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Governance Improvement Post E-government Adoption: A Case of Jordanian Public Entities

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ABSTRACT

This study examines the efficacy of governance after the adoption of e-governance among Jordanian governmental organisations. E-government refers to Information and Communication Technology mechanisms which purportedly lead a better governance. Internal end-user satisfaction is one measure of the efficacy of internal e-governance. End-user satisfaction comprises content, accuracy, format, ease of use and timeliness. Different from existing academic research, the present study analyses the adoption of E-government among Jordanian governmental organisations. This topic has not previously been examined. A survey of at eight Jordanian governmental entities at the officers and directors level is employed as the data collection tool. T-test and non-parametric Wilcoxon-test are used to examine a cross section of data from eight Jordanian governmental entities to test the research hypotheses. The present study finds that there is a statistical difference of end-user satisfaction after E-government adoption in terms of content; accuracy; format; ease of use and timeliness. The paper makes a significant contribution by testing the improvements in governance after the adoption of E-government among Jordanian governmental entities. Furthermore, the paper enhances the understanding of Jordan's E-government program.

Keywords: E-government, Governance, End-user Satisfaction
JEL Classifications: M1, O32, O14

1. INTRODUCTION

Many government organisations around the world face several challenges including cost saving, limited task automation and massive societal needs which lead to budget deficiency (Alsmady et al., 2014). This has led to increased attention by those organisations to adopt an efficient program to meet those challenges. Saarenpaa (2004) argued that the government and society should collaborate to ensure they realize their shared goals. Moreover, in a democratic system the society should know how their rights are being managed by the government (Saarenpaa, 2004). A balance between the interests of stakeholders is required to achieve good governance and create a better future for the nation. This has led several governments beginning in the 1990s towards using Information and Communication Technology (ICT) as E-government systems.

While Saarenpaa (2004) argued that ICT can help the governmental organisations to face a diversity of challenges, the concern is not in ICT itself rather in using the ICT for efficient processes and functions within the organisation to improve governance and to cope with challenges. E-government promotes transparency and accountability in the democratic system (Madzova et al., 2013). Al-Kasswna (2012) argued that such restructuring of the operational system within the government will enhance its governance. Good governance is achieved where there is an improvement in transparency and accountability as well as in the quality of services offered to the citizens in efficient and effective methods (Madzova et al., 2013; Basu, 2004). Thus, to achieve better governance after adopting the E-government program should improve content, accuracy, format, ease of use and timeliness which collectively contribute to end-user computing satisfaction (EUCS) (Deng et al., 2008; McHaney et al., 2002; McHaney et al., 1999; Mohamed et al., 2009).

Ultimately, using e-governance is needed in both the private sector and government organisations to improve governance. Nevertheless, Chircu and Lee (2003) argued that the private sector is different from government organisations. Private organisations focus more on the maximisation of profit. While, government organisations are primarily a political mission to save costs and improve resources allocation. Thus, the adoption of E-government

needs to be examined carefully as to whether private or public sector application and the experience of developed and developing countries differ (Basu, 2004).

Chen et al. (2006) argued that the implication of E-government in developed countries cannot be applied in developing countries because of many differences in culture, infrastructure, technology, staff and citizens. Therefore, they suggested studies be conducted through collecting national data and statistics verifying the proposed framework. Saarenpaa (2004) supported that E-government can be examined from different angles. Thus, this study examines the proposed framework for Jordanian governmental organisations as a case study which has not previously been examined.

The remainder of the paper is organized as follows. Section 2 describes the study background and E-government in Jordan. Section 3 presents the review of literature and hypotheses development. Methodology and research design are explained in section 4. Then, we report the findings in section 5. The conclusion and recommendations for the policy makers and future research are provided in section 6.

2. STUDY BACKGROUND AND E-GOVERNMENT IN JORDAN

The E-government phenomenon is relatively new, and the concept still requires greater clarity (Coursey and Norris, 2008). There are many definitions of E-government which differ regarding the set implications and the progress that has been made towards national objectives. DigitalGovernance.org (2003) defined E-government as "the use of information technology to free movement of information to overcome the physical bounds of traditional paper and physical based systems." Basu (2004) argued the E-government improve the governance in government organisation such as enhanced transparency which leads to better resources allocation. Furthermore, Basu argued that e-governance is achieved by using ICT to interact and transaction between the government and citizen (G2C), government and other business organisations (G2B) and the inter-agency relationship (G2G) which improve end-user satisfaction for each of these agency relationships. The internal relation and satisfaction of internal governance and external relation and satisfaction with external governance are required of government organisations for the program to be successful. Saarenpaa (2004) supported that E-government is using ICT to improve governance in government organisations. Also, Basu (2004) argued the E-government is using ICT tools to stimulate good governance towards improving the good governance of inter-agency relations. Thus, to examine the improvement in governance after the adoption of E-government in Jordan, we have to understand the set progress that has been made towards achieving national objectives.

Electronic government (EG) in Jordan is devoted to presenting services to governmental entities, officers, and people regardless of their location, economic status, education as well as ICT ability. Jordanian E-government aims at developing Jordan's economy, becoming more competitive and improving governance using ICT. The aims of E-government cannot be achieved without the participation of all stakeholders in local economic development. However, government resources should unite to accomplish the goals of E-government. In Jordan, the government adopted a strategy to achieve the goals of the E-government program called the "E-transformation strategy." The strategy divides its objectives into national objectives, E-government strategic objectives and identifies the strategic initiatives for e-transformation. The strategy makes use of transforming the traditional service delivery to more beneficiaries including all stakeholders such as citizens, residents, visitors, businesses, government entities and government employees, in more efficient and effective ways of delivering services. It tries to shift from a structurally fragmented government entity to a whole government that works in harmony. The E-transformation strategy tries to guarantee the public officers and citizens' satisfaction with the government services. This comes through a cohesive work by different government sectors in a way that facilitates the information sharing between the government services and reducing the burden on citizens. This improved communication will lead to the Kingdom's economic and social development.

The strategies of e-transformation are evolving around developing four levels of information service delivery (emerging, enhanced, transactional, and connected). Jordan is currently in the late enhanced level of service and aims at achieving the transactional stage which needs to examine before moving forward on a higher level. Therefore, internal and external end-user satisfaction improvement requires further attention by the government. While internal end-user satisfaction improvement led to a better external end-user satisfaction which the present study tries to examine before the external end-user satisfactions. To measure the internal effectiveness of e-governance improvement after E-government adoption, the EUCS instrument for use in Jordanian governmental entities is used as a measurement tool. Therefore, the measure of E-government application and its successes directly using the system applications in Jordanian public entities is a better approach to examining improvement in internal governance post E-government adoption.

Several studies have been conducted on E-government in Jordan such as Mofleh and Wanouses' (2008a), Mofleh and Wanous (2008b), Al-Jaghoub et al. (2010), AL-Mahamid et al. (2010), and Al-Omari et al. (2012). Mofleh and Wanouses' (2008a) argued that Jordanian public sectors have low levels of transparency due to a complicated hierarchy in the top management. Furthermore, Mofleh and Wanous (2008b) argued that the government achieve the hope of their E-government program which is citizens sharing control with the government to create an effective interaction with the citizens. However, they argued that there is still a gap between the citizen and the implication of E-government in Jordan. While Al-Jaghoub et al. (2010) assessed factors that could influence the awareness and use of E-government servicers in Jordan. They found that the awareness of E-government did not reach the targeted level. On the other hand, Al-Omari et al. (2014) studied the factors that affect adoption of the citizens' use of E-government in Jordan. They found that trust in government, website design, beliefs, complexity and perceived usefulness

were significant factors affecting Jordanian citizens' intention to use E-government. However, Al-Mahamid et al. (2010) argued that there is a significant positive relationship among perceived usefulness, perceived ease of use and perceived information quality as well as the intention to use E-government for sharing information.

In Jordan, Al-Kasswna (2012) argued that the main objectives behind the E-government in Jordan are providing better governance where internal and external end-user satisfaction will be met. Also, the Ministry of ICT of Jordan declared that the main objective of E-government in Jordan is to have better governance (MICT, 2014). However, there are no clear results that Jordanian E-government program achieved its objective. This study examines the E-government in Jordan and to the extent to which E-government promotes better governance.

3. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

3.1. Literature Review

Several theoretical and practical studies discussed E-government, which includes a general view of E-government around the world and its achievements. For example Al-Jaghoub et al. (2010) evaluated the factors that affect the citizens' awareness in using E-government services which examine accessibility to E-government, e-services, cost efficiency, and citizens' position on the topic of privacy and information security. The study concluded that awareness of the concept of E-government did not reach the required level for both citizens and government. Al-Zoubi et al. (2011) investigated E-government adoption in Jordanian market in terms of the level of adoption as well as the factors that drive E-government adoption among businesses in Jordan. The result shows that E-government has not reached the required level. Furthermore, the study found that there is a significant relationship between technological, organisational, and external factors and businesses E-government. Al-Omari (2006b) studied E-government in Jordan in terms of planning and implementation and recommended that researchers need to test the success of the project after being launched.

Elsheikh and Azzeh's (2014) study sample is composed of students, academics and administrators in Jordanian universities. The study finds that more involvement of citizens in the decision-making process is an important factor for helping E-government services delivery in Jordan. Furthermore, Al-Hujran et al. (2011) studied the role of national culture factors on citizen adoption of E-government in Jordan as a case study. The result shows that power distance and uncertainty avoidance had significant impacts on citizens' intention to adopt E-government, but individualism, masculinity, and long-term orientation dimensions have no impact. On the other hand, Al-Omari et al. (2010) examined the social factors that may influence citizens' intention to use E-government in Jordan. For example, trust in the security and privacy, trust in government, attitudes and beliefs, internet and computer skill confidence, and website design are tested. The result shows that trust in government website design is an identifiable concern of internet users in Jordan. Also, beliefs emerged as an identifiable component relevant to E-government adoption in Jordan. Also, the study recommended examining E-government websites easiness to be understood and used in E-government adoption. Mofleh and Wanous (2008a) reviewed the Jordanian ICT transformation and identified factors might be behind the country's lack of progress. The study showed based on interviews that Jordanians did not achieve the promised outcomes. The researcher argued that for the program to be successful, they have to know what they want behind the program such as determining whether Jordanian government user satisfaction is a major objective of E-government adoption.

Therefore, the Jordanian literature do not offer clear successful outcomes for the Jordanian E-government program. Mofleh and Wanous (2008a) argued that weakness in Jordanian public sectors exist in the hierarchy and top management. Furthermore, Mofleh and Wanous (2008b) concluded that there is a gap between citizens and the implication of E-government in Jordan. In the same study, they suggested the factors that may help the program to be successful include effective interaction with citizens. Al-Omari et al. (2012) supported that trust in government plays an important role for Jordanian citizens' to use E-government while Al-Jaghoub et al. (2010) concluded that awareness of E-government did not reach the targeted level. Mofleh and Wanous (2008b) argued the objective of E-government in developing countries is to enhance the accessibility of information services to their citizens based on what they need, but the problem is that they do not measure whether they are willing to use it or not. Ottoum and Suleiman's (2011) study of the E-government experience in Jordan found that the aim of E-government is to improve credibility and transparency. Furthermore, they argued that information technology improve the existing governance mechanisms in different ways such as improving the existing mechanisms such as end-user satisfaction. They introduce a variety of problems facing E-government in Jourdan such as lack of monitoring and testing. They suggested that to reach the goal of the project, they must test the existing open project. A. Al-Omari and Al-Omari (2006a) argued that one of the important factors in Jordan that needs to be implemented in any E-governmental initiative is the governance in regards to internal user satisfaction which helps public officials to perform. Thus, the E-government helps to improve the governance in public firms although its improvement is still vague.

3.2. Hypotheses Development

Susanto (2011) argued that the government need to evaluate whether the existing E-government system that achieved its objectives which give an indicator for them to improve the running management strategy and governance. Also, the success of E-government is not easy to be achieved but needs further investigation and sustained effort (Rocheleau and Wu, 2005). Thus, the need to examine the success of the program is important. In this regard, Al-Khateeb et al. (2015) and Mofleh and Wanous (2008b) suggested that end-user satisfaction is a good indicator of increasing demand on E-government which means achieving the objectives behind the program and success of improving governance. Al-Zoubi and Altaany (2008) explored the extent of usage of E-government applications in Jordan for which they found that most of the applications are mainly used on the parallel basis.

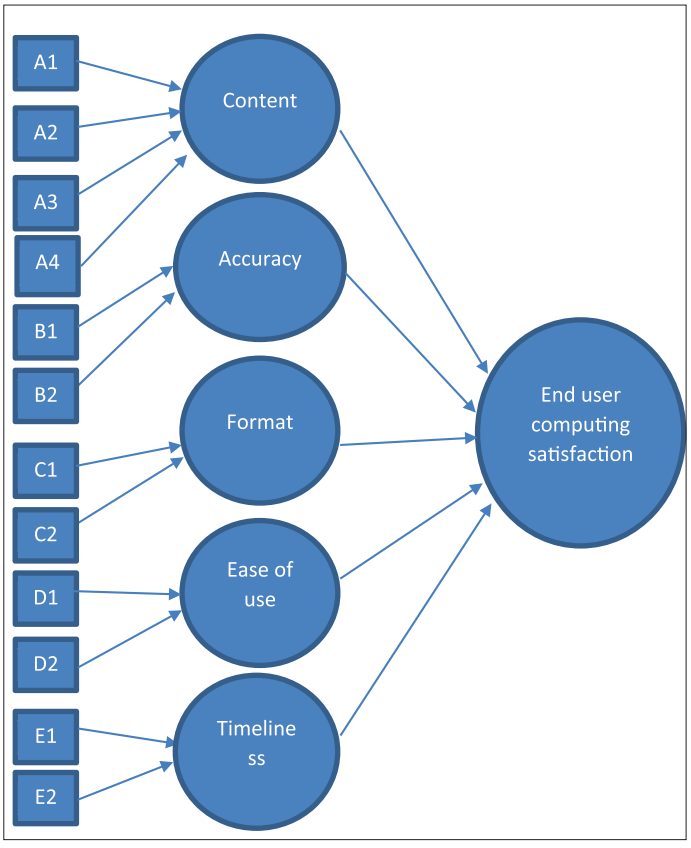
They recommended that further research is needed to examine the significant difference of governance improvement in terms of end-user satisfaction pre and post adoption of E-government. Thus, the previous studies did not examine differences with regard to the end-user satisfaction instrument. Hence, we hypothesise that:

H_1: There is a different change in end-user satisfaction pre and post adoption of E-government.
H_a: There is a different change in content pre and post adoption of E-government.
H_b: There is a different change in accuracy pre and post adoption of E-government.
H_c: There is a different change in format pre and post adoption of E-government.
H_d: There is a different change in ease of use pre and post adoption of E-government.
H_e: There is a different change in timeliness pre and post adoption of E-government.

4. METHODOLOGY AND RESEARCH DESIGN

The study adopted EUCS (Figure 1) instrument model originally synthesised by Ives et al. (1983). Table 1 explains the questions used by the EUCS, which were used to measure the end-user satisfaction improvement after the adoption of E-government in the Jordanian public sector. The table has 12 questions that represent five instruments to measure end-user satisfaction. The EUCS model was adopted due to its validity and has been used in many researches in developed and developing countries such in the United States, Western Europe, Malaysia, Taiwan and Saudi Arabia (Deng et al., 2008; McHaney et al., 2002; McHaney et al., 1999; Mohamed et al., 2009). EUCS is used to measure the success of using a new computer application among people directly using the system applications (Doll and Torkzadeh, 1988). There are four statement measures in Table 1: The content instrument and two statements for each, accuracy, format, ease of use and timeliness respectively. The study uses a seven-point Likert scale for each statement where seven represents strongly agree and one represents strongly disagree. The change made refinement to the statement for measuring pre and post adoption of E-government (Table 1). The statement was in the Arabic language. The Arabic language is the formal language used in Jordan especially in government. Seven senior academicians participated in a pre-test to validate the statements in which minor correction was made in some statements in terms of language. Then, a pilot study comprising 30 questionnaires were distributed to directors and officers at four governmental entities. The result shows the validity of those statements loading for each instrument which was omitted from the study sample and no modification was made.

Figure 1: End-user computing model (Doll and Torkzadeh, 1988)



The study uses a cross-sectional self-administrative survey research approach. The study population was the Jordanian governmental entities that applied E-government. The sample was eight representative governmental entities and the target respondents for the sampling included executive staff who use information systems to support the interaction with the citizens and others such as higher, medium and lower managers as well as other users. A total of 150 questioners were distributed among eight representative governmental entities. The model instrument stated in Figure 1 measures internal end-user satisfaction used by Doll and Torkzadeh (1988) and this study uses the same questions modified by Mohamed et al. (2009) to measure each instrument (content, accuracy, format, ease of use and timeliness). The calculation model was adapted from Megginson et al. (1994) and La Porta and Lopez-De-Silane (1999) which calculated the mean and medium for each instrument as follows:

$$APC=\bar{P}_{i,t}-\bar{P}_{I,t-1} \quad (1)$$

Where RPC is the absolute value of each instrument of end-user satisfaction, $\bar{P}_{i,t}$ is the mean of each instrument in the post E-government adoption, and $\bar{P}_{I,t-1}$ is the mean of each instrument pre E-government adoption. However, Omran (2004) argued that to avoid the problematic absolute measure; we calculate each instrument as follows:

$$RPC=(\bar{P}_{i,t}-\bar{P}_{I,t-1})/\bar{P}_{I,t-1} \quad (2)$$

Where RPC is the relative instrument of end-user satisfaction change, $\bar{P}_{i,t}$ is the mean of each instrument in the post E-government adoption, and $\bar{P}_{I,t-1}$ is the mean of each instrument pre E-government adoption. Furthermore, the study uses a dummy variable to divide the sample into two groups by:

$$Dummy=\begin{cases}1=\text{Pre adoption instrument of end-user satisfaction}\\0=\text{Post adoption instrument of end-user satisfaction}\end{cases}$$

Furthermore, the study uses the official approval letter from Applied Science University to survey the officers and collect

Table 1: Instrument comparison

Item code	Measures	Original instrument items (Ives et al., 1983)	(Mohamed et al., 2009)	This study items	
				Pre	Post
A1	Content	Does the system provide the precise information you need?	The system provides the precise information I need	The system provides the precise information I need	The system provides the precise information I need
A2		Does the information meet your needs?	The information content meets my needs	The information content meets my needs	The information content meets my needs
A3		Does the system provide reports that seem to be just about exactly what you need?	The E-government systems provide reports that seem to be just about exactly what I need	The E-government systems provide reports that seem to be just about exactly what I need	The E-government systems provide reports that seem to be just about exactly what I need
A4		Does the system provide sufficient information?	The E-government systems provide sufficient information	The E-government systems provide sufficient information	The E-government systems provide sufficient information
B1	Accuracy	Is the system accurate?	The E-government system is accurate	The E-government system is accurate	The E-government system is accurate
B2		Are you satisfied with the accuracy of the system?	I am satisfied with the accuracy of the system	I am satisfied with the accuracy of the system	I am satisfied with the accuracy of the system
C1	Format	Do you think the output is presented in a useful format?	The output is presented in a useful format	The output is presented in a useful format	The output is presented in a useful format
C2		Is the output information clear?	The information is clear	The information is clear	The information is clear
D1	Ease of use	Is the system user-friendly?	The E-government system is user-friendly.	The E-government system is user-friendly.	The E-government system is user-friendly.
D2		Is the system easy to use?	The E-government system is easy to use	The E-government system is easy to use	The E-government system is easy to use
E1	Timeliness	Do you get the information you need in time?	I get the information I need in time	I get the information I need in time	I get the information I need in time
E2		Does the system provide up-to-date information?	The E-government system provides up-to-date information	The E-government system provides up-to-date information	The E-government system provides up-to-date information
Scale:		Five-point Likert-type scale: 1. "Almost never," 2. "Some of the time," 3. "About half the time," 4." Most of the time," 5. "Almost always" (Ives et al., 1983)	Seven-point Likert-type scale: 1. "Strongly disagree," 7. "Strongly agree" (Mohamed et al., 2009)	Seven-point Likert-type scale: 1. "Strongly disagree," 7. "Strongly agree"	Seven-point Likert-type scale: 1. "Strongly disagree," 7. "Strongly agree"

Table 2: Descriptive analysis

Variables	Mean	Median	SD	Mini	Max
A	4.16	4.13	1.9	1	7
B	4.21	4	2	1	7
C	4.28	4.5	1.98	1	7
D	4.4	4.5	2.01	1	7
E	4.2	4	2.19	1	7
Population characteristics					
GM%	GF%	TOTLE%	AGMORE30	AGLESS30	Total
55.30	44.70	100	67.88	32.12	100%
LESSM%	MORM%	TOTLE%	EXMOR10	EXLESS10	TOTLE
24.83	75.17	100	41.39	58.61	100
EDD	EDB	EDM	EDPHD	EDO	TOTLE
17.38	59.60	14.90	0.83	7.28	100

This table reports the descriptive analysis of the instrument under the study and the population characteristic. A refers to the content measurement, B refers to the accuracy measurement, C refers to the format measurements, D refers to the ease of use measurement, E refers to the timeliness measurement, GM refers to the gender male, GF refers to the gender female, LESSM refers to less than manager, MORM refers to more than manager, EDD refers to diploma degree, EDB refers to bachelor degree, EDM refers to master degree, EDPHD refers to doctoral degree, EDO refers to other educational level, AGLESS30, refers to age<30, AGMORE30 refers to age more than 30, EXMOR10 refers to experience<10 years, EXLESS10 refers to experience more than 10 years. % the percentage level, TOTLE refers to 100% of the population which is number of the respondents under the study

the data from governmental entities. The questionnaire included the objective and the research model so that respondents clearly understand the instrument. The following section explains the results based on the explained operationalization.

5. RESULTS OF THE STUDY ANALYSIS

The study received 130 questionnaires out of 150, and 122 were usable for the analysis, which represents 81.33% which is a high rate of information system studies. The unusable data were due to several reasons such as some of the officers were not available at the office during the data collection process, some of them were not familiar with the system due to recent delays in the network with the system, and some of them were very busy so they could not complete the questionnaires.

The study uses SPSS Version 18 to validate the analysis for the statistical and generate the results for the sample under the study. A t-test was conducted to check non-respondent bias testing different results of two educational levels and gender. The result shows that there are no significant differences between the

groups. Hence, the study conducted a descriptive analysis of the population's characteristics and the instruments as shown in Table 2. The descriptive analysis shows that the mean and the medium values for each item were all above 4.0 which indicates that internal end-users' in E-government in Jordanian governmental entities were favourably, and these results are consistent with Mohamed et al. (2009). Furthermore, population characteristic shows that the level of education of the respondents is: Diploma degree; bachelor degree; master degree; doctoral degree and other educational levels were 17.38%, 59.60%, 14.90%, 0.83%, respectively. The majority of the respondents had a bachelor degree, and the minority has a doctorate. Also, the sample contains 55.30% male and 44.70% female. The highest proportion were managers with 75.17%. Finally, the sample was 67.88% <30 years old and 32.12% more than 30 which gives an indicator that young people are more familiar with the technology and 41.39% of the sample have 10 years' experience and 58.61% <10 years' experience which is normal. Furthermore, the study conducted reliability analysis as shown in Table 3. The consistency measure of Cronbach's alpha was carried out for 12-item and was 0.963 which is consistent and favourable with other study alphas such as 0.947 achieved by Mohamed et al. (2009) and 0.92 achieved by Doll and Torkzadeh (1988). The Inter-Item Correlation Matrix shows that all factors are highly correlated ranging from a low 0.791 to a high of 0.884.

For the hypothesis testing, the study conducted the normality test Kolmogorov-Smirnova and Shapiro-Wilk, which is the assumption of using t-test. The results show that the data of the study are not normally distributed for all instruments (Table 4). Since the data are not normally distributed, the nonparametric Wilcoxon signed-rank test is adopted to test the significant difference in change in end-user satisfaction and change in governance in Jordanian public entities. Gaur and Gaure (2006) argued that when the sample size is relatively small, the results of t-test and nonparametric test will be closed. Therefore, the study employs the t-test to compare the results as shown in Table 5. Also, the absolute method of calculation is used for the values to avoid the problematic measurement of significant change in governance in terms of end-user satisfaction that may be relative to the characteristic of the environment (Omran, 2004).

Table 5 reports both z-statistic and t-statistic of the significant change of the governance after adopting the E-government in terms of internal end-user satisfaction. The results show a highly significant change in the end-user satisfaction in all instruments at 1% level of content; accuracy; format; ease of use and timeliness measure individually. The z-statistic and t-statistic show similar results. Thus, the study accepted Ha to He. Also, the study averages all the measures in terms of mean and median of all instruments as one value of end-user satisfaction. It then calculates the absolute value using the absolute method calculation technique to test overall significant changes in governance in term of end-user satisfaction. The result shows that there is a significant change in Jordanian public entities governance after adoption of the E-government program which is matched with several previous research (Mohamed et al. [2009]; Mohamed et al. [2009]; Ottoum and Suleiman [2011]; Rocheleau and Wu [2005]; Yonazi et al. [2010]).

Table 3: Inter-item correlation matrix

	A	B	C	D	E
A	1				
B	0.823	1			
C	0.82	0.791			
D	0.847	0.818	0.884	1	
E	0.836	0.839	0.86	0.884	1
	C. Alpha	C. Alpha	Number of items		
Overall scale	0.963	0.963	5		

This table reports the inter-item correlation matrix and overall 12-item Cronbachs alphas. A refers to the content measurement, B refers to the accuracy measurement, C refers to the format measurements, D refers to the ease of use measurement, E refers to the timeliness measurement, overall scale refers to reliability for the overall 12-items

Table 4: Tests of normality

Variables	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Significant	Statistic	df	Significant
A	0.086	235	0.000	0.941	235	0.000***
B	0.137	235	0.000	0.921	235	0.000***
C	0.123	235	0.000	0.924	235	0.000***
D	0.134	235	0.000	0.917	235	0.000***
E	0.132	235	0.000	0.894	235	0.000***

This table reports the normality test of the data distribution. A refers to the content measurement, B refers to the accuracy measurement, C refers to the format measurements, D refers to the ease of use measurement, E refers to the timeliness measurement; Kolmogorov-Smirnova and Shapiro-Wilk test for normality, *,**,***: Denote a significant level of 10%, 5% and 1%, respectively

Table 5: Different change in end-user satisfaction pre and post adoption of E-government

Hypotheses under the study	Mean	Median	Z-statistic for change in median (P-value)	T-statistic for change in mean (P-value)
A: H_a	4.16	4.13	9.86 (0.00)***	12.581 (0.00)***
B: H_b	4.21	4	9.74 (0.00)***	12.600 (0.00)***
C: H_c	4.28	4.5	9.76 (0.00)***	12.584 (0.00)***
D: H_d	4.4	4.5	10.29 (0.00)***	13.665 (0.00)***
E: H_e	4.2	4	11.12 (0.00)***	16.191 (0.00)***
H_1: End-user computing satisfaction				
Overall: H_1	**Value**	**P-value**		
Z (median)	10.813	(0.00)***		
T (mean)	15.452	(0.00)***		

This table reports the employer's techniques to test significant change in end-user satisfaction. The t-test and no-parametric Wilcoxon signed-rank test used to test for significant change in mean and medium respectively. A refers to the content measurement, B refers to the accuracy measurement, C refers to the format measurements, D refers to the ease of use measurement, E refers to the timeliness measurement. *,**,*** denote a significant level of 10%, 5% and 1%, respectively

6. CONCLUSION AND FUTURE RESEARCH

The study tried to explore the new program adopted by the Jordanian government. The government has pragmatic procedures and controls by political managers. Thus, E-government was launched to improve the governance and mitigate the inherent agency problems in these entities. In this context, several Jordanian studies explored E-government in Jordan. Al-Omari (2006b) argued that researchers need to test the success of the program after being launched. Also, Mofleh and Wanous (2008a) argued that for the program be successful; they have to know what they want behind the program. Al-Omari et al. (2010) showed that

trust in government website design is an identifiable concern of internet users in Jordan. The researchers concluded that E-government did not reach the required level for both citizens and government. While, Al-Hujran et al. (2011) argued that power distance and uncertainty avoidance have significant impacts on citizens' intention to adopt E-government. Elsheikh and Azzeh (2014) searched for the factors the help the program succeed and found that greater involvement of citizens in the decision-making process plays an important factor that helps in the delivery of E-government services in Jordan. However, the Jordanian literature has not given a clear and successful outcome of the Jordanian E-government program and its role in improving the governance of the government entities. Therefore, the government needs to confirm that the implication of this program will continue. This program will help private and public sectors when its application significantly achieves its aims. The government introduced this program for the national economy in which the public sector plays an important role. Thus, when the internal end-user satisfaction significantly improved, then the government can test the external end-user satisfaction of the program resulting in good governance such as accuracy, timeliness will mitigate the inherent agency problems and sharing control with the citizens. Thus, this study gives a clear result of the role that the program plays to improve the governance in terms of internal user satisfaction.

In terms of theoretical contribution, the study reviews the body of the literature, which supported the model improvement under the study. It used the EUCS model to measure the significant change of internal end-users' satisfaction pre and post E-government adoption. Furthermore, the study explains the E-government program in more detail in Jordan environment, which gives a greater understanding of using EG and its implications in terms of content, accuracy, format, ease of use and timeliness.

In terms of practical contribution, the study hypothesised that the E-government would improve the governance in governmental entities in terms of internal end-users' satisfaction and establish the accountability that will mitigate the agency problem. The study used a self-administration survey approach based on the previous research to measure user satisfaction and test the research hypotheses. The study confirms that E-government plays important a role in improving the governance in governmental entities in Jordan. Our findings show that there are significant changes in internal end-users satisfaction which improve the governance in Jordanian public entities. Particularly, the finding confirmed that all measurement of end-users satisfaction in terms of content, accuracy, format, ease of use and timeliness recorded significant improvements after adopting E-government. Thus, the study provided empirical support for previous studies. Finally, the study suggests that future research examines the improvement of the external governance after adopting the E-government program and to test the internal and external improvement in governance.

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