

Behavioral Intention to Use @wifi.id Services in Indonesia

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Abstract--- Nowadays, Internet access becomes popular all over the world including in Indonesia, telecommunication operators are fighting to attract as many customers as possible by providing fast, reliable, and wide internet connection. PT Telkom as the biggest telecommunication operator has been trying to become the winner in this competition by providing several internet accesses, one of them is @wifi.id. PT Telkom has invested a huge fund to provide the service and set revenue target, but the achieved revenue is far below the targeted revenue. It is important to find out the key factors that have influenced the consumers' behavior toward @wifi.id adoption. Using the insights from an extensive review of literature and the discussions with people from the telecommunication operator, this study proposes a conceptual model to predict consumers' behavior toward @wifi.id. The proposed model is a modified model of Unified Theory Acceptance and Use of Technology (UTAUT) which has Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Price Value, and Content as independent variable, Behavior Intention as intervening variable, Use Behavior as dependent variable. The data to test the model are collected from 996 valid respondents chosen by purposive sampling technique in 5 big cities in Indonesia. The data is analyzed by using SmartPLS2.0 software and the result shows that four independent variables (Social Influence, Price Value, Content, and Performance Expectancy) have positive significant influences on Behavior Intention. Behavior Intention has positive significant influences on the Use Behavior. While Effort Expectancy and Facilitating Condition have no significant influence on Behavioral Intention. Based on the result of this study, to motivate customers to use more @wifi.id, it is suggested that Telkom should make a program that motivates the important people of customers, such as teachers or public figures to use and suggest other people to use @wifi.id., strengthen and develop @wifi.id community. The suitable pricing is also important since customers consider price value as a second key factor. The third key factor is Content; thus Telkom should collaborate with content providers to offer contents that are needed by @wifi.id users.

Keywords : @wifi.id, wifi Services, Unified Theory of Acceptance and Use of Technology;

I. INTRODUCTION

The number of Internet users all over the world, including in Indonesia, are increasing. Telecommunication operators are fighting to attract as many customers as

possible by providing fast, reliable, and wide internet connection both in the property of customers and public area. One of the examples of the Internet connection in the property of customers is Indihome and the Internet access in public area is Wifi. Today Wifi become popular in Indonesia, and to get large customers, the internet operators in Indonesia deploy the wifi network that has a big capability to bring big data. There are two operators in Indonesia that provide fast internet access by using wifi network. PT Telekomunikasi Indonesia and PT Indosat are two operators that already deploy the services in Indonesian market. PT Telkom as the biggest telecommunication operator has tried to become the winner in this competition by providing @wifi.id. To provide a good @wifi.id, PT Telkom has invested a huge fund and set revenue target. PT Telkom as the biggest operators in Indonesia has significant target that will deploy 200.000 access points in 2015. The cost of investment is + US\$ 400 / Access Point (AP), so in total Telkom should invest +US\$ 80.000.000. In 2017 Telkom has targeted to deploy 500.000 AP which means that it needs a total capital expenditure of + US\$ 200.000.000. This is of course a very significant investment that should be balanced with profitable revenue. During 2014, the achieved revenue was far below the target revenue as can be seen in Table 1.

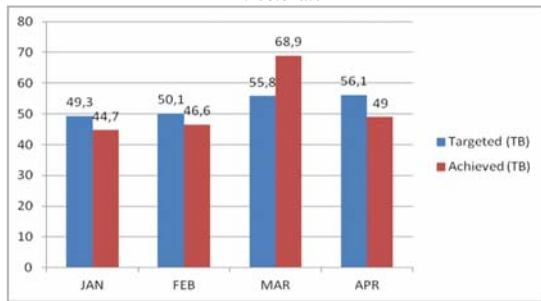
TABLE I TARGETED AND ACHIEVED REVENUE OF @WIFI.ID IN 2014 (MUSTAIN (2015))

	JAN	FEB	MAR	APR	MAY	JUN	JULI	AUG	SEP	OCT	NOV	DES
Targeted (M)	3,6	7,2	6,2	9,5	15,7	21,2	27,2	28	29,4	16,5	18,3	18,2
Achieved (M)	2	3,6	4,6	8,9	14,8	14,9	20,3	20	25,9	14,2	7,6	6,6
Percentage	56%	50%	74%	94%	94%	70%	75%	71%	88%	86%	46%	37%

Based on Table 1, during 2014 the achieved revenue of @wifi.id was always below the targeted one. This condition indicates that the usage of @wifi.id has not been successfully received by the internet users in Indonesia yet. Even, until the first quarter of 2015, the usage data of @wifi.id was always below the target

except in March 2015 the achieved number exceeds the target, as shown in Figure 1.

Figure 1. Usage of @wifi.id in First Quarter of 2015 Source: NITS Directorate



From the business point of view, it is really not good if the achieved number is far below the targeted number. In the long run this can make the company become not profitable. It is important to find out factors considered by customers and prospective customers so they want to use @wifi.id. Thus, this research intends to find out the key factors influencing customer behavior toward @wifi.id adoption.

Using insights from an extensive review of literatures and discussion with people from telecommunication operator, this study finds a conceptual model that is suitable for predicting consumer behavior toward @wifi.id. The conceptual model is based on a model of Unified Theory Acceptance and Use of Technology (UTAUT) which is modified, thus it is called as modified model of UTAUT.

II. RESEARCH QUESTIONS AND OBJECTIVES

In line with the introduction above, this paper seeks to answer the following research questions:

- What is the perception of the participants on the variables of modified UTAUT model in this study?
- Do the variables of Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Content, and Price Value influence Behavioral Intention to use @wifi.id?
- Does Behavioral Intention influence Behavior to Use @wifi.id?
- What should the company do to encourage or impede customers to use @wifi.id?

Bring up the research questions, the objectives of this research are: 1) to know the perception of the participants on the variables of modified UTAUT model in this study; 2) to know if the variables of Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Content, and Price Value influence Behavioral Intention to use @wifi.id; 3) to test if Behavioral Intention influence Behavior to Use @wifi.id, and 4) to find out the activity that should be done relating to the result of this study to encourage or impede customers adoption toward @wifi.id. Therefore, this study is prospective to give the contribution on measuring the behavioral intention and use behavior of customers toward @wifi.id. Furthermore it can be used to

plan, do, and act the next marketing program that will increase the @wifi.id usage.

III. LITERATURE REVIEW

Technology adoption is an important part of new product deployment, which is the reason why many researchers focus on the technology adoption of a new product. Technology adoption is largely based on theory behavior which is rooted in the field of social psychology. There are several theories that focus on technology adoption. Starting from (1) the Theory of Reasoned Action (TRA), (2) the Theory of Planned Behavior (TPB), (3) the Technology Acceptance Model (TAM), (4) the Motivational Model (MM), (5) the Combined TAM-TPB (C-TAM-TPB), (6) the Model of Personal Computer Utilization (MPCU), (7) Innovation Diffusion Theory (IDT), (8) Social Cognitive Theory (SCT), and (9) the Unified Theory of Acceptance and Use of Technology (UTAUT). UTAUT is the latest technology adoption which is used as the basic theory. Table 2 shows several studies use UTAUT.

TABLE II SEVERAL STUDIES BASED ON UTAUT MODEL

	Im, Hong, Kang (2010)	Indrawati & Marheni (2014)	Sundaravej (2006)	Peters & Heuvelman (2007)
Performance Expectancy (PE)	✓	✓	✓	✓
Effort Expectancy (EE)	✓	✓	✓	✓
Social Influence (SI)	✓	✓	✓	✓
Facilitating Conditions (FC)	✓	✓	✓	✓
Price Value (PV)		✓		
Habit (H)				✓
Attitude (A)			✓	✓
Self-Efficacy (SE)			✓	
Anxiety (A)			✓	
Content (C)		✓		
Age (A)		✓	✓	✓
Gender (G)		✓	✓	✓
Income (I)		✓		
Behavior Intention (BI)	✓	✓	✓	✓

This research was done based on UTAUT model which was modified. In the original UTAUT model, there are 4 variables as independent variable, namely Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Condition. Those 4 factors significantly influence Behavior Intention and indirectly have significantly influenced Use Behavior of customers toward technology or product based on technology.

The first variable, Performance Expectancy is the perception of customers regarding the capability of technology in helping the user on finishing their job. This variable is actually derived from existing previous variables, namely the Perceived of Usefulness, Extrinsic Motivation, Job Fit, Relative Advantage and Outcome Expectation.

The second variable, Effort Expectancy refers to how easy to use the technology or product even for the new user. This variable is actually derived from existing previous variables, namely the perceived ease of use, complexity and the ease of use.

The third variable, Social Influence refers to the degree in which an individual perceives that important people should use the new system [1]. This variable is actually derived from an existing previous variable, namely Subjective Norm, Social Factors, and Image.

The fourth variable, Facilitating Condition refers to individual beliefs that an organizational and technical infrastructure exist to support the use of the system [1]. This variable is actually derived from existing previous variables, namely facility readiness and the availability of existence when users need it.

The UTAUT holds those three key constructs (Performance Expectancy, Effort Expectancy, and Social Influence) as direct determinants of Behavioral Intention, and one direct determinant of Use Behavior (namely Facilitating Conditions). Gender, age, experience, and voluntariness of use are posited to moderate the impact of the four key constructs on usage intention and Use behavior [1].

Indrawati [2][3] had modified UTAUT model from Venkatesh [1], adding a main variable, Content, and removing the moderating variables Experience and Voluntariness of the Use. Following Indrawati, this research also added Content as the fifth independent variable to the model. Content is defined as the creative material created by professionals to be used by a large number of people and distributed through technology.

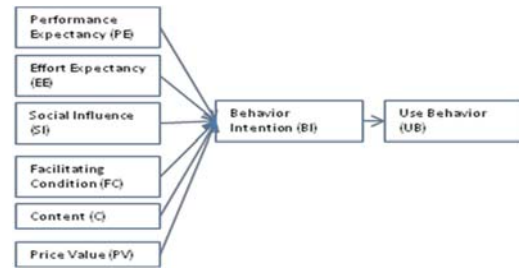
The sixth independent variable is Price Value, defined as consumers' cognitive trade-off between the perceived benefits of the applications and the monetary cost for using them.

Besides having six independent variables this research has one intervening variable and one dependent variable. The intervening variable is Behavioral Intention defined as the degree to which a person will use @wifi.id in the future. Use Behavior is defined as the frequency of the users in using @wifi.id.

IV. PROPOSED CONCEPTUAL MODEL AND HYPOTHESES

Based on the description of above, the schematic proposed model in this research are shown in Figure 2.

Figure 2. Modified UTAUT Model on @wifi.id Adoption



According to the model, there are seven hypotheses of this research.

1. Performance Expectancy (PE) has a positive significant influence on Behavioral Intention (BI).
2. Effort expectancy (EE) has a positive significant influence on Behavioral Intention (BI).
3. Social influence (SI) has a positive significant influence on Behavioral Intention (BI).
4. Facilitating conditions (FC) has a positive significant influence on Behavioral Intention (BI).
5. Content (C) has a positive significant influence on Behavioral Intention (BI).
6. Price Value (PV) has a positive significant influence on Behavioral Intention (BI).
7. Behavioral Intention (BI) has a positive significant influence on Use Behavior (UB).

V. RESEARCH METHODOLOGY

In order to test the hypotheses and achieve the objective, this study employed a survey method using a set of questionnaire to gather data from respondents, which were senior high school students and teachers from 5 big cities in Indonesia. The set of questionnaire was composed in both paper and Google drive and the link was distributed online. In developing the questionnaire, this research followed the four steps in order to get valid and reliable questionnaire. Starting from operationalizing the variable--the process of identification of variables of the model tested, defining the variables, reducing the abstract concept of the variables to render it so it was measurable in a tangible way [4][5][6][7]. In this process, the study looked for and modified the definition on each variable of the proposed conceptual model in order to fit with the object of the study. The variable of this study consisted of Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Content, Price Value, Behavioral Intention, and Use Behavior.

The second step of developing questionnaire was reviewing the related items from the existing references to measure the variables of the proposed model. The third step was modifying the existing items from the references in order to fit with the object of this study.

The 39 modified items were arranged into a set of questionnaire than it was discussed with 2 business players and one academician to test the content and validity. This process resulted that the items should be reduced into 34.

The third step was readability test to make sure that the items of the questionnaire is readable by targeted respondents, this process was done by giving the questionnaire to three prospective respondents.

The fourth step of developing questionnaire was a pilot test, this process was done by giving the questionnaire to 40 respondents. The collected data was analyzed by using SPSS and the result revealed that from 34 items, 2 items should be deleted since those items did not fulfill the validity and reliability requirements.

This study applied a purposive sampling technique in selecting respondents. Applying this technique, the study selected the respondents who are confined to specific types of people who can provide the desired information, either because they are the only ones who have it or because they conform to some criteria set by the researchers [4][5]. In this study, the criteria were the users of Wifi.id. The total of valid questionnaires for data analysis was 996.

Descriptive method and causal investigation was used to analyze the collected data. A descriptive study is undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in a situation [5]. Descriptive analysis was performed to obtain the respondents opinion regarding the variables involved in this study. In this study, the descriptive method was employed to answer the first research question and causal data analysis was employed to answer the second and the third questions, as stated by Indrawati [2][6][7] that the causal investigation method can be used for its appropriateness to test the model. The fourth research question could be answered by using the results of both descriptive and causal investigation methods.

The causal analysis method used in the study was the partial least square (PLS) method, which is a variance-based technique of structural equation modeling (SEM). The PLS method can analyze structural models with multiple-item constructs, as well as measure direct and indirect paths. PLS can also produce standardized regression coefficients between constructs as well as loadings between items and constructs (similar to principal components analysis). Values for dependent constructs are similarly produced. The reasons for the selection of PLS are: first, PLS has less demand on the underlying data distribution. PLS is able to analyze data and model latent construct under non-normal data condition, and therefore by using PLS, there is no distributional necessities of data. In PLS, the test of significance is assessed from bootstrap procedure, for this reason, the normality is not an assumption [8]. This capability makes PLS become popular, since the majority of data collected in behavioral research did not follow normal distributions [9][10]. Second, PLS has less demand on the measurement scale [10]. The measurement scale may be at any level: nominal, ordinal, interval, or ratio. This study used software of SmartPLS 2.0

M3, which can be downloaded free from <http://www.smartpls.de>.

VI. RESEARCH RESULTS AND DISCUSSION

The method used in this study were descriptive and causal analysis and the result are as follow.

A. Descriptive Result

In analyzing data using descriptive method, data were computed to get the mean value or score of respondents' answers of each variable. The mean value is then translated into several qualities: the mean value which has a score ranging from 20% to 36% is considered very low; above 36% to 52% is considered low, above 52% to 68% is considered medium, above 68% to 84% is considered high, and above 84% to 100 is considered very high. The result of scoring is shown on Table 3. The table shows that all the variables of the proposed model are categorized as high; these indicate that participants have a good perception for those variables.

TABLE III DESCRIPTIVE ANALYSIS RESULT

Variable	Total I index	Category
Performance Expectancy	81%	High
Effort Expectancy	78%	High
Social Influence	71%	High
Facilitating Condition	74%	High
Price Value	71%	High
Content	82%	High
Behavior Intention	73%	High
Use Behavior	74%	High

B. Causal Analyses Result

There are two steps that should be followed in using PLS method to analyze causes, namely: (1) an assessment of the measurement model to test the reliability and the validity of the instrument; and (2) an assessment of the structural model to test the research hypotheses [11][8][12][2]. In the assessment of measurement model, there are three standards that should be fulfilled: indicator reliability, internal consistency reliability, and convergent validity. Assessment of the measurement model is generally performed to ensure that the measurement is reliable and valid before making any conclusions about the relationships between the constructs of the model. The measurement model can be tested by evaluating indicator reliability, internal consistency reliability, convergent validity, and discriminant validity [2][12][13]. Indicator reliability explains the extent to which a variable or a set of variables is consistent to that it intends to measure [12]. In PLS, the indicator reliability is assessed by factor loading (FL), this study accepted items with a loading of 0.7 or higher and the items with FL less than 0.70 were deleted. SmartPLS can directly create the FL of each item with the user

clicking on “Calculation for PLS Algorithm”. The FL results of PLS in this study were all fulfill the requirements as can be seen in Figure 3.

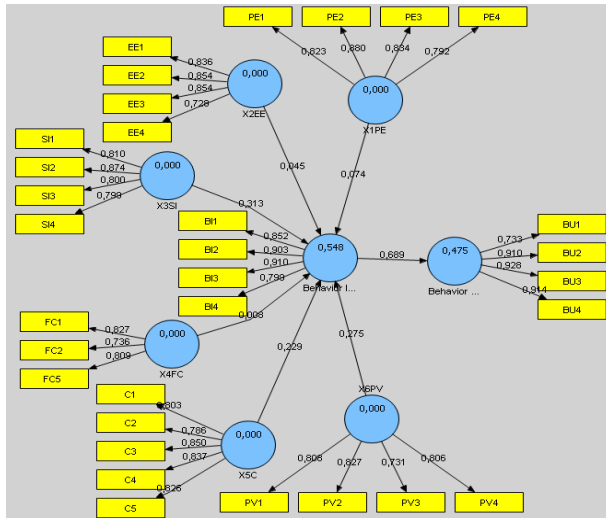


Figure 3. Path Diagram Inner Model @wifi.id adoption

Internal consistency reliability measured the degree in which the indicator variable or manifest variable simultaneously loaded when the latent variable increases. The most well-known criterion for assessing internal consistency reliability is Cronbach Alfa (CA) and An alternative measure to CA is Composite Reliability (CR) [2][12]. The values of CR and CA range from 0 (completely unreliable) to 1 (perfectly reliable). Values above 0.700 are desirable for exploratory research, and those above 0.800 or higher are desirable for advanced research. Values below 0.600 indicate a lack of reliability.

Convergent validity measures the degree to which individual items reflecting a construct converge in comparison to items measuring different constructs. A commonly applied criterion of convergent validity is the AVE proposed by Fornell and Larcker (1981) [12]. An AVE value of at least 0.5 indicates that a latent variable can, on average, explain more than half of the variance of its indicators, and is therefore considered to demonstrate sufficient convergent validity. This study had CA and CR values above 0.8, which indicated that each construct met the internal consistency reliability requirement. The AVE values of all construct were above 0.6, and thus this study decided that each construct met the convergent validity.

In PLS, the accuracy of the proposed model can be measured by using Path coefficient (PC) and R-squared (R²) criterion. The path coefficients should have t-values of at least 1.96 to be considered significant at the 95% confidence level [8][13]. The t-values are then obtained using re-sampling techniques, such as bootstrapping [12]. Table 4 shows the path coefficients and t-values of the model as a result of bootstrapping.

TABLE IV PATH COEFFICIENT AND T-VALUE OF @WIFI.ID ADOPTION

Path	t-Value	Result	
SI → BI	0.31	9.32	Hypothesis accepted
PV → BI	0.28	7.87	Hypothesis accepted
C → BI	0.23	6.46	Hypothesis accepted
PE → BI	0.07	1.98	Hypothesis accepted
BI → BU	0.69	34.92	Hypothesis accepted
FC → BI	-0.01	0.22	Hypothesis not accepted
EE → BI	0.05	1.26	Hypothesis not accepted

Base on Table 4, there are 5 hypotheses accepted and 2 hypotheses that are not accepted.

The result of processing data using Smart PLS gave R-Squared of 0.55 and 0.47 as can be seen in Figure 3, indicating the model medium power in predicting behavior of customers in using @wifi.id.

VII. CONCLUSIONS AND IMPLICATION FOR PRACTICE

Based on the empirical result, this study concludes that:

This model can be used to predict the behavior of the users in adopting the @wifi.id, since the result of the R-Squared was 0.55. The effect of independent variables to the dependent variable from the highest to the lowest are as follow: Social influence (SI), Price Value (PV), Content (C), Performance expectancy (PE,) positive significantly influence to Behavior Intention (BI). While the other two variables, Effort expectancy (EE) and Facilitating conditions (FC), do not significantly influence Behavior Intention (BI). Behavioral Intention (BI) positively and significantly influence Use Behavioral (BU).

Since Social Influence had the highest effect to behavioral intention, Telkom should be able to motivate customers to use more of @wifi.id. It is suggested that Telkom should make programs that motivate the important people of customers, such as teachers or public figures to use and suggest other people to use @wifi.id. Strengthening and developing @wifi.id community are also important to do.

The suitable pricing is also important since customers consider the price value as the second key factor. Moreover, this should be done if Telkom wants to attract young customers who are mostly price sensitive.

The third key factor is Content; customers will use more @wifi.id if contents they need that are available in the website. Thus, Telkom should collaborate with content providers to offer contents that are needed by @wifi.id users.

VIII. STUDY LIMITATIONS

While our study provides useful information for measuring customer behavior toward @Wifi.id in term of finding the variable that influence the behavior intention and use behavior, the variability of respondents should also be considered to be included in the model. For further study, it is suggested to include age, gender, and income as a moderating variable in the model.

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