static and there is little interaction with citizens.

**Stage II - Enhanced:** Governments provide more information on public policy and governance. They have created links to archived information that is easily accessible to citizens, as for instance, documents, forms, reports, laws and regulations, and newsletters.

**Stage III - Interactive:** Governments deliver online services such as downloadable forms for tax payments and applications for license renewals. In addition, the beginnings of an interactive portal or website with services to enhance the convenience of citizens are evident.

**Stage IV-Transactional:** Governments begin to transform themselves by introducing two-way interactions between 'citizen and government'. It includes options for paying taxes, applying for ID cards, birth certificates, passports and license renewals, as well as other similar G to C interactions, and allows the citizen to access these services online 24/7. All transactions are conducted online.

**Stage V - Connected:** Governments transform themselves into a connected entity that responds to the needs of its citizens by developing an integrated back office infrastructure. This is the most sophisticated level of online eGovernment initiatives.

## Appendix B: Usability guidelines and its results (Wilder, 2007)

Guideline		DoD	SSA
1	Create a Positive First Impression of Your Site	Yes	Yes
2	Communicate the Web Site's Value and Purpose	Yes	Yes
3	Avoid Cluttered Displays	No	Yes
4	Place Important Items at Top Centre	Yes	Yes
5	Provide Navigational Options	No	Yes
6	Present Tabs Effectively	N/A	Yes
7	Use Site Maps	Yes	Yes
8	Link to Related Content	Yes	N/A
9	Designate Used Links	No	Yes
10	Define Acronyms and Abbreviations	Yes	Yes
11	Link to Supportive Information	No	Yes
12	Facilitate Scanning	Yes	Yes
13	Use Unique and Descriptive Headings	Yes	Yes
14	Use Headings in Appropriate HTML Order	Yes	Yes
15	Place Important Items at the Top of the List	Yes	Yes
16	Format List to Ease Scanning	Yes	No
17	Introduce Each List	Yes	Yes
18	Capitalize First Letter of First Word in Lists	Yes	Yes
19	Use Attention-Attracting Features when Appropriate	Yes	Yes
20	Use at Least 12-Point Font	Yes	Yes

## Appendix C:



This questionnaire aims to investigate the level of usability of current eGovernment in Jordan from management perspective. It is a part of a comprehensive study to find out how to improve the eGovernment websites for better utilisation and a more successful eGovernment scheme in Jordan.

The assistance is highly appreciated and the information you provide will be confidential and will only be used for this research.

### A) Demographics and Situation

1. Gender

- Male
- Female

2. Age

- 22-30
- 31-40
- 41-50
- 51-65
- Over 65

3. What is your job title: .....

4. Which of the following is the highest educational degree you have achieved?
- Postgraduate Degree
  - Bachelor Degree
  - Other
5. How long are you working with eGovernment project
- Less than one year
  - 1-2 years
  - 2-4 years
  - More than 4 years

**B) eGovernment, Usability, Practice and Training**

1. Is the government offering any incentives to increase and encourage the usage of its eGovernment websites?
- a) Yes
  - b) No
2. Have you ever received any complaints about the difficulties faced by the users of eGovernment website regarding web interfaces, usability and eGovernment in general?
- Regularly
  - Rarely
  - No
- If yes, please let me know about the sources of complaints
3. Do you think a mechanism such as (e-mail, FAQs) is sufficient to address the problems faced by the users?
- a) Yes
  - b) No

If yes, do you have a statistics? .....



Please indicate your level of agreement (1= Very important, 2= important, 3= I don't know much about it, 4= Unimportant, 5= Very unimportant)					
<b>1. Concerning success or failure eGovernment projects, usability is considered:</b>	1	2	3	4	5
Please indicate your level of agreement (1= Strongly agree, 5= Strongly disagree)					
<b>2. The following considered one of the biggest challenges of making a website usable for users</b>					
Lack of expertise website designers	1	2	3	4	5
Lack of budget	1	2	3	4	5
Lack of awareness of usability (absence of guidelines or standards)	1	2	3	4	5
Lack of feedback from end users	1	2	3	4	5
Not involving the end user in the initial stage of design	1	2	3	4	5
Management problems	1	2	3	4	5
<b>3. The following resources I think more beneficial for improving and increasing the usability of existing eGovernment websites</b>					
Trained staff	1	2	3	4	5
More budget	1	2	3	4	5
Involving end-users	1	2	3	4	5
Clear guidelines and standards	1	2	3	4	5
<b>4. The following was one of the most difficult thing faced by the users of eGovernment website regarding we interface and usability in accordance to the complaints received</b>					
Navigation	1	2	3	4	5
Appearance	1	2	3	4	5
Customization	1	2	3	4	5
Search	1	2	3	4	5
Other	1	2	3	4	5

Please indicate your level of agreement (1= Yes, 2= Possibly yes, 3= Not sure, 4= Possibly no, 5= No)					
5. <i>Did you pay attention to the end user requirements before establishing the eGovernment website?</i>	1	2	3	4	5
6. <i>Did you survey the requirements of end user after launching eGovernment system for further improvement</i>	1	2	3	4	5
7. <i>Have you or any of your staff ever attended any training on the usability of eGovernment websites before or after the project?</i>	1	2	3	4	5
Please indicate your level of rating (1= Very good, 2= Good, 3= Average, 4= Below average, 5= Poor)					
8. <i>interfaces of your eGovernmnet website are:</i>	1	2	3	4	5

**Thank you very much for your assistance and co-operation.**

## Appendix D:



Dear participant,

This questionnaire aims to evaluate the usability of the eGovernment websites in Jordan in order to identify the users' requirements and needs for future systems. It is a part of a comprehensive study to find out how to improve the usability of the eGovernment websites depending on users' perspectives.

The assistance is highly appreciated and the information you provide will be confidential and will only be used for this research.

### A. Pre-Test Questionnaire

#### 1. Demographic

##### 1.1 Which gender are you?

- Male
- Female

##### 1.2 How old are you?

- Less than 18
- 18-30
- 31-40
- 41-50
- 51-65
- over 65

**1.3 Which of the following best describes what you do?**

- studying or in training
- employed in a public sector
- employed in a private sector
- self-employed
- Retired
- Others .....

**1.4 The highest educational degree you have achieved**

- Postgraduate
- Bachelor
- Diploma
- High school
- No degree

**2. Technology Use****2.1 How often do you use the Internet**

- Daily
- Weekly
- Monthly
- Rarely

**2.2 How do you describe your level of expertises with the Internet**

- Excellent
- Good
- Fair
- Poor

**2.3 Do you use the eGovernment websites ((i.e. connecting with the government organizations through the Internet)**

- Often
- Sometimes
- Rarely
- Never

## B. Participants Tasks

Tasks from public services of the major eGovernment websites in Jordan will be evaluated. Each task aims to evaluate a specific service provided by a particular governmental organization. Participants will be asked to complete the task without limitation time. The websites and the selected tasks are as follows:

Website	Task
<p><b>Greater Amman Municipality (GAM)</b></p>	<ul style="list-style-type: none"> <li>• Obtaining the tenancy agreement</li> <li>• <b>By search:</b> Finding the permits act</li> </ul>
<p><b>Interior Ministry (IM)</b></p>	<ul style="list-style-type: none"> <li>• Checking the documents for obtaining the visas</li> <li>• <b>By search:</b> Finding the general licenses conditions for cafés</li> </ul>
<p><b>Health Ministry (HM)</b></p>	<ul style="list-style-type: none"> <li>• Checking the documents for obtaining exemption of treatment costs</li> <li>• <b>By search:</b> Finding procedures for entry and exit of the patient from hospital</li> </ul>
<p><b>Drivers and Vehicles Licensing Department (DVLDD)</b></p>	<ul style="list-style-type: none"> <li>• Issuance of vehicle license instead of lost or damaged</li> <li>• <b>By search:</b> Checking conditions and documents necessary to obtain the driving license or renewal</li> </ul>
<p><b>Social Security Corporation (SSC)</b></p>	<ul style="list-style-type: none"> <li>• Accessing contact address and the telephone number for Al-Mafraq branch</li> <li>• <b>By search:</b> Finding information about the optional membership</li> </ul>

### C. Post-Test Questionnaire

Navigation						
Item		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	It is easy to navigate from page to another					
2.	It is easy to find the information/ service which related to the task					
3.	Sometimes I feel confused about where I am, where I have been and where I want to go					
4.	Navigation menu is simple and straightforward					
5.	The links are easy to find (e.g. underlined text to indicate links)					
6.	Headings on the website clearly identify their target pages					
7.	There is a clear link back on each page lead to the homepage					
8.	Information about the often used services is easy to find					

Search						
Item		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	It is easy to find the search feature					
2.	Using internal search facility was easy					
3.	Accuracy of internal search results was good					
4.	The site's search function was quick enough					
5.	Results of internal search were useful					

Customization					
Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	The website categories should be made based on groups (e.g. citizens, business, etc)				
2.	I would like to have the ability to move the webpage elements via “drag and drop”				
3.	The website should allow users to customize individual preferences and needs				
4.	I prefer to customize the colours				
5.	I prefer to customize the background				
6.	I prefer to customize the layout				
7.	I prefer to customize the font size				
8.	The website should be supported by more than one language				

Appearance						
	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	The website pages are consistent					
2.	Link titles/ headings are clear					
3.	I liked the interface of the website					
4.	The website avoids cluttered displays					
5.	The website places important items at clear places (e.g. centre, top of the list)					
6.	The images reflect the content of the website					
7.	The website creates a positive first impression					
8.	Appropriate colours are used					
9.	Appropriate fonts are used (fonts are easy to read)					
10.	The interface of the website is attractive					



Overall Satisfaction						
	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	The website is easy to use (user-friendly)					
2.	I would like to use this website frequently					
3.	I will recommend this website to others					
4.	I felt comfortable using the website					
5.	It is easier to use the website rather than contacting a representative					
6.	The overall impression of the website is good					

**Thank you very much for your assistance and co-operation.**

## Appendix E:



Dear participant,

The aim for conducting the research is to investigate the situation of the Jordanian eGovernment websites toward improving its usability for better utilization and successful eGovernment project in Jordan.

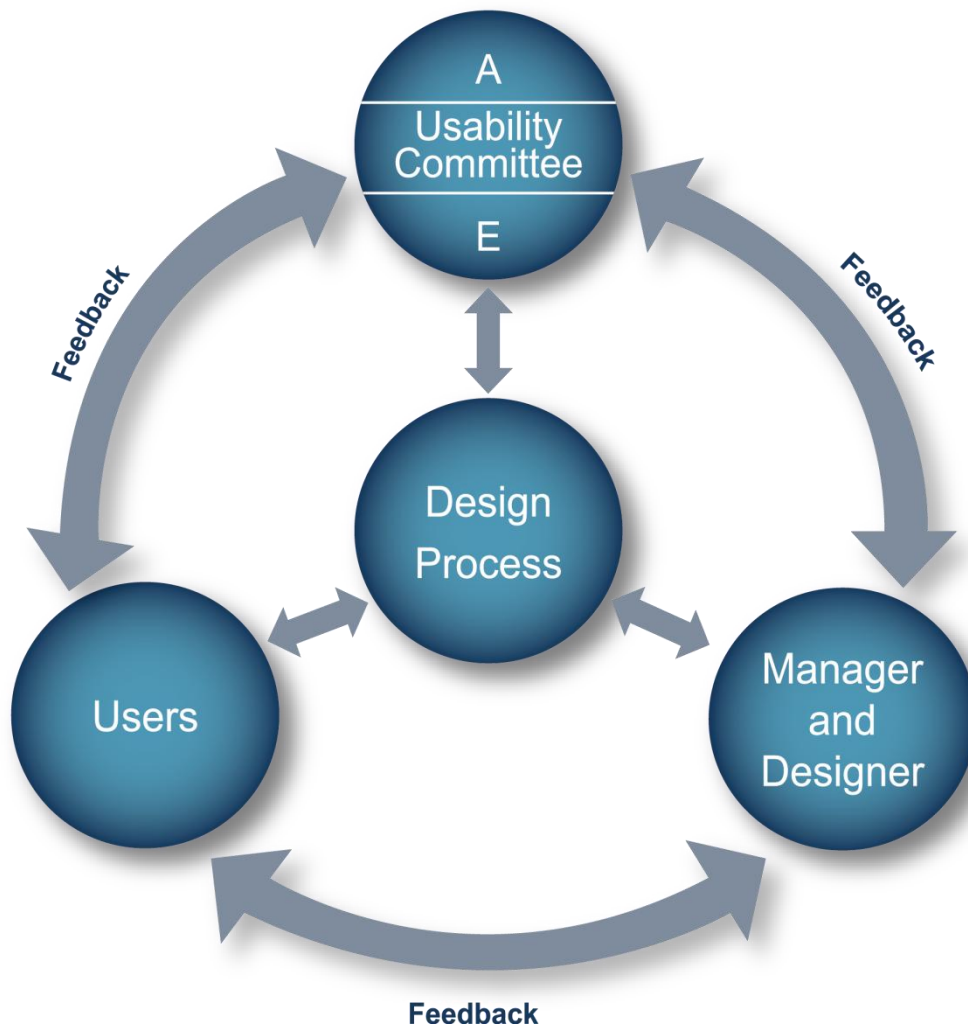
The research started by conducting study to investigate the level of usability of eGovernment in Jordan from managers' perspective. Then the research conducted a study to build a clear overview about the status of eGovernment websites' usability in Jordan by investigating main aspects related to design that affect the success of eGovernment websites in Jordan from end-users' perspective.

The model has emerged after the conducted studies which revealed number of issues affects on eGovernment website usability. These findings have been analysed and translated into two sets of requirements, general requirements and specific requirements which the model intends to satisfy them. The general requirements are to be satisfied by the whole architecture of the model while the specific requirements are to be satisfied by the specific elements within the model.

Now the purpose of this questionnaire is to validate the model which has been conducted before we adopt the final form. The figure below illustrates the proposed model for improving the usability of eGovernment websites in Jordan. In addition, the table below illustrates the two sets of requirements which were mentioned earlier with more details and how they are represented in the model.

The information you give will be entirely confidential and will not be shared with any people not directly connected with this research. Please answer honestly and as accurately as you can. Your contribution is much appreciated.

**Thank you very much for your assistance and co-operation.**



Design Process:

- Usability Requirements
- Pre-Implementation Test
- Post-Implementation and Maintenance

Usability Committee

- A: Advisory
- E: Executive

### The Proposed Model for Improving the Usability of eGovernment Websites in Jordan

Specific Requirements	Represented in the model by	General Requirements	Represented in the model by
More Management	Website manager and designer	Clear framework of collaboration and coordination among government agencies	Whole architecture of the model
Expert website designers	Website manager and designer	Increase trust and satisfaction for eGovernment websites	Whole architecture of the model
Promoting and increasing the awareness of usability amongst the staff	Usability committee	Better monitoring	Whole architecture of the model
Establishing of Clear guidelines and standards about usability	Usability committee	Improving the usability of eGovernment websites	Whole architecture of the model
Training on usability of eGovernment websites	Usability committee		
Avoid poor standardization	Usability committee		
Solve the problem of Lack of testing	Pre-implementation test		
Pay attention to end-users	End-users		
Involving end-users	End-users		
Better attention toward meeting end-users needs	End-users		

**The Specific and General Requirements and how They are Represented in the Model**

**General Information**

**1. Gender**

Male     Female

**2. Your current job title.....**

**3. Years of experience**

Less than 2 years     2- 5years     5-10 years     More than 10 years

**4. Please rate your familiarity with websites.....**

In the following section, please indicate to what extent you agree or disagree the following statements regarding on scale of 5 (1=strongly agree, 2=Agree, 3=Neutral, 4=disagree and 5=strongly disagree), please answer the following questions based on your own opinions and experience (circle the appropriate number).

**1. Using the proposed model makes it easy for the management to understand usability issues and therefore enhance their involvement**

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

Any suggestion please

.....  
 .....

**2. Using the proposed model takes into consideration the need of skilled website designers**

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

Any suggestion please

.....  
 .....

**3. Using the proposed model promotes and increases the awareness of usability among the staff**

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

Any suggestion please

.....

.....

**4. Using the proposed model supports and keeps using clear guidelines and standards about usability**

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

Any suggestion please

.....

.....

**5. Using the proposed model compensates and ease the training related to usability of website**

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

Any suggestion please

.....

.....

**6. Using the proposed model helps in avoiding poor standardization in the websites**

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

Any suggestion please

.....

.....

**7. Using the proposed model solves the problem of lack of testing**

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

Any suggestion please

.....  
 .....

**8. Using the proposed model enables better attention toward users usability needs**

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

Any suggestion please

.....  
 .....

**9. Using the proposed model enables users to reflect their experience with the website and send their feedback**

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

Any suggestion please

.....  
 .....

**10. Using the proposed model gives government agencies the opportunity to follow the same way, therefore improve collaboration and coordination among them**

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

Any suggestion please

.....  
 .....

**11. Using the proposed model helps in increasing the website usability and therefore improve trust and satisfaction for eGovernment websites**

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

Any suggestion please

.....  
 .....

**12. Using the proposed model enables and supports better monitoring of eGovernment websites**

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

Any suggestion please

.....  
 .....

**13. Using the proposed model helps in improving the usability of eGovernment websites**

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

Any suggestion please

.....  
 .....



## Appendix F:



المؤسسة العامة للضمان الاجتماعي  
Social Security Corporation

Home Page Contact Us Site Map Comments & Complaints FAQ عربي

Search  GO

### Early Old Age Pension

**Entitlement Conditions for Early Retirement Pension:**

1. To complete the age of 45 minimum for the insured person wither He/She.
2. To have a total of (216) actual subscriptions for the male insured person and a total of (180) actual subscriptions for the female insured person.
3. To complete the service and to present the pension share portion request

The Actual Subscription: is the Subscription in the Social Security Retirement through establishments that is covered by the provision of the Law or through Optional Contribution, the annexed years or the purchased years is not considered Actual Subscription.

**Requested Documents and data for the Retirement Pension:**

1. Endow deduction declaration from the establishment.
2. A copy of Birth Certificate.
3. A copy of National Identification Card for the Jordanian insured person and the passport for the non Jordanian.
4. Bank account number for the insured person or his insurer.
5. A declaration note from the Civilian and Military Retirement Directorate or Retirement Decree for the Jordanian insured person.
6. A termination or a resignation declaration for Early Retirement purposes only.
7. Defining the survivors:

1. A copy of the Family Registration Book for Jordanians.
2. Survivors Passports, Birth Certificates and/or Family Cards for the non Jordanians

**Survivors definition, Entitlement Conditions and requested Documents**

Survivors:

1. Husband Spouse Mate / Wife Spouse Mate.
2. Sons / Daughters.
3. Parents.
4. Brothers and Sisters.

Entitlement conditions and required documents:

1. Husband Spouse Mate / Wife Spouse Mate:
  1. The Wife:  
There are no conditions A copy of the Jordanian Family Registration Book



المؤسسة العامة للضمان الاجتماعي  
Social Security Corporation

English الصفحة الرئيسية اتصلوا بنا خارطة الموقع شكاوي ومقترحات اسئلة وجوبة

الاحترام المهنية النزاهة الروح الشريك  
المصادقية كلمة المدير العام

لقد مضى على عمر الضمان الاجتماعي في الأردن ثلاثون عاماً، تحقق خلالها الكثير من الإنجازات، فقد دخل الضمان الاجتماعي اليوم كل بيوت الأردنيين، وبدأت تدرسخ في المجموع ثقافة تأمينية وأخرى تأهيلية الضمان وضروته لكل مواطن وعامل، كما أصبح هناك اهتمام أكبر بالوزن الذي تقوم به المؤسسة في توفير الحماية الاجتماعية لكافة فئات المجتمع الفلسطيني.

**الاهداف والمبركات**

صدر قانون الضمان الاجتماعي في الأردن رقم 30 لسنة 1978، كمنهجية للطور الاقتصادي والاجتماعي في المملكة حيث استهدف الفئات العاملة غير المعطاة بنظم وقوانين تقاعدية أخرى الفيزيين.

**البرر المواضيع**

التميز في خدمتكم هابتنا ... شاركوا في تعبئة الاستبيات النموذج المعدل لكشف البيانات الأساسية اهم التعديلات في قانون الضمان الاجتماعي الجديد قانون الضمان الاجتماعي المؤقت رقم (7) لسنة 2010 الاستثناءات في قانون الضمان الجديد تأمين إصابات العمل في قانون الضمان الاجتماعي الأسباب الموجبة لتعديل قانون الضمان الاجتماعي وثيقة الحوار الوطني حول تعديل قانون الضمان الاجتماعي قانون الضمان الاجتماعي الجديد.. إصلاحه باعتماد مشروع نحو ضمان احضر

**البرر الأخبار**

03-05-2013  
رئيس الوزراء يبرعي حفل اطلاق المرحلة الأخيرة من مشروع توسعة الشمول بالضمان الاجتماعي في محافظتي العاصمة والبرقي

دور الرعاية الملكية والدعم الذي تقدمه للمؤسسة  
إيماناً من قيادتنا الهاشمية بضرورة الاهتمام بالإنسان العامل وتوفير سبل العيش الكريم له و انطلاقاً من مقولة جلالة المغفور له الملك الحسين بن طلال "الإنسان أعلى ما تملك"  
المؤسسة  
**المبادرات الملكية لدعم التشغيل**  
محاضرة الحماية الاجتماعية للذكور عن النسور  
بحث  ابدأ  
**توسعة الشمول**  
هل تعتقد أن تأمين الأمور سيسهم في تمكين المرأة بسوق العمل ورفع نسبة تشغيلها:  
نعم   
لا

Example of SSC Website: Navigation Bar not Appearing on Some Pages



[Contact Us](#) | [Site Map](#) | [عربي](#)



**Public Security Directorate**  
Driver & Vehicle License Department



**Enlighten Words**

"Management that could achieve the objectives effectively with minimum cost and time is a discrete management that shall be established on a specialised institutions that work in a team work more."

**Message & Vision**

**Our message**

like rolling the institutionalization and securing (updating and development of plans and methods of procedures regarding the provision of drivers' and vehicles licensing services to their clients in order to reach and advanced level of comprehensive safety assurance.

**Our vision**

Advancement in the provision of a distinguished service with respect to drivers' and vehicles licensing; transparency of procedures followed in providing such service where it should be in conformity with the enforced laws, regulations and instructions.

**Services**

- [Inquiry form regarding the driver's points status](#)
- [Inquiry form regarding the cost of renewing a vehicle's registration](#)
- [Feedback form for the users to submit any inquiries or questions to DVLD](#)

**Welcome Message**

Seeking to implement the instructions of His Majesty King Abdulla the second - may Allah bless him - towards high governmental performance and transparency, the Vehicles & Drivers Licensing Dept., which was always involved in the increasing technological developments of [more..](#)

**Safety Information**

When we think of the traffic safety, we usually think of drivers, vehicles & roads, we forget the pedestrians who use the streets for walking in many conditions we forget those people, unless we practice walking when we assist our children in their way to school, we may enquire if our children are safe when using same roads used by the heavy traffic? [more..](#)

**Useful Telephone**

Unit	Telephone Number
Public Security Directorate	196
Traffic Dept	190
Patrol Police	131
Highway Patrol police	194

**Telephone numbers of the Drivers & Vehicles License Department**

4892283	4885718
4897396	4885719
4897397	4892284

[more..](#)



English | [خريطة الموقع](#) | [تصل بنا](#)



صهوية الامن العام  
ادارة ترخيص السواقين و المركبات

**كلمة ترحيبه**

تحقيقاً لرؤية جلالة الملك عبدالله الثاني - حفظه الله - نحو مجتمع الأمان الحكومي والتشغيلية بتطور إدارة ترخيص السواقين والمركبات التي لم تكن في أي وقت يمتد من التطورات التكنولوجية بحوسبة المعاملات وحوسبة إجراءاتها وضمن خطة منهجية منظمة وشاملة لتحقيق نهضة في مستوى ما تقدمه من خدمات لهذا البلد العزيز بأقله ومواجهة البشرية. وضمن ما يشهده العالم من تطور تقني وعلمي في مجال تكنولوجيا المعلومات للمزيد

**خدمات الموقع**

**تصودح استفسار عن عدد نقاط السائق**

**تصودح استفسار عن رسوم تجديد المركبة**

**تصودح للاستفسار عن خدمات دائرة الترخيص**

**تصودح استفسار عن رسوم تجديد رخصة القيادة**

**جديد نظام اللوحات الجديدة**

**كلمات مضيه**

إن الأمانة التي تستطيع تحقيق الأهداف بجديه وكافه أمل ورسى أتمنى، هي الإدارة الحكيمة التي تقوم على إيجاد مؤسسات متخصصة فاعليه تعمل بسروح السروح الأواحد، وتوفر لها الامان إدارة كريمة ترحمه يقدم الصالح العام على أي اعتبار آخر، للعيد

**الرؤيا والرسالة**

**رؤيتنا**

تطوير المؤسسة مع ضمان جودة الخدمة والأمان التي تفي باحتياجات السواقين والمركبات لتتضمنها للمواطن في مستوى متطور في جميع الجوانب المتضمنة.

**رسالتنا**

تطوير خدمة متميزة في مجال ترخيص وحوسبة المعلومات والمركبات والمساهمة في إجراءات تجديد رخصة القيادة وفق التشريعات المعمول بها.

**هواتف ضرورية**

رقم الهاتف	الوحدة
196	مديرية الأمن العام
190	إدارة السير
131	شرطة النجدة
194	إدارة الدورات الخارجية

**هواتف إدارة ترخيص السواقين والمركبات**

4885718	4892283
4885719	4897396
4892284	4897397

المصدر

**معلومات السلامة**

إن السلامة المرورية يفهمها الواسع تهدف إلى تهيئة كافة الخطط والبرامج واللوائح المرورية والإجراءات الوقائية للحد من أو منع وقوع الحوادث المرورية ضمنياً لسلامة الأمان وممتلكاته وحفاظاً على أمن البلاد ومقوماته البشرية والاقتصادية للمزيد

**ات الرائر رقم**

Example of DVLD Website: Many Different Font Sizes and Colours

The screenshot shows the Amman Municipality website in Arabic. The header includes the logo and navigation links such as 'أمانة عمان', 'مشاريع الأمانة', 'مبادرات الأمانة', 'خدمات المدينة', 'مركز المعلومات', 'دليل عمان', and 'EN RSS'. The main content area displays several news items with dates and titles, such as 'ورشة تدريبية لموظفي دائرة البرامج الرياضية والترفيهية' and 'وفد صديقة "بينو" الصينية يزور امانة عمان الكبرى'. The sidebar on the left contains a calendar for May 2011 and a list of services. The right sidebar features a 'الخدمات الإلكترونية' section with a login area and a 'Your Opinion' poll.

The screenshot shows the Amman Municipality website in English. The header includes the logo and navigation links such as 'Amman Municipality', 'ABOUT GAM', 'CITY PROJECTS', 'CITY INITIATIVES', 'ANNOUNCEMENTS', and 'AMMAN GUIDE'. The main content area displays several news items with dates and titles, such as 'Jweinat Graduates Participants in Effective Project Management Training' and 'Chairman of Greater Amman Municipality Committee Engineer Ammar Gharaybeh Communicates with the Citizens Thursday Morning'. The sidebar on the left contains a 'CITY SERVICES' section with a login area and a 'Your Opinion' poll. The right sidebar features a 'MAYOR OFFICE' section with a login area and a 'Your Opinion' poll.

Example of GAM Website



الصفحة الرئيسية | مؤسسات القطاع | إحصائيات ومؤشرات صحية | دراسات وبحوث قرائين وأنظمة المشاريع | الاتفاقيات | معلومات عامة و صحية

رومانيا في الاسعاف والطوارئ

من أقوال جلالة الملك عبد الله الثاني بن الحسين المعظم

"تحسين مستوى حياة المواطنين يتطلب الاهتمام بالرعاية الصحية، وهي حق كل مواطن ومواطنة، فالإنسان السليم المضمن على صحته وصحة أسرته والإنسان الفاجر على العمل والإنتاج."

أخبار الصحة

- مذكرة تفاهم بين الصحة وشركة فارمسي ون لحوسبة الأدوية
- الانتهاء من تأهيل أقسام النسائية والتوليد في مستشفى البشير
- وزير الصحة ينفق امتحانات المجلس الطبي في الجامعة الأردنية
- وزارة الصحة تبحث تطوير التعاون مع وفد تركي
- تعاون مع البرازيل للتدريب في مجال زراعة الكبد

المزيد »

الرسالة

الحفاظ على الصحة بتقديم الخدمات الصحية الوقائية والعلاجية بعبادة وجود عالية وذلك بالاستخدام الأمثل للموارد والتقنيات وبالمشاركة الفعالة مع الجهات ذات العلاقة والقيام بالادوار التنظيمية ...

المزيد »

الروما

مجتمع صحي معافى  
ضمن نظام صحي متكامل يعمل بعبادة وكفاءة وجود عالية وريادية على مستوى المنطقة

المزيد »

الرسالة

الحفاظ على الصحة بتقديم الخدمات الصحية الوقائية والعلاجية بعبادة وجود عالية وذلك بالاستخدام الأمثل للموارد والتقنيات وبالمشاركة الفعالة مع الجهات ذات العلاقة والقيام بالادوار التنظيمية ...

المزيد »

معلومات عامة وصحة

الاعلانات

استبانة قياس مستوى الرضى والنفاذ لدى الموظفين  
اعلانات ترخيص المهن والمؤسسات الصحية  
دورات وبعثات  
شؤون الموظفين

المزيد »

ENGLISH SITE

- عن وزارة الصحة
- الهيكل التنظيمي
- وزراء الصحة
- مديريات الوزارة
- أدلة الخدمات
- الخدمات الإلكترونية
- شبكة المعلومات الصحية
- مواقع هامة
- خريطة الموقع
- نشرات دورية
- اتصل بنا
- إدارة الموقع
- البريد الإلكتروني
- الموقع بإدارة مديرية تكنولوجيا المعلومات
- دخول
- شارك في المسح الخاص بموقعنا
- كيف تقيم موقعنا؟
- ممتاز
- جيد جدًا
- جيد
- مقبول
- إرسال



Hashemite Kingdom of Jordan  
Ministry of Health  
Focal Point For Health Information

Search

Homepage | Health Sector Bodies | Health Indicators | Health Research | Rules & Regulations | Projects & Protocols | Health & Public Info

الموقع بالعربية

Jordan National Strategy for Viral Hepatitis

Quotes by HM King Abdullah II

"Maintaining public health by offering preventive, treatment and health control services, as well as organizing and supervising health services offered by the public and private sectors."

HM King Abdullah II

Mission Statement

Protecting health by providing high quality and equitable preventive and curative health services by optimizing utilization of resources, technology advances and active partnership with the concerned authorities and by adopting a monitoring and regulatory role related to services concerned with the health of citizens and implied in a national comprehensive health policy.

With ...

more »

Vision

A healthy community within a leading comprehensive health system ensuring equity, efficiency and high quality at the regional level. ...

more »

Health & Public Information

- Jordan National Strategy for Viral Hepatitis | Download
- Osteoporosis
- The Psychological Changes Encountered by Teenagers
- Mental Health...How to Deal with Cases of Mental Stress
- Negative Smoking...How to Protect Your Family

more »

Health

National Health Strategy

Health

PHC Accreditation Standards

Health

Jordan National Strategy

Ministry of Health Strategy

How do you evaluate our website?

Excellent

Very Good

Good

Fair

View Results >>

Subma

Example of HM website: Offering the Opportunity for Users to Leave Feedback



Example of IM website