

Challenges and Factors Affecting the Implementation of E-Government in Jordan

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Abstract

Electronic government (e-Government) in its simplest form can mean using information and communication technology (ICT) tools to provide services to citizens. Still with the huge benefits and synergies that e-Government grants to governments and societies, it faces many obstacles and challenges. Therefore, there are always a number of critical success factors and risks associated with e-Government. This paper highlights some of the key ones; it critically assesses key factors that influence e-Government services adoption and diffusion. Thus, the aim of this study is to examine and identify the factors that influence and affect the utilization of e-Government in the developing countries, specifically in Jordan. Furthermore, this article investigates the challenges and barriers that must be overcome in order to successfully implement e-Government in Jordan. Semi-structured interviews were conducted and used in this study to collect the data. The results of this study show that the most significant challenges and factors influencing the implementation of e-Government services in Jordan are related to budgeting and financial costs, human expertise, social influence, technological issues, lack of awareness, resistance of public employees, data privacy and security, the legal framework, the needed technology, administrative obstacles, and trust or believing in e-Government. Conclusions, recommendations and future work are stated at the end of the paper.

Keywords

E-Government, E-Services, Challenges, Factors, Jordan

1. Introduction

E-Government is a relatively new area of study in the field of Information Systems (IS) that is concerned with the use of ICT by the government agencies to electronically deliver its services [1]. E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government [2]. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions [3].

There are a number of studies undertaken in different countries to study e-Government adoption (for example, studies [4]-[14]); each study contributes in providing a strong theoretical understanding of the factors explored in their research model. These studies discuss the potential advantages of implementing e-Government, based on a few successful regional e-Government programs. However, to the best of the researchers' knowledge, few empirical studies partially discuss the factors of e-Government adoption in Jordan (e.g. [15]-[22]) and a few case studies illustrate the merits of implementing e-Government services (e.g. [23]-[25]). Moreover, these studies are conceptual, descriptive, and exploratory in nature and fail to provide relevant facts regarding the current state of e-Government in Jordan. Thus, there are limited studies that have addressed adoption of e-Government services in Jordan in an in-depth manner. Consequently, an attempt is made to identify gaps in the literature that would have implications for future research in a developing country such as Jordan and provide better understanding of citizen beliefs and organizational characteristics of governments that influence adoption of ICT technologies and electronic services by citizens of Jordan. Hence, this paper discusses organizational factors in adoption of e-Government services, and argues for the need to examine e-Government services adoption in the developing world in general and in Jordan in particular.

Semi-structured interviews were conducted and used in this study to collect the data. Twelve governmental agencies and approximately 36 persons participated in individual face-to-face meetings or telephone conversations to investigate their perceptions and attitudes towards the e-Government program in Jordan. The data was collected during August and September of 2014. Results indicate that there are several primary factors affecting e-Government adoption in Jordan. Accordingly, the paper highlights the potential challenges facing the implementation of e-Government in Jordan as well as factors that influence e-Government implementation and diffusion in Jordan. The results of this study will benefit the expected audience by identifying what is currently taking place with e-Government program in Jordan.

This study is organized as follows: Section 2 provides a literature review of e-Government, both at national and international levels; Section 3 introduces the e-Government program in Jordan along with Jordanian e-Government strategy; Section 4 describes the research methodology that was used in the study; Section 5 presents the results and findings of the study; Section 6 provides a discussion related to challenges to the implementation of e-Government in Jordan; finally, conclusions and recommendations are provided in Section 7.

2. Literature Review

Traditionally, the interaction between a citizen or business and a government agency took place in a government office. With emerging information and communication technologies it is possible to locate service centers closer to the clients. Such centers may consist of an unattended kiosk in the government agency, a service kiosk located close to the client, or the use of a personal computer in the home or office. Hence, e-Government aims to make the interaction between government and citizens (G2C), government and business enterprises (G2B), and inter-agency relationships (G2G) friendlier, convenient, transparent, and inexpensive [2].

However, e-Government refers to the use of Information Technology (IT) to improve the efficiency, effectiveness, transparency, and responsibility of public governments [26]. Viewed as radical, yet unavoidable transformation projects [27], the implementation of e-Government systems has been attracting increasing research interest, and is believed to constitute one of the most important IT implementation and organizational change challenges of the next decades [28] [29].

Despite increased research interest on e-Government, existing research has not adequately addressed two key issues concerning the implementation and integration of e-government systems: (a) a better understanding of the factors influencing the adoption and acceptance of e-Government systems, and (b) a better understanding of the

factors that influence the effective usage of these systems [30].

Studies related to e-Government initiatives in Jordan provide a distorted view of measures of success for an e-Government project; whether it be transparency [15]; time and cost savings [16]; bridging the digital divide [17]; accessibility of e-Government programs [18]; economic returns [19]; effectiveness [20]; partnership with non-governmental organizations [22]; process reforms [31], and infrastructural framework [32]. There is a lack of emphasis on the individual characteristics that can significantly influence the adoption of e-Government programs in Jordan. Scholars have addressed concerns related to the lack of: awareness, willingness, and ability to access to technological resources. These concerns have been more anecdotal in nature rather than substantiated by empirical evidence. It is evident that the use of ICT can benefit citizens, but it is not clear how individual characteristics can affect; adoption of technology, and e-Government usage by citizens of Jordan.

As mentioned earlier, the recent trend for the public sector worldwide is to implement e-Government program [15]. This is driven by the expected benefits that the introduction of ICT would bring to the public sector. The benefits of automating the public sector operations could be realized through increased efficiency and effectiveness, decreased costs, and better quality of service. Therefore, governments are investing heavily and setting tight deadlines on e-Government projects in order to exploit the expected benefits [33]. However, recent studies indicate that most countries have not been quite successful in achieving the expected benefits through e-Government initiatives and the results have been disappointing [34]-[36].

As one of the developing countries, the Jordanian Government has made an initial effort to define e-Government as the ability to submit governmental transactions on-line and make payments electronically where they are required [37]. Jordan hopes to reap the benefits of e-Government by becoming more productive, accountable, and transparent. However, the lack of qualified staff and inadequate human resources training has been a problem for years in developing countries including Jordan [38].

According to Heeks [39], nearly 35 percent of e-Government projects has totally failed in developing countries (e-Government projects were either not implemented or implemented but immediately abandoned), 50 percent has partially failed (major goals were not attained and/or there were undesirable outcomes), and only 15 percent of cases of implementing e-Government in developing countries were successful.

The major problem behind e-Government project failure in developing countries, as Heeks [39] pointed out, is due to the gap between the design and reality in terms of information, technology, processes objectives and values, staffing and skills, management systems, and other resources such as time and money. Some recent studies have associated e-Government success to the business and IT alignment across different organization types [40]-[42]. E-Government success and failure, therefore, depends on the size of the gap that exists between current realities and design of the e-Government project [15]. Hence, Jordan is developing strategies in order to bridge the gap between the design and reality in order to benefit from the opportunities of e-Government.

In a study about e-Government in Jordan, Elsheikh, Cullen and Hobbs [43] indicated that Jordan is facing the challenge of implementing e-Government initiatives successfully; this is due to number of factors: bureaucracy, lack of accountability and transparency, and lack of citizen participation in democratic institutions and processes. However, study findings indicate Jordan is still far behind some from utilizing ICTs in delivering government information and services online on one hand. But this not necessarily means that the Jordanian e-Government program is condemned to failure. On the other bright side, the review indicates Jordan never seems to lack of the fundamental resources.

Al Nagi and Hamdan [44] stated that Jordan has many obstacles facing its implementation of e-Government program summarized as follows: digital gap between communities, lack of national policies regarding science and technology, lack of organizational and legislation laws, lack of sufficient ICT applications, the existence of technological illiteracy, lack of proper funding, and lack of experienced workforce.

According to Mohammad, Almarabeh and Ali [38], e-Government implementation in Jordan suffers from internal and external barriers. The internal challenges involved ensuring better understanding to a common vision to e-Government and providing leadership to translate vision into actions where the leaders should learn how to support agencies in the e-Government implementation, so there is a need for cooperation to ensure interoperability, avoid duplicate services to ensure that the government officials have tools to do their missions, to monitor and evaluate success. The external challenges include the rapid changes in technology, and the other challenges like people who do not have PCs or do not have access to the Internet, and people who use the online services need a guarantee of privacy and security where the information provided will not be misused. Thus, the success of e-Government programs is highly dependent on legal framework for their operations.

Weerakkody, El-Haddadeh and Al-Shafi [45] investigated various factors that influence e-Government, in developing country such as Qatar, under the broad themes summarized in: political, social, technological, and organizational contexts. These themes can be synthesized and captured in a conceptual model as key factors that need to be considered when studying e-Government and its implementation barriers.

Field *et al.* [46] affirmed that e-Government has broad benefits and requires a whole-of-government perspective for successful implementation. Issues of co-ordination and collaboration, including regarding budgetary issues, need to be addressed to maximize the benefits of e-Government. Identifying potential gains from e-Government is one thing; actually realizing them is another. Implementing ICT projects, particularly large-scale projects that can have a major impact on service quality improvements or efficiencies, can raise a number of problems, many of which relate particularly to operating within government. External e-Government barriers often concern breakdowns, missing components or lack of flexibility in the government-wide frameworks that enable e-Government. The result is oftentimes the inability to achieve a whole-of-government perspective in e-Government implementation. However, the issue of budgetary barriers is one such problem that requires the cooperation of multiple actors in order to be overcome.

Alomar, Sandhu and Woods [21] identified the main factors that may influence e-Government adoption in Jordan. The study explored four different social factors: trust in terms of the security and privacy and trust in government, attitudes and beliefs, education, and accessibility. Abu-Shanab [47] introduced challenges and obstacles of e-Government in developing countries. According to the study findings, lack of technical support from government Website support is the most important barrier, followed by the lack of knowledge about the e-Government services.

Basamh, Qudaih and Suhaimi [5] explored the adoption and implementation of e-Government in Saudi Arabia. The study identified infrastructure costs, computer literacy, privacy issues, accessibility, availability, and trust issues as some of the major challenges and obstacles that impede the implementation and adoption of e-Government in the Kingdom of Saudi Arabia. Costs associated with the implementation of e-Government negatively affect the e-readiness of various government departments for e-Government. Overall, the study has clearly found out that the challenges affecting the implementation and adoption of e-Government is not only related to the various government agencies, but they are also related to those using the e-Government services such as citizens and government employees.

Alateyah, Crowder and Wills [48] examined challenges that face adoption of e-Government in Saudi Arabia. The study has identified the influential factors that affect the citizens' intention to adopt e-Government services in Saudi Arabia. Alshehri, Drew and Alfarraj [49] defined list of challenges assumed to face the adoption of e-Government in Saudi Arabia. AlShihi [50] investigated the critical factors in the adoption and diffusion of e-Government initiatives in Oman. Al-Shafi [14] has investigated the key challenges that influence e-Government implementation and the factors influencing citizen adoption in the state of Qatar.

Sang, Lee and Lee [13] have studied factors and challenges to the implementation of e-Government in Cambodia. They explored the challenges critical to implementing e-Government include variations in support among leadership, the lack of high prioritization of (or even need for) e-Government at present, a poor ICT infrastructure, a low rate of literacy, and a high turnover rate among government information technology staff.

Bwalya [7] has examined factors affecting adoption of e-Government in Zambia. The findings of the study revealed that lack of adequate ICT infrastructure, provision of content in English other than local languages, lack of proper change management procedures, non-contextualization of e-Government practices; contribute much to the delay in appropriate e-Government adoption in Zambia.

Ahmad, Markkula and Oivo [8] explored the factors that affecting e-Government adoption in Pakistan. The study findings show that performance expectancy, effort expectancy, facilitating conditions and social influence are the factors that affect the user's adoption of e-Government services in Pakistan. Furthermore, the results show that lack of awareness, user data privacy, lack of appropriate support and assistance hamper the process.

Nabafu and Maiga [11] outlined a number of requirements for successful implementation of e-Government in Uganda. These requirements include financial resources, building ICT infrastructure, citizen training and sensitization to relevancy and benefits of e-Government, and social political factors. The study identified these requirements and steps for successful implementation of local e-Government projects in Uganda to follow.

Rokhman [4] has identified critical success factors of e-Government in Indonesia. This study developed a model for the success of e-Government services implementation. From the citizens' perspective, the critical factors for using e-Government services are relative advantage and compatibility factor. On the government's

perspective, the successes of e-Government implementation are the existing of e-Leadership and the availability of e-Government training for member of government organizations. Infrastructure availability is in the middle between citizen and government as a prerequisite for relating both of them.

In summary, the majority of the reviewed literature that discusses e-Government has been critical of the implementation and diffusion challenges facing e-Government in developing countries, in general, and in Jordan, in particular. Various researchers have suggested that the introduction of e-Government to a country will ultimately result in a number of challenges for the citizens and therefore for the government. These challenges are flagged in the literature review presented in this section of the study and are taken into consideration and addressed in the discussion section.

3. E-Government Program in Jordan

The initiatives of public sector to use ICTs to improve existing processes and good governance, to build good relationships within civil society, to provide citizens and businesses with more convenient access to online government services, and to increase effectiveness and efficiency in the public sector organizations are collectively known as e-Government initiatives or e-Government programs [43].

Research studies [51] [52] have confirmed that e-Government has critical benefits to developing countries as follows:

1) Citizens' Empowerment: E-Government potentially empowers individual citizens by providing them with a range of services and alternative channels such as the Internet, call centre, fax, and kiosks for accessing information and services and interacting with government.

2) Efficiency and Effectiveness Gains: E-Government can transform the public sectors processes that change the way in which government does business so to function as truly citizen-centric, gaining through process efficiency and effectiveness.

3) Transparency and Accountability: E-Government enables governments to be more transparent to citizens through provision of access to the information about rules and policies that are formed within a government.

4) Improve the Quality of Services Delivery: By having government services online, public sector services are reformed and made available around the clock for the citizens anywhere and anytime. This results in time and cost reduction for both the government and the users of e-Government services.

For these reasons, many developing countries, including Jordan, have launched e-Government programs or initiatives. E-Government in Jordan is a national program initiated by his Majesty King Abdullah II in 2001. Accordingly, Jordan has established a strategy for development and implementation of e-Government in Jordan. E-Government in Jordan is dedicated to delivering services to people across society, irrespective of location, economic status, education, or ICT ability [53].

Jordan Ministry of Information and Communication Technology (MoICT) has launched e-Government portal in 2006, aiming to provide users with the government information and services. This portal integrated all government entities in a seamless manner [54]. The purpose of e-Government program is to improve the performance of government processes and efficiency, to enhance Jordan's competitiveness and ensure transparency and accountability, to reduce cost and remove the barriers within government entities, to promote Jordan's ICT sector and develop skills of public sector staff, and finally to deliver high quality of services to consumers that promotes e-Commerce activities [55]. Jordan's e-Government program is led by the MoICT; e-Government program represents a major opportunity for Jordan as it is aimed at contributing to the kingdom's economic and social development.

E-Government Mission is to manage change in the government and focus on the satisfaction of the recipients of government service, and achieving this through various channels to deliver the service using modern technology, knowledge management, recruitment experienced and qualified staff to implement e-Government program and initiatives to be easy and acceptable to citizens in Jordan. The e-Government program contributes effectively to develop and administrate transformation of the Government of Jordan [55].

To achieve this Mission, e-Government program depends on the application of the following themes: (a) applications related to electronic services; (b) define and develop appropriate technological infrastructure; (c) define and develop the structure of adequate legislative and regulatory environment; (d) effective process re-engineering to achieve high efficiency; (e) transformation and development in the field of education, training and knowledge transfer; (f) change management and restructuring of government institutions [55].

Jordan e-Government program objectives are: (a) improve service delivery; (b) raise the productivity and efficiency of public sector; (c) provide better services to individuals and business; (d) increased return on investment (ROI); (e) provide the required information with high accuracy in a timely manner; (f) development of skills and achievement; (g) the provision of infrastructure and-technology needed to provide e-services; (h) increase the level of security of information [56].

A review of existing literature reveals that Jordan has been investing heavily in developing its e-Services (improving public services delivery) initiatives as well as using Internet as a favorable channel to deliver e-Government services to its consumers, either citizens or businesses [15]. Reported by MoICT [53], “e-Government in Jordan is dedicated to deliver services to people across society, irrespective of location, economic status, education or ICT ability”.

A key to successful e-Government program in Jordan is the customer-centric approach; treating citizens, businesses, and other government entities like customers by tailoring services to their needs [57]. However, despite the Jordanian government’s success in ICT promotion, Jordan has still low online government services such as personal tax, car registration, passport etc. However, in terms of government success in ICT promotion, Jordan is ranked 30th out 148 in terms of Government Success in ICT Promotion, 44th out of 148 in terms of the Networked Readiness Index, and 79th out of 193 in terms of e-Government Development Index [58] [59]. These rankings are pushing Jordan forward since 2006 and Jordan has started thinking in terms of a single and universal website (www.jordan.gov.jo) that will be a one-stop portal representing the official site of the Jordanian e-Government, where users can immediately and conveniently access all available online services.

The benefits of using the Internet for delivering e-Government services are vitally important for many reasons, for example, improving greatly the delivery of public services at lower cost, making them easier to access by enabling the users to be able to access public services (24/7) without having to complete a range of forms or visit different local offices, reducing the barriers between the government and their citizens, and freeing up resources in the public sector by delivering services more efficiently and more convenient to use [60]. However, many countries have started to realize that there is an unlimited potential for online services yet to be tapped more effectively and efficiently to improve their government services across various departments and agencies [35] [61] [62].

In short, Kingdom attaches great importance to the transformation of e-Government due to the benefits e-Government provides to the national economy, His Majesty King Abdullah II was the first who gave attention to the importance of e-Government program in 2001 announcing the Initiative and assigned the Ministry of Communications and information technology implementation. Where the program works to strengthen the provision of services electronically by using the means of communication and various technology and work as a focal point to coordinate the efforts of various ministries and institutions and to develop plans for providing government services and transactions electronically, and standards and provide the necessary expertise [56].

3.1. Jordan E-Government Strategy

Jordan e-Government presents a strategy for development and implementation of e-Government in Jordan; it is designed to closely link Jordan’s e-Government efforts with national priorities. As mentioned earlier, e-Government in Jordan is dedicated to delivering services to people across society, irrespective of location, economic status, education or ICT ability. With its commitment to a customer-centric multi-channel approach, and by closely aligning with the National Agenda and National ICT Strategy, e-Government will contribute to Jordan’s economic and social development, as well as the transformation into a competitive, innovative knowledge society. This can be achieved by consolidating government resources, engaging greater citizen participation in the local economic development and facilitating citizen access to government services demonstrating more citizen empowerment and less government control over public data [63].

The Strategy crystallizes this vision into objectives; it presents priority e-Government initiatives, tools and projects (as shown in **Figure 1**); and it identifies targets and milestones to facilitate performance control and raises accountability by clearly defining the responsibilities of key stakeholders. The Strategy emphasizes the e-Government role of encouraging and motivating government entities to deliver high-quality customer-centric and performance-driven services to e-Government beneficiaries while transforming from traditional service delivery to more effective and efficient service providers to their beneficiaries (citizens, residents, visitors, businesses, government entities, and government employees) [63].

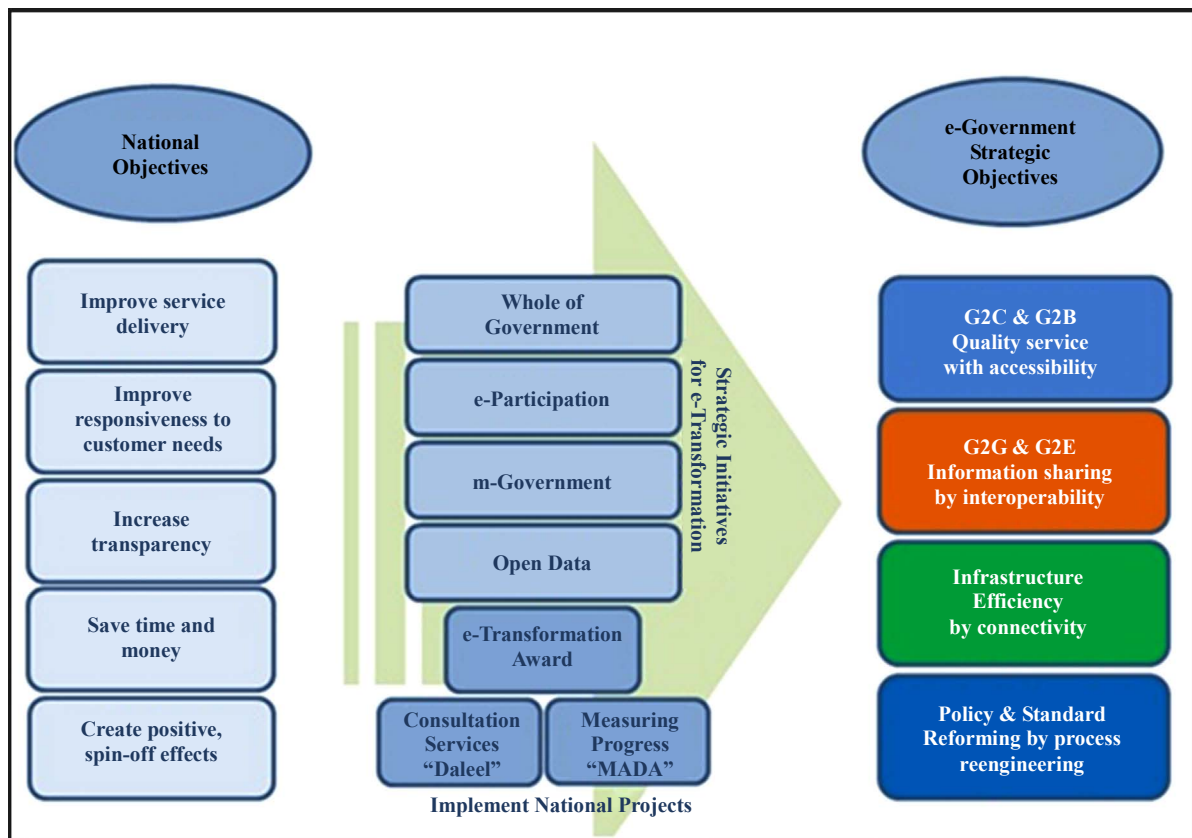


Figure 1. Jordan e-Transformation strategy.

E-Government Strategy will guide e-Government implementation for the 2014-2016 period by: (a) measuring the extent of Jordan government e-transformation; (b) emphasizing the e-Government role of encouraging and motivating government entities to deliver high-quality customer-centric and performance-driven services to e-Government beneficiaries; (c) presenting priority e-Government initiatives and services to all government agencies; (d) identifying targets and milestones to ensure performance excellence; (e) raising accountability by clearly defining the responsibilities of key stakeholders. However, e-Government in Jordan at all times will seek to be guided by international standards and best practices, tailored to Jordan's specific requirements and constraints. Thus, the Strategy is intended to guide the efforts of government entities and other key stakeholders, whose ownership and leadership are vital to delivering e-Government services in Jordan [63].

3.2. The Jordanian Strategic E-Government Initiatives

In the process of e-Transformation, the Jordan Government will concentrate its effort in the upcoming three years (2014-2016) to launch and start implementation of major strategic initiatives, as shown in Figure 2. In this regard, e-Government is not about technology or automating systems, it is about improving the provision of public sector services. Hence, e-Transformation is the process of transforming into an innovative and effective IT-enabled service provider. Though, the government sole existence is to serve people and improve services provided to them. There is a need to have an outward rather inward look into developing quality services. Quality is the value perceived by its recipient. Therefore, the quality of a service is determined by the value it brings to its beneficiary. There is a need to look to our government beneficiaries and understand what they value, then plan and implement accordingly [63].

Most government entities in Jordan have impressive accomplishment in term of building their internal infrastructure and automating their administrative and application systems. However, beneficiaries are not receiving tangible benefits from these investments yet. All efforts so far have been IT driven rather than beneficiaries driven and are not conforming to the vision, strategy, organizational structure, and legal requirements of these entities.

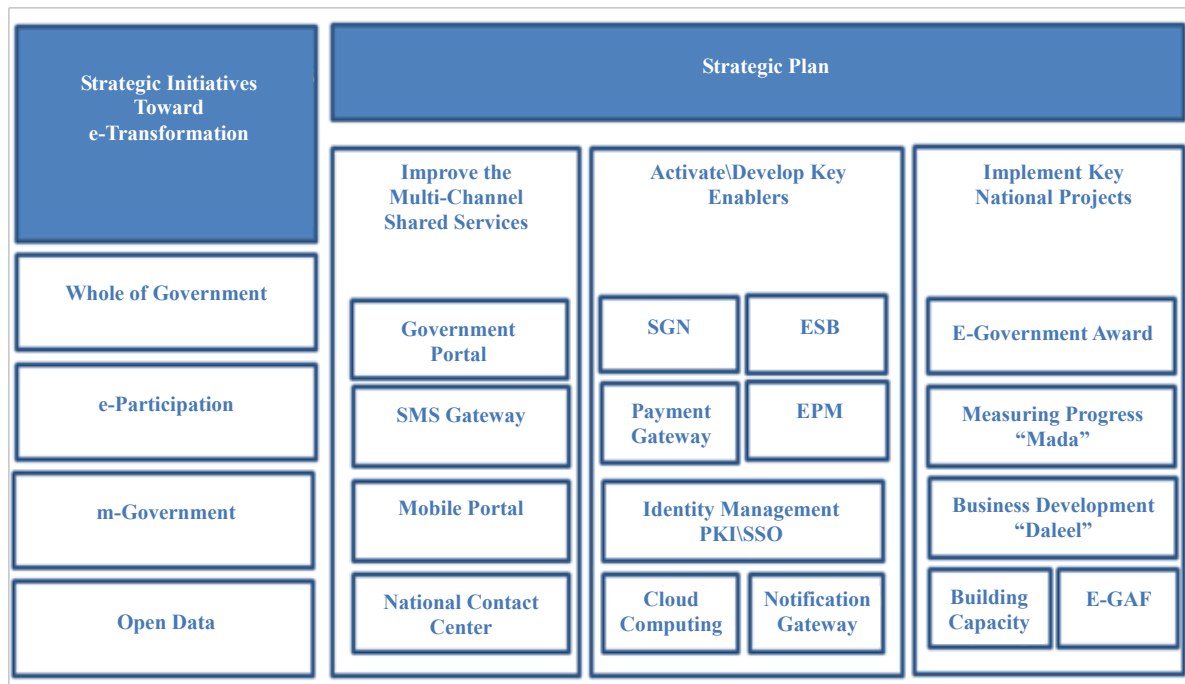


Figure 2. Major strategic e-Government initiatives in Jordan.

As a result, the public sector has ended up with the development of redundant systems where in some cases do not comply with industry standards. Thus, it is essential to face challenges of data exchange through integrating government systems with shared services or with other government systems [63].

The objective of e-Transformation is to increase the maturity in government agencies and enhance beneficiaries' experience. Each government agency must develop e-Government Transformation Strategic Plan which incorporates the optimal use of ICT as well as the utilization of already developed shared services and multi-channel access taking into consideration the alignment between the four domains of Enterprise Architecture: Business Architecture, Application Architecture, Data Architecture, and Technology Architecture [63].

The ultimate objective of such plan is to help each entity become customer-centered, service focused, efficient, process driven and result oriented. The plan must be mainly focused on improving the entity's processes, connecting to its beneficiaries through demand driven e-Services and building industry standard integration within the entity and across the government entities. This plan should align enterprise resources including vision, business, processes, data, applications, technical infrastructure, and staff to improve the quality of delivered services by re-engineering and simplifying business process, streamlining government operations, and using industry standard Enterprise Architecture Framework [63].

4. Research Methodology

4.1. Research Design

This study used semi-structured interviews to collect the data. Twelve governmental agencies and approximately 36 persons participated in individual face-to-face meetings or telephone conversations to investigate their perceptions, attitudes, and impressions towards the e-Government program in Jordan. These twelve governmental agencies, included 36 e-Government officials who were interviewed, are as follows: Ministry of Information and Communications Technology (MoICT), Ministry of Planning and International Cooperation, Ministry of Interior, Ministry of Industry and Trade, Ministry of Higher Education and Scientific Research, Greater Amman Municipality, Chief Justice Department, Central Traffic Department, Higher Education Accreditation Commission, Admission Coordination Unit, Department of Statistics, and Telecommunication Regulatory Commission (TRC). Incidentally, key officials were chosen from these organizations to provide the needed information; these people were chosen according to their job title and the degree of their organizations' experience in electronic services

provisions.

The interviews were conducted and data was collected during August and September of 2014. Interviewees were asked about the major issues faced by government towards fully realized e-Government services in Jordan. The interviews were recorded, transcribed, edited, and qualitatively analyzed. However, to obtain the reliability and validity of interview data, the researchers have selected a large set of interviewees to minimize the awkward facts and figure bias that pertains to qualitative studies.

4.2. Interview Procedures

The interviews were conducted independently; they were recorded on an audio recording device, after obtained the interviewee consent, and later transcribed. Twenty-one interviews were conducted in-person and fifteen on the phone. Each interview lasted on average between 30 and 45 minutes; the researchers followed the guidelines on audit interview associated with the qualitative research interview protocol. However, to schedule an interview, a notification via a phone call, SMS text message, or email was sent to each participant interviewed before each interview to arrange a date and time to meet. During the interview, in order for Jordan e-Government to improve its efficiency and effectiveness, the participants were presented with two major questions (to lead/guide the interview sub-questions): what are the challenges encountering the implementation of e-Government in Jordan? And, what are the factors affecting the implementation of e-Government in Jordan?

After each challenge was identified, interviewees were asked to explain and elaborate each challenge and to reflect the challenge to their own organization, entity, or agency. Consequently, the interviewees were asked to sort/arrange the challenges according to their perceived level of importance to their organization. Although the numbers of interviewees were not large, the interviews were adequate in terms of detail, thus generated a significant amount of data. In general, the interviews were productive and proved to be a rich source of information; in addition, the interviewees gave insight into critical issues of the implementation of e-Government in Jordan.

However, before introducing these two major questions guiding the overall interviews in this research study, the researchers began with an introduction for a few minutes explaining to the interviewee the purpose of conducting such interview; for instance, “thank you for agreeing to meet with us, I’m Dr. Muhannad Al-Shboul a researcher (associate professor) from the University of Jordan, an academic institution located in Amman. I also have my colleague(s) Dr. Osama, Dr. Moh’d, Dr. Rawan, and Mrs. Samar present to take notes for us. We will treat your answers as confidential. We will not include your names or any other information that could identify you in any reports we write. We will destroy the notes and audiotapes (digital recording) after we complete our study and publish the results. Do you have any questions about the study, before we start?”

Five sub-questions were used to guide the interview protocols and to gather data to answer the primary study questions. The followings are some of the sample sub-questions which were employed during the interviews: “to begin, please describe the various e-services that your organization offers on its Website to its online visitors and tell us about the kinds of activities for which the Website is used”; there are two additional questions associated with the first interview question: “tell us about the kinds of people who use the organization Website”, and “Why do these people visit the Website?”.

The second sub-question is as follows: “as a Website administrator, are there user needs that are not being met on the Website of your organization?” The third sub-question implies “Now, we’d like to discuss your impressions of the design and functionality of your organization’s Website”; this sub-question contains three another questions: “how well your organization Website’s information architecture matches and meets your users’ expectations and needs”, “how accessible are the uploaded information, files, or forms”, and “is the layout of the Website user friendly”.

The fourth sub-question states “what e-services are used the most often”; there are three another questions related to this sub-question: “what could your organization do to improve these e-services”, “are there e-services that are underutilized”, and “what additional e-services should your organization’s Website provide”. The fifth sub-question is “The last thing that we’d like to discuss with you is the challenges to the e-services that the Website offers”. Then, there was a list of proposed obstacles and challenges provided to the interviewee, he/she need to rank them (low, moderate, high) and categorize them as well (Organizational Factors, Technological Factors, Political Factors, Social Factors, etc.).

The following are sample questions that were directed to the interviewee during the interview about e-Government services usage: what do you think of e-Government services project implementation in Jordan with cur-

rent infrastructure of technologies? What do you think that Jordan needed to achieve the success of e-Government project services? Do you think e-Government services will provide advantage or disadvantage to Jordanian organizations and its people? Do you think that Jordanian people and government staff are ready to use and implement e-Government services? From your point of view what are the necessity of e-Government services websites? Do current e-Government services websites introduce full necessity service for Jordanian people? Do you think cost usage of Internet is a barrier to use e-Government services? Are the e-Government services websites developed enough? Do you think the citizens of Jordan are aware of what e-Government services is all about? Do you think usage of e-Government services websites appropriate with Jordanian citizens' lifestyle? And Finally, Would you like to add any other comments?

At the end of the interview, the researchers inform the interviewee about the completion of the interview by saying "those were all of the questions that we wanted to ask", and "do you have any final thoughts about the utilization of e-Government or e-Services by your organization that you would like to share or to add". Finally, the researcher(s) concluded by the following sentence: thank you for your time; we really appreciate your contribution to our study.

After data collection, the qualitative analysis and interpretation of the narrative data were performed with reference to the main research questions of the study and in accordance with the objectives of the study. Common themes across the challenges were identified from interview transcripts. Several important insights and themes associated with challenges were identified; those results and findings are reported in the following section of this paper.

5. Findings and Analysis of Interviews

This section presents the results and analysis of interviews conducted in this study. These may provide solutions to some of the challenges and obstacles that may face the successful implementation of e-Government service in Jordan. However, to understand the successful implementation of e-Government services in Jordan, it is necessary to know the opinions, perceptions, attitudes, impressions, and beliefs of a sample group from Jordan. The strategy is that, the interviews and the literature review will identify answers to the research questions: "what are the major challenges facing the implementation of e-Government in Jordan", and "what are the key factors that may affect the successful implementation of e-Government in Jordan". As mentioned earlier in the introduction section of the study, several reviewed studies seem to fail to focus on the unique factors of Jordan. Hence this study attempts to bridge that gap in knowledge.

Results from the interviewees identify challenges, problems, and barriers that may need to be overcome to support successful e-Government implementation in Jordan. Participants' were asked questions on their opinions, attitudes, and believe on awareness of e-Government services in Jordan, and the barriers which prevent the use of new technologies, such as compatibility, cost, culture, infrastructure of e-Government services, with their lifestyle. However, several themes emerged from the qualitative interviews, notes made in relation to themes that emerged in each interview. These themes were categorized as follows:

- Interviewee's awareness of e-Government services in Jordan: With all the thirty-six officials who were interviewed there was a common thread which passed through their responses; they were of the view that education improves knowledge, skills, and technology transfer and increase awareness of e-Government services.
- Interviewees view on the extent at which e-Government services is developed in Jordan: During the interview it was also found out that the available infrastructure in Jordan is developed enough to support the implementation and participation of e-Government services. Nevertheless, the interviewees were of the view that available e-Government services as at the time of this study only provide basic information.
- Barriers of using new information and communication technologies: All of the interviewees were of the view that they have no particular barriers to use the computer/Internet or to access government websites such as English language, cost and the skills needed to do so. Nonetheless, they were of the view that there are fundamental barriers in Jordan in general regarding the utilization of e-Government services. It is worth mentioning here that those interviewees had their education abroad and most of them studied in foreign countries where English is the spoken language. Again as a result of their educational background, they have good jobs to be able to afford computers/Internet so they can access e-Government services easily, at anytime, and from anywhere.

- Compatibility of using e-Government services: The thirty-six respondents agreed that e-Government usage has become part of their daily life and find it compatible with their culture. They again said that they spend on typical about four hours a day accessing e-Government websites in Jordan for information, sometimes as part of their daily demands of their jobs.
- Potential benefits of implementing e-Government services: Providing e-Government services will reduce time, effort, and will speed up the procedures of government and people. It will also improve people live economically. According to the interviewees, it will improve productivity, improve quality of service delivery, reduce the overall costs of the organization, reduce data collection, process and storage, network and community cohesion, well-equipped offices to enhance productivity, information sharing is quick and prompt, speed the process and decision-making and increased productivity in governance. Furthermore, it will increase transparency and commitment which it believed to be the target of government and people of Jordan. However, respondents were of the view that e-Government services should aim at providing relevant services as opposed to mere information that can be received on traditional communication channels.
- E-Government implementation barriers: Respondents were asked about e-Government barriers, and they all agreed there many barriers to e-Government in Jordan. E-Government transformation was identified as the major barrier for e-Government implementation in Jordan. Other key barriers are training and set up costs, investment (high level of investment required), knowledge (high level of knowledge among employees), cultural awareness, clear strategy, and security issues and privacy of citizens. For any e-Government implementation in a developing country like Jordan, respondents believe legislative supports/formal policy, security and other barrier such as implementation policy as important as resistance to change among different departments and leadership role.
- E-Government risks: From the interviews findings, several risk factors were identified: accessibility of information by other agencies, environmental information security (e.g. identify theft), reducing full control over information, inferior service quality (e.g. delayed service), misinterpretation/misuse of e-Government services, and increase criticisms by other agencies and citizens, and reduction in manpower (which means an increase in unemployment rate).

Based on what mentioned above, there are many organizational, technical, social, and financial barriers/challenges that are facing e-Government services adoption and diffusion in Jordan. In addition, the researchers identified twelve barriers/challenges to e-Government services adoption in Jordan and verified by literature review. Consequently, interviewees were asked to evaluate their perceptions of the levels of importance of each e-Government barrier by selecting one of the following (0: not a barrier, 1: important barrier, 2: very important barrier). The barriers that might provide challenges to e-Government services implementation in Jordan are listed in **Table 1**.

Table 1. Identified common themes and challenges from the qualitative analysis of e-Government obstacles ($N = 36$).

No.	Challenges/Barriers	Important Challenge/Barrier		Very Important Challenge/Barrier	
		Frequency	Percent	Frequency	Percent
1	Inadequate IT Infrastructure	25	69.4 %	11	30.6 %
2	Lack of awareness about the e-Government services	12	33.3 %	24	66.7 %
3	Lack of security and privacy	23	63.9 %	13	36.1 %
4	Lack of confidence and trust to use e-Government services	7	19.4 %	29	80.6 %
5	Lack of security and privacy	23	63.9 %	13	36.1 %
6	Lack of a comprehensive policy, Legal, and regulatory framework	9	25.0 %	27	75.0 %
7	Insufficient skilled human resources	19	52.7 %	17	47.3 %
8	Lack of public-private collaboration/partnerships	20	55.6 %	16	44.4 %
9	Lack of training and knowledge transfer	10	27.7 %	26	72.3 %
10	Lack of e-Government transformation and resistance to change	14	38.9 %	22	61.1 %
11	Budgets and operating costs	18	50.0 %	18	50.0 %
12	Lack of clear strategy	6	16.6 %	30	83.4 %

As shown in **Table 1**, all twelve challenges/barriers were selected as either an important or very important challenges/barrier and none of them was selected as “not a barrier”. These were the most important challenges and barriers to e-Government services in Jordan as perceived by Jordanian e-Government officials.

The results of this qualitative study, based on the responses of Jordanian e-Government/IT officials in public organizations and agencies, identified and uncovered many important factors which affect directly the adoption and diffusion process of e-Government in Jordan. It is clear that there are many important common factors that need to be addressed in a professional manner. In the light of the results of this study, a brief set of recommendations has been made, in the last section of the study, in order to assist the government organizations to improve the e-Government services outcomes and to achieve the aspirations of Jordanian citizens and their satisfaction with electronic services.

In conclusion, the interviews confirm to a greater extent the challenges identified in the literature review as well as the problem definition such as lack of ICT/e-Government transformation, awareness and participation, culture as well as training are areas that need attention in the effective implementation of e-Government services in Jordan as well as in developing countries.

6. Discussion

In this study, qualitative research was employed through semi-structured interviews with the e-Government officials from several governmental organizations. Interviewees stressed the significance role of public awareness for the success of e-Government initiative. However, although most of the interviewees agreed on the potential benefits of this channel, they pointed out that the number of e-Government services in Jordan is very limited and the utilization level of these services is very low.

The lack of trust, according to interviewees, is considered as one of the main barriers to the adoption of e-Government as well as services offered by the private mobile operators in Jordan as citizens prefer face-to-face visits rather than remotely solve issues. In this regard, an e-Government official stated: “... many citizens do not fully trust the new digital services supplied by [private] operators specially those that are directly related to monetary issues such as bill payments, paying taxes, money transfer, declaration of permits, online forms and applications, online reservations, etc. Therefore, people would prefer to solve them by directly contacting the concerned department”. In this regard, interviewees indicated that the high cost of accessing the wireless Internet is perceived as a major constraint on the proliferation of e-Government services in Jordan. Interviewees asserted that both MoICT and TRC are currently working together to implement some initiatives and ideas to increase internet penetration rate in Jordan.

According to interviewees, the lack of advanced and secure technical infrastructure remains one of the main reasons why most individuals and organizations in Jordan refrain from using e-Government services. Issues such as systems integration, inadequacy of bandwidth, mobile device capabilities (screen, keyboard, power, and memory limitations) are major challenges for offering e-Government services.

Interviewees from MoICT and TRC indicted that there is a number of draft regulations and laws, especially policies, regulations and laws related to e-Transactions, e-Crimes, privacy and security, waiting for the final approval from the relevant entities. This issue is considered as a real challenge for them as it takes a long time, and needs the involvement of different parties.

On the one hand, the global efforts to provide e-services to different stakeholders differ from one country to another in conditions of readiness, challenges, adoptions, and diffusions; these differences are due to the difference of technological, political, cultural, economic, and social differences [64]. On the other hand, an examination of the e-Government literature reveals that although different researchers have identified different factors that influence e-Government implementation and diffusion, these factors can be broadly classified under four headings; political factors, social factors, technological factors, and organizational factors [45] [65]. In this regard, critical factors affecting the successful implementation of e-Government in Jordan were identified in this study. These common themes and challenges that influencing the adoption and diffusion of e-Government initiatives in Jordan are as follows:

- **Political Factors:** Public sectors organizations generally show resistance in the huge financial investment to initiate e-Government projects. The top leadership shows enthusiasm and initiatives in the implementation of e-Government due to external availability of funds but gradually they lose their interest due to lack of available financial resources. The involvement of top leadership in the implementation of all stages of e-Gov-

ernment is necessary [66].

- **Social Factors:** The digital divide is an important barrier to e-Government, in that people who do not have access to the Internet will be unable to benefit from online services.
- **Technological Factors:** Achieve citizens' or e-Government system users' needs. Therefore, information technology standards are needed to avoid any hardware and system barriers that would hinder the implementation of e-Government systems. When talking about technological challenges, one of the most significant challenges for implementing e-Government initiatives is computer security. For e-Government activities, service continuity is critical not only for the availability and delivery of services, but also to build citizen confidence and trust. However, the risks of fraud and misuse of sensitive data are concerns as well. Privacy also presents a challenge to the implementation and acceptance of e-Government initiatives. Concerns about sharing information between agencies, and the disclosure or mishandling of private information are frequent subjects of debate. Thus, it requires participating government agencies to share their data [16].
- **Organizational Factors:** The e-Government strategy should consider how to restructure existing organizational models, roles, responsibilities, training, and employees' needs [67]. Training of employees leads to successful implementation of e-Government [13], which means that lack of training will be a significant challenge.

In addition, the results of the interviews reveal that the following are other factors influencing e-Government adoption, implementation, and usage in Jordan: technical infrastructure; leadership, funding and coordination; accessibility, availability and usability; security and privacy; training users; trust and privacy issues; access and IT skills (digital divide); lack of awareness; quality of services and information quality; culture issues; perceived usefulness and complexity; Website design (perceived usefulness and ease of use); trust issues; legislation and legal issues; resistance to change; organizational issues; operational cost. These challenges are similar to a certain extent to those challenges cited in the literature [14].

In summary, the data collected on this study points to the fact that e-Government services have the potential of transforming traditional mode of governance. The findings from this research can confirm that e-Government services can be cost effective, transparent, and efficient. It is further reiterated that e-Government services have the potential of contributing favourably to Jordan's growth and development. In spite of all the potential benefits of e-Government services, the reviewed literature on the subject has been focusing on developed nations making it difficult to access literature on the topic with respect to developing countries. Notwithstanding, the findings also revealed that countries like Jordan could face potential challenges and obstacles in their pursuit of e-Government services. Against this background, this study has offered insights that could help mitigate the potential challenges.

Clearly, the implementation and adoption of e-Government program in the Hashemite Kingdom of Jordan is at its formative stages. This implies that there is a need for the government to put more effort into providing better e-services, and in bridging the digital divide, both technologically and financially [5]. The government also should try and ensure that the e-Government system is user friendlier, so that future citizens' expectations are met. Further, cooperation between various government agencies, the private and the public sectors are very essential for the government to successfully implement the e-Government program.

Overall, this study could be seen as one of the pioneering research on e-Government readiness and implementation in Jordan. Hence, it could be a resource to future researchers in the area of e-Government services.

7. Conclusions, Recommendations, and Future Work

This paper presented the results of a qualitative study into the issues surrounding the utilization and implementation of e-Government in Jordan as articulated by the key e-Government officials. Despite all its promise, e-Government in Jordan is still in its early stages and needs more research to improve the effectiveness of e-Services development and to attain wide public acceptance.

E-Government implementation challenges can be technological; a country's infrastructure and economic problems can often derail e-Government services initiatives and lack of funding for implementation, and/or cultural problems. These challenges have been identified and discussed fully in this paper. This study provides substantial contributions to Jordan's e-Government services initiative, as well as to the growing body of knowledge surrounding the topic area. It could further serve as a blueprint for Jordanian government in particular to overcome the barriers to the implementation of e-Government and to develop e-Government services based on

proven principles and sound research.

In conclusion, this study may help developing countries like Jordan to exploit the potential benefits of e-Government services to transform the way they govern and facilitate the development of their economies. It can also be said that e-Government services design and implementation have its obstacles and challenges. Different countries may have their own peculiar and unique challenges. Finally, it is important for policy makers to refrain from assuming that there are generic e-Government challenges for all nations.

However, a careful review of the e-Government project and e-Government research shows that a large portion of the published research was conducted in developed countries. In consequence, little is written about the e-Government deployment in developing countries. Therefore, filling this gap in the literature is one of the main objectives for conducting this study in a country such as Jordan, with different cultures and values. The outcome of this research reveal that trust, public awareness, access cost, infrastructural constraints and the lack of an enabling legal framework remain the main challenges facing the implementation of e-Government in Jordan.

In the light of the knowledge gained from this research and the main findings presented in this paper, the following recommendations can be suggested:

- Transformation to e-Government services should be treated as a reform and restructuring process, and not merely the computerization of government operations.
- Improving people's awareness can be achieved by delivering training courses on knowledge on e-Government services by using the existing academic institutions.
- Borrow ideas from other regions or countries that have successfully implemented similar e-Government projects, as it's said "do not reinvent the wheel".
- Understand the basic reasons for pursuing e-Government services before committing the time and resources; also political support is necessary to successfully implement an e-Government services initiative.
- Partnership with the private sector. The private sector can be a source of cost-sharing, technology and project management expertise. Create incentives to help local companies grow and become viable partners in e-Government services.
- Establish a clear shared vision for e-Government services. The transformation process should start by establishing a broad vision of e-Government services that is shared by all stakeholders including citizens, businesses, officials, civil society groups and others.
- Overcome and manage resistance to change. Explain to employees the goals of the transformation. Be clear that they are not the enemy or the targets of reform. Explain to officials what their new jobs will be. It is vital to manage expectations and respond appropriately to shifting perceptions at all stages while the e-Government services project unfolds.

As future work, the researchers' next step involves conducting a large-scale survey which will explore e-Government adoption barriers from the end users' perspective. Furthermore, the researchers plan to investigate and conduct more studies on e-Government initiative, e-Government strategy and e-Government readiness within the Jordanian context.

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