

# FACTORS AFFECTING ON UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY 2 (UTAUT2) TOWARD INTENTION AND USE BEHAVIOR OF INDONESIA WIFI @WIFI.ID INTERNET SERVICES (A Study at Telkom University Bandung 2016)

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## Abstract

Indonesian WiFi @wifi.id is the most popular WiFi-based internet service in Indonesia which combines the advantages of mobility owned by cellular network and reliable quality of cable network. However, the rate of user adoptions in using this service is still low. Therefore, it is important to know the factors that influence user's intention and behavior of @wifi.id internet service.

This research will determine the factors of user's preferences using @wifi.id services and the factors of intention influence and use behavior in using @wifi.id services based on UTAUT 2 Model. This research uses 420 respondents of @wifi.id internet service users in Telkom University. Using questionnaire as the main data collection tool consisting of user preference questions and 28 items of statements covering nine construct variables. Traditional conjoint analysis with regression is used to test user preference and the measurement uses Structural Equation Modelling (SEM) with LISREL 8.80 and AMOS 22 for moderating variables measurement.

The results of this research suggest that frequency of usage is an important factor in @wifi.id user's preferences. UTAUT2 factors which contribute to the *Behavioral Intention* are *Habit*, *Price Value*, *Facilitating Condition*, *Effort Expectancy*, and *Performance Expectancy*. Those factors contribute as much as 61%, while, factors which contribute to the *Use Behavior* are *Behavioral Intention* and *Habit* as much as 53%. It is proven that *Age* moderates the impact of *Social Influence* and *Price Value* on *Behavioral Intention*, while *Gender* moderates the impacts of *Social Influence* and *Hedonic Motivation* on *Behavioral Intention* along with *Habit* on *Use Behavior*. *Experience* is proven to moderate the influences of *Facilitating Condition* and *Hedonic Motivation* on *Behavioral Intention* along with *Habit* on *Use Behavior*.

*Keywords: Operation Management; UTAUT2; SEM; Technology Adoption*

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## 1. Introduction

A flexible internet connectivity is a necessary need in today's modern era, (Mulyono & Thamrin, 2014). It drives the market in developing countries like Indonesia, which has reduced the access to *dial-up* telephone connections and further develop the Internet services with *mobile* technology (indotelko, 2015). Based on the trends statistic obtained from google trends, @wifi.id is the most popular WiFi-based Internet service in Indonesia. But it is not accompanied by the acceptance of the services usage because of the low productivity that @wifi.id generates (Telkom, 2015)

## 2. Basic Theory and Conceptual Framework

The use of technology is one of the most studied phenomena which has produced several models developed in the areas (Pahnla et al., 2011: 2). Researches on the acceptance of technology have tried to clarify the contributing factors for the success or failure of information systems and technology (Wills et al., 2008 in Marhaeni, 2014: 14). *The Unified Theory of Acceptance and Use of Technology* (UTAUT) is one of the latest technology acceptance models developed by Venkatesh et al. (2003). UTAUT2 is an extension of UTAUT model

developed by Venkatesh, Tong, and Xu in 2012. Venkatesh et al. (2012: 157) tested the UTAUT2 model which explains three new constructs namely *hedonic motivation, price value, and habit*. While *age, gender, and experience* are the differentiators of each individual, used as a moderating effect toward *behavioral intention* and the *use of technology*. UTAUT2 Model which is developed by Venkatesh et al. (2012: 160) can be seen in figure 1

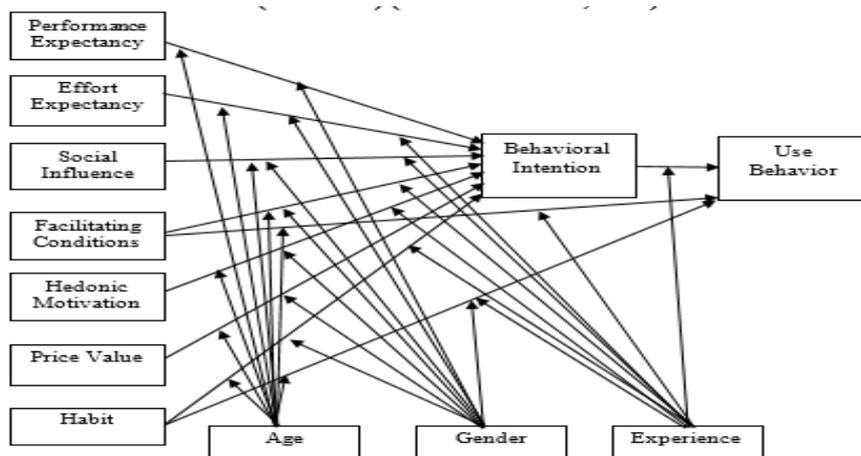


Fig 1. Unified Theory of Acceptance and Use of Technology 2

UTAUT 2 model which was developed by Venkatesh et al. (2012) uses moderating variables that influence the acceptance of technological use, namely *Age, Gender, and Experience*. Therefore, this study will refer to the UTAUT2 model that is served as the conceptual framework of the study.

This research uses a quantitative approach involving causal studies. According to Zikmund et al. (2010: 57), a causal research functions to identify causal relationships. When something causes an impact, it means it will make it happens. This study uses the level of ordinal scale and Likert scale is used to measure attitudes, opinions, and perceptions of a person or a group of social phenomenon (Sugiyono, 2014: 93).

This study uses the technique of *nonprobability sampling* because the number of the population members is not precisely known, and every member of the population has not been known or predetermined to be selected as a sample. A more specific technique used in this research is the *convenience sampling*. Samples were chosen in consideration of convenience, members of the population are willing to become the respondents to be sampled in this study. There are 420 samples successfully obtained and used. Data was collected by the technique of *cross-sectional*.

This study uses two analysis techniques; *Traditional Conjoint Analysis* to analyze the demographic characteristics of the respondent preferences and *Structural Equation Model (SEM)* analysis to test and confirm the theory based on the model of UTAUT 2.

### 3. Discussion

#### 3.1. Characteristics of Respondent Preferences

Consumer preference Analysis of the @wifi.id internet service using conjoint method produces values of utility (*path worth utility*) which describe consumer appraisal for each attribute level with positive and negative numbers that indicate the level of consumer preferences. Results of utility values for each attribute and level can be seen in Table 1 below.

Table 1. Path worth utility

No	Attribute	Level	Path Worth Utility
1.	Media Access	1. <i>Offloading User</i> 2. <i>Pulse Deduction</i> 3. <i>Voucher Wifi.id</i> 4. <i>Free Access</i>	1. 1,75 2. 2,82 3. 1,36 4. 0,79
2	Frequency of use	1. <i>Every day</i> 2. <i>Several times a week</i> 3. <i>Several times a month</i> 4. <i>Several times a year</i>	1. -2,30 2. -1,94 3. -0,28 4. -2,98
3	Duration of Use	1. <i>&lt;15 minutes</i> 2. <i>15 minutes – 1 hour</i> 3. <i>1 – 2 hours</i> 4. <i>&gt;2 hours</i>	1. 0,65 2. 3,51 3. 0,98 4. 1,41



The level of importance of the attributes is the factor of importance, wholly obtained from the stages of conjoint analysis that explains the level of consumer preferences towards consumer preference factors at a predetermined attribute. Results of the level of importance of the attributes can be seen in Table 2 below.

Table 2. *Factor of Importance*

No	Attribute	Range of Part Worth	Factor Importance
1.	Frequency of use	7,52	36,09 %
2.	Media access	6,74	32,34 %
3.	Duration of use	6,58	31,55 %

*Conjoint* analysis in principle aims to estimate the pattern of respondent's opinions on the results of conjoint with the actual opinions of the respondents in the stimuli process. The accuracy of the prediction value produced by the method of *traditional conjoint analysis* can be seen from the value of F and R-square as shown in the following table 3.

Table 3. *Values of R<sup>2</sup> and F*

R Square	0,489
Adjusted R Square	0,369
Significance F	0,00019

Referring to the results of *conjoint* analysis that has been done concerning the preferences of the respondents on the @wifi.id internet service in Telkom University, based on the results of stimuli combination shows the combination of attributes and the most preferred level for the respondents, based on the value of utility within the respondent preference is those who use the @ wifi.id service at Telkom University using media access in the form of pulse deduction with the utility frequency of several times a month and within the duration of 15 minutes to 1 hour. The R Square value is 0.489 in which 48.9% is explained by the variables in this study, while 51.1% of other variables are not described. So it can be concluded that the level of accuracy that can be estimated through the coefficient toward the design of the attributes is not really good (value closer to 1 is better) (Orme, 2010: 73). While the value of F statistic obtained is relatively small at 0.00019. It indicates that the overall regression analysis is valid.

### 3.2. Structural Equation Model

There are nine latent variables in this study, namely *Performance Expectancy* (PE), *Effort Expectancy* (EE), *Social Influence* (SI), *Facilitating Condition* (FC), *Hedonic Motivation* (HM), *Price Value* (PV), and *Habit* (HT). Each variable is measured by several indicators as many as 28 indicators as a whole. In addition to the latent variables, there are also three moderating variables namely *Age*, *Experience*, and *Gender*. The theoretical model used in this study is aimed to analyze how causal relationships and the influence of each of these variables affect the acceptance behavior of Indonesia wifi service utility @wifi.id in Telkom University. The stages of SEM analysis are done with the assistance of LISREL 8.80 software.

According to Latan (2012: 74) that generally before conducting a structural model analysis, it is a must to do model measurement first to test the validity and reliability of the indicators which form the constructs or latent variables by conducting a confirmatory factor analysis (CFA). Based on the results of CFA test, it is found that all the indicators have been in a valid condition as the *loading factor* value of all the indicators is > 0.50.

After the indicators of the respective latent variables have been tested by CFA, then it is continued by analysing full structural model as a whole and assess the feasibility of the model through Goodness of Fit (GoF) test. Here are the results of research based on the UTAUT2 model used in the structural model test using LISREL 8.80 program in Table 4 below.

Table 4. *Results of Goodness of Fit Test*

Criteria	Cut off Value	Output	Explanation
Chi-Square	>0,05; expected to be small	0,069	Good Fit
GFI	>0,90	0,94	Good Fit
RMSEA	<0,05	0,017	Good Fit
CFI	>0,90	0,99	Good Fit
IFI	>0,90	0,99	Good Fit
NFI	>0,90	0,96	Good Fit
RFI	>0,90	0,95	Good Fit
RMR	<0,08	0,032	Good Fit

Based on Table 4 above, it can be concluded that the overall result of UTAUT2 *goodness of fit* test is very good and meets all the required criteria. The hypotheses Test using LISREL is done by looking at the value of the *t-value* in the *structural equations* and the output image of the structural model. Below is the t-values obtained in the measurement of the structural model with LISREL 8.80 in Table 5.

Table 5. Hypothesis Test Results

Variable Correlation	t-value	Conclusion
PE → BI	2,23*	Hypothesis accepted
EE → BI	2,24*	Hypothesis accepted
SI → BI	1,42	Hypothesis rejected
FC → BI	3,15*	Hypothesis accepted
HM → BI	-0,19	Hypothesis rejected
PV → BI	4,89*	Hypothesis accepted
HT → BI	6,22*	Hypothesis accepted
BI → UB	7,75*	Hypothesis accepted
FC → UB	-0,07	Hypothesis rejected
HT → UB	2,48*	Hypothesis accepted

The above table 5 describes ten relationships among exogenous latent variables and endogenous latent variables, there are some relationships that are otherwise not significant such as the relationship of *social influence* (SI) and *behavioral intention* (BI), the relationship of *hedonic motivation* (HM) and *behavioral intention* (BI), and the relationship of *facilitating condition* (FC) and *use behavior* (UB).

The amount of exogenous latent variables influence toward the endogenous latent variables is represented by the value of *R-Square* ( $R^2$ ) in each of the endogenous latent constructs. In this study, the value of  $R^2$  obtained in the variable BI and UB can be seen in Table 6 below.

Table 6. Results of R-Square Values

Variable	R-Square
BI	0,61
UB	0,53

According to table 6, it is known that the value of  $R^2$  in BI variable is 0.61 which indicates that the *behavioral intention* is influenced 61% by *performance expectancy*, *effort expectancy*, *facilitating condition*, *price value*, and *habit*. While the rest of 49% is influenced by other factors outside this study. For UB variable, the  $R^2$  value of 0.53 shows that 53% of *use behavior* variable is influenced by *behavioral intention* and *habit*. While the rest is influenced by other factors outside the study.

### 3.3. Influence of Moderator Involvement

- Age Moderating Variables

Test involving Age moderating variables is done by looking at the effect of age of the respondents. Age Moderating variables are divided into two categories, namely *Younger Age* respondents aged 18-24 years and *Older Age* respondents aged 25-35 years and above. Here are the test results which can be seen in Table 7.

Table 7. Results of Age moderator Variable Test

Variable	Estimation Value		DoF	CMIN	P-Value
	Younger	Older			
PE → BI	0,24	0,29	1	0,11	0,73
EE → BI	0,22	0,08	1	0,10	0,30
SI → BI	0,45	-0,1	1	12,61	0,00*
FC → BI	0,39	0,28	1	0,21	0,64
HM → BI	0,08	0,00	1	0,41	0,51
PV → BI	0,47	0,74	1	3,79	0,05*
HT → BI	0,56	0,52	1	0,02	0,87
FC → UB	-0,12	-0,03	1	0,11	0,73
HT → UB	0,22	0,12	1	0,07	0,78

Based on the description in Table 7, we can see the estimated value, *degree of freedom* (DoF), CMIN, and p-value. CMIN may also be called as *chi-square* and the *p-value* used in this test is of the significance level of 5%, so that the *p-value* is  $<0.05$  and it can be concluded that the moderating variables have a significant impact in moderating their influences among the latent variables researched. The influences of Age moderating variable in moderating the latent variables can be seen through the p-value in Table 7, there are two relationships of moderating variables that have a significant effect in moderating the latent variables namely in the variables of



SI→BI, and PV→BI. While the 7 insignificant relationships of moderating variables among others are PE→BI, EE→BI, FC→BI, HM→BI, HT→BI, FC→UB, and HT→UB.

- *Gender Moderating Variables*

Test involving *Gender* moderating variables is done by looking at the effects based on respondents' gender. Gender moderating variables are divided into two groups based on the categories, male gender (*male*) and female gender (*female*). Here are the test results as seen in Table 8.

Table 8. Results of Gender moderator Variable Test

Variable	Estimated Value		DoF	CMIN	P-Value
	Male	Female			
PE → BI	0,10	0,36	1	3,04	0,08
EE → BI	0,10	0,26	1	2,51	0,11
SI → BI	0,45	-0,05	1	11,25	0,00*
FC → BI	0,30	0,37	1	0,48	0,487
HM → BI	0,10	-0,07	1	4,05	0,04*
PV → BI	0,52	0,67	1	0,28	0,59
HT → BI	0,64	0,45	1	1,25	0,21
HT → UB	0,54	0,08	1	10,26	0,00*

The influence of *Gender* moderating variables in moderating any latent variables can be seen through the *p-value*, based on Table 8, there are 3 relationships of moderating variables that have significant correlation in moderating the latent variables in the variables of SI→BI, HM→BI, and HT→UB. While the 5 insignificant moderating variable relationships, among others are PE→BI, EE→BI, FC→BI, HM→BI, and PV→BI.

- *Experience Moderating Variables.*

Test involving *experience* moderating variables is done by looking at the effects based on the experience of the respondents. Experience moderating variables are divided into two groups of categories, namely *low experience* respondents who use the internet service of @wifi.id less than 1 month to 6 months and *high experience* respondents who use the internet service of @wifi.id for 6-12 months and over 1 year. Here are the test results as seen in Table 9 below.

Table 9. Results of Experience Moderator Variables Test.

Variable	Estimated Value		DoF	CMIN	P-Value
	Low Experience	High Experience			
EE → BI	0,05	0,21	1	1,42	0,23
SI → BI	0,41	0,19	1	1,46	0,22
FC → BI	-0,03	0,39	1	4,39	0,03*
HM → BI	0,27	-0,04	1	4,46	0,03*
HT → BI	0,42	0,63	1	2,17	0,14
BI → UB	0,99	0,62	1	4,71	0,03*
FC → UB	-0,25	0,07	1	2,63	0,10
HT → UB	-0,08	0,47	1	5,23	0,02*

The influence of experience moderating variables in moderating the latent variables can be seen through the *p-value*, based on table 9 there are four significant relationships of the moderating variables that moderate the latent variables which are in the variables of FC→BI, HM→BI, BI→UB, and HT→UB. While four insignificant relationships of the moderating variables among other are: EE→BI, SI→BI, HT→BI, and FC→UB.

#### 4. Conclusion

Based on the results of the research and analysis that has been done, the conclusion can be drawn to provide answers to the following research questions:

- Factors that affect the intention and behavior of the Indonesian Wifi hotspot internet services usage @wifi.id in Telkom University are *Performance Expectancy* (2.23), *Effort Expectancy* (2.24), *Facilitating Condition* (3.15), *Price Value* (4,89), and *Habit* (6.22) effect on *Behavioral Intention*, whereas *Social influence* (1.42) and *Hedonic Motivation* (-0.19) have no significant effect on *Behavioral Intention*. The amount of the influence of the factors affecting *Behavioral Intention* is 61%,

- *Habit Variables* (2.48), and *Behavioral Intention* (7.75) effect on the *Use Behavior* (UB), While *Facilitating Condition* (-0.07) has no effect on the *Use Behavior*. The magnitude of the effects of the factors affecting *Use Behavior* is 53%.
- *Age* moderating variables are found to moderate the influence of *Social Influence* and *Price Value* on the *Behavioral Intention*. *Gender* moderating variables are found in moderating *Social Influence*, and *Hedonic Motivation* toward the *Behavioral Intention* and the influence of *Habit* toward the *Use Behavior*. Experience moderating variables are found in moderating the influence on *Facilitating Condition*, and *Hedonic Motivation* toward *Behavioral Intention*, the influence of *Behavioral Intention* and *Habit* toward *Use Behavior*.
- The most important factor of the user preferences in using the internet hotspot of @wifi.id: firstly by using pulse deduction based media access, secondly by using several times a month frequency of use, and thirdly, duration of use for 15 minutes to 1 hour.

The factors containing in the UTAUT2 Model are all known to be able to predict the influences of intention and behavior on the acceptance of the use of a technology, therefore in the development of wifi-based internet services particularly the Indonesian WiFi; @wifi.id, companies need to consider the above-mentioned factors. Based on the results of this research, companies may consider which factors should become the major priority in formulating the strategies for their businesses.

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