Citizen Satisfaction with E-Government Services: Case of Turkey

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Abstract -The aim of this research is to identify and model the factors affecting citizen satisfaction with e-government services. For this purpose an empirical study is conducted with Turkish citizens. The study first reviews what factors affect e-government citizen satisfaction through literature. Based on this survey, a questionnaire is prepared and distributed to a convenience sample over internet. A total of 281 usable data are collected. Data are analyzed using IBM SPSS Software. Reliability analyses are applied to test internal consistency of the items in the questionnaire. Correlation analyses are used to estimate the effect of different factors on e-government citizen satisfaction. According to the analyses, the reliability of the questionnaire is found to be high and the results of the correlation analyses show that the factors ease of use, savings, trust and service quality defined in the model all have positive impact on e-government citizen satisfaction.

Keywords:E-Government, Citizen Satisfaction, Turkey, Ease of Use, Savings, Trust, Service Quality

I. INTRODUCTION

Digitalization is one of the biggest issues of the 21st century business life and it is constantly growing in all areas of daily life. Both individuals and corporations attach great importance to the digitalization of business processes and invest largely in this field. As far as corporate companies are concerned, they are rapidly moving to build all business models on digital platforms in new initiatives. In daily life, a person is no longer just communicating via a mobile computer or phone, but also has become a daily routine to control bank accounts or to shop. Digital applications continue to take a lot of place in the life of a person from day to day. Besides people and corporations, states are also working on the conversion of public affairs to digital. E-government systems are one of these services. As individuals and private companies integrate the internet into their business environment, the states are starting to work online.

E-government is the focal point of information systems-supported reforms to digitize the serving services and the process of governance occurring across all levels of government [1]. Davies [2] specifies that e-government refers to work by public authorities to use information and communication technologies to advance public services and increase democratic participation. E-government services in different countries have different service levels since the level of development of each country is different and the habit of using the internet and the expectation of the citizens from the state vary by culture. E-government removes time and space restrictions in a sense, and of course, the most important innovation is removing paper work. It is also an important element for strengthening the relations between the citizen and the state. A citizen has the opportunity to keep in contact with the state through a mobile application or website. According to Fang [3], e-government is a system, which removes organizational boundaries between governments and citizens, enables citizens to reach great knowledge and provide information in a transparent environment.

Turkey is one of the countries that have taken important steps towards the modernization of public services. The e-government web site of Turkey entered services in 2006 and has been actively used in recent years. The aim of e-government portal is providing from single point, public services to the citizens in the fastest and most efficient way, at a high quality and in a safe manner. The portal is not only serving only Turkish citizens. Besides providing detailed information about the country to foreigners, it also provides information on education, employment and migration topics in Turkey. Public services in e-government system can be grouped as information services, e-services, payment transactions, shortcuts to agencies and organizations, information update and announcements and messages to citizens from agencies. The United Nations E-Government Survey 2018 showed that the Turkey's place in the e-government development index (EGDI), which measures the use of information and communications technologies to deliver public services, climbed 15 spots from the 68th place in 2016 and ranked 53rd in the world. When past to the present e-government system in Turkey is examined, it seems to be an inductive system. Instead of a comprehensive service, state-owned institutions and organizations have created their own systems. The fact that each institution or organization has its own system results in an incorrect or an incomplete information sharing between institutions, non-integration and low quality of service. However, in the studies conducted since 2013, a common infrastructure work is being done with consultants in the fields of information technology and information system in order to move to a more inclusive e-government system.

Although there is a general focus of public services in all e-government activities, each country may have its own specific e-government services [4]. In this context, most of the researches have been done from the supplier side to explore these e-government services. However, there is also a citizen side of e-government facilities, which is mainly the citizen

satisfaction, and this side has been less studied in literature compared to supplier side [5].

In order to clarify the aim of this study, which is to develop a model for identifying the factors that affect citizen satisfaction with e-government, a brief summary of the related literature is given in the next section followed by the methodology part, which includes research model, hypotheses development and research methodology. Next, results and findings of the study are summarized and finally conclusion, limitations, future research directions and managerial implications, of the study are given in the last section.

II. LITERATURE REVIEW

Related to e-government services, previous studies show that there are various factors that determine citizen satisfaction directly or indirectly as summarized in Table 1.

TABLE I.

Literature Survey on Factors Determining E-Government Citizen Satisfaction

Reference	Factors Determining Citizen Satisfaction with E-Government
Davies [2]	Savings (paper, travel), reduction of bureaucratic borders, integration of state units
Dwivedi & Williams [6]	Age, education, broadband
Weerakkody et al. [7]	Information quality, system quality, trust, cost
Chen [8]	Information quality, system quality, service quality
Floropoulos et al. [9]	Information quality, system quality, service quality, perceived usefulness
Cohen [10]	Beliefs, difficulty faced, success using eGov services
Gotoh [11]	System quality
Mensah & Mi [12]	Gender, education
Colesca [13]	Ease of use, perceived usefulness
Hu et al. [14]	System quality, perceived usefulness, perceived trust, perceived quality
Baharon et al. [15]	Ease of use, trust, knowledge quality, service quality
Kumar et al. [16]	Security risk, trust on internet and government, perceived ease of use, service quality
Colesca & Liliana [17]	Education, age, internet experience, perceived trust
Lu et al. [18]	Usefulness, fit, security, trust, service quality
Rana et al. [19]	System quality, information quality, service quality, perceived usefulness, perceived ease of use, perceived satisfaction, perceived risk, behavioral intention
Colesca & Liliana [20]	Gender, age, education internet usage, trust, perceived risk, perceived usefulness, perceived quality
Agarwal & Mehrotra [21]	Gender, occupation, age

Many of the factors given in Table 1 are similar with the determinants of e-commerce customer satisfaction in general as stated in the findings of the related studies [22-25]. Demographic characteristics, trust, security, perceived

usefulness, perceived ease of use, quality are the most important ones among these factors that are declared in these findings. This is expected situation since e-government itself is an online service system. But besides these common factors, as it can be seen from Table 1, there are also some other factors that are encountered more frequently in studies related to e-government such as various types of savings (paper, cost, effort, time, etc.).

III. METHODOLOGY

A. Conceptual Model

The proposed research model, based on the literature review for the factors that determine the citizen satisfaction with e-government, is given in Figure 1.
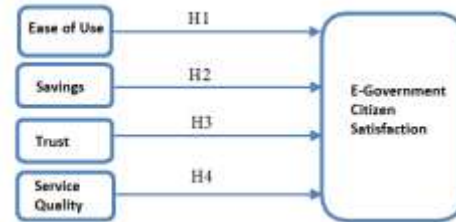

Fig. 1 Research model for citizen satisfaction with e-government

B. Research Hypotheses

As illustrated in Figure 1, a total of four hypotheses are proposed.

H1: Ease of use of e-government services has a positive effect on the citizen e-government satisfaction.

H2: Savings linked with using e-government services has a positive effect on the citizen e-government satisfaction.

H3: Trust on e-government services has a positive effect on the citizen e-government satisfaction.

H4: Service quality of e-government services has a positive effect on the citizen e-government satisfaction.

C. Research Methodology

The research is conducted for Turkish citizens by means of a questionnaire which is developed based on previous researches and theories as well as interviews with citizens and is modified according to a pilot study applied to three citizens. The questionnaire includes seven sections and a total of 22 questions. First seven questions are for obtaining respondent's background data, one question is about internet usage areas, one question is about the usage of e-government services, twelve questions are about e-government citizen satisfaction items grouped under four factors as hypothesized in the research model and the last one to determine the level of e-government satisfaction of the citizen. The last thirteen questions are measured using a 5-point Likert scale where (1) is strongly disagree, (2) is disagree, (3) is neutral, (4) is agree and (5) is strongly agree. The questionnaire was distributed to a convenience sample over internet. Google Forms was used

to capture data from different locations of Turkey. Number of respondents was 316 and since 35 of them did not use e-government, they were eliminated from the analyses. The data related to the remaining 281 respondents were analyzed using IBM SPSS Statistics software.

IV. RESULTS AND FINDINGS

The first step was to assess the reliability of the questionnaire using Cronbach's alpha test. The reliability values are presented in Table 2 and they show that the reliability of the questionnaire is high since all of them are greater than 0.7 which is the minimum acceptable value for internal consistency of items.

TABLE II

Reliability Results

Factor	Number of Items	Cronbach's Alpha Value	Mean
Ease of Use	3	0.753	3.17
Savings	3	0.766	4.29
Trust	3	0.867	3.21
Service Quality	3	0.782	3.83

The results for the background data of the respondents are summarized in Table 3. According to Table 3, there is an equivalent distribution between males (47.3%) and females (52.7%) in the sample and similarly between marital status of the respondents where percentage of single ones is 54.4 and married ones is 45.6. The respondents can be specified as young and middle-aged and mostly working.

TABLE III

Background data of the respondents (n=281)

Characteristic	Frequency	%
Gender		
Male	133	47.3
Female	148	52.7
Age		
18-24	92	32.7
25-34	53	18.9
35-44	43	15.3
45-54	63	22.4
55-64	26	9.3
65 and over	4	1.4
Marital Status		
Single	153	54.4
Married	128	45.6
Education Level		
High School	101	35.9
Bachelors Degree	113	40.2
Graduate Degree	67	23.8
Monthly Income (TL)		
Under 1,500	72	25.6
1,500 – 3,000	65	23.1
3,000 – 5,000	76	27.0
5,000 – 7,500	28	10.0
Over 7,500	40	14.2

Occupation		
Unemployed	85	30.2
Self-Employed	18	6.4
Government Employee	63	22.4
Private Sector Employee	115	40.9

In addition to analyzing the background data of the respondents, their usage habits for internet and e-government services were also investigated. According to the results, respondents mostly use internet for social media (91%), communication (88%), banking (80%), e-commerce (72%) and education services (71%) whereas they use e-government portal mostly for judicial record (58%), residence (48%) and official document inquiries (42%), social security services (48%), tax transactions (43%), and traffic penalty searches (42%).

On the other hand, to determine the satisfaction level of citizens from e-government services, the mean of the e-government citizen satisfaction values of the respondents was calculated. The calculated value, which is 3.89, indicates a medium-high e-government citizen satisfaction.

Correlation analyses were performed to investigate the relationships between four factors (ease of use, savings, trust and service quality) and e-government citizen satisfaction and hence to test the hypotheses. The results of the analyses are summarized in Table 4.

According to Table 4, it can be concluded that four hypotheses of the research model are accepted and hence four factors all have positive impact on e-government citizen satisfaction. Considering the Pearson correlation coefficients, it can be stated that;

- There is a medium-high positive correlation between ease of use and e-government citizen satisfaction
- There is a medium-low positive correlation between savings and e-government citizen satisfaction
- There is a medium-high positive correlation between trust and e-government citizen satisfaction
- There is a high positive correlation between service quality and e-government citizen satisfaction

TABLE IV

Correlation analyses results (n=281)

Factor	Sig. (2-tailed)	Pearson Correlation Coefficient	Hypothesis
Ease of Use	.000	0.644	H1: Accepted
Savings	.000	0.484	H2: Accepted
Trust	.000	0.621	H3: Accepted
Service Quality	.000	0.731	H4: Accepted

V. CONCLUSION

Turkey is implementing an action plan to enhance its e-government system. This study is done to measure the satisfaction level of Turkish citizens from e-government

services and to determine the effects of four factors; ease of use, savings, trust and service quality on this satisfaction. For this purpose, a questionnaire was prepared, sent to citizens via internet and a total of 281 valid responses were collected to validate the model. The results support all four hypotheses stated in the model indicating that ease of use, savings, trust and service quality are significant predictors of citizen satisfaction with e-government system where the overall satisfaction of the e-government portal is 3.89.

Although the empirical findings of the study seem useful, the limited size and the nationality of the dataset makes it difficult to draw any generalized conclusions. Therefore, as future study, considering that this study is concentrated on population of Turkey which is a developing country, this research can also be undertaken in other countries in order to provide a more representative sample size.

Overall, besides its limitations, it can be concluded that the model of this study can assist e-government designers and developers for enhancing their understanding of e-government citizen satisfaction and for improving their e-government services.

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