

Proposed TRUTAUT model of technology adoption for LAPOR!

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Abstract. This study aims to formulate a model for adopting the LAPOR! application technology. based on the user's perspective. The method used is a comprehensive literature review of the previous two best practice models, TRI and UTAUT. The results showed that there were 13 hypotheses and 10 constructs from the proposed combination model. The entire construct is optimism, innovativeness, discomfort, insecurity, performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intention and use behavior. In the TRUTAUT combination model, the personality traits aspects of TRI became antecedents of the cognitive aspects of the UTAUT model. The implication of this research is that government institutions can better understand what factors influence the use of technology, especially the LAPOR! application in Indonesia.

1. Introduction

Efforts to provide quality public services and transparently can be realized by utilizing Information and Communication Technology (ICT) called e-Government. In Presidential Instruction No. 3 of 2003 concerning e-Government development policies and strategies, there are 4 systematic stages in e-Government development. The four stages or levels are level 1 (Preparation) associated with making the website of the institution, level 2 (maturation) about making interactive sites, level 3 (stabilization) related to the creation of level 4 public service transaction sites (utilization) related to site creation integrated [1].

If there are observed stages, the government turns out to be more focused on improving the capabilities and functions of the website as a public service portal that can be accessed by the public. This is very clearly stated in one of the e-Government development strategies, namely implementing systematic development through realistic and measurable stages. But in reality, the quality of public services in Indonesia organized by the Ministry and State Institutions on a macro level is still considered very low [2]. The results of the integrase assessment (SPI) survey conducted by the Corruption Eradication Commission (KPK) in 2017 related to the quality of public services indicate that the implementation of public services in Indonesia has a score range from 65.43-76.54 from a scale of 100 for ministry and agency levels and ranges from 52.91- 77.39 for public services at the regional level (local government) [2].

According to the results of a survey of integrity assessments from internal parties (employees), the problem that often occurs regarding the quality of public services is the presence of brokers, gratuities, corruption in work units, nepotism in employee recruitment and promotion, and budget fraud in the form of useless procurement and fictional official

travel. While the integrity assessment survey from external parties (service users) concluded that there were still problems with aspects of transparency, anti-corruption systems and employee integrity. Service users state that there are still employees who provide special treatment that is not in accordance with the rules based on closeness, ethnicity, or alma mater, distrust of follow-up on the perpetrators or reporters of corruption, not yet achieving employees who uphold honesty and freedom from personal interests.

If we examine the various problems mentioned above, it can be said that the root of the problem is that there is no good control from the public on the public services provided by the government. The community is the recipient of public services so it should take part in responding to whether the public services provided are in accordance with the expectations of the community. In other words, efforts to improve public services can only be achieved through the screening of information, aspirations, complaints and complaints from the public about the real conditions felt. Community participation is an important key for improving the quality of public services as well as monitoring development plans and processes [3]. This screening of community participation is in line with Ministerial Regulation Number 13 of 2009 concerning guidelines for improving the quality of public services with community participation [4].

In principle, someone who is not satisfied with a service will complain about the service they receive. The analogy is the same if it happens to the community towards public services that are not in line with their expectations. By definition, public complaints are expressions caused by public dissatisfaction with a product or service that is far from expectations [5]. In Government Regulation No. 96 of 2012 it was stipulated that all public service providers must process every public complaint. Even in the PP, sanctions are imposed if they do not carry out the mandate, ranging from administrative sanctions, reprimand, dismissal to criminal sanctions [6]. Public complaints are a form of community participation so that public service providers get feedback from community complaints. This aims to make the government pay more attention to what is the needs of the community so as to create better public services. Unfortunately for most government institutions, complaints are still a threat to the survival of the organization.

The presence of the LAPOR! application developed by UKP4 (Presidential Work Unit for Development Monitoring and Control) aims to provide a means of encouraging community participation. REPORT! stands for information systems on people's aspirations and online complaints that can be used as a forum for people to interact with the government more easily and transparently through electronic community participation screening [7]. The government has had the first public complaints management system at the national level since 2014 which was provided to the public to report complaints on the performance of government agencies both at the central and regional levels [8]. In addition to the LAPOR! application, in fact other initiatives to encourage community participation were also carried out by other regions such as the Makassar City Government with the Sadar Lapor National Unison Movement (SODARATA). The aim of SODARATA is to further improve the quality of public services as a means of education, aspiration and complaints based on social media that are run with the principles of easy, integrated, and complete [9]. People can submit their complaints through the SODARATA mobile apps application and immediately follow up by the relevant SKPD.

Even though various media based on technology complaints have been provided, not necessarily the people want to complain about the services they receive. The willingness of the community to make complaints depends on how the organization responds to their complaints. If complaints about their complaints are taken seriously, the complaint will have a

positive impact on the organization and foster public trust. On the other hand, if the complaint reported does not get a positive response, then apathy arises from the community who eventually are reluctant to complain. This means that the existing complaints system has not been effective in order to encourage public participation [10].

This study aims to determine the model of user adoption of the complaints management system application LAPOR!. REPORT application! expected to facilitate the public in making complaints wherever and whenever because they no longer go through a complicated bureaucratic process. Thus, it is important to know what factors encourage the community to receive and use the LAPOR! application because the improvement of the implementation of public services is carried out by involving community participation by making complaints [11,12]. Research related to the model of user adoption of e-Participation is still very rare, especially at the national level. Therefore, this research has a theoretical contribution to fill the literature gap, while helping the government in practice to increase public participation in Indonesia.

2. Methodology

Research related to the technology adoption model has been carried out by several previous researchers where various behavioral theories emerged about user behavior in adopting a technology. Behavioral theories are quite popular, namely Theory of Reasonable Action (TRA), Theory of Planned Behavior (TPB), Theory of Diffusion of Innovation (DIT), Technology Acceptance Model (TAM), Technology Acceptance Model 2 (TAM 2), Technology Readiness Index (TRI), Delon & McLean (2003) and Unified Theory of Acceptance and Use of Technology (UTAUT) [13]. The background of the emergence of the behavior theory is due to the rapid and dynamic development of the technology itself. This of course has an effect on how quickly the user can accept and adopt the technology is very dependent on a number of factors such as convenience, comfort, speed, security, etc[14].

Behavioral theory can be used to help organizations predict whether a technology can be successfully adopted or not by its users. The effort to understand why people accept or reject technology is challenging [15]. In addition, behavioral theory aims to know in depth the behavior and attitudes of users by giving questions directly to users and their perceptions about the use of certain systems / technologies. Then the user evaluates the technology according to his experience. Behavioral theory is a branch of psychology that studies human behavior scientifically where the response behavior can be observed and measured. In other words, user behavior can be studied and explained scientifically. Behavior is a response to stimuli in an environment that can be learned [16].

In this study, behavioral theory is used to predict user behavior in adopting the LAPOR! application is the TRI (Technology Readiness Index) and UTAUT (Unified Theory of Acceptance and Use of Technology) models. Both of these models will complement the weaknesses of each of the best practice models to produce a holistic model.

Referring to Parasuraman (2000), the TRI model is used to measure the readiness of users to use new technology with four psychological variables, namely: (1) optimism, a positive attitude towards technology and believe that technology will improve control, flexibility and efficiency in life. Optimism variable represents a positive view of technology; (2) innovativeness, tendencies for the first to use new technology products and services. Variable innovativeness refers to the degree to which someone likes to experiment with technology. Therefore it tends to be at the forefront of trying the latest technology-based products or services; (3) discomfort, have a difficult attitude to control and tend to be overwhelmed / not

confident when dealing with new technology; and (4) insecurity, has a suspicion of technology security and security reasons for personal data. Insecurity variables refer to distrust of technology-based transactions and doubts about the technology's workability [17]. The first two dimensions of the TRI model are optimism and innovativeness which are "contributors (contributors)" who can improve readiness for the use of technology while the other two dimensions of discomfort and insecurity are considered as "barriers as presented in Figure 1 below.

TRI uses a series of statements of trust / confidence in conducting surveys to thoroughly measure the level of technological readiness of individuals, and is a tool in technology adoption studies.

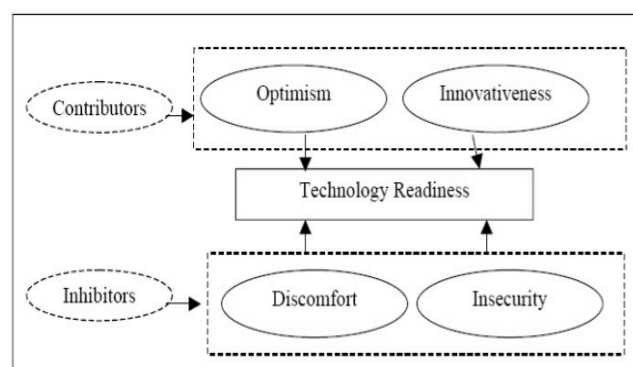


Figure 1. Technology Readiness Index Model [18]

TRI emphasizes that technology readiness is a measure of one's perceptions or beliefs about technology and not as a measure of one's technological ability or mastery capacity. Based on the technology readiness score, users are classified into five segments, namely explorer, pioneers, skeptics, paranoids, and laggards. Explorers have the highest score in the contributors dimension (optimism, innovativeness) and the lowest score in the dimension of inhibitors (discomfort, insecurity). Explorers is quickly interested in the existence of a new technology and usually becomes the first group to try the new technology. In general, explorers are still young, male, have high income and education. In contrast, laggards are the last type of group to adopt new technologies and have the highest scores in the dimensions of inhibitors and lowest scores in the dimension of contributors. Types of laggards are generally older individuals, women with low levels of income and education.

The other three groups (pioneers, skeptics, paranoids) have a more complex perception of technology. Pioneers have high optimism and innovation like explorers, but at the same time they will easily stop trying (resistance) if they encounter inconvenience and insecurity. Pioneers have an average level of income and education, young and generally female. Skeptics have a low motivation to use technology but also have a small level of inhibition so they need to be convinced in advance about the benefits of using technology. For paranoids, technology is quite interesting but they also consider risk factors; this is indicated by a high degree of discomfort and insecurity [19]. In general, the type of paranoids are women above the average with low income and education. The Parasuraman and Colby (2001) study shows that types of explorers and pioneers tend to adopt new technologies earlier than other types [18].

Meanwhile, the UTAUT model (Unified Theory of Acceptance and Use of Technology) was discovered by Venkatesh (2003) to explain the user behavior towards information

technology [20]. The UTAUT model shows that the intention to behave (behavioral intention) and behavior to use a technology (use behavior) are influenced by expectations of performance (performance expectancy), business expectations (effort expectancy), social influence (social influence), and supporting conditions (facilitating conditions). Fourth these factors are moderated by factors of gender, age, experience and voluntary use. Empirical studies that have adopted this model have been widely carried out, and have various findings.

This model is a combination of eight models that have been successfully developed previously, namely Theory of Reasoned Action (TRA), Technology Adoption Model (TAM), Motivational Model (MM), Theory of Planned Behavior (TPB), Combined TAM and TPB (C-TAM), Model of PC Utilization (MPCU), Innovation Diffusion of Theory (IDT), and Social Cognitive Theory (SCT). The UTAUT model proved to be more successful than the other eight theories in explaining up to 70 percent of user variants [20].

After evaluating the eight models, Venkatesh (2003) found seven constructs that seemed to be a significant direct determinant of behavioral intention or use behavior in one or more of each model. These constructs are performance expectancy, effort expectancy, social influence, facilitating conditions, attitude toward using technology, and self-efficacy. After going through further testing, found four main constructs that play an important role as direct determinants of behavioral intention and use behavior, namely, performance expectancy, effort expectancy, social influence, and facilitating conditions. While others are not significant as direct determinants of behavioral intention. Besides that there are also four moderators: gender, age, voluntariness, and experience which are positioned to moderate the impact of the four main constructs on behavioral intention and use behavior. Figure 1 shows the relationship between determinants and moderators as follows:

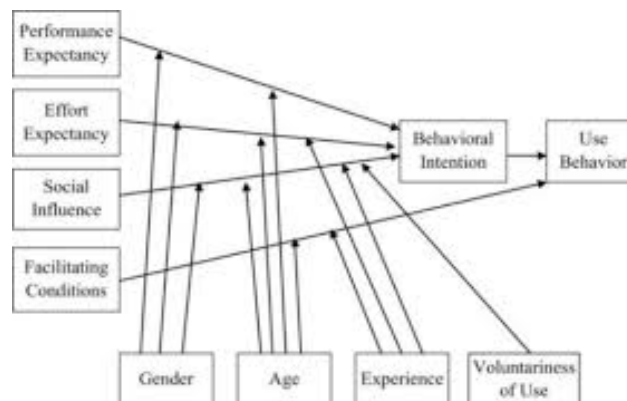


Figure 2. UTAUT Model [20]

The main purpose of research using UTAUT is to help organizations understand how usage reacts to the introduction of new technology [21]. In the beginning, UTAUT was developed from the Technology Acceptance Model (TAM) in 2003 with four constructs that influenced behavioral intentions to use technology, namely: performance expectancy, effort expectancy, social influence, facilitating conditions. Until now, UTAUT has been redeveloped from the organizational context into the context of individual consumers named UTAUT2 models where habit, hedonic motivation and price value are added as new constructs.

3. Result and Discussion

The UTAUT model is the development of the TAM model that is most often used in

explaining the user's behavior towards technology, especially the recipient aspects. TAM is so popular that it has been applied to various types of technology literature and information systems [22]. One of the advantages of TAM is that the model is very simple and easy to use. But the weakness of TAM is that it only explains internal aspects (technology) and ignores external factors outside of the technology itself [18]. TAM focuses on measuring technological aspects, especially the benefits and ease of use of a technology. UTAUT proposes several external variables such as social influence and facilitating conditions that influence the adoption of users towards technology. Even because of the complexity of external influences, the UTAUT 2 model adds habit constructs, hedonic motivation and price value as additional external variables from an individual perspective. But the two TAM internal variables, namely perceived usefulness and perceived ease of use, are still included in the UTAUT model as performance expectancy and effort expectancy.

Similar to the TAM model, UTAUT also has the disadvantage of not seeing the technology acceptance factor from the psychological aspects of the user. Parasuraman (2000) shows the readiness of users based on personality traits is very important to encourage adoption of technology [17]. The TRI model is present to answer any traits that are interrelated that describe a person's belief in utilizing technology. With TRI, a person's belief in technology can be explained and shows the trend of using technology. Therefore in some cases, the TRI model was integrated with TAM to combine the variables of psychological traits and cognitive aspects of technology where TRI became the antecedent of the TAM model. [22]. This extended model is often called TRAM (TRI & TAM) which was proposed by previous researchers [23,24]. This is also due to research that explains that TRI cannot stand alone. In fact, users with high TRI do not always adopt new technology [18]. Thus TRI cannot explain well why individuals use technology while others do not. Therefore in this study, TRI will be integrated with the UTAUT model as an antecedent or prior because TRI shows the readiness of its users while UTAUT explains the factor of its acceptance of technology, called TRUTAUT as presented in Figure 3 below:

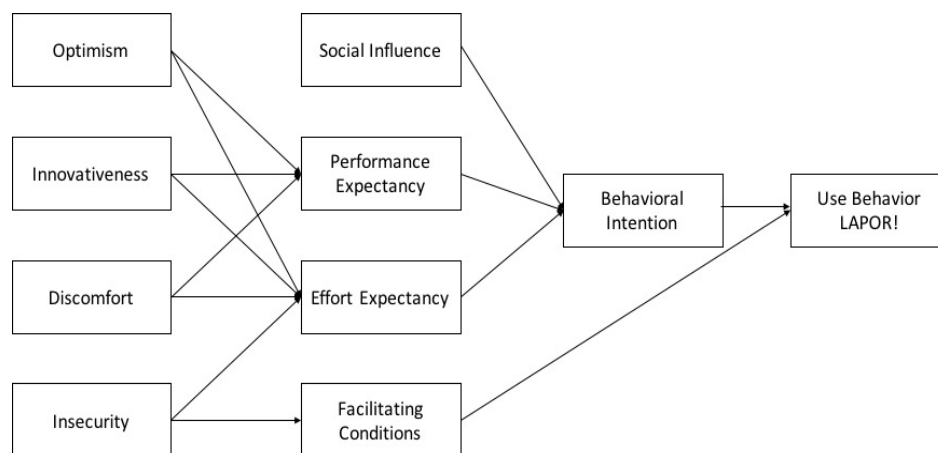


Figure 3. Proposed model of TRUTAUT

Based on Figure 3, it can be seen that there are 13 hypotheses produced from the TRUTAUT model which are a combination of the TRI model and the previous UTAUT model, which are as follows:

- H1 : Optimism (OPT) significantly positive affect the Performance Expectancy (PE)
- H2 : Optimism (OPT) significantly positive affect the Effort Expectancy (EE)

- H3 : Innovativeness (INN) significantly positive affect the Performance Expectancy (PE)
- H4 : Innovativeness (INN) significantly positive affect the Effort Expectancy (EE)
- H5 : Discomfort (DIS) significantly negative affect the Performance Expectancy (PE)
- H6 : Discomfort (DIS) significantly negative affect the Effort Expectancy (EE)
- H7 : Insecurity (INS) significantly negative affect the Performance Expectancy (PE)
- H8 : Insecurity (INS) significantly negative affect the Effort Expectancy (EE)
- H9 : Social influence (SI) significantly positive affect the Behavioral Intention (BI)
- H10 : Facilitating Conditions (FC) significantly positive affect the Use Behavior of LAPOR! (UB)
- H11 : Performance Expectancy (PE) significantly positive affect the Behavioral Intention (BI)
- H12 : Effort Expectancy (EE) significantly positive affect the Behavioral Intention (BI)
- H13 : Behavioral Intention (BI) significantly positive affect the Use Behavior of LAPOR! (UB)

In the model proposed in this study, all constructs were thought to be temporarily positive except for two constructs namely Discomfort (DIS) and Insecurity (INS). In other words, if the Discomfort and Insecurity factor is low, the Performance Expectancy and Expectancy Effort factors will increase. Vice versa, if the Discomfort and Insecurity factor is high, the Performance Expectancy and Effort Expectancy factors will also decrease. As mentioned earlier, that Discomfort contracting is related to someone's guidance when using technology because it does not master the technology so that it creates discomfort. Whereas Insecurity relates to someone's sense of disbelief in a technology, especially the security aspect of the transaction carried out. In relation to the LAPOR! application, users must be given a sense of security in reporting complaints, complaints or criticisms of an institution or government official.

4. Conclusion

This study proposes the integration of two previous best practice models, namely the TRI and UTAUT models where the weaknesses of each model can be improved by a combination of the two. Thus the TRUTAUT model (TRI & UTAUT) can explain user behavior not only from the system or technology aspects, but also from the psychological aspects of the user's usage. From the proposed model, there are 13 hypotheses that need to be tested in further empirical research to obtain a valid model. REPORT application! has been developed by the government but has never been comprehensively studied how to increase community adoption of these technologies. All 10 constructs in the model can illustrate the factors that influence the acceptance and use of the LAPOR! application which is a contribution from this study. Furthermore, practically government institutions can focus on issues related to the problem of using the LAPOR! application in Indonesia.

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