

THE IMPACT OF ORGANIZATIONAL FACTORS ON E-GOVERNMENT IMPLEMENTATION – THE CASE OF JORDAN

Wasfi Alrawabdeh* and Dia Zeglat*

Abstract: This study describes the state of e-government implementation in Jordan and reports certain organizational characteristics that are important to its adoption. The purpose of this research paper is to identify and study the impact of the organizational factors on e-government implementation and provide recommendations to decision makers that support its adoption. Extensive literatures on e-government implementation in different parts of the world are reviewed to achieve a comprehensive understanding of the impact of organizational factors on e-government implementation. Based on the literature, a research framework and related hypotheses are developed that include the most important organization factors that influence e-government implementation. This study is exploratory in nature and based on quantitative approach. A survey-based questionnaire was tested in two key public service agencies in Jordan. The study found five organizational factors out of seven to be supported and affect e-government implementation in Jordan. These are organization culture, top management support, organization strategy, employees' skill, and organization size.

Key words: E-government, Organizational factors, ICT, Jordan.

1. INTRODUCTION

With the latest revolution of technology in information, communication and media, the need for computerization has been identified in most countries (Hamdan and Alnajy, 2009; Paul (2010); Tohidi (2011) and Bertot and Jaeger (2012). The Internet, the World Wide Web, and other digital tools are transforming the ways in which business, the public and government communicate and altering citizen demand for government service delivery (Kim and Lee, 2004); Tohidi (2011) and Bertot and Jaeger (2012).

After this revolution in information technology, the e-government is a new concept emerged in the late 1990. There are different literatures about the definition of e-government. Al-Omari, (2009, p. 11) define e-government as "a process of conducting business between the public and government through the use of automated systems and the internet network". Liao (2008, p. 31) define e-government as "the use of information and communication technologies,

* Faculty of Economics and Management Science, Hashemite University, Jordan, E-mail: rawabdeh@hu.edu.jo, dia@hu.edu.jo

particularly the internet and the worldwide web to improve the efficiency cost and equality of information and services provided by government to their stakeholders, which include citizen, business, employees, and other government agencies". Around 98 percent of governments worldwide have websites and 173 out of 190 countries use contemporary information and communication technologies to deliver to their citizen (UN, 2010).

Beatlle, Waksberg and Aibar (2009) also define the e-government as encompassing all uses of information and communication technology within public administrations and government agencies and units. The European commission defines e-government as the use of information and communication technology combined with organization change and the new skill in order to improve public service and democratic processes and public policies. The objectives of this research are to examine the status of e-government adoption in Jordan and to explore the main organizational factors that affect e-government implementation. In addition, this research aims to explore the benefits of e-government adoption and finally present recommendation for decision makers about the important factors that affect e-government implementation.

2. E-GOVERNMENT PHILOSOPHY IN JORDAN

E-government in Jordan is a national program initiated by his majesty king Abdullah II in 2002. 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 (Al-khawaldeh, Venkatrawan, and Alazab, 2010). Jordan's e-government program is led by Ministry of information and communication technology. E-government program presents a major opportunity for Jordan as is aimed at contributing to the Kingdom's economic and social development.

According to the national plan, the main objectives of e-government implementation in Jordan is to (1) restructure administrative functions and processes; (2) overcome barriers to coordinate and cooperate within the public administration; (3) monitor government performance; and (4) improve the relationship between government and the citizens.

According to SijieLin and hungLai (2008), there are too many factors that affect e-government implementation under three main categories. These categories include Technological Factors, Organizational Factors and Environmental Factors. In this research, we are going to study the Organizational Factors and reveal the important factors that influence e-government implementation in Jordan.

3. LITERATURE RREVIEW

The rapid growth in the use of information systems has led to many changes in the work process of both the private and public sectors. These changes have led private sector units to compete with one another in attempting to develop efficient services, improved products and more efficient systems. To date, the private sector's use of information systems to achieve strategic advantages and gaining financial and business benefits far outweighs its public counterpart (Hussein, Abdul Karim and Selamat; 2007). In the 1990s, the public sector start to change the idea about the information technology and start to think about using the email and the internet to increase the efficiency of their process and bring new systems to help the citizen and make them satisfied .

According to Bhatnagar (2009), there are six phases to the life cycle of e-government. These include: **Conceptualization a project**:-In this level we define over all vision, mission and objective of the e-government the goals to be achieved and the scope and scale of the project. **Analysis & Design**: In this level we are going to analyses the process and rebuild it to become suitable to the ICT and draw a data flow diagram for the business process. **Construction**: In this phase we develop the application software which can build inside the organization or outsourced. **Piloting and rollout**: Pilot implementations in a few selected locations so we well take a very useful feedback for full scale rollout. **Evaluation**: In this level we are going to see where is the weakness and strength of the e-government project and if it achieve its goals or not. **Enhancements**: Develop the weak places and develop the whole e-government project to achieve its goals.

Around the world, many studies have been conducted to determine the factors affecting the adoption of new technologies, such as e-government. Hussein, Abdul Karim and Selamat (2007); SijieLin and hungLai (2009); Boni Pudjianto and Zo Hangjung (2009); Paul (2010); Tohidi (2011) and Bertot and Jaeger (2012); Nurdin, Stockdale and Scheepers (2012) studied the factors affecting e-government adoption in different parts in the world. These factors include: Top management support, Organization size, Organization culture, Knowledge Management, organization strategy, organizational structure and employees' skill.

4. RESEARCH HYPOTHESES

After screening the main studies on new technologies adoption, such as e-government, and reviewing previous researches conducted globally, regionally, and locally, research hypotheses were developed. The hypotheses consist of seven organizational factors, which represent the independent variables. These factors include Top management support, Organization size, Organization culture, Knowledge Management, Organization strategy, Organizational structure and Employees' skill. These independent factors will be used to explain the level of e-

government adoption and considered to be the dependent variable, as illustrated in table 1 below.

Table 1
Summary of the Organizational Factors and Hypotheses of the Research

<i>Factors</i>	<i>Hypotheses</i>
Top management support	H1: Top management support positively affects e-government adoption.
Organization size	H2: Size of the organization positively affects e-government adoption.
Organization culture	H3: Organizational culture positively affects e-government adoption.
Knowledge of management	H4: Knowledge of management positively affects e-government adoption.
Organization strategy	H5: Organization strategy positively affects e-government adoption.
Organization structure	H6: Organization structure positively affects e-government adoption.
Employees' skill	H7: Employees' skill positively affects e e-government adoption.

5. METHODOLOGY

The purpose of this paper is to identify the organizational factors that influence e-government adoption in Jordan. According to Sekaran, and Bougie (2010), there are two methods for conducting research: quantitative (as generally gathered through structured questions) or qualitative (as generated from the broad answers to specific question in interviews). The quantitative approach is chosen by researchers because it is considered more objective and scientific than the qualitative approach (Crowther and Lancaster, 2008; Kothari, 2009; Hennink *et al.*, 2011). Quantitative research deals with numerical and measurable data collected and analyzed statically to investigate the research problem (Bryman and Bell, 2007; Sekaran and Bougie, 2010). In quantitative research, the questionnaire is considered the most popular tool to gather and collect data from participants (Fowler, 2002; Sekaran and Bougie, 2010; Word press, 2011; ITU, 2012). Therefore, a questionnaire is chosen by the researcher as the main data collection tool.

The questionnaire consisted of three main parts with mainly closed questions to examine the organizational factors. Each question employed a 5-point (Likert scale) range from “**strongly disagree**” to “**strongly agree**”. This type of question was used because it was deemed to be efficient, specific in measuring attitudes and relatively easy to complete (Robson, 1993). **The first** part of the questionnaire consists of general question about the organization. **The second** part of the

questionnaire includes a set of questions in order to identify the respondents' opinion about independent variables. **The third** part of the questionnaire includes a set of questions in order to identify the respondents' answers about dependent variable.

The research population consists of two government agencies in Jordan: the Management Drivers and Vehicles Licensing (MDVL) and the Ministry of Information and Communication Technology (MICT). All two selected ministries were dynamically involved in e-government and had some transaction level of e-government services. IT knowledge workers and administrative staff, who are in touch with electronic processes, will be targeted for data collection. However, because of time and cost constraints, the researchers decided to choose a sample that represents the population.

Referring to Krejcie and Morgan's (1970) sample size table (which is a well-known and reliable table to determine sample size), the sample size should be 80 for a population size of 100. The questionnaires were distributed equally to MDVL and MICT government agencies. The researchers' aim is to get 80 responses that represent the employees within these two agencies in Jordan. However, due to the time, cost, and companies' approval limitations, 80 questionnaires had been distributed but only 64 questionnaires were returned and considered valid for further analysis.

6. RESEARCH ANALYSIS

The research hypotheses that have been formulated from the literature are tested in to determine the important factors that affect and influence e-government adoption in Jordan. Multiple linear regression analysis is considered the most popular method for testing research hypotheses using SPSS (Chatterjee et al.2000; Bryman and Cramer, 2005). In this research, multiple linear regressions are used to test the research hypotheses and answer the research questions. The seven hypotheses that represent the independent variables are tested to examine their influence on e-government adoption. The best type of regression to test such hypothesis is called the stepwise multiple linear regression (Yan and Su, 2009).

To find out the organizational factors that affect e-government adoption within Jordanian government. A Stepwise multiple linear regression will be applied to test the research hypotheses. The result of the stepwise regression for the independent variables that make up the original model identified five variables that have a significant affect in predicating e-government adoption with p value less than .05 as summarized in table 2 below. These variables are *Organization culture, Organization strategy, Top management support, Employees' skill and Organization size*.

Table 2
Result of Stepwise Regression

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
5	(Constant)	2.048	1.539		1.331	.189
	Organization culture	.743	.278	.250	2.678	.010
	Organization strategy	.665	.265	.220	2.508	.015
	Top management support	.664	.248	.220	2.678	.010
	Employees' skill	.656	.242	.215	2.711	.009
	Organization size	.531	.220	.184	2.416	.019

a. Dependent Variable: E-Government adoption

The non-significant variables that were excluded from the original model with p-value more than 0.05 are two as show in table 3. These variables are *organizational structure* and *knowledge management*

Table 3
Excluded Variables

Model	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance	
	Organizational structure	.086 ^f	1.008	.318	.132	.433
	Knowledge Management	-.044 ^{-f}	-.615-	.541	-.081-	.630

Dependent Variable: E-Government adoption

6.1. Evaluating the Research Model

The model summary in table 4 below includes the value of R² that shows how much the variance in the dependent variable (E-government adoption) is explained by the five independent variables (Organization culture, Organization strategy, Top management support, Employees' skill and Organization size). The R² value is 0.817, which means that the research model explain 81.7% of the variance in e-government adoption.

Table 4
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
5	.904 ^e	.817	.801	2.64009

6.2. Assessing the Importance of Independent Variable

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
5	(Constant)	2.048	1.539		1.331	.189
	Organization culture	.743	.278	.250	2.678	.010
	Organization strategy	.665	.265	.220	2.508	.015
	Top management support	.664	.248	.220	2.678	.010
	Employees' skill	.656	.242	.215	2.711	.009
	Organization size	.531	.220	.184	2.416	.019

a. Dependent Variable: E-Government adoption

Consequently, from the seven hypotheses tested from the original model, only five hypotheses were found to be supported, as summarized in table 6 below.

Table 6
Results of the Regression Analysis of the Research Hypotheses of the Original Model

Factors	Hypotheses	Result
Top management	H1: Top management support positively affects e-government adoption.	Supported
Organization Size	H2: Size of the organization positively affects e-government adoption.	Supported
Organization culture	H3: Organizational culture positively affects e-government adoption.	Supported
Knowledge of management	H4: Knowledge of management positively affects e-government adoption.	Not Supported
Organization strategy	H5: Organization strategy positively affects e-government adoption.	Supported
Organization structure	H6: Organization structure positively affects e-government adoption	Not Supported
Employees' skills	H7: Employees' skill positively affects e-government adoption.	Supported

7. INTERPRETATION OF THE RESULTS AND KEY FINDINGS

The main goal of conducting the quantitative analysis was to answer the research questions on the basis of statistical tests. The main question in this research was to identify the significant organizational factors that affect a Jordanian government's decision to adopt e-government. The results are explained in the following sections.

Hypothesis **H1**: which examines the relationship between top management support and e-government implementation is found to be supported by the regression analysis test applied to the original model. This result is in line with the findings of SijieLin and HungLai (2009), Boni Pudjianto and Zo Hangjung (2009) and Sangjae Lee (2010). Hypothesis **H2**: which examines the relationship between organizational size and e-government implementation is found to be supported by the regression analysis test applied to the original model. This result supports the results of SijieLin and HungLai (2009); Zhu, Dong, Xin Xu and Kraemer (2006); and Lippert and Govindarajulu (2006).

Hypothesis **H3**: which examines the relationship between organizational culture and e-government implementation is found to be supported by the regression analysis test applied to the original model. The research result is in line with the finding of SijieLin and HungLai (2009) and Nurdin, Stockdale and Scheepers (2012). Hypothesis **H4**: which examines the relationship between knowledge of management and e-government implementation is found to be not-supported by the regression analysis test applied to the original model. The result of the test is does not support the findings of Alghamdi and Goodwin (2011) and Hussein, Abdul Karim and Selamat (2007).

Hypothesis **H5**: which examines the relationship between organizational strategy and e-government implementation is found to be supported by the regression analysis test applied to the original model. This result is in line with the findings of Nurdin, Stockdale and Scheepers (2012); Hussein, Abdul Karim and Selamat (2007); Nurdin and Stockdale (2011). Hypothesis **H6**: which examines the relationship between organizational structure and e-government implementation is found to be not supported by the regression analysis test applied to the original model. The result of the test is not in line with the findings of Nurdin, Stockdale and Scheepers (2012); and Nurdin and Stockdale (2011). Organizational structure and hierarchy are simplified to ease work processes, and distribute knowledge and skills of IT across organizations.

Hypothesis **H7**: which examines the relationship between Employees' skills and e-government implementation is found to be supported by the regression analysis test applied to the original model. The result of the test is in line with the findings of Nurdin, Stockdale and Scheepers (2012), Layne and Lee (2001) and Nurdin and Stockdale (2011). Government agencies should have skilled employees who can deal with e-government professionally. Based on the analysis test applied to the original model the Jordan government organization expresses the importance of the training of employee.

8. RECOMMENDATIONS

Based on the research findings, several conclusions can be addressed to decision makers in government officials in Jordan, which include the following:

1. The organization culture within government agencies in Jordan should be changed to adapt e-government implementation and employees should share the information between them.
2. Government officials in Jordan should support the e-government project by allocating resource (not only money but also human resource) and let them believe in the importance of e-government.
3. New mission and vision of government agencies business processes should be created clearly to align with e-government implementation.
4. Training courses should be given to employees in government agencies to support them with the right experience for e-government implementation.
5. Government agencies should increase the number of employees and increase the budget for e-government project.
6. Government agencies should learn from the successful experience of other countries in the world.

References

- AIU (2012), Qualitative vs. Quantitative Research. Retrieved from, <http://www.aiuniv.edu/Student-Life/Blog/October-2012/Qualitative-Vs-Quantitative-Research>.
- Alghamdi, I. and Goodwin, R. (2011), E-Government Readiness Assessment for Government Organizations in Developing Countries; www.ccsenet.org/cis;2011.
- Al-Omari, H. (2006), E-government Architecture in Jordan; A Comparative Analysis, *Journal of Computer Science* 2 (11): 846-852.
- Bertot, J. and Jaeger, P. (2012). Implementing and Managing Public Library Networks, Connectivity, and Partnerships to Promote E-Government Access and Education. *IGI Global Disseminator of Knowledge*
- Bhatnagar, S. (2009), *Unlocking E-government Potential Concepts Case and Practical Insights*; Sage Publication India.
- Boni Pudjianto and Zo Hangjung; (2009), Factors Affecting e-Government Assimilation in Developing Countries; 4th Communication Policy Research, South Conference, Negombo, Sri Lanka.
- Bryman, A., Bell, E. (2007), *Business Research Method*. New York: Oxford University Press Inc.
- Ciborra, Claudio and Navarra, Diego D.; (2005), Good Governance, Development Theory, and Aid Policy: Risks and Challenges of E-Government in Jordan; Wiley Periodicals.
- Crowther, D., and Lancaster, G. (2008), *Research methods*. United Kingdom: Butterworth-Heinemann Elsevier Ltd.
- Fowler, F. J. (2002), London: SAGE Publications Ltd.
- Hamdan, M. Aand Alnajy, I. (October 2009), Computerization and E-government Implementation in Jordan, *Government Information Quarterly*.
- Heeks Richard (2003), Success and Failure Rates of E-government in Developing Country; UK: Institute for Development Policy and Management.

- Hennink, M., Hutter, I., Bailey, A. (2011), London: SAGE Publications Ltd.
- Hussein, R. Abdul Karim, S. Selamat, H. (2007), *The Impact of Technological Factors on Information Systems Success in the Electronic-government Context*; Emerald Group Publishing.
- Kim, S. and Lee, H. (2004), *Organization Factors Affecting Knowledge Sharing Capabilities in E-government*; in *Empirical Study*.
- Layne, K., and Lee, J. (2001), *Developing fully functional E-government: A four stage model*. *Government Information Quarterly*, 122-136.
- Liou, K. T. (2008), 'E-Government Development and China's Administrative Reform' *International Journal of Public Administration*, 31(1): 76-95.
- Lippert, S. and Govindarajulu, Ch. (2006), *Technological, Organizational, and Environmental Antecedents to Web Services Adoption*.
- Mohammad Al-khaleefah, Mohammad Al-kawaldeh, Sitalakshmi Venkatrawan, and Mamoun Alazab, *towards Understanding and Improving E-commerce Strategies in Jordan*; World Academy of Science, Engineering and Technology 66, 2010).
- Nurdin, N. and Stockdale, R. (2011), *Understanding Organizational Barriers Influencing Local Electronic Government Adoption and Implementation: The Electronic Government Implementation Framework*; *Journal of Theoretical and Applied Electronic Commerce Research* (Universidad de Talca - Chile).
- Nurdin, N. Stockdale, R. and Scheepers, S. (2012), *Organizational Adaptation to Sustain Information Technology: The Case of E-Government in Developing Countries*; *Electronic Journal of e-Government* Volume 10 Issue 1.
- Paul, H. (2010), *Governing Electronically: E-government and the Reconfiguration of Public Administration, Policy, and Power*. Basingstoke, U.K. ; New York, U.S.: Palgrave Macmillan.
- Ramlah Hussein, Nor Abed-Alkarim, Mohd Hasan Selamat and Raja Baharuddin Anom; (2007), *The Impact of Organizational Factors on Information Systems Success: An Empirical Investigation in The Malaysian Electronic-Government Agencies*.
- Sangjae Lee; (2010), *Factors Affecting the Implementation Success of Internet-based Information Systems*; Since Direct.
- Sekaran, U., Bougie, R. (2010), *Research Methods for Business*. United Kingdom: *John Wiley & Sons Inc.*
- Seneviratne, J. S.; (1999), *Information Technology and Organizational Change in the Public Sector* IGI Publishing Hershey, PA, USA.
- SijieLin, H. and HungLai, K. (2009), *Adopters and Non-adopters of E-procurement in Singapore: An Empirical Study*; Elsevier 37;
- Tohidi, H. (2011), *E-government and its Different Dimensions: Iran*. *Procedia Computer Science*, Vol, 3, p. 1101-1105.
- Uma Sekaran and Roger Bougie *Research Methods for Business a Skill-building Approach* Fifth Edition.
- Wordpress (2011), *Advantages and Disadvantages of Quantitative Research*. Retrieved from, <http://picardsflute.wordpress.com/2011/01/12/advantages-and-disadvantages-of-quantitative-research>

Yan, X., and Su, X. G. (2009), *Linear Regression Analysis: Theory and Computing*. United Kingdom: World Scientific Publishing Co. Pte. Ltd.

Zhu, Dong, Xin Xu and Kraemer (2006), Innovation Diffusion in Global Contexts: Determinants of Post-adoption Digital Transformation of European Companies; *European Journal of Information Systems*.

