Assessing Citizens Acceptance of Mobile Voting System in Developing Countries: The Case of Egypt

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ABSTRACT

In modern societies, information and communication technology is used to increase citizens’ participation in the democracy process. In developing countries, to enhance the democracy, there is need to utilize the ICT to enhance citizens’ participations in the elections. This created through making the voting easier for eligible voters and grant that their votes will be counted. This research identifies the factors that affect citizens’ intentions of adopting mobile voting systems by introducing a prototype of m-voting system to citizens in Egypt. Findings show that ease of use, usefulness, trust, and mobility have significant impact on citizens’ intention to use m-voting system.

Keywords: Adoption, Democracy, Developing Countries, Egypt, Mobile Voting

1. INTRODUCTION

Many developing countries did several steps to move towards democracy. Democracy in its simple definition is that people are able to participate in the political life to select their politicians who represent them in the political system (Choi, 2006). The Information and Communication Technology (ICT) provides an excellent opportunity for democracy by providing several means for citizens to participate in the decision making such as e-forums, e-referenda, e-voting, and other forms of e-participation (Pippa, 2004). The most important one of these technologies is the e-voting where citizens vote for their candidates which considered the core part of the democracy process.

For many years, the traditional voting method, which includes the use of ballot at polling centers or the use of postal mails, has been used for many years (Chaum et al., 2008; Hajjar et al., 2006; Stanica-Ezeanu, 2008). However, in the last few decades some countries utilized the ICT in the voting process and the electronic voting (e-voting) was introduced (Stanica-Ezeanu, 2008). The electronic voting includes the use of a computer rather than the traditional way of ballot at polling centers. E-
voting is considered inexpensive, fastest and the most efficient way to administer elections and count votes (Paul & Tanenbaum, 2009; Hajjar et al., 2006).

Currently, there are different e-voting systems such as kiosks, voting through the internet, punch cards, and marksense (also called optical scan ballots) (Chaum et al., 2008; Hajjar et al., 2006). Most of the e-voting systems somehow have the same features such as ensuring voter authenticity while ensuring vote anonymity and vote-counting proof. However, there is a need for assuring the uniqueness of the vote and allowing for vote automation. This needs to be done while guaranteeing avoidance of software or hardware problems that could malfunction (Costa et al., 2008). Furthermore, the e-voting system is operated by diverse groups of people each with diverse training, experience, motive and opportunity that might influence the results (Paul & Tanenbaum, 2009; Villafiorita et al., 2009). Therefore, there should be a control over the combination of technology and human labor to ensure the success of any e-voting system.

Mobile voting (m-voting) is considered to be an electronic voting system which removes the inherited limitations of the traditions and the e-voting systems that required, in many cases, the physical existence of the citizens in the polling location (Ayo et al., 2008; Ekong & Ekong, 2010). M-voting allows voting to be done via mobile devices which allow citizens to conduct voting from their home, work or on the move. Therefore, it enhances voter participation in elections.

Reviewing the literature shows that there is a gap regarding investigating the factors that affect citizens’ intention for adopting m-voting system in developing countries. Moreover, many studies covered m-voting from technical perspective rather than usage side (Aditya et al., 2004; Chaum et al., 2008). In order to address this gap, a research question has been developed: “What are the factors that affect citizens’ adoption of m-voting system in Egypt?” Since there are no voting advice applications (VAA) available for investigation in developing countries, by identifying the factors affecting citizens adoption of electronic elections, a clear clue of which factors need to be considered if political parties would like to apply voting advice applications (VAA) in developing countries.

To achieve this, a prototype of a mobile voting system was designed to show the users the interface of m-voting system that contains the major features for m-voting. This is followed by conducting a survey to examine which factors are significantly affecting the adoption of such a technology.

The structure of this paper starts by reviewing the literature regarding mobile voting systems from technical and non technical perspectives which leads to developing the conceptual framework for m-voting adoption. This is followed by explaining the m-voting prototype and the survey construction. The paper continues with the data analysis, discussion of the research findings and the research limitations.

2. LITERATURE REVIEW

In order to get in-depth understanding of the factors affecting citizens’ intention for adopting m-voting system, there is a need to understand the factors m-voting from both technical and non-technical perspectives.

2.1. M-Voting: Technical Perspective

2.1.1. Mobile Voting Architecture

The electronic voting process normally follows five stages (Figure 1) (Daimi et al., 2005). Setup stage is the start used to initialize the voting parameters including candidates, voters, and authorities’ eligibility criteria, voting procedures, ballot validity rules and counting rules. Then registration and authentication of eligible voters is done and followed by the actual voting where voters select their candidates. The final stage of the voting is the Tally stage where the votes are collected, checked for validity and the final results are produced (Aditya et al., 2004).
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