ISSN:0975-9646



# Investigate the impact of e-government on the public trust: Evidence from Jordan

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**Abstract - The purpose of this paper is to examine correlation between e-government and public trust of industrial owner at government level. This paper review the literature about public trust and observed that radical information technologies may use to change the public trust development in country. After that, this study suggested hypothesis to prove the relationship between industrial owner experience with e-government and public trust. Furthermore, industrial owner incorporates three perspectives including: E-administration, E-procurement and E-services. By using the government Council data, this study developed a model and use regression technique to analyze the model which relate to satisfaction, experience and trust. Moreover, finding of this study shows that there is positive relationship between e-government satisfaction and public trust. Hence, it is proved that e-government strategies including E-administration, E-procurement and E-services has great importance and are significant factors of the e-government satisfaction for public trust.**

**Keywords:** E-Administration, E-Procurement, E-Services, public trust, industrial owners, SMEs

## INTRODUCTION

In recent users, economic development has a major concern of many contemporary politicians and economists around the world. It is evident that all countries, including the less developed and the developed countries, strive to achieve one main goal; which is to promote and increase economic growth. But there is interruption in development due to financial planning with weak nature, absence of good governance, lack of technology, poor investments, non-existence of government trust, and inapt achieving progress (Altenburg & Lütkenhorst, 2015). Hence, this study focuses on the use of information and communication technology (ICT) in government practices, especially electronic government which is considered recently among most of the economic reform's chief key features (Norris & Reddick, 2013).

Recent studies on public sector information management during this new time period is more emphasized on information distribution. Lim et al. (2016) stated that most recent review studies revealed a disquieting declining trust trend in institutions of autonomous governance, so the good governance as a form of trust, play a major role in social and economic progress. Sequentially, the transformation of model economies into an electronic economy improves overall economic growth within a nation, making it the most popular unit of government in the developed and developing worlds (Joinson, 2009). It is evident that the role of the e-government is developed to act as a set of tools for creating a value of good and transparent governance, globalization of trade, accountability and good institutions in order to attain trust within the customers and investors (Venkatesh et al., 2016).

In view of that, any economic growth relies on the government readiness level, the degree of confidence and trust that the public have in their governments, since any transactions or business actions must be always built on trust and mediated by good e-government (Carter et al., 2016). The literature indicates that trust in government is affected by several factors, the most important of which are effectiveness and efficiency; responsibility and benevolence; integrity, accountability, transparency, and participation. These factors and others are considered as key goals for creating trust in government through the adaptation of fair and open processes, which in turn results in efficient and effective outcomes (Heaselgrave, & Simmons, 2016). Furthermore, trust in government is an essential component of developed and developing societies since it helps to make a country's economy run smoothly and maintaining its prosperity (Elbahnasawy, 2014).

Jordan is known among the Middle East region's developing countries and have comparison with other Middle East countries, Jordan is still lagging behind regarding its e-government development. Jordan has witnessed lot of efforts in the recent years to develop and modernize the economy through different initiatives at the level of ICT and especially the e-government strategies (Bataineh, & Abu-Shanab, 2016)

### Public Trust Trends of Jordan Government: Indicators and Explanations

The decline of public trust of government is one of the current problems facing modern e-government and has been the focus of attention of many theories and research. Lack of confidence is the result of poor governance and corruption. Without trust, citizens can withdraw voluntary compliance with government regulations and demands or even actively resist government policy. Thus, it is important to study how essential information technologies such as e-government can make procedures that are well organized and provide a better quality of services through the establishment of an e-government system, which in turn enhances public trust in the government (Alzahrani, Al-Karaghouli, & Weerakkody, 2016).

Specifically, Jordan suffers from a sharp deterioration in its economic growth and overall performance. It is noticed that the Gross Domestic Product (GDP) rate is slowing down from 8.7% in 2012 to 3% in 2015 and it is predicted to be worse (Jawabreh et al., 2016). Also, Jordon is

suffering through a severe corrupted government which ranked 118 from 176 countries According to the corruption index and 16 among 17 countries in the MENA region (Al-Saleh, 2016). Weaknesses between societies and exposure to regional intervention make Jordan institutions disrupted and suffer from the weak public trust. Moreover, Jordan ranked ten percent in 2009 according to the World Bank's Worldwide Governance Indicators, indicating the overall poor performance of the government, which in turn creates an environment where corruption is widespread (Abu-Morad et al., 2016).

Where the government bureaucracy and the deficit in transparency lead to distrust of public services and thus create a poor business climate which in turn prevents the attraction and sustainability of investments. Also, Jordon suffers from a high corruption rate as shown earlier where which leads citizens to mistrust government and hesitate in dealing with governance procedures.

E-government has been proposed as a solution to increase the trust and interaction between citizens and governments. The World Bank began publishing reports from the early 1990s in which it recommended the importance of information technology as a driver of economic growth and emphasized the need for developing countries to adopt it (Elbahnasawy, 2014). Many economic researchers have studied the relationship between technologies and their impact on e-government and trust (Colesca, 2015; Rana, Dwivedi & Williams, 2015). For example, Rana, Dwivedi and Williams, (2015) suggested that the e-government as a new system to support the developing economy and was considered an important tool to increase transparency and enhance citizen trust through a strategy of continuous management improvement. The weaknesses between societies and exposure to regional interference make Jordanian state institutions suspended and suffer from low public trust (Wang, Liu, & Fang, 2016).

It is argued by several studies (AL Athmay, Fantazy, & Kumar, 2016; Hunnius & Schuppan, 2013) that there is lack of empirical evidences about e-government and the imact of e-government on the attitudes and trust. The lack of empirical data is partly due to the current relative nature of e-government applications, which means that it has limited time and short opportunities to study the social, economic and political impacts of e-government projects at a high level (Anouze *et al.*, 2014).

Moreover, Anouze *et al.,* (2014) have suggested future studies related to public e-government agencies to improve the public trust by implementing e-government practices such as website development, enhancing the provision of public services that are based on the information and communications technology and making its process more transparent and accountable. Based on the issues referred to above, the main problem of this research can be stated that without an effective e-government, economic reform, corruption and mistrust will continue to escalate among developing countries such as Jordan. Hence, there is a crucial need to research on the implementation of e-government system in context of Jordanian government that may reduce corruption and improve governance and enhance the public trust towards it.

The measurement of public trust in e-government is based on the three following questions:

1. Is there are positive significant relationship between e-services and public trust?
2. Is there are positive significant relationship between e-procurement and public trust?
3. Is there are positive significant relationship between e-administration and public trust?

**More Than Just More Information to More People**

The Theoretical Significance of the current study extends the possibility of applying the Institutional-based Trust Theory (ITT) to e-government transactions (McKnight et al., 2002). According to Zucker (1986), ITT was widely applied from sociology studies to customer behavior studies. ITT allows organizations to understand the determinants of trust in online transactions where the political, legal, and social norms and rules of enterprises are the most important determinants of trust in society. In the same context, the Diffusion of Innovation (DoI) theory is one of the most used models in information systems research to demonstrate user adoption of new technologies (Thomas, 1998).

Diffusion of an innovation is primarily based on the technology features and user's awareness of the system, where several previous studies have investigated e-government adoption through the employment of DOI theory (Bradford & Florin, 2003). Subsequently, in order to study the user's perspectives regarding the access to e-government services and the consequences on public trust, a literature review will interpret in detail about the electronic services and further more explains their benefits on trust and satisfaction.

It was also argued by several studies (Tolbert & Mossberger, 2006) that there is a shortage of empirical information about e-government and its influences on the attitudes and trust. Moreover, it was noticed that most of the previous studies on e-government and trust were found non-empirically conducted (Haque & Pathrannarakul, 2013).

**Relationship Between E-Government and Trust**

As of late, citizen's trust has gotten one of the fundamental issues confronting governments as the emergency of open trust. Applying and use of e-government are accepted to defeat this gap of public trust. Tolbert and Mossberger (2006) examined the relationship between e-government and trust situations empirically by surveying 815 users of government websites. The results show that there is significant relationship between trust and the use of government websites. Therefore, it is suggested that e-government be able to increase process-based confidence by improving interaction with citizens and response perceptions.

Obtained similar results by Heeks (2006) using a qualitative approach. Explore the relationship between service delivery and trust in public organizations. he found that e-government has positive effects on confidence and citizen trust in government, which thusly increases the value of the nation. Welch and Hennant (2003) have Using

another approach by surveyed a sample of 806 randomly chosen adults from the U.S. Government's Excellence Council to examine the impact of e-democracy, transparency, and interaction on citizen trust in government. They applied a multiple-stage equation model and found that Internet use is positively linked to transparency satisfaction. However, the use of the Internet is negatively related to complacency and both interaction and transparency are positively linked to citizen trust in the government.

In the study by Welch et al. (2005) studied the same relationship, but with the influence of mediation for e-government and site satisfaction. Use a form of multiple equations that predicts satisfaction, experience, and trust at the same time. They found that the use of the government website is positively linked to the satisfaction of e-government and the website, as well as the positive relationship between e-government satisfaction and citizen trust in government. Moreover, Parent et al. (2005) found a significant and positive effect of Internet use on external political confidence and effectiveness when surveying and analyzing 182 Canadian voters using structural equation modeling. According to Jalali and Khorasani (2012), indicators of e-government and public trust are highly correlated based on a survey of 276 citizens from five provinces in Tehran using the Kolmogorov-Smirnov (KS-test) test to determine the normal state of indexes and test the presence or absence of the proposed association.

Moreover, West (2004) used two samples to examine the relationship between the use of e-government and four variables which are government is effective in helping people, trust in government, levels of political activity and confidence in the government. The first phase of the analysis was based on regression analysis for the use of federal e-government, as the results showed an unimportant relationship between visiting federal government websites and opinions of trust or confidence or government effectiveness. Then the second phase conducted a cross-examination to determine the impact of e-government on the attitudes of citizens. Questions were put before and after, and it was found that the citizen's point of view can be changed through education and awareness regarding the effectiveness of e-government and they can gradually trust the government. While citizens with partisan inclinations, they seem to have strict beliefs that there is a result of a bad experience or long-term feelings about government, which makes it difficult to change these attitudes.

**Empirical Studies on the Relationship Between E-Government and Public Trust**

Recently, many scholars have analysed the relationship between IT and economic performance (Sinha et al., 2015). They declared that such relationship is not only changing the way people communicate and share information, but it is also contributing significantly to the economic growth of public administrations in developed and developing countries as well (Rotchanakitumnuai, 2013; Vu, 2011; Teimoury et al., 2010). This is empirically evidenced by Teimoury et al. (2010), who examined the factors, interrelated in the implementation of ICTs among SMEs in Malaysia. The findings indicate that adoption of ICT provides new business opportunities with more access to market information, however, high ICT cost and security still act as barriers to ICTs adoption.

In contrast, Vu (2011) notes that there is little correlation between the investment of ICT and the growth of economic. Furthermore, several empirical studies examined the same relationship (Lin-Hi & Blumberg, 2011). Studies show how information and communication technologies can contribute positively to achieving the goals of good governance. These contributions are summarized in the following dimensions (1) improving administrative processes (2) improving engagement with electronic citizens and electronic services and (3) building electronic society through external interactions. With respect to e-government, it is claimed that every plan that applies ICT to bring efficiency into government is considered as a key supporting apparatus for e-government implementation (Rotchanakitumnuai, 2013).

Such tools improve public trust by improving transparency, effectiveness, cost efficiency and policy participation. Ciborra (2005) claimed that e-government in China has improved the administrative efficiency and enhanced the governance services. Also, OECD stresses that the implementation of e-government provides lot of benefits mainly to reform trust between governments and citizens through engaging them in the policy process. In addition, it promotes an answerable government and makes corruption less, because building trust is fundamental to the success of good governance practices (Teimoury et al., 2009).

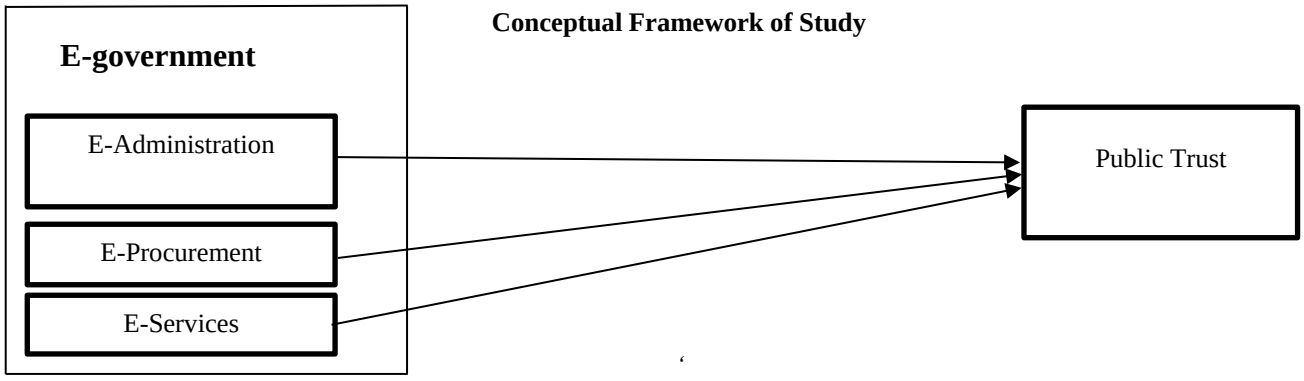


*Figure 3.1: Relationship between e-government and public trust*

## RESEARCH HYPOTHESES

The following research hypotheses on the basis of problem, research objectives and questions which earlier discussed in chapter one.

H1: There is significant relationship between e-administration and public trust

H2: There is significant relationship between e-service and public trust

H3: There is significant relationship between e-procurement and public trust

## EMPIRICAL MODEL, METHODS AND DATA

This study is classified as a correlational research since it studies the correlation among different variables, mainly practices or factors of e-government and public trust. The study methodology was selected to be quantitative to get a larger range of respondents (Sekaran & Bougie, 2011). It additionally incorporates increasingly objective and precise data for summing up the outcomes.

In order to select the appropriate population and sample of this research, several studies were reviewed. The samples are identified according to sample frame, validity, reliability and measurements. For instance, Abdelghaffar (2012) used SME's as the sample of study for the e-government services adoption in Egypt. SME's were selected because it is considered a core part of economies in developing countries and have a central role for enhancing the economic dynamism. According to Sekaran (2003), the unit of analysis can be individual, groups, or organization. Hence, the unit of analysis used in this study as the individual since the aim of this study is to measure the public trust, represented by the SME's industrial owners who are highly educated and in direct connection with e-government services.

Moreover, a minimum sample size of 200 is necessary to be used if the research analysis is being conducted through SEM in order to generate valid fit measures (Kenny, 2012; Lei 92 &Wu, 2007). The required primary data are collected through a survey where personal administrated questionnaires are distributed among the target sample of the study. The survey questionnaire design is divided into four main sections. Sections A, B, and C measure the public trust (DV), the e-government (IV), and e-administration, e-procurement, e-services are the dimensions. Section D corresponds to the demographical information of the respondents. For instance, the primary data of this study includes the measured level of public trust towards the Jordanian government while using e-government practices. Conducting such a survey ensures high respondent rate and provides a direct contact with the respondents, particularly in case of large samples.

The data analysis of this research involves two stages; preliminary analysis and advanced analysis. Preliminary analysis is essential to be conducted at early stage to measure the response rate of the conducted survey. It is calculated based on the number of distributed and returned questionnaires. The second phase of the analysis is a fundamental test of the proposed hypotheses of linear research and multi-regression analysis by using SPSS software (Schneider, 2009). An array of methods for evaluating e-government readiness general has been developed and used regression analysis as a statistical tool for data analysis. The two main variables studied are the latent (or unmeasured) variables which are measured indirectly through the observed (or measured) variables.

Therefore, this research is based on three dimensions of e-government and industrial owner public trust where each one is composed of different constructs. Three constructs (e-services, e-administration and e-procurement) constitute the e-government latent variable. The second latent variable, trust is measured through the different items in the questionnaire. Hence, these latent variables or so-called constructs which are measured by the observed variables where the latter are measured directly in the surveyed questionnaire.

## FINDINGS

Table shows that the e-procurement (EP) has the most elevated mean worth 4.95. Therefore, larger part of respondents gave comparable information which are near the mean of 4 (fairly agree). Besides, the standard deviation for all factors appears to fall between the scopes of 0.94 to 1.28, which mirrors the presence of impressive worthy fluctuation among respondents inside the informational collection.

**Table: 1**

*All variables Descriptive Statistics*

| | AVPT | AVEA | AVEP | AVEF |
|---|---|---|---|---|
| Number of items | 350 | 350 | 350 | 350 |
| Mean | 4.44 | 4.74 | 4.95 | 4.23 |
| Std. Deviation | 1.19 | 0.94 | 0.97 | 1.14 |

Since the estimation model endeavours to grow the model before the appraisal of the theorized model, the institutionalized relapse loads for the exploration markers were first analysed by directing the CFA for every factor. Using factor loading and Modification Indices (MI) suggestions, a total of 29 items were deleted. Table illustrates how all the constructs achieved a good fit as the recommended values of Hair *et al.* (2006).

Also, Table demonstrates that how all remaining items which have loaded more than 0.50 on their underlying construct which is acceptable according to many references (Byrne, 2010; Hair et al., 2006; John, Reve, 1982). Consequently, all gauges in the current study are connected to their specific constructs and there is suitable proof about the model regarding convergent validity.

**Table: 2**

*CFA of Exogenous and Endogenous Variables of the Study*

| Variable | $\chi^2$ | CFI ≥ 0.90 | GFI ≥ 0.90 | AGFI ≥ 0.90 | TLI ≥ 0.90 | RMSEA < 0.08 |
|---|---|---|---|---|---|---|
| Public trust | 6.07 | .99 | .99 | .97 | .99 | .02 |
| ES, EA, EP | 166.43 | .96 | .93 | .90 | .95 | .06 |

**Table: 3**

*Average Variance Extracted and Composite Reliability of Variables*

| Variables | Item | L | $L^2$ | VE | α | CR | AVE |
|---|---|---|---|---|---|---|---|
| Public trust | TPT1 | 0.749 | 0.561 | 0.438 | 0.867 | 0.873 | 0.582 |
| | TPT3 | 0.594 | 0.352 | 0.647 | | | |
| | TPT4 | 0.787 | 0.619 | 0.380 | | | |
| | TPT6 | 0.81 | 0.6561 | 0.343 | | | |
| | TPT7 | 0.849 | 0.720 | 0.279 | | | |
| E-service | TES1 | 0.813 | 0.660 | 0.339 | 0.847 | 0.852 | 0.540 |
| | TES2 | 0.852 | 0.725 | 0.274 | | | |
| | TES3 | 0.739 | 0.546 | 0.453 | | | |
| | TES5 | 0.681 | 0.463 | 0.536 | | | |
| | TES6 | 0.552 | 0.304 | 0.695 | | | |
| E-administration | TEA1 | 0.516 | 0.266 | 0.733 | 0.749 | 0.768 | 0.50 |
| | TEA2 | 0.825 | 0.680 | 0.319 | | | |
| | TEA3 | 0.811 | 0.657 | 0.342 | | | |
| | TEA6 | 0.507 | 0.257 | 0.742 | | | |
| E-procurement | TEP1 | 0.871 | 0.758 | 0.241 | 0.889 | 0.894 | 0.632 |
| | TEP2 | 0.905 | 0.819 | 0.180 | | | |
| | TEP3 | 0.87 | 0.756 | 0.243 | | | |
| | TEP5 | 0.637 | 0.405 | 0.594 | | | |
| | TEP7 | 0.649 | 0.421 | 0.578 | | | |

*L: loading; $L^2$: loading square; VE: error variance; α: Cronbach's Alpha; CR: composite reliability*

**Table: 4**

All Hypothesis Testing Results

| No | Research Hypotheses | Accepted/Rejected | p Value |
|---|---|---|---|
| H 1 | E-service has a significant and positive effect on public trust | Accepted | *** |
| H2 | E-administration has a significant and positive effect on public trust | Rejected | .96 |
| H3 | E-procurement has a significant and positive effect on the public trust | Rejected | .066 |

***Significant at level of 0.001; significant P-value at level of 0.05

There is another type of validity of construct which known as discriminant validity. Moreover, a build is really unmistakable from different develops (Hair et al., 2010). To fulfill the fundamental prerequisite that is managing discriminant legitimacy, the normal fluctuation removed AVE of any two develops that is estimated must be more prominent than the square of relationships that exist between these builds (Formell & Larcker, 1981).

AVE shows the variance quantity which restricted by the construct contrasted with the measurement error quantity (Hair *et al.*, 2006). The scopes of AVE somewhere in the range of zero and one, yet as indicated by Malhotra and Stanton (2004), AVE ought to be more noteworthy than 0.50 to approve utilizing a build. Mathematically, it is computed using the following formula.

$$\text{AVE} = \frac{\sum_i^n = 1\,(Li^2)}{\sum_i^n = 1\,(Li^2) + \sum_i^n = 1ei}$$

The three proposed hypotheses of this study were tried utilizing SPSS programming, where immediate and backhanded impacts of e-government practices towards public trust were studied. A result of one hypothesis was accepted while two hypotheses were rejected. As a rule, e-services has a significant positive effect on public trust in Jordon. However, e-administration has a negative effect on public trust and e-procurement has insignificant effect on public trust. Table 4 summarizes all the hypothesis testing results of this research

The descriptive results of Table 1reveal that among e-government practices, e procurement has the highest mean value 4.95, followed by e-administration with mean 4.74 and e-service with mean 4.54. Thus, e-procurement is practiced by the SMEs owners relatively higher than the other e-government practices. Therefore, most of the SMEs owners fairly agree that e-government practices are adopted and practiced in Jordon. Yet, the high standard

deviation 1.012 indicates that such practices could be further improved in order to ensure a consensus of opinion among all the respondents. However, public trust had a mean value of 4.44 with high standard deviation 1.199. This indicates that responses were very polarized due to their different beliefs and trust towards the Jordanian government.

The first proposed hypothesis in this study stated that there is significant positive relationship between e-service and public trust. As illustrated in Table 2, the direct relationship between e-service and public trust is positively significant. This finding is alike the preceding research results of Smith (2010), Bavec (2008), Furlong (2005) and Alanezi et al. (2001). For example, direct client results will in general be amazing reliability when residents collaborate with e-administrations. This is profoundly compelling in molding the residents' translations of open part conduct.

This outcome approves that the public trust in Jordan is boosted when the employers or end users can recognize the essential documents through their online transactions and can have an aforementioned awareness which will happen regarding procedure. Their transaction can be tracked by online system and also it provides more confident to them about the procedure which is on the correct way, this process has pointedly decline the complaint rate.

The second hypothesis in this research proposed that e-administration has a significant positive effect on the public trust, yet this hypothesis was rejected based on the results of Table 4. Although most of the respondents fairly agreed about the importance of e-administration procedures in Jordon, however this result indicates that such services are not still applicable for the public trust in proper way.

In view of the research brings about Table 4, the third hypothesis was rejected. thus, e procurement has an insignificant direct influence on the public trust in Jordon. Although some studies such as Smith (2010) has claimed that the expanded access to applicable acquirement data increment business openings and the individuals who see a decrease of exchange costs will in general increment trust. Hence, the elevated level of convenience and usability will in general form trust among clients.

Consequently, the public will be more empowered and encouraged to interact with the government online when the government in Jordon provides efficiency, transparency and accountability through the application of e-government practices. Accordingly, the public trust will be advanced to a level in which the fear of corruption will be eliminated to its least stages.

## CONCLUSION

Hence, this study is concluded as it has empirically achieved the suggested objectives on e-government factors and public trust relationships in Jordon. The data collected from different Jordanian SMEs, using self-administrative questionnaires were valid and reliable in which analysing such data through SPSS ensured the generalizability of results. The findings from the hypotheses testing has theoretically and basically contributed to the previous literature. Some have complimented the feelings in the literature that receiving e-government is significantly influencing the public trust. Though, other results opposed previous studies in the positive relationship between e-procurement and e-administration with public trust. The practices of e-government and its effect on public trust will remain one of the major issues related to the overall economic reform. It has been widely recognized that e-government practices achievement have been growing in popularity to be among the most effective strategies that can help governments to fulfil their responsibility to their citizens. For instance, being accountable and transparent brings more efficient and effective benefits. Thus, it can build trust among the public towards it.

Whatever efforts are made by the governments, if the citizens are not convinced by the concept of utilizing the government services online and they are not developing their own skills to be in line with the technological development, the success of any reform strategy will not be achieved. Therefore, joining the efforts of all parts including government, regulators and public, will enhance the implementation and success of all economic reforms including e-government practices.

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