

Determinants of Initial Trust Formation in Electronic Commerce Acceptance in Indonesia

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Abstract—Consumer reluctance to accept and to use electronic commerce has been attributed to lack of trust, uncertainty, information infringement, and security as well as privacy in electronic commerce systems. Our study presents a model for investigating the formation of initial trust of Indonesia's electronic commerce consumers and its services use intention on technology acceptance. A model and hypotheses will be proposed to describe the relationships between the investigated variables. Website usability and perceived security were the highest factors affecting both on the initial trust formation and consumers' intention to use electronic commerce services in Indonesia. The study will draw some related conclusions including a discussion of findings and implications.

Index Terms—initial trust, security, privacy, information systems, electronic commerce, transactions, acceptance, Indonesia

I. INTRODUCTION

Electronic commerce is a term used to describe the buying and selling activities using the Internet which mediates financial transactions between organizations and customers and facilitated by a range of digital technologies that enable electronic communications [2]. Electronic commerce may also be considered as a part of electronic business which in general, deploying innovative information and communications technology (ICT) throughout an organization. In other words, e-business refers to a wider format of electronic commerce and may be classified into several forms such as B2B (business-to-business), B2C (business-to-consumer), C2B (consumer-to-business), and C2C (consumer-to-consumer) including electronic government and mobile commerce [2].

Many previous studies have shown the significance of trust in electronic commerce context, which has caused the penetration rate of online commerce to remain low [3] which may give a crucial impact on electronic commerce acceptance. After all, many studies that have not yet deeply investigated the relationships between security and privacy separately, including trust in electronic commerce context [22].

Furthermore, trust is also the most important element in either offline or online commercial transactions, and consumer reluctance to accept and to use electronic commerce are strongly associated with the lack of trust [3], and security and privacy [19] in electronic commerce systems, and especially

uncertainty, security, and privacy concern [1]. Moreover, online-based commerce have not grown properly in many countries, developing countries in particular where customers still prefer using non-online commerce services to transact due to trust shortage.

This study offers a model for exploring the formation of consumer's initial trust in electronic commerce, which in turn, intention to use its services in Indonesia to investigate factors influencing technology use and acceptance. Because previous research in electronic commerce may not fully capture the real situation with regards to such factors in a developing country like Indonesia. Furthermore, this paper also attempts to drive an understanding of determinants of initial trust formation which include which factors significantly affect the usage intention within the context of electronic commerce in Indonesia.

II. THEORITICAL REVIEW

A. Electronic Commerce in Indonesia

The electronic commerce has been concurrently developing with the growing use of electronic devices and Internet, particularly the World Wide Web. The processes of development of electronic commerce were probably prompted after many banking service providers started considering the importance of such services to mediate related transactions electronically and online such as online shopping, online auctions, etc. Those services enabled the wide use of credit cards usage through the Internet.

Recently, Southeast Asian countries in particular are predicted to become the most important regional market of electronic commerce [14] and where the trend of electronic commerce is likely to get more attractive for the customers in those area. Nevertheless, there is a lack of proper evidence from Indonesia with few previous studies which have measured the use of electronic commerce. Therefore, it can be stated that electronic commerce research in Indonesia still not well-clarified.

With population more than 245 million people, the penetration of Internet within a decade in Indonesia is dramatically increasing and people using Internet services in

Indonesia will significantly be multiplied and reach almost 40 million [11].

Implementation of electronic commerce in Indonesia is newly utilized and is still in its growing phase; having grown with the appearance several online shopping companies within last five years or around 2009. Electronic commerce services in Indonesia was started by Multiplix which developed electronic commerce using social network services (SNS). It was closed in 2013 after a few years in the intense electronic shopping involvement.

Currently, there are several vendors that keep running a kind of electronic commerce services: business-to-consumer-based services such as Lazada, Bhinneka, Zalora, Agoda, Traveloka, and Nusatrip; consumer-to-consumer-based services such as Kaskus, Berniaga, and Tokobagus (currently becomes Olx); marketplace based services such as Tokopedia, Bukalapak, Elevenia, Rakuten, shopping mall based services such as Blibli, etc. Lazada, Kaskus, and Tokopedia may be considered as the biggest electronic commerce mediated-services providers in Indonesia. These days there are more than twenty companies or providers utilizing electronic commerce services in Indonesia.

B. The Concept of Initial Trust

The concept of trust is not yet well-clarified precisely and interpreted accurately due to its complexity [16]. Different understanding on trust and its definitions also still raise the mixed explanations, including its antecedents and outcomes, and the construct of trust itself [15].

However, Mayer et al.'s definition [15] has become an acceptable description of trust in the e-business context [18]. After all, conceptual definitions of trust constructs were also defined as "disposition to trust, institution-based trust, trusting beliefs, trusting intentions [16]."

- *Disposition to trust*: refers to a persistent propensity to be willing to rely on others in general across a wide scope of conditions.
- *Institution-based trust*: refers to favorable conditions are believed in accommodating place to situational success in facet of one's life.
- *Trusting beliefs*: refers to one's beliefs that the other party's characteristics are beneficial to oneself.
- *Trusting intentions*: refers to one's willingness to rely on the other party even though not well-controllable.

The scope of trust may disseminate, depend on the relationship's previous experience, development stages, and indications in the existing occurrence [18]. The degree of initial trust in a service-based environment can be categorized as: characteristic-based trust [16], institution-based trust [13], and process-based trust [23].

Three elements of trust which serve as building factors of trustworthiness include: trustee's ability, benevolence, and integrity [15]. Ability pertains to a set of skills and competencies, which are owned by the trustees to perform their objectives; benevolence pertains to the degree to which the

trustees are perceived to have good intention toward others sincerely; and integrity pertains to the fixed norms that can be used to trust others.

Moreover, trust was theoretically described as a combined form consisting of calculative-based trust based on conjectured costs and benefits and knowledge-based trust from an accumulatively growing trust-relevant knowledge through experience [16]. Therefore, initial trust begins when a person does not have firsthand knowledge and decides to rely on his/her propensity to trust others or institutional cues, especially in an uncertain situation where he/she is trying to find assurance for his/her trust through experiential findings. Few previous studies also mentioned the significance of web vendors' honesty and benevolence in order to enhance consumers' trust whose integrity to consumers' beliefs is more preferred than vendor competence [16].

The antecedents of trust may be developed through [16] cognition-based trust: e.g., perceived security and privacy, website usability; affect-based trust: e.g., reputation; personality-oriented trust: e.g., propensity to trust; and experience-based trust: e.g., personal acquaintance. Trust antecedents in online-based services also may be classified into several forms such as knowledge-based trust: e.g., familiarity; institution-based trust (third party attachment); calculative-based trust (cost and benefit); e.g., perceived benefits; cognition-based trust; and personality-based trust [8].

The initial trust antecedents to be investigated here include the following variables:

- *Relative benefits*. The term of relative benefits is taken from a similar context on perceived benefit that both presume a kind of perceived easiness and capability advancement of a new service use over existing ones [12]. Consumers will prefer to use available services offered though they have no prior experience, which in turn reveal more advantages and convenience of using new system.
- *Trust propensity*. It is a persistent perception among people, which may refer to the general willingness to trust another. It is also important in the initial stage of building relationships, which may also transform an individual's beliefs and intentions toward trustee [17]. Trust propensity has also an influence on initial trust in online environment [21] and becomes a key determinant, not only for interpersonal relationship but also for driving his/her trust in technical environments [16].
- *Perceived security and perceived privacy*. The important role of security and privacy domain may be considered as an irrefutable factor in electronic commerce. Security and privacy may be created through form of structural assurance [12]. Security and privacy may also be reformed separately as two different constructs in order to know more accurately their significant difference on initial trust. Moreover, the concept of security and privacy possesses different definition, albeit they may still be related to each other in terms of notion [22]. With regards to such considerations, there are only few studies investigating the links between security, privacy, and trust in electronic commerce area [1].

- *Website usability.* The notion of usability deals with the attempt required to utilize a computer system and in general, is associated to the level of difficulty to manage that functionality [6]. Furthermore, the concept also designates the determinants on the simplicity and the ease of understanding a system structure including the contents, displays, functions, interface while visiting for the first time in particular.
- *Firm reputation.* This concept refer to one who designates attributes to other party or a person based on indirect information about them such as word of mouth from third party [17], since he/she does not have a personal experience with a company. Reputation can be a crucial driver on trust building for an electronic commerce firm [7], particularly in the initial trust development. Hearing from someone else can help generate and increase users' beliefs about firm's competence, benevolence, and integrity.
- *Government support.* Government always attempts to play a role in initiating trust in economic transaction. Such supporting scopes may be formed through legal policies, regulations, and involvements so that consumers may feel more comfortable in performing online transactions such as electronic commerce. In this study, we premise that supporting conditions are transformed into government support which is involved in initial trust formation. Several previous studies noted about the importance of government involvement in raising trust [10], especially in the electronic-based services context.

III. RESEARCH MODEL AND HYPOTHESES

We will explore the current condition of the use of electronic commerce in Indonesia by gauging consumers' initial trust in conducting electronic-based transactions through a proposed model and several hypotheses.

A. Proposed Model

This model extends TAM (Technology Acceptance Model) [6] and a previous model framework [12] depicted below as a proposed model for our research. The previous model designated usefulness and ease of use in computer-based system experiment beside development of the dynamics of initial trust formation in m-banking area with perceived reputation, trust propensity, an extended form of structural assurances, and relative benefits as the trust antecedents.

The model is also extended with few additional factors as the antecedents of trust: e.g., perceived security, perceived privacy, website usability, and government support to enhance strength of the concept of initial trust formation in of electronic commerce acceptance as described on Figure 1.

B. Research Hypotheses

The inclusion of perceived risk is temporarily ignored [4] in this study, despite risk is considered as a prerequisite condition for trust to become apparent [15]. Moreover, due to the relationship is somewhat complicated between trust and risk which still acquire a confusing issue in electronic commerce

area [4], we therefore do not incorporate risk here because our focus is on initial trust formation.

Based on previous studies which already investigated the significance of relative benefits as an antecedent of trust [12] and intention to use electronic commerce service, we have hypothesis that:

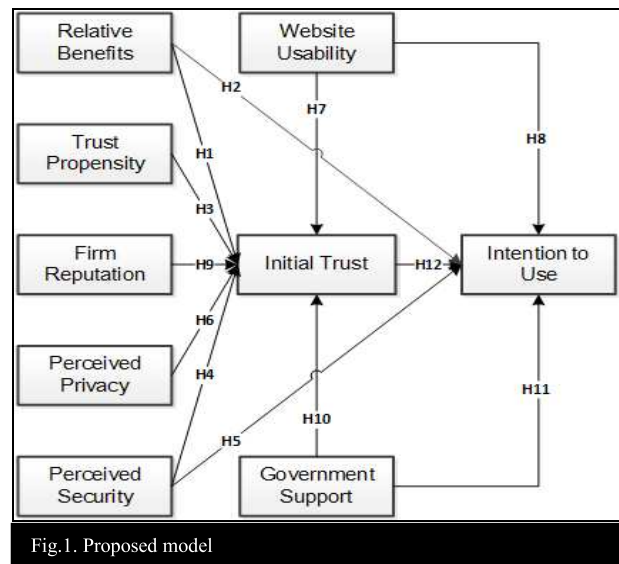


Fig.1. Proposed model

- *H1: Relative benefits of electronic commerce is positively associated with initial trust.*
- *H2: Relative benefits of electronic commerce positively influences usage intention.*

Because association of propensity to trust on electronic commerce customers' behavior have not yet been deeply examined and several previous studies empirically found both of its significant influence [3], [12], [17], [21] and its insignificant effect on trust [10], [4], we assume that:

- *H3: Propensity to trust significantly affects initial trust in electronic commerce.*

Security and privacy concerns play a crucial part in electronic commerce success [19]. Furthermore, past research also considered security and privacy as a variable should be separated so that it may reveal more understanding on initial trust [22]. However, though many studies have already revealed security and privacy as important factors, such factors may be insignificant on trust [4]. Therefore, we believe that:

- *H4: Perceived security on electronic commerce services significantly influence initial trust.*
- *H5: Perceived security of electronic commerce services significantly influence intention to use it.*
- *H6: Perceived privacy on electronic commerce services significantly influence initial trust.*

Website usability designates the need for an institution to engage consumers and drive a beginning image through website functionalities such as the quality of system and

information within the contents. Such features eventually affect consumers' trust [7] to keep their intentions in using online services. Usability has commonly been pertaining to an important factor in figuring usage intention on a system [20]. We then hypothesize that:

- *H7: Perceived website usability of electronic commerce positively affects initial trust.*
- *H8: Perceived website usability of electronic commerce positively affects usage intention.*

Firm reputation is frequently considered important in building initial trust [7], [3], particularly in the beginning stage where consumers do not have a proper knowledge about the company. However, other noted that reputation may affect initial trust insignificantly [12]. This premise drives us to assume that:

- *H9: Perceived reputation on electronic commerce firm positively affect initial trust.*

Government involvement to support a technology system implementation through policy and regulation in electronic commerce use is important. It is also considered as a significant factor to raise trust [10]. Therefore, we posit that:

- *H10: Perceived government support on electronic commerce implementation will significantly affect initial trust.*
- *H11: Perceived government support on electronic commerce implementation will significantly affect intention to use it.*

Previous research has determined that initial trust eventually influences customers' usage intention on offered services or products [12]. Accordingly, we posit that:

- *H12: Initial trust in electronic commerce is positively related to usage intention.*

IV. INITIAL RESULTS

The data was gathered from respondents with experience in conducting online transactions in September 2014. We conducted a pilot study through a voluntary participation with a lottery drawing to stimulate respondents to take part in the study.

Due to time constraints, only 51 complete responses were used out of 56 respondents. The demographic classification of respondents collected was 55 percent male and 45 percent female and their ages ranged from 19 to 32 years with majority 5-10 year-experience using the Internet.

The survey items were provided with standard questions from 'strongly disagree' to 'strongly agree' using a seven-point Likert scale. The proposed model was then evaluated using partial least squares (PLS) analysis with SPSS 22.0 and Smart PLS 2.0. PLS is considered as an appropriate tool for measuring the compound relationships of latent variables while avoiding inappropriate solutions and factor indeterminacy [5].

Cronbach's alpha composite reliability (CR), and average variance extracted (AVE) for all the investigated factors in our

model were above the required level (Cronbach's alpha and CR > 0.70, AVE >0.50) except for relative benefits and perceived privacy. So were factor loadings, but others were significant with greater than 0.70 [9]. Therefore, our results revealed that majority of the measured factors in our model had adequate reliability and convergent validity. Construct correlation table and the square root of AVE were also checked and each construct satisfied the criteria for discriminant validity [5].

TABLE I Hypothesis Summary

Hypothesis	Result	
H1	Relative Benefits → Initial Trust	<i>Not Supported</i>
H2	Relative Benefits → Intention to Use	Supported
H3	Trust Propensity → Initial Trust	Supported
H4	Perceived Security → Initial Trust	Supported
H5	Perceived Security → Intention to Use	Supported
H6	Perceived Privacy → Initial Trust	Supported
H7	Website Usability → Initial Trust	Supported
H8	Website Usability → Intention to Use	Supported
H9	Firm Reputation → Initial Trust	<i>Not Supported</i>
H10	Government Support → Initial Trust	<i>Not Supported</i>
H11	Government Support → Intention to Use	<i>Not Supported</i>
H12	Initial Trust → Intention to Use	<i>Not Supported</i>

The qualification of the measured variables revealed that website usability and perceived security were the highest factors affecting the initial trust formation. Website usability and perceived security also significantly influenced consumers' intention to use electronic commerce services. Trust propensity and perceived privacy had significantly affected the formation of initial trust in electronic commerce use. However, as shown on Table 1, relative benefits, firm reputation, and government support did not positively influence the initial trust formation whereas no significant impact between government support and consumers' intention to use electronic commerce services either. Interestingly, consumers' initial trust could not drive a significant impact on intention to use electronic commerce.

The proposed antecedents explained 66% of the variance in the formation of initial trust which subsequently explained 65% of variations in intention to use.

V. CONCLUSION

Based on results, this study reveals that the mechanisms incorporated with the initial trust formation in electronic commerce use still arguable and need to further discuss, including the construct of trust, the antecedents, and outcomes [15] as due to its dimension. We hope future studies on can explore more about trust in mediating the technology use such as electronic commerce.

This study also confirms the results of previous studies and provides extended examinations on considerable factors which may be important in electronic commerce. Moreover, the results have shown several findings that need to be explored with more proper investigation in next studies.

With the expected convergence of electronic-based services across financial areas, it may become an interesting insight for financial-based services to emerge. Our research may also contribute to the Information Systems (IS) field by revealing

the proposed theory with more representative validation on the growing electronic commerce industries.

VI. LIMITATIONS

Some limitations are principally identified in this study. First, our research only performed a pilot study with a limited sample. Hence it needs further measurement with a larger sample to better support the existing research hypotheses.

Second, this study was designed to investigate electronic commerce use focusing on which factors of initial trust building in Indonesia that might not accurately disclose every single perspective on the trust development process in electronic commerce area for developing countries in particular.

Therefore, these limitations provide a necessity to develop a better initial trust model with other investigations including conducting longitudinal studies in the future.

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