Adoption of e-government services in Turkey

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ABSTRACT

This research aims to investigate underlying factors that play role in citizens' decision to use e-government services in Turkey. UTAUT model which was enriched by introducing Trust of internet and Trust of government factors is used in the study. The model is evaluated through a survey conducted with Turkish citizens who are from different regions of the country. A total of 529 answers collected through purposive sampling and the responses were evaluated with the SEM (Structural Equation Modeling) technique. According to the results, Performance expectancy, Social influence, Facilitating conditions and Trust of Internet were found to have a positive effect on behavioral intention to use e-government services. Additionally, both Trust factors were found to have a positive influence on Performance expectancy of e-government services, a relation which, to our best knowledge, hasn't been tested before in e-government context. Effect of Effort expectancy and Trust of government were found insignificant on behavioral intention. We believe that the findings of this study will guide professionals and policy makers in improving and popularizing e-government services by revealing the citizen's priorities regarding e-government services in Turkey.

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1. Introduction

Developments in Information and Communication Technologies (ICTs) have promoted the modernization of services offered through the internet. Public services is one of the areas which has been evolved significantly by means of these developments in ICT field. The use of ICT's to enhance the efficiency of public services constitutes the concept of e-government. E-government was established in USA in 1993 and is about reforming the processes of government with the aim of utilizing the opportunities of modern ICTs (Patel & Jacobson, 2008). As of 2014, all 193 UN Member Countries have established national websites and nearly 50 countries have online portals whose number has doubled since 2012. [UN Report 2014]. When the advantages provided by e-government over the traditional way of serving government services is considered, this grow in the number of the e-government websites is not a surprise. Citizens have access to e-government services 24 h a day demanding nothing more than an active internet connection. In addition to extended service hours, e-government also presents other benefits which traditional methods cannot offer such as transparency, closer citizen-government engagement, cost reduction, increase in service quality and speed (Atkinson & Castro, 2008; Reffat, 2003).

Although e-government services offer great advantages, the number of citizens using these services is a fundamental component in evaluating how well a certain country utilizes e-government's offerings (Hwang, Li, Shen, & Chu, 2004). In literature, there are various adoption theories and models which are proposed to explain the acceptance of e-government services. Most of them are combined with previous models or extended them with new factors for this purpose (Colesca & Dobrica, 2008; Lean, Zailani, Ramayah, & Fernando, 2009; Rokhman, 2011; Sang, Lee, & Lee, 2009). However, to our knowledge, there has not been a thorough analysis of e-government adoption in Turkey although the e-government was initiated almost two decades ago. In the current study, UTAUT (Unified Theory of Acceptance and Use of Technology) model was enriched with Trust of internet and Trust of government factors to explore the determinants of e-government adoption of Turkish citizens. The effect of trust on "behavioral intention to use" has been studied, whereas, to our best knowledge, its effect on and "performance expectancy" was has not been tested in the e-government domain before. The model was tested by a survey conducted with 529 participants and evaluated with the

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SEM analysis.

Rest of the paper is organized in the following way; firstly, the research problem and the objective are provided; literature review consists studies of e-government adoption, e-government in Turkey, models of technology adoption and trust in e-government; proposed model explains the current model which is extended from UTAUT; methodology details the conducted research's aims and used methods as well as the analysis of the survey results with the SEM technique; results section covers the findings of the survey analysis; lastly discussion and conclusion of the study are presented.

1.1. Motivation

According to E-Participation Index Scores, after ranking 26th in 2004 and 34th in 2005, Turkey's has never ranked better than 55th and after ranking 124th in 2012, currently ranks 65th,[1] a fact which clearly emphasizes the need for further research in e-government adoption in Turkey. To our best knowledge, there has not been any study regarding adoption process of e-government services in Turkey, although the e-government was initiated almost two decades ago. That is to say, there has not been any research which investigates the e-government system from the potential users' point of the view. Current study addresses this shortcoming.

1.2. Research problem, objective and contributions

The research question of the current study is to reveal the Turkish citizens' needs and expectations from e-government services and provide a guide for Turkish Government so they can revise and develop e-government services accordingly. Although, generalizing the results directly may constitute a limitation in some empirical studies (Al-Zoubi, Sam, & Eam, 2011). Although the external validity is not satisfied, we believe that the results presented in the current research can constitute a ground for similar researches in the countries sharing comparable settings. That the e-government is taken as a concept in this study, rather than focusing on a specific services, also, increases the generalizability of our results. Moreover, for the developing countries, there are only few studies which explain e-government adoption (Al Hujran, Aloudat, & Altarawneh, 2013; Lin, Fofanah, & Liang, 2011). Therefore, our study also attends to that problem and intends to contribute the existing, but limited, literature of e-government adoption in developing countries.

2. Literature review

2.1. E-government adoption

Despite its unique potential, e-government's success depends on large extent on the number of citizens using it. Thus, user's acceptance of e-government is regarded as one of the success criteria for e-government (Hwang et al., 2004). Being aware of this issue a great deal of literature has been produced regarding e-government adoption. In order to assess e-government performance of countries, United Nations has formed several indices and reports, according to which the e-government performance of countries are evaluated on yearly basis.[2]

Warkentin, Gefen, Pavlou, and Rose (2002) proposed a model in which citizen trust is the main component for e-government adoption and others being are "perceived risk", "perceived behavioral control", "perceived usefulness", and "perceived ease of use". By conducting a research on online taxing system, the authors revealed that, among other variables, the trust is the most important component of the e-government adoption.

Gilbert & Balestrini proposed another model which has "willingness to use" as the main component of e-government adoption (2004). In their model, Willingness to use depends on perceived barriers and perceived relative benefits. Perceived barriers contain confidentiality, ease of use, enjoyment, reliability, safety, visual appeal whereas perceived relative benefits consist of avoidance of personal interaction, control, convenience, cost, personalization and time. Another important construct Gilbert & Balestrini found to be effective in adoption is age (2004).

Kumar, Mukerji, Butt, and Persaud (2007) studied the missing parts of the previously proposed adoption models and offered a new model. The authors argued that the model proposed by Warkentin et al. (2002) was incomplete since intention to use did not cover the all aspects of adoption whereas Gilbert & Balestrini's model failed to measure "*frequent usage of government services*". That "*frequent usage of government services*" is an important aspect of the e-government adoption because, the authors argued, the success of e-government adoption could not be measured by citizens' one time usage (Kumar et al., 2007). In order to measure the e-government adoption properly, they added the new dimension of satisfaction so that whether or not citizens used e-government regularly could be measured. Briefly, their model's independent variable was e-government adoption and depended variables were; *User Characteristics (Perceived Risk and Perceived control), Web-site Design (Perceived Usefulness, Perceived Ease of Use), Service Quality* and *Satisfaction*.

For the last decade, examining e-government adoption through technology adoption models is of a high interest [*Netherlands* (Horst, Kuttschreuter, & Gutteling, 2007); *Romania* (Colesca & Dobrica, 2008); *Kuwait* (AlAwadhi & Morris, 2008); *Cambodia* (Sang et al., 2009); *Zambia* (Bwalya, 2009); *Malaysia* (Lean et al., 2009); *Tanzania* (Yonazi et al., 2010); *Qatar* (Al-Shafi & Weerakkody, 2010); *Indonesia* (Rokhman, 2011); *Kingdom of Saudi Arabia* (Alshehri, Drew, & AlGhamdi, 2013); *Greece* (Voutinioti, 2013) and there is an increasing trend in e-government adoption research according to (Rana, Dwivedi, & Williams, 2013)]. Such studies carry functional significance since they reveal the needs and demands of the citizens which are needed by governments to develop more acceptable systems (Susanto, 2013). One of the aims of the current study is to constitute an addition to the existing literature on investigation of factors effecting e-government adoption and may set an example for other developing countries.

2.2. E-government in Turkey

Internet was introduced in Turkey as early as 1993; however, it was not until 1998 that e-government in Turkey was initiated. Tax Office Automation Project (VEDOP) was one of the first e-government projects realized in Turkey ("Turkey E-government Report", 2009). Also, Central Civil Registration System (MERNİS) was commenced in 1998 and fully implemented in 2000.

In March 2000, European Union aimed at "becoming the World's most competitive and dynamic knowledge-based economic area" (Şahin & Örselli, 2003). In order to fulfill that goal, EU prepared an "e-Europe Action Plan" since internet was proven to be a unique tool to create such knowledge-based economic area. In February 2001, Turkey, as well as Malta and Cyprus, was invited to take part in "e-Europe Action Plan" by European Commission. In order to meet the requirements of this invitation, an emergency

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