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Web-Based For Successful E-Government Adoption: The Jordan National E-Government Portal

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Abstract

This study investigates e-government adoption among businesses in Jordan. Specifically, the objective of the study is to identify the factors that drive e-government adoption among businesses in Jordan. For this purpose, an integrated theoretical framework for assessing e-government adoption, beyond initial adoption was developed. The responses of 113 firms were used to determine the relationships between Successful factors and adoption of the Jordan national e-government Portal. The result found the existence of significant relationship between the website design, website quality factors and the businesses e-government adoption. It is further found that higher explicitness and accumulation of technology can help the transfer of technological knowledge within the organization and can raise the capability to adopt innovative technologies.

Key Words: *E-Government, Website Design, Website Quality, Jordan, Business.*

Introduction

A web application is an application that runs on a web server and is accessed by users over the Internet or a local intranet. Web applications usually consist of static resource files (e.g. Images), web components, helper classes and libraries. A web browser is commonly used as a thin client hence all the processing is done on the server (Al-Zoub, 2016; Al-Zoub, and Al-Zoub, 2016; Al-Zoubi, Alfawaer and, Al-Zoub, 2008). Web applications are usually organized in three-tier architecture – a user interface level, a functional process logic level, and data storage level. A web browser is the user-interface level and dynamic web content technology such as CGI, ASP or Java Servest, is used in at the functional (business logic) level. Data Storage is handled by a database.

According to Al-Zoubi et al. (2008) and Al-Zoub, 2016 within a short period, the Internet and World Wide Web have become ubiquitous, surpassing all other technological developments in our history. They've also grown rapidly in their scope and extent of use, significantly affecting all aspects of our lives. Industries such as manufacturing, travel and hospitality, banking, education, and government are Web enabled to improve and enhance their operations.

The quality of the web site to the task of planning and the spread of e-government, especially for countries such as Jordan, which explores the paths to improve the conditions of serving their citizens and businesses, also, the website should be user friendly and attractive so that even technologically naive citizens can easily avail of the services. Furthermore, the interaction screens should be personalized for each individual (Al-Zoub, 2016; Al-Zoub, and Al-Zoub, 2016; Rahardjo, Mirchandani, and Joshi, 2007).

A Web site that is not accessible can limit or prevent access and use by citizens and businesses. In addition, Web site to be accessible, it should provide equal or equivalent access to all users, and it should work compatibly with assistive technologies such as narrators, screen enlargement (Paul, 2006).

The quality Web-based technologies offer governments more efficient and effective means than traditional physical channels to better serve their citizens and Businesses (Evans & Yen, 2006). The study included Ho and Ni (2004) on the availability of information and level of progress in the provision of services through Web sites, and the impact on the efficiency of the adoption of e-government.

Editorial (2006) regarded increasing the supply of information and communication processes and mutual integration of financial and government services by moving to the Internet, and many government agencies which help to improve the effectiveness and quality of the web site and thus encourage the businessmen and citizens to adopt e-government. Also, Eybo (2004): Koh and Prtbutok (2003) examined the development of quality Web sites, which have been divided into four stages: information dissemination, two-way communication, and service delivery, and integration of government services project.

The adoption e-government related to quality of website factors, i.e., Web Design and Website evaluation is importance to citizens and businesses understand and expect the e-government will proved them features such as improved information quality (Barnes and Vidgen, 2002; 2006) enhanced usability and user-centric design (Carter and Belanger, 2005), greater efficiency, time savings and cost effectiveness (Luling, 2001), and a sense of personalization, involvement and belonging (West, 2001; Barnes and Vidgen, 2006). The existing models of e-government evolution suggest a natural linear progression from basic web publishing through to fully-integrated, seamless e-government (Heeks, 2002a, 2003).

The UN (2003) defines the quality of website Measure index as quantitative evidence, which measures the efficiency of governments to use e-government as a tool to inform, interacts, and is Reticulates. To the governments that have established a presence on the Internet, and the apportionment of the international organization of government services to the five stages: Emerging presence, Enhanced presence, Interactive presence, Transactional presence and, Networked presence. Accordingly, Previous studies measuring the level of application of the terms of the number of stages, ranging from the divided into three phases, four or five or more (World Bank, 2002; Layne and Lee, 2001; D.M. West, 2004; Clay, 2001(see Appendix)). Was adopted by a researcher at the division level of application to the four stages in view of the widespread use of previous studies and the adoption of this division in the Ministry of Information and Communication Technology of Jordan, on the other represented in the (presentation of information, mutual contacts, financial transactions and the integration of services).

Review of Empirical Studies on E-Government Adoption

Several studies have been conducted to determine the drivers and barriers for the adoption of e-government. Perceived benefits of adopting e-government is most frequently cited as one of the major drivers for initial usage and adoption of e-government (Kheng & Al-Hawamdeh, 2002). Perceived benefits are the anticipated or expected advantages that can be provided to organizations (Teo & Tan, 1998). In Thompson et al. (2009)'s study on the adoption of e-procurement, direct benefits are primarily intended for operational savings and are related to the internal efficiency of the organization.

Direct benefits include reduction in transaction errors and transaction costs, improved data accuracy and information quality, and faster application process. In a similar vein, indirect benefits are associated with the impact of adopting e-procurement for management of business process and relationships. Indirect benefits include better customer services and improved relationship with business partners.

According to Bakry (2004), government, services are clustered into the following groups, namely financial services; business services; justice services; land resources; transportation services; community services; and human services. All of the above listed service clusters have components that are relevant to businesses. For instance, through an e-government portal or website, businesses can learn about new and continuing government projects. Businesses can also use e-government portals to put forward grant proposals and funding requests. Businesses also are an integral part of the supply chain of government agencies providing a variety of raw materials, products, and services (Joseph, 2009).

Methodology

The phenomenon of the website has had a transformational effect on society. It has opened a new medium of communication for individuals and businesses and provided opportunities to communicate and get information in an entirely different way. Initial growth of the Web site because of the private sector but the government is now becoming part of this revolution (Kumar et at., 2005).

According to Wong and Welch (2004) web-based and website technologies often form a center and crucial part of any e-government. It is also the focus and contact point of the new electronic government-and-businesses interface created under e-government. Also, the quality website has attracted businesses and users to a medium where transactions and information exchange can be conducted anytime day or night. Like businesses, various levels of government have expanded their online presence over time.

Quality website available all information and affordable, e-government will become more policy driven than technology and economic driven. It will be the normative pressure of the businesses used to e-government (Al-Zoub, 2016; Al-Zoub, and Al-Zoub, 2016; DiMaggio et at., 1983; Porte et at., 2002).

According to Reichheld and Markey (2000) perfect service quality impacts satisfaction and, ultimately, adoption. Also, Reichheld and Schefter (2000) empirical evidence suggests that the quality of service generally plays a very important role in online business environments.

The website quality measures used by Moon and Welch (2004) are expectation, performance, and importance. However, Kumar et at.,(2007) and Dabholkar (1996) has operationalised the quality of technology based self service using the following measures: expected speed of delivery, expected ease of use, expected reliability, expected control, prior experience, need for interaction with the service employee, and expected website quality. Online service quality for e-government could be measured in terms of quality of content provided on the website, the speed of the response to the businesses concerns with problem solving approach, and the availability of names, ultimately, their satisfaction and adoption.

A website is a key component of the online businesses strategy; this means that great care is required in designing it to serve the target business effectively and efficiently. For example, Reichheld et al. (2000) Suggested that the most important reasons for the failure of websites, it is overly complex, slow, not easily accessible, and hard to navigate. The effectiveness of website design from a citizen's perspective can be measured in terms of perceived usefulness and perceived ease of use. Quality website plays an important role in the satisfaction of the visitor. Because if it fails in the visitors find what they are looking for may not visit the site again (Glazer, 1991).

According to Davis (1989) has defined perceived usefulness, as "*the degree to which a person believes that using a particular system would enhance his or her performance*." Perceived usefulness of a website is measured in the business literature by: The extent to which the person believes that extracting information online will save his time, and the extent to which the person believes that extracting information online will reduce the cost (Shih, 2004).

Previous empirical studies on innovation deployment and diffusion provide key reference for the research variables and items (Kumar et at., 2007; Moon and Welch, 2005; Accentur, 2002; Venkatesh and Davis, 2000; Davis, 1989). Kumar et at., 2007, website design with five items, Item 1: How easy it is to learn the system, Item 2: To what extent the system is clear and controllable, Item 3: To what extent the system is understandable, Item 4: To what extent the system is flexible, Item 5: How easy it is for individuals to become skilful in using the new system. Responses to the survey questions on the variables were entered on a five-point Likert-type scale as follows: 1 =Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree

Content analysis is commonly used in assessing organizations' Web contents, deliveries, and strategies (e.g., Zhao et at., 2008; Boggs and Walters, 2006; Campbell and Beck, 2004; Wilkinson and Cappel, 2005; Zhao and Zhao, 2004; Zhao et al., 2006). To systematically and objectively record the user-interface characteristics and effectiveness of the state G2B service sites, we developed an instrument based on the related literature (e.g., Awad, 2004; Boggs and Walters, 2006; Wilkinson and Cappel, 2005; Zhao, 2003; Zhao, Truell, and Alexander, 2006). In this study, to be measured the quality of website Alshehri and Drew (2012) four items, Item 1: Government websites appear safe and secure for carrying out transactions, Item 2: Government websites look attractive and use fonts and color properly, Item 3: USE3 Government websites look organized, Item 4: USE4 Government websites are always up and available 24/7. Responses to the survey questions on the variables were entered on a five-point Likert-type scale as follows: 1 =Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree

Consequently, this study expected that quality website support could help and lead to effective adoption e-government among businesses planning.A usage behavior construct has been used to measure the actual usage of e-government services. Usage intention measures are particularly useful in the context of this study, as only the Jordan business who require and need to use e-government services are targeted. Therefore, in this case, an actual usage measure can lead to an accurate conclusion about the acceptability and suitability of e-government services. Alshehri and Drew (2012), usage behavior with four items, Item 1: USE1 I really want to use e-government services to perform my governmental requests, Item 2: USE2 I frequently use e-government services, Item 3: USE3 I use e-government services on a regular basis, Item 4: USE4 Most of my governmental requests are done through e-government services. Responses to the survey questions on the variables were entered on a five-point Likert-type scale as follows: 1 =Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree

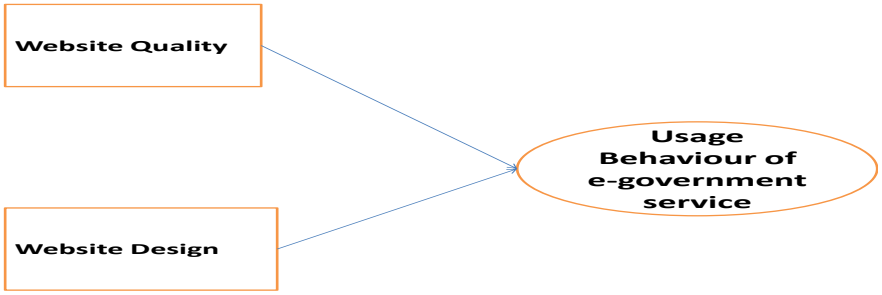

Figure 1: Research Model

Data Collection and Data Analysis

The survey was conducted on 260 firms. A total of 113 responses were received representing 43.4% response rate. Statistical Package for Social Science (SPSS) was used to determine the causal relationship among the variables as proposed in the framework. Testing for reliability could be achieved by calculating the Cronbach alpha. All the constructs were found to have adequate alpha value (>0.7) (Table 1).

Table 1. Reliability of Scales

	N. Items	Alpha (a)
A usage behavior E-G (AUEG)	4	0.87
Website Quality (WQ)	4	0.85
Website Design (WD)	4	0.82

Test Hypotheses

Hypotheses 1: There is a significant correlation between a usage behaviors e-government and website quality. As the statistical results shown in Table (2), Correlation Coefficient value on the relationship between a usage behaviors e-government and website quality was a significant and positive, which means a usage behaviors e-government has strong significant correlation relationships with website quality. Thus, the hypothesis one was accepted.

Hypotheses 2: There is a significant correlation between a usage behaviors e-government and website design. As the statistical results shown in Table (2), Correlation Coefficient value on the relationship between a usage behaviors e-government and website design was a significant and positive, which means a usage behaviors e-government has strong significant correlation relationships with website design. Thus, the hypothesis one was accepted.

Table 2: Correlation between A usage behaviors E-Government, Website Quality and Website Design

Correlations

		AUEG	WQuality	WDesign
AUEG	Pearson Correlation	1.000	.542*	.459*
	Sig. (2-tailed)		.014	.042
	N	113.000	113	113
WQuality	Pearson Correlation	.542*	1.000	.730**
	Sig. (2-tailed)	.014		.000
	N	113	113.000	113
WDesign	Pearson Correlation	.459*	.730**	1.000
	Sig. (2-tailed)	.042	.000	
	N	113	113	113.000

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

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

Liner Logistic Regression

The liner logistic regression analysis was performed to identify factors which were associated with a usage behaviors e-government among business in Jordan. Backward eliminations, a method of stepwise regression were used as it would retain only the predictor variables that were statistically significant in the model (Menard, 2002).

There is a significant statistical between a usage behaviors e-government and website design among businesses in Jordan. Table (3) depicts a usage behaviors e-government and website design. It was discovered that the value of R2 for AUEG model generators is (0.311) and (f = 4.814, P= .002) which explain (31%) of variance in decision making. Therefore, AUEG was found to have a significant on website design. Based on the result we can accept the hypothesis in businesses in Jordan at level of (P≤ 0.05).

Table 3: Model Summary and ANOVAs of A Usage Behaviors E-Government And Website Design.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.459[a]	.311	.167	1.085

a. Predictors: (Constant), WDesign

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.668	1	5.668	4.814	.002[a]
	Residual	21.195	18	1.177		
	Total	26.862	19			

a. Predictors: (Constant), WDesign

b. Dependent Variable: AUEG

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.945	.957		.987	.336
	WDesign	.677	.308	.459	2.194	.002

a. Dependent Variable: AUEG

There is a significant statistical between a usage behaviors e-government and website quality among businesses in Jordan. Table (3) depicts a usage behaviors e-government and website quality. It was discovered that the value of R2 for AUEG model generators is (0.394) and (f = 7.897, P= .004) which explain (39%) of variance in decision making. Therefore, AUEG was found to have a significant on website quality. Based on the result we can accept the hypothesis in businesses in Jordan at level of (P≤ 0.05).

Table 4: Model Summary and ANOVAs of A Usage Behaviors E-Government And Website Quality

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.542[a]	.394	.255	1.026

a. Predictors: (Constant), WQuality

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.897	1	7.897	7.495	.004[a]
	Residual	18.966	18	1.054		
	Total	26.862	19			

a. Predictors: (Constant), WQuality

b. Dependent Variable: AUEG

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.231	.677		1.819	.086
	WQuality	.627	.229	.542	2.738	.004

a. Dependent Variable: AUEG

Discussion of Findings

The research findings elucidated that the H1 and H2 are fully justified through the significance of two determinants: website design, which is related to the Jordanian business' perception of perceived usefulness and perceived ease use in the Jordan national e-government portal for conducting government transactions. Website quality is related to the Jordanian business' perception of quality of user-interface characteristics and effectiveness of the state G2B service sites that are provided in the Jordan national e-government portal.

Website quality factor contributes significantly to achievement of e-Satisfaction level; it explains 63% of change in a usage behaviors e-government. This means that the higher attention and interest to the Website quality features of the Jordan e-government portal, the more satisfaction will be accrued to Jordanians due to conducting governmental transactions via a user-friendly and aesthetic platform. In this sense, the Website quality will allure business to fully transform to an e-Government portal and perform their governmental transactions online.

Website design factor contributes significantly to achievement of e-Satisfaction level. 67% of change in the a usage behaviors e-government to the website design factor. This means that Perceived ease of use positively affects adoption if the website is visited only to get information, but if the website is used for transaction purposes then the perceived ease of use might not affect the rate of adoption in the Jordan

national e-Government portal, more satisfaction will be accrued to Jordanians due to conducting governmental transactions online.

These findings are consistent with the findings of Zhong and Ying (2008) and Hsieh et al. (2013) because of a similarity in culture in spite of a difference in application. Further they are consistent with the findings of Ahn et al. 2007, DeLone and Mclean 2003, Nelson et al. 2005, Wixom and Todd, 2005 in spite of a difference in culture and application. Moreover these findings are consistent with the findings of Alshehri and Drew (2012), Hsieh et al. (2013) because of a similarity in application in spite of a difference in culture. Finally these findings are consistent with the findings of Rorissa and Demissie (2010) because of a similarity in application and culture.

Conclusions

The purpose of this study was to investigate the factors affecting the adoption and use of e-government services in Jordan and, more specifically, to explore the role of website quality and website design as an important factor on the adoption of e-government services. This study hopes to provide information of e-government services to the Jordanian government for future policy planning purposes to enhance the services of e-government. The knowledge from Jordan's experience in implementing e-government could also be used by other nations aiming to embark on similar initiatives. Similarly, this study could benefit consultants and e-government service vendors to design and develop solutions that enhance the effectiveness and efficiency of e-government service that will drive e-government uptake among businesses.

Limitations of the study

This study has limitations; the sample size is not large enough. It is only 260 firms. Therefore, to increase generalization and accuracy of the study findings future studies should attempt a larger sample size to include participants from all regions and all sectors in Jordan

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