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was born in Dumai, Indonesia 2th July 1994. Graduated from Faculty of Social and Political Sciences, Universitas Gadjah Mada in Major of Management and Public Policy (2018). She is currently a public policy analyst in Foundation of Biotechnology and Bioscience (YPBB), Bandung. She is also a founder of Beri Kembali which is a social enterprise concerned on problem of excess resources and inequality issues. In short, Beri Kembali attempt to rescue and redistribute excess resources (such as food, clothes and books) to people in need in Bandung. Furthermore, Dhia together with her partner are currently working to build a sustainable clothing line business which will be launched on April 2020.

Does Technology Readiness and Acceptance Induce more Adoption of E-Government? Applying the UTAUT and TRI on an Indonesian Complaint-Based Application

Abstract

Most researches relating to the success of information and technology system application focus on two separate matters, namely technology readiness and technology acceptance. Both perspectives are used to observe how technology is adopted by users. However, very few studies test them both concurrently in a single research. This research, therefore, aims to conduct testing on the two concurrently without separating them. This article attempts to put two differing theories to the test, which are the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology Readiness Index (TRI), in the context of e-government that is carried out via the Jakarta Smart City Program. To be more specific, the aJakarta Smart City Program analyzed in this study is the Qlue and CRM (Citizen Management Relationship) applications. The research method employed in this article is the quantitative method, wherein 225 respondents participated in this research to assess the level of technology readiness, the gathered data were subsequently processed by using the descriptive statistics analysis technique. Furthermore, 185 respondents also participated in observing how behavior influences the intention to use technology. These data were processed by using multiple linear regression analysis. Research results indicate that Jakarta SCR citizens' technology readiness level can still be categorized as low and is identified as belonging to the Low Technology Readiness group, with a total TRI value of 2.7. Additionally, this research also shows that performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) have positive and significant influence on the dependent variable, namely the behavioral intention to use the system (BIUS).

Keywords:

Unified Theory of Acceptance and Use of Technology (UTAUT); Technology Readiness Index (TRI); E-Government; Jakarta Smart City; Qlue Application; Citizen Management Relationship Application

Introduction

Most governments the world over have realized the potential opportunities offered by the application of information and communication technology within an organization (Mohammed & Ibrahim, 2013). Such a rather dramatic increase in the use of information and communication technology has definitely influenced public sector organizations to shift their past traditional or conventional organizational activities and culture into technology-innovation based organizational activities (Dukic, 2016). One of the instances in the implementation of technology based system by public sector organizations or governments as an instrument to meet principles of good governance is something called Electronic Government (E-Government). According to the OECD, E-Government refers to the use of information and communication technology (ICT), and particularly the internet, as a means to achieve better government (OECD, 2003). Additionally, the application of information and communication technology has been introduced in the public sector for the past 28 years as an effort to achieve greater level of effectiveness and efficiency (O'Neill, 2009).

There are several advantages gained by implementing e-government initiatives, such as cost savings, improvement of coordination and communication system, expansion of public participation, and increased government accountability (Hart & Teeter, 2000). Other benefits of implementing e-government in public administration are: reduced time for responding to public complaints, quick adaptation to public needs (Akman et al., 2005; Lee et al., 2008; Taviana, Zandi, & Katehakis, 2013), increased interaction between stakeholders in the public sector (Colesca & Dobrica, 2008; Lee et al., 2008; Tung & Rieck, 2005), more efficient government administration (Colesca & Dobrica, 2008; Homburg, 2008; Tung & Rieck, 2005), and high civil servant satisfaction level (Akman et al.,

2005; O'Donnell, Boyle, & Timonen, 2003; Yeo RK, 2009). Furthermore, e-government also usefully contributes to increasing the economic level of a region or country (Asgarkhani, 2007; Badri & Alshare, 2008; Von, 2004), as well as reducing the level of corruption (Colesca & Dobrica, 2008; Hasani & Beleraj, 2013; Safeena & Kammani, 2013; Tung & Rieck, 2005).

The successful implementation of an information and technology system is influenced by both internal and external factors (Handayani & Sudiana, 2015). Lam, Chiang, and Parasuraman (2008) state in their article that in order to understand the success of information and technology system implementation, it is imperative that we understand matters relating to technological adoption (Lam, Chiang, & Parasuraman, 2008). There are two perspectives that can be utilized to understand the adoption level of a technology, which are: 1) personality and 2) technology traits (Harry, Gombachika, & Gift, 2012). Edmunds argues that the perspective about personality is closely associated with technology readiness, which holds a significant role in the adoption level of technology users (Edmunds, Thorpe, & Conole, 2010). Whereas the perspective of certain technology traits may influence the attitude of technology users, which thus far has been known as technology acceptance (Chiu, & Tseng, 2010). **(Element 2)** Therefore, it is crucial for both central and regional governments to know and understand these personality traits, which in this case is observed from technology readiness and technology traits, which is seen from technology readiness, because these are the two things that drive the adoption and use of e-government in a region by its users. If the level of information and communication technology adoption and usage is high, the implementation of e-government will consequently produce good outcome in that region.

The elaboration above is in line with Hartono's argument in his study asserting that

one of the internal factors that may influence the success of technology usage is acceptance and usage by those applying that technology (Hartono, 2007). In another study, Dukic mentions that for a government to achieve success in e-government implementation, all the factors are of utmost importance, however, the human resource factor is of particular importance, of which in this case are the public servants who provide the services through e-government application (Dukic, 2016). Ultimately, once the public servant's level of readiness and acceptance of a technology is known, then policy makers or practitioners responsible in e-government implementation can understand what the needs of e-government program executioners are, so that it will subsequently result in a high rate of participation by the executioners, which in this case are the public servants. The high participation rate of government employees will later drive and produce good outcome in the implementation of e-government. It is stated in other sources that the success of e-government implementation is influenced by the skills and knowledge public servants have in relation to the information and communication technology system (Alshehri & Drew, 2010; Cocchiglia & Vernaschi, 2006; Odat, 2012; Zhang, Xu, Xiao, 2014). However, the public servants' level of acceptance toward e-government remains a main priority that influences the program's success, despite them possessing high level of skills and knowledge relating to information and communication technology (ICT). When a public servant accepts a technology, this will motivate them to adopt a technology (Saleh & Tarhini, 2013; Weerakkody, Dwivedi, & Kurunananda, 2009). At the end of the day, the low motivation level public servants have in adopting technology becomes the main reason of e-government's failure (Anthopoulos et al., 2015).

In the discussion about the acceptance of new information and technology system,

the Unified Theory of Acceptance and Use of Technology developed by Venkatesh, it is known that the behavioral intention of users and the behavior of using or adopting a technology is essentially affected by several factors, namely: a) performance expectancy (PE); b) effort expectancy (EE); c) social influence (SI); and d) facilitating conditions (FC) (Handayani & Sudiana, 2015). These models observe that the phenomenon of technology adoption is usually only affected by matters relating to technological characteristics only (Rachamawati, n.d.). While in fact, technology adoption is also influenced by matters unrelated to technological characteristics. One of the influential factors in technology adoption relates to the characteristic of individual users, which is known as individual readiness in adopting new technology (Aisyah, Nugroho, & Sagoro, 2014). The users' technology readiness is measured by Parasuraman's (2000) model of Technology Readiness Index (TRI). The study Parasuraman conducted has also shown that technology adoption is also influenced by the characteristic of the technology users (Rachamawati, n.d.). The TRI model measures the readiness of technology users through 4 different dimensions, namely: 1) optimism; 2) innovativeness; 3) discomfort; 4) insecurity. The Technology Readiness Index, which consist of these 4 dimensions, originates from 45 Likert scale items measuring users' tendencies to embrace and use technology (Parasuraman & Colby, 2015).

Research on technology readiness and acceptance is actually not a new domain in academia. Several previous studies have been conducted by using the Technology Readiness Index (TRI) to measure the level of users' technology readiness in the industrial sector (Jaafar et al., 2007), in service provision (Lai, 2007), and in education (Lai, 2008; Lai & Chong, 2007). Furthermore, other studies have also been carried out on the relationship between readiness and behavior toward technology (Parasuraman & Colby,

2001), relationship between technology readiness and technology adoption (Chang & Kannan, 2006; Lin & Hsieh, 2006; Sophonthummapharn & Tesar, 2007), and the relationship between technology readiness and quality of service (Lai, 2007). Research on technology acceptance has also been developing further in the academic circle. The latest theory that has been developed to measure technology acceptance is called the Unified Theory of Acceptance and Use of Technology (UTAUT), which was introduced by Vankantesh (2003). A study conducted by Mohammed Alsheri, Drew and Alghamdi states that the dimensions of performance expectancy, effort expectancy, and facilitating conditions positively affect users' intention to utilize e-government based services. Meanwhile, the social influence dimension does not have significant influence on users' intention to adopt e-government (Alshehri, Drew, & Alghamdi, 2012).

Past studies usually conduct testing on the two theories above separately. It is still very rare to find studies that examine the success of information and communication technology implementation based on the two differing perspectives, i.e. technology readiness and technology acceptance, simultaneously. While the two should be explored further at the same time, bearing in mind that the two are fundamental issues affecting the level of users' technology adoption. To put it simply, when users are ready to use a certain technology but are still experiencing technical obstacles that affect their technology acceptance, this can consequently influence the users not to adopt said technology. This research is, thus, carried out to test both theories of technology readiness and technology acceptance concurrently in order to present a deeper description of technology adoption.

Based on this background, this research aims to answer the following research questions, namely: first, what is the Jakarta SCR Province's residents' level of readiness in applying the

e-government system through the Qlue and CRM applications?; and second, how do performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) influence the people of Jakarta SCR Province in their behavioral intention to use technology in applying the e-government system through the Qlue and CRM applications, which are a part of the Jakarta Smart City Program?

This article comprises of seven sections. First, this paper will conduct a literature review on technology readiness and technology acceptance. Next, the article's research methodology is elaborated, then followed by data analysis and further discussion of the results. After that, the discussion relating to the research findings will be summarized and discussed more extensively. This paper will then be concluded by presenting the research limitations and managerial implications that may be used by relevant stakeholders.

Theoretical Background

Technology Readiness Index

Technology Readiness Index is a model developed by Parasuraman (2000). In his research, Parasuraman observes the significance of consumers' readiness in the process of technology adoption or use. The consumers' technology readiness can develop their proclivity to embrace and use new technology in their daily activities or their activities at the work place (Parasuraman, 2000). Parasuraman states in his research that a person's readiness in adopting technology is determined by four factors, namely:

1. Optimism
A conviction of someone who believes that technology can offer far better control, increased flexibility, and efficiency in their daily lives or in their activities at work.
2. Innovativeness
A tendency to be a pioneer in every aspect and form of their life. Parasuraman explains that the pioneer's tendency is more lenient toward

the use of new technology, and they tend to easily adopt to technology that is constantly renewed from time to time.

3. Discomfort

A perception that one lacks control over technology. In other words, this dimension shows low technological mastery resulting in a feeling of diffidence in using technology. Such diffidence will eventually drive a feeling of discomfort in the consumer’s use of technology, thereby rendering them to continue using traditional means in dealing with their daily activities.

4. Insecurity

A distrust of technology-based transactions and pessimism toward the performance of technology. In other words, a feeling of disbelief or doubt that a technology can properly complete a task.

In his writing, Parasuraman also elaborates that the variables of **optimism** and **innovativeness** are called **contributors**, capable of enhancing one’s readiness in adopting and using technology. Additionally, the variables of **discomfort** and **insecurity** are called **inhibitors**, capable of lowering one’s readiness level in technology use and adoption.

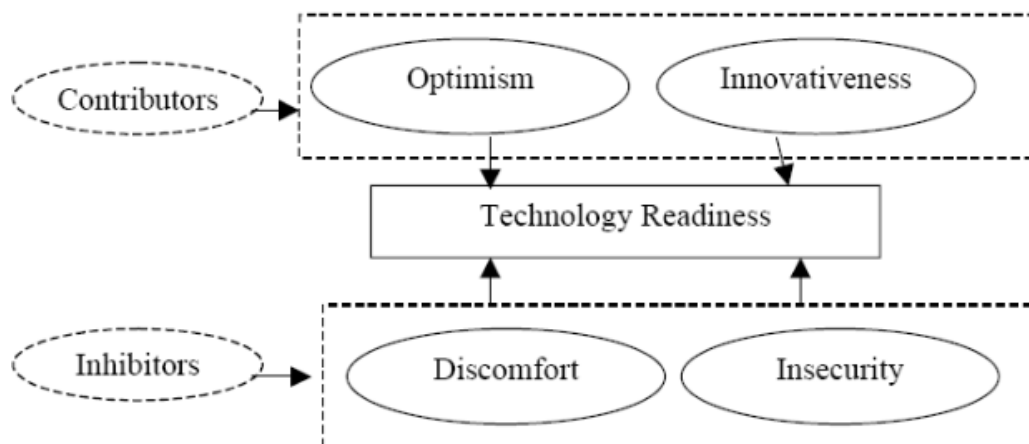
The four variables above can produce certain user proclivities at the time they adopt or use technology.

Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology is a model derived from psychology and sociology (Venkatesh, 2012). This model was developed by Venkatesh in 2003. Furthermore, the UTAUT model has been developed through further studies of the eight models or theory of technology adoption and acceptance that have often been used in information systems research. There are 4 independent variables in the UTAUT method model that can influence behavioral intention of to use or adopt a system of technology. These variables are as follows:

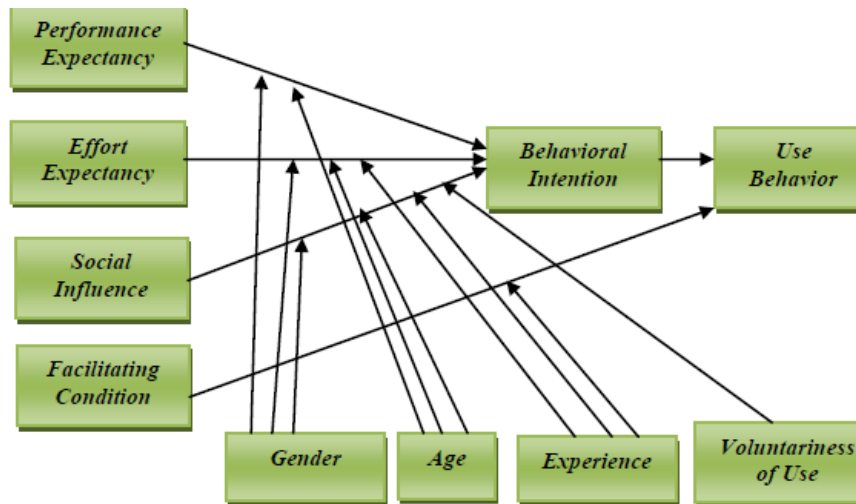
- a. Performance Expectancy
The degree to which a person believes that the use of technology can enhance their performance.
- b. Effort Expectancy
The degree to which a person believes that a technology can be used with ease.
- c. Social Influence
The degree to which a person believes that others around them believe they should use a particular technology.

Figure 1.
Technology Readiness Index



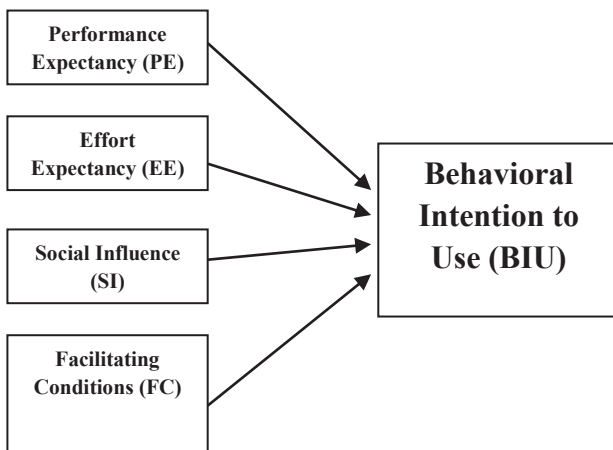
Source: Parasuraman 2000, via Ling and Moi, 2007.

Figure 2.
Structure of the UTAUT Model



Source: Vankentesh, 2003.

Figure 3.
Modified Structure of the UTAUT Model



Source: Venkatesh et al., 2003 (Modified)

d. Facilitating Conditions

The degree to which a person believes that organizational support is provided to facilitate the use of technology.

In the UTAUT model, the user's intention to use a technology system is also influenced by moderating variables, these moderating variables are: gender, age, experience, voluntariness of use. These moderating variables can influence the intention of using new technology and behavioral use of new technology.

In this research, only the influence of performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) on behavioral intention to use (BIU) technology are observed without including moderating variables such as gender, age, experience, and voluntariness. The UTAUT model employed in this study is, thus, a modified UTAUT model that has been aligned to the needs and objective of this research.

Hypothesis

To answer the second research question, a hypothesis is required to understand the correlations between the independent constructs, consisting of performance expectancy/PE, effort expectancy/EE, social influence/SI, and facilitating conditions/FC, and the dependent construct, which is the behavioral intention to use the system (BIUS).

Ha1 There is positive correlation between performance expectancy/PE and behavioral intention to use the system (BIUS) in the Jakarta Smart City Program.

Ha2 There is positive correlation between effort expectancy/EE and behavioral intention to use the system (BIUS) in the Jakarta Smart City Program.

Ha3 There is positive correlation between social influence/SI and behavioral intention to use the system (BIUS) in the Jakarta Smart City Program.

Ha4 There is positive correlation between facilitating conditions/FC and behavioral intention to use the system (BIUS) in the Jakarta Smart City Program.

Methods

The quantitative research method is used in this research. Due to time and financial constraints, the number of samples considered to represent the population was calculated by multiplying the question indicators by 5 to 10 (Hair et al., 1995). The total amount of samples used for each research question in this study are as follows:

a. First Research Question

There are 45 question indicators in this research question. The total sample is thus **5 multiplied by 45 equals 225 residents** of Jakarta SCR Province.

b. Second Research Question

There are 37 question indicators in this research question. The total sample is thus **5 multiplied by 37 equals 185 residents** of Jakarta SCR Province.

Furthermore, bearing in mind that the population in the respective municipality of Jakarta SCR Province is stratified and not similar, the samples should also be stratified. The strata were determined based on the municipalities in Jakarta SCR Province. The number of samples for the respective municipality in Jakarta SCR Province should also be proportional with the population each of those municipalities have. The most appropriate sampling technique for this study is, thus, the proportional stratified random sampling technique. Initially, the amount of samples had been determined to be 225 people for the research question relating

to the public's technology readiness, and 185 people for the research question relating to the public's technology acceptance in Jakarta SCR. An equation in which **the total population of each group** is divided by **the total population of Jakarta SCR Province** then multiplied by **the amount of predetermined samples** had been used to determine the number of samples in each municipality of Jakarta SCR Province, namely Central Jakarta, East Jakarta, South Jakarta, North Jakarta, West Jakarta, and Thousand Islands.

Once the proportions of the respective subgroup were determined, a non-random sampling technique, namely incidental sampling, was subsequently used in determining the research sample for the determined subgroups. Incidental sampling is a sampling technique based on incidence, which means that anyone whom the researcher incidentally met can be used as a sample. Furthermore, the questionnaires given were closed-ended statements or questions. The measuring scale used for both research questions was the Likert scale, measuring from 1 – 4, namely: a) 1: Strongly disagree; b) 2 : Disagree; c) 3 : Agree; and d) 4 : Strongly agree

Data Analysis Technique

The descriptive statistical analysis is used to answer the first research question. According to Sugiyono, descriptive statistical analysis is aimed at analyzing data by way of describing or illustrating the collected data as dictated by the acquired results (Sugiyono, 2017). The Technology Readiness Index value was calculated by multiplying the means value of each questionnaire with the weight of every question (Lazuardi, 2013). Each variable has a weight relating to the total variables by 25%. The weights of each variable were then divided by the total statement indicators of each variable (Lazuardi, 2013). Next, the means value of the statement were multiplied by the weights of

Table 1.
Total Samples Calculation for each of the Municipality in Jakarta SCR
Province (Research Question 1)

No	Municipality/Regency	Sample Calculation	Number of Samples Per Municipality
1	Thousand Islands	$\frac{23340}{10177924} \times 225 = 0,46$	1
2	South Jakarta	$\frac{2185711}{10177924} \times 225 = 48,31$	48
3	East Jakarta	$\frac{2843816}{10177924} \times 225 = 62,86$	63
4	Central Jakarta	$\frac{914182}{10177924} \times 225 = 20,20$	20
5	West Jakarta	$\frac{2463560}{10177924} \times 225 = 54,46$	54
6	North Jakarta	$\frac{1747315}{10177924} \times 225 = 38,62$	39
Total			225

Source: Research results

Table 2.
Total Samples Calculation for each of the Municipality in Jakarta SCR
Province (Research Question 2)

No	Municipality/Regency	Sample Calculation	Number of Samples Per Municipality
1	Thousand Islands	$\frac{23340}{10177924} \times 185 = 0,42$	1
2	South Jakarta	$\frac{2185711}{10177924} \times 185 = 39,72$	40
3	East Jakarta	$\frac{2843816}{10177924} \times 185 = 51,69$	51
4	Central Jakarta	$\frac{914182}{10177924} \times 185 = 16,61$	17
5	West Jakarta	$\frac{2463560}{10177924} \times 185 = 44,77$	45
6	North Jakarta	$\frac{1747315}{10177924} \times 185 = 31,76$	31
Total			185

Source: Research results

each statement to calculate the total score for each statement (Lazuardi, 2013). At the end of the analysis, the total TRI score was acquired from the accumulative score of total scores from each statement. The total TRI score acquired was subsequently used to determine the category level of Jakarta SCR residents' technology readiness.

According to Parasuraman, there are 3 levels of technology readiness, namely (Parasuraman, 2000):

a. Low Technology Readiness.

Technology readiness level is considered low if the total TRI value is equivalent to or less than 2.89 ($TRI \leq 2.89$).

- b. Medium Technology Readiness.
Technology readiness level is considered medium if the TRI value is between 2.90 and 3.51 ($2.90 \leq \text{TRI} \leq 3.51$)
- c. High Technology Readiness.
If total TRI is more than 3.51 ($\text{TRI} > 3.51$)

In addition, multiple linear regression analysis was used to answer the second research question. This is an analysis model aimed at understanding the influence independent variables (X) has over the dependent variable (Y) (Cooper & Schindler, 2014). Moreover, a hypothesis is accepted if the level of significance is $t_{\text{count}} \leq 5\%$ and it is rejected if the significance level is $t_{\text{count}} > 5\%$. Furthermore, a regression model can also be used for predictions given that it has met a number of assumptions. These are called “classical assumptions”. There are several tests that must be carried out to fulfill these classical assumptions, namely: 1) data normality test; 2) heteroscedasticity test; and 3) multicollinearity test.

Results

Validity

The Pearson Correlation Coefficient was used to conduct validity test. Furthermore, an indicator is considered valid by way of two probabilities, namely: a) If probability > 0.05 (or 0.01), then H_0 is accepted; and b) If probability < 0.05 (or 0.01), then H_0 is rejected (Santoso, 2015). Additionally, the ** mark that appears on the correlation number can also indicate significant correlation among existing indicators.

All the statements in the questionnaire relating to the issue of technology readiness has been determined as valid as its significance value is more than 0.05 or 0.01.

Meanwhile, there were a number of statement indicators that were invalid in the questionnaire relating to the issue of technology acceptance. Specifically, there were three invalid

statement indicators relating to the behavioral intention to use the system. These invalid statement indicators were statement indicator number 34, 35, and 36. This was known from their value of significance which was no more than 0.05, namely: a) 0.038 for statement indicator number 34; b) 0.014 for statement indicator number 35; and c) 0.024 for statement indicator number 36. Moreover, the three invalid statement indicators were deleted from the questionnaire. As a result, only 5 statement indicators relating to behavioral intention to use the system remain.

Correlation

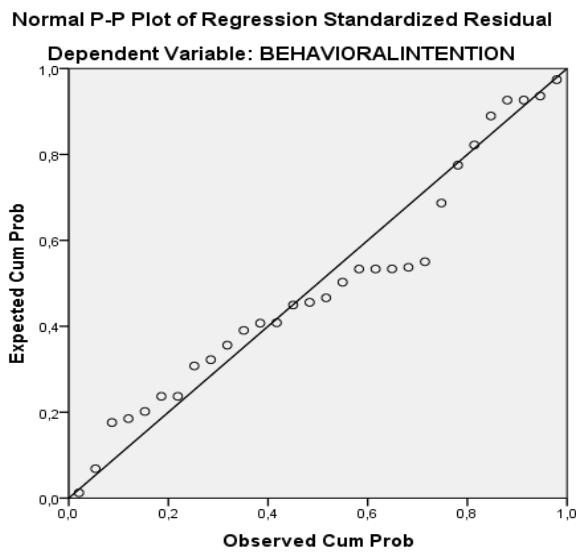
Cronbach’s Alpha was employed in this study to show the degree of reliability a measuring tool has (Singarimbun & Effendi, 1995). Furthermore, a research instrument in a questionnaire is valid if the Cronbach’s coefficient alpha is $>$ than 0.6. Based on the reliability test, it is known that the research instrument relating to the first research question is reliable. This is indicated by the Cronbach’s coefficient alpha measuring in at 0.882, which is more than 0.6, therefore allowing it to be considered reliable. All the research instruments can, thus, be utilized in the study. Moreover, the research instrument relating to the second research question which consisted of 34 statement indicators, after 3 statements proven to be invalid had been deleted, also indicates reliable data. This can be substantiated by the Cronbach alpha value indicating 0.810, which is more than 0.6, or in other words it proves that it is reliable to use in this study.

Regression Assumptions

In this study, regression assumptions tests were conducted on the respondents who completed the questionnaire from the research question relating to technology acceptance.

a) **Data normality test**

Figure 4.
Data Normality Test Result

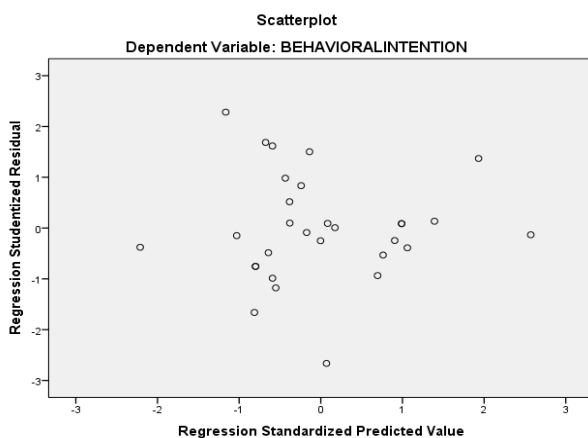


Source: Processed Data, 2019.

Based on the figure above, the data points remain spread around and follow the diagonal normality line. This is in line with the test criteria wherein a regression model is considered normally distributed if the data points are spread around the diagonal line. Thus, it can be concluded that the normality assumption of this model has been met.

b) **Heteroscedasticity Test Result**

Figure 5.
Heteroscedasticity Test Result



Source: Processed Data, 2019.

The above figure indicates that the points are randomly scattered and do not specifically or clearly form a particular pattern. In addition, the points are scattered randomly both above and below 0 on the Y axis. It can, thus, be concluded that the tested regression model does not experience heteroscedasticity, allowing it to be used as a prediction in the following research.

c) **Multicollinearity Test Result**

It is known that the tolerance value of each independent variable, namely: performance expectancy (EP), effort expectancy (EE), social influence (SI), and facilitating conditions (FC), is more than 0.1. Additionally, each independent variable's VIF value is also measured at around 1, which are: a) performance expectancy (PE): 1.443; b) effort expectancy (EE): 1.228; c) social influence (SI): 1.509; and d) facilitating conditions (FC): 1.104. It can, therefore, be concluded that the regression model does not have any multicollinearity issue.

Table 3.
Multicollinearity Test Result

Model	Collinearity Statistics	
	Tolerance	VIF
EP	,693	1,443
PE	,815	1,228
SI	,663	1,509
FC	,906	1,104

Dependent Variable: BI

Source: Processed Data, 2019.

Value of Technology Readiness Index (TRI)

This subsection describes the data acquired from the TRI analysis that have been done previously to answer the second research question, which relates to the Jakarta SCR residents' technology readiness in applying the e-government system through the Jakarta Smart City program.

Based on the TRI value calculation results, the total technology readiness index is known to be at 2.7.

Table 4.
Summary of Technology Readiness Index Values

Variable	Value
Optimism	0.82
Innovativeness	0.69
Discomfort	0.63
Insecurity	0.56
Total TRI Score	2.7

Source: Processed Data, 2019

Multiple Linear Regression Hypothesis Test Results

The hypothesis test is decided based on value of significance, that is:

- If Sig > 0.05, then Ho is accepted.
- If Sig < 0.05 the Ho is rejected or in other words Ha is accepted.

Based on the multiple regression analysis conducted, the following results are known:

- The performance expectancy variable has a significance value of 0.038, which is **smaller** than 0.05. It can, thus, be identified that the operational hypothesis **(Ho) is rejected**. It can, consequently, be concluded that the performance expectancy variable **has significant influence** on the behavioral intention to use technology (BIUS) variable.
- The effort expectancy variable has a significance value of 0.014, which is **smaller** than 0.05. It can thus be identified that the research hypothesis **(Ha) is accepted**. It can be concluded that the effort expectancy variable **has significant influence** on the behavioral intention to use technology (BIUS) variable.
- The social influence variable has a significance value that is also **smaller** than 0.05, that is 0.000. This indicates that the operational hypothesis **(Ho) is rejected**, which consequently leads to the conclusion that the social influence variable, which is an independent variable, does indeed **have**

significant influence on the dependent variable, which is the behavioral intention to use technology (BIUS).

- The facilitating conditions variable also has a significance value that is far **smaller** than 0.05, that is 0.000. It can, thus, be identified that the research hypothesis **(Ha) is accepted**, which consequently leads to the conclusion that the facilitating conditions variable, which is an independent variable, does indeed **have significant influence** on the dependent variable, which is the behavioral intention to use technology (BIUS).

Based on the above elaboration, it can, therefore, be concluded that the four **independent variables**, namely performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC), do indeed **have significant influence** on the behavioral intention to use technology (BIUS), which is the **dependent variable**.

Discussion

Technology Readiness Index (TRI) Value Analysis

Based on table 1.5, we can understand that the index value of the **optimism variable** has the highest score that contributes to the total value of technology readiness index at 0.82. Given such high optimism variable value, we can, thus, understand that the people of Jakarta SCR have a positive perspective on technology. This is in line with Parasuraman's statement that the optimism variable can be viewed from the positive belief a person has in technology. Furthermore, they believe that technology can provide them certain benefits, such as flexibility, and efficiency in their daily activities or in their activities at work. This is the kind of positive perspective the Jakarta SCR public has concerning technology. Aside from believing that technology can be beneficial to support their daily life, the people

of Jakarta also believe that, as individuals, they can properly control and operate technology. Such kind of perspective is surely much required by the people of Jakarta SCR if they want to lend their support to the success of the Jakarta Smart City program. Simply put, if the people of Jakarta SCR, who are the target of the technology-based Jakarta Smart City program, have positive believe and perspective in applying technology, then this will drive them to want to access and contribute to the JSC program.

Moreover, the **innovativeness variable** has the second highest score that contributes to the total value of technology readiness index at 0.69. If we compare the optimism variable value to the innovativeness variable value, then we can see that the innovativeness value is not as high as the optimism value. There is a value gap of approximately 0.13 between the two. Given such value, it can be concluded that the people of Jakarta SCR have an innovative attribute in adopting and using technology. However, despite the innovativeness value coming in at second highest in the total technology readiness index, its value is not too far apart with the **discomfort variable**, which stands at 0.63. It can, thus, be identified that there is merely a value gap of 0.03 between the innovativeness variable and the discomfort variable. This may imply that there is the possibility of several factors making the people of Jakarta SCR feel uncomfortable in adopting and utilizing technology, which in turn may also inhibit the people of Jakarta SCR to innovate in technology adoption and usage. Additionally, based on Table 1.5, it can be understood that the discomfort and insecurity variables have insignificant and very low values to contribute to the total index of technology readiness. The values of the **discomfort and insecurity variables** are 0.63 and 0.56 respectively. The underlying reason for the people of Jakarta SCR to feel discomfort and insecurity in adopting and using technology cannot yet be known and identified by merely

examining the statistical figures above. As it is known, the second research question merely aims to understand the people of Jakarta SCR's degree of readiness in adopting and using technology by observing the technology readiness index values, without conducting further qualitative studies to understand the underlying cause behind such high or low technology readiness index values. This is actually one of the limitations of this study. Thus, ample space is provided for conducting follow-up studies and exploring further the underlying factors or causes that lead to high or low technology readiness index values by using the qualitative research method, so that there will subsequently be information and data available to support the results of the readiness index value statistical analysis.

Specifically, the total technology readiness index value is at 2.7. It can, thus, be concluded that the people of Jakarta SCR still have a low level of readiness in technology adoption and use. Parasuraman states that technology readiness is considered low or included in the low technology readiness category when the total TRI value is equivalent to or less than 2.89.

The above findings are similar with the findings of a study Lazuardi conducted entitled "*Tingkat Kesiapan (Readiness) Pengadopsian Teknologi Informasi: Studi Kasus Panin Bank*" (The Level of Readiness in Information Technology Adoption: A Panin Bank Case Study) in 2013. At the time, Lazuardi had conducted research on the Panin Bank staff who applied a system called Business Intelligence (Oracle), which is useful in facilitating the process of gathering a bank's financial data (Lazuardi, 2013). When the system was implemented, the acquired results did not meet the managers' expectations. The Panin Bank staff, who were expected to be able to use the Oracle system to facilitate their work in obtaining accurate data, were unable to operate the system properly in their respective computer instead (Lazuardi, 2013). Furthermore, Lazuardi

even states that there were still many Panin Bank personnel who requested data manually and directly to the Information System Management section. This had served as the background for Lazuardi to carry out a study relating to the readiness level the users of the Oracle system show in adopting the technological innovation, wherein these users are Panin Bank personnel. Based on the results of TRI analysis Lazuardi conducted, the Panin Bank personnel's final score of the readiness index was merely at 2.37. This value leads to the conclusion that the technology readiness index of the staff at Panin Bank also falls into the low readiness category. Aside from the technology readiness index value, which is relatively similar to this research, the study Lazuardi conducted also has high optimism and innovativeness values that contributed to the final TRI value. The optimism and innovativeness values in Lazuardi's research were 0.74 and 0.59 respectively. Whereas the discomfort and insecurity values in the research were very low. To be specific, the values of the two variables were at 0.55 and 0.49 respectively.

Parasuraman also distinctively categorizes the users or adopters of technology into several levels based on the technology readiness index, as follows:

It can, therefore, be concluded that the people of Jakarta SCR are included in the explorers' category. This is due to the fact that they have high optimism and innovativeness values contributing to the total TRI value. Whereas the discomfort and insecurity values are low. Moreover, people categorized as being explorers are individuals

who are very open to progress and introduction of new modern technology in daily life.

Multiple Linear Regression Analysis

There are several matters of importance found based on the acquired data and findings, namely: First, the performance expectancy variable has a positive and significant influence on the behavioral intention to use technology (BIUS) variable. Furthermore, in this study the performance expectancy's influence has been assessed to identify the influence of a person's belief and perspective that adopting and using the Jakarta Smart City program can increase their performance, and the quality of their daily life. Once such assumption exists in a person's mind, then that will boost their intention to adopt and use the Jakarta Smart city program in matters relating to their job or even just for their daily activities. According to Vankatesh, once an individual assumes that an information technology based program or activity can provide positive impact to their work or daily life, they will then have a significant inclination to adopt and utilize that information technology based program in a certain period of time. Such finding is similar to those obtained by Compeau & Higgins, 1995; Dasgupta, 2007; Davis, 1989; Handayani, 2005; Sedana & Wijaya, 2009; Taylor & Todd, 1995; Venketesh & Davis, 2000).

Second, the effort expectancy variable has a positive and significant influence on the behavioral intention to use technology (BIUS) variable. The effort expectancy in this study is the

Table 5.
Difference of Beliefs among Segments in Technology Adoption

Type	Drivers		Inhibitors	
	Optimism	Innovativeness	Discomfort	Insecurity
Explorers	High	High	Low	Low
Pioneers	High	High	High	High
Skeptics	Low	Low	Low	Low
Paranoids	High	Low	High	High
Laggards	Low	Low	High	High

Source: Parasuraman and Colby, 2004

respondents' assumption that not much efforts are required to be able to properly operate and utilize the information technology based Jakarta Smart City program. This is in line with Vankatesh's statement that once a person has considered that a system of technology can be used practically with ease, then this will influence that person's intention to use and adopt said information technology. The research findings show that the people of Jakarta SCR consider the Jakarta Smart City program as practical and easy to understand and use. This will subsequently drive the people of Jakarta SCR's interest and intention to adopt or access the Jakarta Smart City program. This is also in line with the argument made by Venkatesh and Davis that once users have considered that the use of an information technology is easy and effortless, then this will stimulate the users' perception that the IT system is useful and they feel comfortable using it. Subsequently, this can reinforce their interest and intention to adopt and utilize the system. Similar findings can also be observed in other studies (Dasgupta, 2007; Gaffar, Singh, & Thomas, 2013; Hong, Im, & Kang, 2012; Pramudita, 2010; Sedana & Wijaya, 2009; Thompson et al., 1991; Venkatesh et al., 2003; Yadnyana & Ketut, 2016).

Third, the social influence variable has a positive and significant influence on the behavioral intention to use technology (BIUS) variable. Furthermore, the social influence variable is considered as influence instigated by the respondent's surroundings and closest people, be it family, friends, colleagues, superior at work, the company or institution where the respondent work at. To put it simply, when someone close and influential to the respondent assumes that using the Jakarta Smart City program facilitates their daily activities, then it can also influence the respondent's decision to adopt and use the JSC program. This is in accordance with the statement made by Jati, wherein an individual's intention to utilize an information technology

will increase given that there is support from the surrounding environments constantly urging that individual to utilize the information technology system. In further detail, when the company or organization where someone works at, along with their colleagues, also uses and accesses the JSC program to make their daily work easier, then this can change an individual's decision, who initially did not make use of the JSC program, to becoming an active user of the JSC program. This finding is in line with the findings in other studies (Cheng et al., 2011; Handayani, 2005; Ku & Tai, 2013; Lehto, Park, & Yang, 2013; Venkatesh et al., 2003; Venkatesh, Thong, & Xu, 2012).

Fourth, the significance value of the facilitating conditions variable is also far smaller than 0.05, that is 0.000. Therefore, the operational hypothesis (Ho) is rejected. In other words, the facilitating conditions variable has a positive and significant influence on the behavioral intention to use technology (BIUS) variable. The facilitating conditions found in this study are clear instructions in the JSC program applications, special staff made available from JSC, computers, laptops, smartphones, internet, and basic knowledge about information technology that the users have. The facilitating conditions mentioned above are assumed to be useful in assisting respondents or users to reduce any inhibition when adopting an information technology system. When inhibitions confronted by the users have been reduced, this can drive the users' intention to adopt and use the information technology system. This finding is similar to other findings made in several other studies (Handayani & Yulianti, 2011; Karyam, Kusumadewi, & Syaokani, 2013; Lehto, Park, & Yang, 2013; Mahmood, n.d.; Widyawati, 2013).

Limitations of Study

In this study, the researcher has afforded maximum efforts to design, obtain, and produce proper findings. However, due to time and material constraints, there are still several limitations that

can be improved by other researchers for future studies. The limitations of this research are: **First**, the amount of samples to answer the two research questions was still very minimal, because the researcher only used the minimum limit of samples determined by Hair et al. in which the amount of samples representing the population is calculated by multiplying the amount of statement indicators by 5 to 10. The sample quantity is still considered highly insubstantial when compared to the entire population of Jakarta SCR, which reaches 10 million. Subsequent studies should, therefore, increase the sample quantity to gain more representation from the population of Jakarta SCR. **Second**, the researcher did not include moderating variables such as: age, gender, education, and experience into the UTAUT multiple linear regression analysis to answer the second research question. Subsequent studies are, thus, suggested to include moderating variables to have a clearer description on how these moderating variables weaken and strengthen the relations between the dependent and independent variables. **Third**, the researcher was not able to obtain deeper findings concerning other dimensions, aside from optimism, innovativeness, discomfort, and insecurity variables, that can explain the reason for the public's low level of technology readiness. This is perhaps due to the researcher employing only the quantitative method to analyze the research question concerning technology readiness. Therefore, qualitative study should, subsequently, be conducted to comprehensively understand the causes and reasons behind the low level of technology readiness.

Conclusion

This study, practically, provides a number of policy implications on the future implementation of the JSC program, namely: Because the total score of the technology readiness index of Jakarta SCR's residents is still low, due to the

total value of innovativeness variable being low and insignificant, the JSC Integrated Service Provision Unit should hold activities relating to technology awareness to raise public awareness and innovativeness in technology adoption. Technology awareness activities can be held by the government in the form of weekend festival events that are promoted interestingly by involving younger generations and public figures to draw the public's attention and interest to participate in the events. Because the PE, EE, SI, and FC variables have positive and significant influence on the BIUS in the implementation of the JSC program, the JSC Integrated Service Provision Unit should improve the benefit and functionality of the system as a source to facilitate work in the office, daily activities, or lessons in school. Additionally, the JSC Integrated Service Provision Unit should improve the ease of using the system in the JSC program, such as the Qlue or CRM applications.

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