

## The Relationship between E-Government and the Public Trust among the Citizens in District 5, Tehran

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**Abstract:** Today, one of the major problems that governments face is the reduced level of trust of people in governments which is referred to as the crisis of public trust. One way for governments to overcome such crisis is becoming electronic. The overall objective of this research is studying the impact of each of e-government indexes on public trust. A questionnaire containing 28 questions and in 2 parts was prepared and for statistical procedures, first Kolmogorov-Smirnov test (KS-test) was used to determine the normality of indexes and then for testing the presence or absence of correlation, two correlation tests were used to determine the impacts of the relations and their status. The results of the research indicate that four aforementioned hypotheses are confirmed at error level of 5%.

**Keywords:** Content, e-government, public trust, security

### INTRODUCTION

Undoubtedly, it can be argued that people's trust in government is a foundation which strengthens every state in the world. Therefore, the governments are increasingly inclined to democracy and using public vote as the basis for their decision-making systems. One of the most efficient tools that governments unanimously believe in its impact on public opinion is using Information-Communication Technology (ICT). E-government is a powerful tool that can potentially enhance the people's belief and trust in government and play an effective role in improving the quality of services. It is also regarded as one of the tools for developing the level of social participation. E-government refers to the use of ICT by government agencies that have the ability to transform relations with citizens, businesses and other arms of government (Colesca, 2009). E-government can improve various methods of providing services including online transfers and data transfer for government operations (Khosrowpour, 2009).

Trust appeared with the humanity and the development of social interaction. Almost every aspect of a person's life is based on one or another way in trust. So, trust is a very rich concept, covering a wide range of relationships. The concept of trust is intimately linked to risk and expectations, trust is used as a substitute for risk (Colesca, 2009).

### LITERATURE REVIEW

Elena and Liliana (2009) in her research Understanding Trust in e-Government reviews public

confidence and its impact on the implementation of e-government. She considers some variables such as gender, age, education and income and internet experience, propensity to trust, trust in technology, perceived organizational trustworthiness, privacy concerns, risk perception, perceived quality and perceived usefulness as effective factors for trust in governmental services. A questionnaire has been used as a tool for this research. Finally, the researcher states that the privacy concerns have had the greatest impact on public trust and age also is an important variable that influences the sense of trust, i.e. the less will be the age of the people, the more will be their confidence in e-government services. Education also has an important role in trust. Each of other variables in turn has an impact on trust.

Tolbert and Mossberger (2006) in a study titled The Effects of e-Government on Trust and Confidence in Government have studied the effects of implementing e-government and its impacts on public confidence and trust in government. They initially deal with the concepts and background issues of e-government and public confidence. Then, different approaches in the field of e-government are classified into two approaches, namely participatory and entrepreneurial approaches. The concept of trust then is classified into process-based and institutional-based trusts. The researchers then state that existence and creation of websites of local government will increase confidence in governments.

Building Citizen Trust through e-Government by Parent (Parent *et al.*, 2004). In this study, researchers

begin with reviewing the primary concepts of trust and e-government. The results of this research show that using internet to transact with government has a significantly positive impact on trust and external political self-efficacy. Interestingly, though the quality of the interaction is important, it is secondary to internal political self-efficacy in determining trust levels and not significant in determining levels of external political efficacy. The main purpose of this study is introducing political efficacy as an important determinant of trust as it pertains to e-government.

**Scope of research:**

**Geographic scope of research:** The geographic scope of this research covers all citizens in District 5, Tehran.

**Time scope of research:** The time scope of this research is the fall of the year 2011 and the winter of the year 2012.

**Scope of subject:** The subject of this research is evaluating the effects of e-government performance on general level of public trust.

**METHODOLOGY**

This is an applied research and in terms of obtaining the required data, it can be considered as a descriptive study. The tool for data collection in this study is a questionnaire distributed among the citizens of District 5, Tehran. Given the high number of citizens of this district, the following formula was used to estimate the sample size:

$$n = \frac{z_{\alpha/2}^2 \times p(1-p)}{\epsilon^2}$$

$$n = \frac{1.66^2(0.5)(0.5)}{0.05^2} = 276$$

Accordingly, the number of samples was determined to be 276.

**Hypotheses:**

- H1:** Greater security of e-government will increase public trust.
- H2:** Rich content of e-government will increase public trust.
- H3:** Appropriate servicing by e-government will increase public trust.
- H4:** Public participation in e-government will increase public trust.

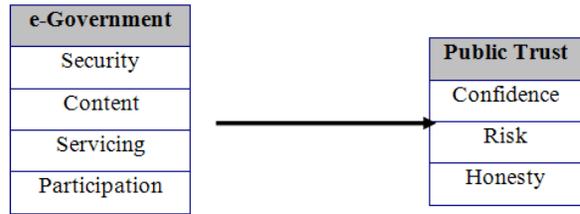


Fig. 1: Conceptual model Holzer and Melitski (2003)

**Conceptual model:** For carrying out a scientific and systematic research, a scientific and theoretical framework is needed which is called the conceptual model. The model of this research generally represents different aspects of e-government and public trust and has been presented here. This model has been suggested by Holzer and Melitski (2003) (Fig. 1).

**The concept of e-government:** The concept of e-government indicates service delivery and information exchange both within the organizations (Inter-Governmental) and outside them (Intera-Governmental) which are performed using various technical tools and is seen as a mutual relationship between government and citizens, nonprofit organizations, businessmen, employees and the government itself. This concept is a complex mixture of various topics that include a range of disciplines. Some researchers have proposed a combined definition of e-government that consists of three or four dimensions, for example (Heeks, 2001) argue that the dimensions of e-government can be classified into three categories: e-services, e-administration and e-society. Replaced the e-society with e-democracy dimension (Dawes, 2002).

In one of the most comprehensive research conducted in this area, four main factors for evaluating e-government were proposed by researchers and the same factors are used in this study, each of which has been elaborated below.

**Security:** One of the major issues for the topic of e-government is security and privacy of individuals. Since e-government consists of extremely valuable and precise databases for community members, authorities can use them for making most useful decisions in the best interests of society. Despite such advantage, in the absence of proper management of these databases, the e-government will suffer several disadvantages which have a negative impact on its effectiveness and efficiency and will eventually lead to public mistrust in e-government.

**Content:** Content is one of the fundamental components of any website. For evaluating the content of a website, four main fields should be taken into consideration:

- **The field of “contact us”:** The information in this section is provided for people to communicate with that section of the government introduced in the website
- **The field of public records:** Includes some information about the vision and mission of the organization and its budget
- **The field of multimedia:** Users will be provided with different types of information in this section, such as movies, music etc.,
- **Inaccessible fields:** It should be noted that transparency is an essential factor for increasing public trust in e-government, so in the design of government websites, such a section should be designed so it becomes clear that some information is confidential and inaccessible to people.

**Servicing:** There are two types of government websites. In the first type, citizens are connected to the website and will only receive information, such as forms and documents, etc. The second type establishes a mutual relationship between citizens and government, i.e., users not only receive the information from the website, but also provide it with information too. For example, they can request particular services or purchase certain goods online or complete and submit some particular forms and documents electronically via the government website.

**Participation:** Perhaps the most important goal of e-government is using ICT to increase citizens' participation in democratic processes. Feedback is among the indices that show the role of citizens' participation for shaping social policy in a government website. Some websites also conduct survey on particular topics so that if people agree or disagree with them, they would be implemented or discarded.

**The concept of public trust:** Trust appeared with the humanity and the development of social interaction. Almost every aspect of a person's life is based on one or another way in trust. So, trust is a very rich concept, covering a wide range of relationships.

The concept of trust is intimately linked to risk and expectations so that trust can be used as a substitute for risk.

Public trust is among the guiding and key concepts of sociology and it can be considered as the good opinion of an individual about the people of the society

(Amir Kafi, 1996). Trust can be analyzed both from individual and collective viewpoints. From individual perspective, investigation focuses on who trusts and why. In this approach, personal characteristics of individuals such as age, gender and education are assumed to be effective on their trust (Gambetta, 1998), meanwhile from the collective viewpoint, the status of social relationships among people is deemed to create or limit trust (Coleman, 1988). In this approach, the social characteristics of people such as income, social status, popularity and religion in the social system (whether an organization, group, tribe or nation) is considered to be effective on their trust. Hence, we can assume that trust is the product of experience and is constantly updated. The empirical evidences show that trust level will not necessarily develop gradually over time (Kramer, 1999).

Building trust is a cumulative process in which the trust level in the early stages will also influence confidence level in the last stages and leads to the development of long- term trusting relationships. There are several overlapping and consistent factors in this regard that are effective in creating trust.

Given that public trust is among issues rooted in several factors such as social capital, social science and sociology, it can be deemed that there are various dimensions for it. In this study, with regard to the theoretical literature associated with the concept of public trust, three main dimensions are studied, about which consensus exists in the most of references; these dimensions will be used for measuring this variable and are as follows:

**Confidence:** It is a kind of sense that is developed in a person over time towards others (individuals or organizations) and consequently the person will find generally positive views about others.

**Risk:** It indicates the level of risk seeking by people in communicating with government officials and government organizations to openly provide feedback to them (Monavarian *et al.*, 2009).

**Honesty:** It shows the degree of people's belief in honesty and trust, for conducting the assigned tasks by the government and government authorities correctly (Monavarian *et al.*, 2009).

**Data analysis:** In the inferential statistics section, in order to identify the normality of indices, Kolmogorov-Smirnov test (KS-test) has been used. The next step for identifying the effective factors on public trust and e-

Table 1: Kolmogorov-Smirnov test

| Index         | Significance level | Index's status |
|---------------|--------------------|----------------|
| Security      | 0.6                | Moderate       |
| Content       | 0.477              | Moderate       |
| Servicing     | 0.148              | Moderate       |
| Participation | 0.000              | Weak           |
| Confidence    | 0.526              | Moderate       |
| Risk          | 0.061              | Moderate       |
| Honesty       | 0.000              | Good           |

Table 2: Friedman test

| E-government indexes | Mean |
|----------------------|------|
| Content              | 2.66 |
| Servicing            | 2.65 |
| Security             | 2.41 |
| Participation        | 2.29 |

Table 3: Significance level

| Test statistic | Significance level |
|----------------|--------------------|
| 18.142         | 0.000              |

Table 4: Significance level of Friedman Test

| Public trust indexes | Mean |
|----------------------|------|
| Honesty              | 2.33 |
| Confidence           | 1.84 |
| Risk                 | 1.83 |

Table 5: Significance level

| Test statistic | Significance level |
|----------------|--------------------|
| 50.139         | 0.000              |

government is using binomial test (to identify the status of each index from viewpoint of respondents) and Friedman test (in order to prioritize the indices). Finally, two correlation tests are used to determine the effects of relations and their intensity, i.e., correlation and linear regression tests.

In evaluating the distribution of variables using Kolmogorov-Smirnov test, we conclude that indices (research questions) do not follow a normal distribution. Due to non-normality of all indices, these are examined using the nonparametric test. Table 1 is calculated by Kolmogorov-Smirnov test.

**Prioritizing indexes using Friedman test:** Table 2 is calculated by Friedman test. It can be stated that because the significance level of Friedman test is less than 0.05, the importance of indices is not similar in the opinion of the respondents. According to Table 3 and with regard to the rates, it can be concluded that servicing, rich content, security and participation indices have respectively the highest to lowest rates in the opinion of the respondents.

**Prioritizing public trust indices:** Here also, according to Table 4, it can also be stated that the significance

level of Friedman test is less than 0.05, so the importance of indices is not similar in the opinion of the respondents. Accordingly and with regard to the rates, it can be concluded that honesty, confidence and risk indexes have respectively the highest to lowest rates.

According to Table 5:

- Evaluation of reliability of research instrument using Cronbach's alpha coefficient test. In this case all questions will be used for calculating the alpha coefficient. If the value of statistics for alpha coefficient would be greater than 0.7, this indicates the appropriate reliability of the test.
- Evaluation of data distribution using the Kolmogorov-Smirnov test.
- Evaluation of each of the indices proposed in this study using the binomial test.
- Rating each of the indices of the study using the Friedman test.
- Studying the relationships among indexes proposed in the study using correlation and regression tests.
- In this study, SPSS software program has been used in order for implementing statistical techniques.

**Test of research hypotheses:**

**Test of the first hypothesis:**

**Null hypothesis:** There is no significant relationship between security and public trust.

**Alternative hypothesis:** There is a significant relationship between security and public trust.

According to the Table 6, the correlation between security and public trust is equal to 0.430 and since significance level of test is less than 0.05, then the null hypothesis is rejected and there is a significant relationship between the two variables. Positive correlation coefficient means that there is a direct relationship between these two variables.

- The regression of security index and public trust

According to Table 7, the significance level of these two indexes is less than 0.05, so there is a relationship between the indexes and the coefficient of determination is 0.185. Accordingly, the security index justifies 18.5% of the changes of the dependent variable, i.e., public trust index.

**Test of the second hypothesis:**

**Null hypothesis:** There is no significant relationship between content and public trust.

Table 6. Correlation between security and public trust

| Variable 1   | Variable 2 | Correlation coefficient | Significance level |
|--------------|------------|-------------------------|--------------------|
| Public trust | Security   | 0.430                   | 0.000              |

Table 7. Significance level between security and public trust

| T     | $\beta$ | Coefficient of determination | Significance level |
|-------|---------|------------------------------|--------------------|
| 7.868 | 0.430   | 0.185                        | 0.000              |

Table 8. Correlation between content and public trust

| Variable 1   | Variable 2 | Correlation coefficient | Significance level |
|--------------|------------|-------------------------|--------------------|
| Public trust | Content    | 0.490                   | 0.000              |

Table 9: Significance level between content and public trust

| T     | $\beta$ | Coefficient of determination | Significance level |
|-------|---------|------------------------------|--------------------|
| 8.263 | 0.447   | 0.200                        | 0.000              |

Table10: Correlation between servicing and public trust

| Variable 1   | Variable 2 | Correlation coefficient | Significance level |
|--------------|------------|-------------------------|--------------------|
| Public trust | Servicing  | 0.366                   | 0.000              |

Table11: Significance level between servicing and public trust

| T     | $\beta$ | Coefficient of determination | Significance level |
|-------|---------|------------------------------|--------------------|
| 6.490 | 0.366   | 0.134                        | 0.000              |

Table12: Correlation between participation and public trust

| Variable 1   | Variable 2    | Correlation coefficient | Significance level |
|--------------|---------------|-------------------------|--------------------|
| Public trust | Participation | 0.470                   | 0.000              |

**Alternative hypothesis:** There is a significant relationship between content and public trust.

According to the Table 8, the correlation between content and public trust is equal to 0.430 and since significance level of test is less than 0.05, then the null hypothesis is rejected and there is a significant relationship between the two variables. Positive correlation coefficient indicates that there is a direct relationship between these two variables.

- The regression of content index and public trust

According to the Table 9, the significance level of these two indices is less than 0.05, so there is a relationship between the indices and the coefficient of determination is 0.200. Accordingly, the content index justifies 20% of the changes of the dependent variable, i.e., public trust index.

**Test of the third hypothesis:**

**Null hypothesis:** There is no significant relationship between servicing and public trust.

**Alternative hypothesis:** There is a significant relationship between servicing and public trust.

According to the Table 10, the correlation between servicing and public trust is equal to 0.366 and since significance level of test is less than 0.05, then the null hypothesis is rejected and there is a significant relationship between the two variables. Positive correlation coefficient indicates that there is a direct relationship between these two variables and if one of them increases, the other one also increases and vice versa.

- The regression of servicing index and public trust

According to the Table 11, the significance level of these two indices is less than 0.05, so there is a relationship between the indices and the coefficient of determination is 0.134. Accordingly, the servicing index justifies 13.4% of the changes of the dependent variable, i.e., public trust index.

**Test of the fourth hypothesis:**

**Null hypothesis:** There is no significant relationship between participation and public trust.

**Alternative hypothesis:** There is a significant relationship between participation and public trust.

According to the Table 12, the correlation between participation and public trust is equal to 0.470 and since significance level of test is less than 0.05, then the null hypothesis is rejected and there is a significant relationship between the two variables. Positive correlation coefficient indicates that there is a direct relationship between these two variables and if one of them increases, the other one also increases and vice versa.

- The regression of participation index and public trust

According to the Table 13, the significance level of these two indexes is less than 0.05, so there is a relationship between the indexes and the coefficient of determination is 0.221. Accordingly, the participation index justifies 22.1% of the changes of the dependent variable, i.e., public trust index.

**Analyzing the results of hypotheses:** According to the correlation table for each of the hypotheses, correlations between two variables and the significance level of the test (0.05), the hypotheses can be approved or rejected. Here we examine the results of each hypothesis:

Table 13: Significance level between participation and public trust

| T     | $\beta$ | Coefficient of determination | Significance level |
|-------|---------|------------------------------|--------------------|
| 8.808 | 0.470   | 0.221                        | 0.000              |

- Greater security of e-government will increase public trust.

With regard to the rejection of the null hypothesis, the significant relationship between two variables is evident. Positive correlation coefficient indicates that there is a direct relationship between these two variables. The security index justifies 18.5% of the changes of the dependent variable, i.e. public trust index. Generally speaking, the hypothesis that the greater security of e-government will increase public trust is confirmed.

- Rich content of e-government will increase public trust.

Here also the null hypothesis is rejected and this indicates the significant relationship between the two variables. Given the positive correlation coefficient, it can be stated that there is a direct relationship between these two variables. The content index justifies 20% of the changes of the dependent variable and the hypothesis is confirmed accordingly. Gholipour and Pirannejad (2008) also have confirmed this relationship in their research

- Appropriate servicing by e-government will increase public trust.

Like two previous hypotheses, the null hypothesis is rejected here and this suggests that there is a significant relationship between the two variables. Positive correlation coefficient also shows the existence of a direct relationship. Servicing index justifies 13.4% of the changes of the dependent variable and therefore the hypothesis is confirmed.

- Public participation in e-government will increase public trust.

Here also the null hypothesis is rejected and there is a significant relationship between the two variables. Given the positive correlation coefficient, it can be stated that there is a direct relationship between these two variables and if one of them increases, the other one also increases and vice versa. The participation index justifies 22.1% of the changes of the dependent variable and the hypothesis is confirmed accordingly.

Tolbert and Mossberger (2006) also, in a study regarding creation of democracy via e-government, have proposed that one of the advantages of increased participation in the system will be the public trust.

## RECOMMENDATIONS

- Enriching the content of e-government system, which the most important manifestation of it is enriching websites of this system, can be effective in improving system performance.
- According to the results of the research, the participation index for e-government seems to be weak; therefore it is necessary to address this issue. Providing more communicating channels between authorities and people through e-government websites is one of the suggestions to improve this index.
- Risk seeking among respondents was moderate. So, the activities of e-government system should be planned so that they will not intensify the sensitivity of the users.
- With regard to the prioritization of the e-government indexes, servicing, rich content, security and participation can be focused on respectively in terms of allocating budget and time.
- Increased levels of security in e-government system in the field of financial transactions, data transfer and privacy policy can increase public trust for using this system.

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