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Politicians' Trust in the Information Technology Use in General Election: Evidence from Indonesia

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Abstract

Trust has been believed to have an important impact of the adoption of information technology (IT). The study aims at examining determining factors of the politicians' trust in the use of IT in general election. Based on a survey among 120 local politicians in the context of Indonesia, the study finds that institution quality and information quality have significant impact on the politicians' trust, while system quality and service quality do not. This study reveals that both pre-interactional factors (represented by institutional quality) and interactional factor (reflected in information quality) have direct significant impact on trust building among politicians' towards the use of IT in general election. These two variables explain 67% of the total variance of trust.

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Keywords: trust; politician; general election; Indonesia; developing countries.

1. Introduction

Since 1999, information technology (IT) has been being used in general election in Indonesia. Until the most recent general election in 2009, one of the most crucial problems is the use of IT in the national vote tabulation. A very significant amount of money has been invested in building the IT infrastructure that reached all sub-districts throughout the country. From technical point of view, the installed infrastructure should have been more than enough to help *Komisi Pemilihan Umum* (KPU, General Election Commission) to carry out vote tabulation in a

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proper way both in terms of speed and accuracy. But, despite of all these possibilities, the final vote tabulation is still based on on-site tabulation held in national level based on paper-based documents sent from KPU offices in all district levels. Lack of trust among political parties in the use of IT in vote tabulation was suspected as one the main causes. However this is a speculative claim, and has never been adequately researched.

Previous studies showed that trust is one of determining factors toward IT service adoption, such as e-commerce [1, 2] and e-government [3]. Lack of trust is considered to be one of the most serious obstacles for using IT in various activities such as online activities and e-commerce [4]. Trust is closely linked to risk and expectation [3, 5]. By putting trust to e-government services, for instance, trusters will be aware about risk in using the service and manage their expectation to the service [6, 7]. Several studies have been conducted to identify the determinants of trust, which are in many cases are context-specific [1, 2, 4].

This study aims at investigating factors affecting trust of the Indonesian politicians in the IT use in general election, with a special reference made to vote tabulation. This study is among the first studies that examine trust in the IT use in this context from the perspective of politicians. Previous studies in this context mainly focused on the citizen's perception or adoption [8, 9]. Understanding trust in the IT use and its determinant is crucial for harvesting potentials of IT in more advanced use, such as for e-voting, which is indisputably an implementation of political decision made by politicians [10]. This study considers both pre-interactional and interactional determinants of trust of politicians towards the use of IT in general election.

The rest of the paper is structured as follows. Section 2 presents concept of trust and its determinants. Research design is explained in Section 3, followed by results presentation and discussion in Section 4. Section 5 brings forward conclusion of the study.

2. Trust and Its Determinants

Trust is a multi-faceted concept and trust building involves a cumulative process over time. Trust is a psychological concept with many facets, incorporating cognitive, emotional, and behavioural dimensions [11]. Level of trust in the earlier stages affects the level of trust in the later stages and impacts the development of longer-term trust relationships. There is no single acceptable definition of trust. Different perspectives draw different interpretations of this abstract concept. One explanation is related to the discipline that is attempting to define trust, such as psychologists who view trust as a personal trait, sociologists who relate it to a social structure, and economists who categorize it as more of a decision [1]. Another explanation is less of clarity between its antecedents and outcomes [12]. A study may consider a variable as an antecedent of trust, while another study treats the variable as an outcome of trust [13-15]. Discussion of this issue is beyond the scope of this study. For the purpose of this study, trust is defined as "a set of expectations shared by all those in an exchange" [16]. In the context of this study, the exchange is the use of IT in general election.

Determinants of trust may be classified into two categories [13, 15], i.e., pre-interactional and interactional ones. Pre-interactional determinants include individual behavioural attributes, institutional attributes, and technology attributes [13]. Interactional determinants consist of service attributes, transactional delivery attributes, and information content attributes [13]. Pre-interactional determinants deal with the conditions that already existed before the exchange occurs. In other words, they can affect people's perception before a system has been accessed for the first time. Interactional determinants reflect the condition when the exchange occurs between the involved parties (i.e., IT and politicians).

Three determinants, i.e., system quality (i.e., technology attribute), service quality (i.e., service attribute), and information quality (i.e., information content attribute), from DeLone and McLean's [17] information systems success model are germane in this context, and hence are included in the research model in this study. In original model, these three variables are determinants of the IT use (or intention to use) and user satisfaction. However, one may argue that since trust is found as determinant of use or adoption of a system as the three variables [1, 2], by considering the sequence of what is happening, the three variables may also act as determinant of trust. This claim is supported by a study carried out by Nicolaou and McKnight [18], which found, for instance, that information quality predicted intention to use of an IT service, moderated by perceived risk and trusting beliefs. In this study, system quality is considered as one of the pre-interactional determinants, while service quality and information quality as

the interactional determinants. Informed by previous studies [4, 15, 19], in this study, institution quality (i.e., institutional attribute) is also included as the pre-interactional determinant (see Fig. 1).

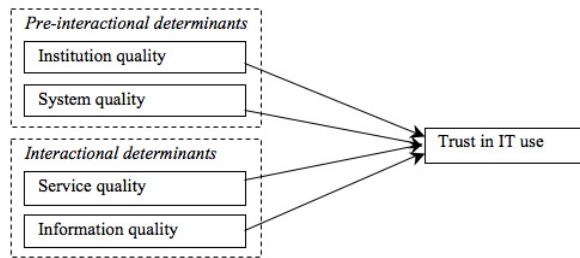


Fig. 1. The research model

2.1. Pre-interactional determinants

Institution quality. Institution quality refers to the desirable characteristics of an institution. The characteristics can be clean, professional, having good track records, and well equipped. Since KPU commissioners often are not in charge for a long period of time, the concept of initial trust formation is relevant to be taken into account here. According to McKnight et al. [20], when two strangers begin to trust one other, the initial trust may be classified into four types: (a) calculation-based trust; (b) personal-based trust; (c) cognition-based trust; and (d) institution-based trust. Politicians and KPU commissioners (as the representatives of the institution, KPU) are like two strangers. Taking the specificity of the context, hence, institution quality may not only relate to institution-based trust, but also personal-based and cognition-based trust.

The institution quality is likely become more important in trust building in the context of corrupted than in least corrupted context or government [3]. In the context of this study, a clean, professional institution (i.e., KPU), and free from any political interventions, is demanded to build trust among the politicians. KPU is expected to ensure that all the regulations and monitoring mechanism for all the general election process are enforced. By keeping this in mind, the following hypothesis is formulated:

H1: Institutional quality has a positive significant impact on trust in the IT use.

System quality. System quality may be considered as one of the technology attributes of the pre-interactional determinants. Technology or system should be already in place before the general election is going to be held. System quality reflects the desirable characteristics of an information system [17, 21]. They can be ease of use, system flexibility, system reliability, and ease of learning, as well as system features of intuitiveness, sophistication, flexibility, and response times. In their study, Vance et al. [14] found that system quality significantly predicted trust in mobile commerce technologies. McKnight et al. [22] showed that website quality, which was a combination of information quality and system quality, had significant impact in affecting trust for potential customers in an e-commerce system. A better system quality will be easier to attract trust from the users' of the technologies, and vice versa. Using this argument, the following hypothesis is formulated:

H2: System quality has a positive significant impact on trust in the IT use.

2.2. Interactional determinants

Service quality. Service quality refers to the quality of the support that system users receive from the service provider [17, 21]. The quality may be reflected in the system's responsiveness, accuracy, reliability, technical competence, and empathy of the personnel staff. In a study on business-to-business loyalty by Caceres and Papparoidamis [23], service quality was found to predict trust. Similarly, in the context of e-commerce, Ribbink et al. [24] found that trust was a determinant of the online customer's trust. Hence, the following hypothesis is formulated:

H3: Service quality has a positive significant impact on trust in the IT use.

Information quality. Information quality reflects the desirable characteristics of the system outputs [17, 21]. In the context of IT use in general election; information quality may be measured by accuracy, completeness, currency, timeliness, and usability. In their study on electronic data exchange, Nicolaou and McKnight [18] found that information quality predicted trusting beliefs and perceived risk. Kim et al. [25] in their study on electronic commerce revealed that information quality is significant predictor of trust, for both potential customers and repeat customers. Based on this, the following hypothesis is formulated:

H4: Information quality has a positive significant impact on trust in the IT use.

3. Research Design

This study employs quantitative approach and is positivist in nature. A study is classified as positivist when there is evidence of formal propositions, quantifiable measures of variables, hypotheses testing, and the drawing of inferences about a phenomenon from the sample to a stated population [26].

3.1. Research instrument and data collection

Questionnaire is the main instrument for data collection. The questionnaire consists of three groups of items: items on demographic information, items to measure respondents' use of IT, and items to measure trust and its determinants. Items for measuring trust and its determinants (i.e., institution quality, system quality, information quality, and service quality) were informed by previous studies [3, 15] with some adjustments to fit to the context of this study. All the variables were measured using reflective indicators. Reflective indicators are those that are determined by the latent variable [27]. The questionnaire has undergone a pilot testing involved a handful of respondents, which was intended to test the clarity of wording of the items. Based on the results from the pilot testing, wording of several items were revised.

The tested questionnaires were distributed to local representative of political parties both in provincial and district levels (i.e., the city of Yogyakarta, the district of Bantul, and the Special Province of Yogyakarta). Respondents of the study were politicians in local level. Out of 175 distributed questionnaires, we got 120 returned and properly filled (response rate = 68.57%) by politicians from 18 out of 24 political parties that took part in 2009 general election. Out of 120 respondents, 83 (84.00%) are male politicians. The vast majority (84.20%) of the respondents have university level educational background, while rest have either senior high school (14.10%) or junior high school (1.70%) education. At average, the respondents have been using the Internet for 5.72 years. However, we found that 11.70% of the respondents have never used the Internet in their life.

3.2. Validity and reliability

Trust, institution quality, system quality was operationalized each with four items, service quality with five items, and information quality with six items. We performed partial least square (PLS) analysis with the help of XLSTAT (www.xlstat.com) to test the whole model. We found that all items have factor loadings greater than 0.60 and the loadings for each item on its latent variable are greater than the cross-loadings on the other latent variables in the model. This result provides evidence of construct validity.

To examine reliability of the instrument, since all the variables were reflective, we deployed Cronbach's alpha as indicators. As can be seen in Table 1, items that operationalize all variables have values of Cronbach's alpha greater than 0.6 [28]. Hence, we can conclude that the instrument was reliable.

Table 1. Reliability of the instrument

Variable	No. of items	Cronbach's alpha
Institution quality	4	0.815
System quality	4	0.772
Service quality	5	0.818
Information quality	6	0.814
Trust	4	0.743

4. Results and Discussion

PLS analysis was performed to examine the research model. It provides an alternative when researchers are faced with small samples or theory in the early stages of development [27].

As can be seen in Table 2, the model explains 67% of the total variance of trust significantly ($F = 59.87$; $p < 0.01$). However, only institution quality and information quality are confirmed to have direct significant impact on trust, while system quality and service quality do not. Further analysis indicated that the impact of institution quality ($\beta = 0.514$) on trust is higher than that of information quality ($\beta = 0.315$). This finding informs us that institution quality (i.e., KPU) is very influential in building trust among the politicians towards the IT use.

Table 2. PLS analysis

Variable	Beta	t
Institution quality	0.514	6.412 *
System quality	0.001	0.008
Service quality	0.099	1.035
Information quality	0.315	3.869 *
F	59.870	*
Adjusted R2	0.670	

Notes: * $p < 0.01$

The analysis confirmed that only institution quality and information quality that influence the politicians' trust towards the use of IT in general election. Among pre-interactive determinants, we found that institution quality has significant impact on trust. This finding indicates that the trust to KPU as an institution that is responsible for managing and monitoring all processes in general election is very important. This finding is interesting in the context of Indonesia where KPU is often suspected to be not free from political interest and interventions. When the institution is capable, trustworthy, and sterile from any political interest and interventions, then the trust of the politicians to KPU will increase, which in turn will improve their trust towards the IT use in general election. This finding also substantiates the viewpoint stated that attributes trust to an interpersonal relationship, as Friedman et al. [19] argue, "people trust people, not technology".

Information quality is also found as a significant predictor of the trust, but not system and service quality. This finding indicates that the politicians paid the attention to the result of vote tabulation rather than the process and its supporting infrastructure. Several reasons can be provided here. First, most politicians do not aware, if do not care, about the IT systems used by KPU. Second, it is not necessarily for the politicians to have a direct personal interaction with the IT services from KPU. Third, the users of vote tabulation are not only the politicians, but most importantly are the public in general. Inspired by an old proverb, for politicians, it is clear that 'the proof of the pudding is not in the making'. However, 'the proof of the pudding is not only in the eating', but, for them, it also is dependent on 'the quality of the chef'. Hence, the quality of KPU and its commissioners (i.e., institution quality, as 'the chef') along with undisputable tabulation (i.e., information quality, as 'the eating') are very important for building politicians' trust in the IT use in general election. System quality and service quality are found to be beyond areas of concern of the politicians, as long as the institution is trustworthy and the results are indisputable. However, taken together both pre-interactive and interactive determinants are important in this context.

5. Conclusion

This study has reported the determinants of politicians' trust in the IT use in general election. Institutional quality and information quality has been confirmed to have direct significant positive impact on trust. This study offers two main contributions. First, it provides empirical evidence that the politician's trust in the IT use is affected by both pre-interactive and interactive determinants. Second, it is among the first studies, which focuses on the politician's perspective in examining trust in the use of IT in general election. The finding of this study may inform the involved parties in the general election processes how to build trust in the IT use, especially among the politicians. It is important if IT is believed as a suitable means to facilitate a clean general election with undisputable results, including with more advanced IT application in general election such as e-voting.

This study has some limitations. First, the number of respondents is limited. Second, the respondents of this study are local politicians. Including a higher number of politicians and national level politicians from various political backgrounds as the respondents may provide a better picture of determinants of trust in the IT use in general election. Third, the model in this study explained 67% of the total variance of trust; leaving a room that there are other determinants that should be taken into account to explain trust.

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