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Determining Mobile Broadband Adoption Factors to Support Digital Lifestyle Activity among Jakarta Broadband Consumer

Dyah Lestari Widaningrum and Triyono Budi Santoso

Industrial Engineering Department, Faculty of Engineering, Bina Nusantara University, Jl. KH Syahdan 9, Jakarta, 11480, Indonesia

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ABSTRACT

Broadband communication offered by the mature technology and adopted by some players in the industry, has bring the significant impact for the internet access, and change the people's lifestyle. To get the deep understanding of customers' perception and what do they expect about the services, this research is adopting a reference model to acknowledge such factors that can support their lifestyle regarding the broadband access they are using from any providers. The respondents involved are intended to be young and dynamic ones that represent the mobility philosophy itself. The CFA test shows that the adopted model is valid and reliable to the the sample of responden, as a measurement instrument for the latent variables. Structural Equation Modeling method was used to analyze path analysis among Attitudinal, Normative, Control Factor, and Behavioral Intention. The path analysis shows the relationships of 4 latent variables and there are 1 positive significant path for Attitude to Behavioral Intention and 2 negative significant paths. This result triggers the operator in order to serve customer with best quality, by designing their network in such way without ignoring the environment esthetics.

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INTRODUCTION

Indonesia as a developing country, successfully introduced internet to the public, with number of users reached 82 million people, and has ranked 8th in the world (Kemkominfo, 2014). Indonesia is one of potential market for telco business, in addition by the number of population and the geography it has. Broadband communication offered by the mature technology and adopted by some players in the industry, has bring the significant impact for the internet access, and change the people's lifestyle by online shopping, digital entertainments (games, movies), interactive solutions (live streaming, talkshows) which highly depend on the internet connectivity, within anytime and anywhere.

Now, broadband internet might become a need rather than a complementary as a few years ago. And all the possible things could be accessed by a mobile broadband services. Looking into that a people has more than 1 (one) mobile numbers and devices, so this business opportunity is catch by providers in such ways. They have been offering some product promos, giving some advanced benefit for loyal customers, or even migrate and modernize their network to satisfy their customers. Number of Internet users continues to grow from year to year, supported by technology developed to access the internet 'fast and always on', which is known as the broadband (Widaningrum, 2014). Information and Communication Minister Tifatul Sembiring explained, broadband as a key priority of the 21st century and plays important role, able to develop the four pillars of the knowledge society in public life, and capable to support technology and innovations (Kemkominfo, 2014). In the Akamai Report, Indonesia held the third-place position of observed attack traffic and also had broadband adoption rates below 10% (6.6%), but it is interesting that Indonesia get 262% increase quarter-over-quarter (Akamai, 2014). One of the access gateway that trigger the above condition is through the mobile communication driven by the mature technology such as 3G, 3.5G, EVDO, seamless GSM/WiFi, and the prospective upcoming LTE, offered by some providers. With the number of penetration is still low, this broadband business is still promising in the future. No wonder that they are trying to migrate and modernize their infrastructure and technology to meet the customer's expectation, though it takes so costly.

Corresponding Author: Dyah Lestari Widaningrum, Industrial Engineering Department, Faculty of Engineering, Bina Nusantara University, Jl. KH Syahdan 9, Jakarta, 11480, Indonesia
E-mail: dwidaningrum@binus.edu

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According to provide mobile broadband services with the best quality for customers, providers must understand what factors are affecting the customers in selecting products offered so that customers tend to choose these products, especially in supporting their lifestyle (Widaningrum, 2014). As it explain in previous paper (Widaningrum, 2014), we used model from other researcher in foreign country, to understand customer perceptions of factors related to mobile broadband access, specifically for customers in Jakarta, Indonesia. This model is taken from Dwivedi, Choudrie, & Brinkman (Dwivedi, 2006), consisting of "*Behavioral Intentions*" (BI) for mobile broadband adoption as dependent variable, influenced by several independent variable: *attitudinal* (*relative advantage*–RA; *utilitarian outcomes*–UO; *hedonic outcomes*–HO; *service quality*–SQ), *normative* (*primary influence*–PI; *secondary influence*–SI), and *control factors* (*knowledge*-KL; *self-efficacy*–SE; *facilitating condition resources*–FCR). These instruments are used to find out Indonesian consumer's perception of adopting broadband, because from previous study we find that different culture have different aims in using mobile internet.

There are several studies to find relationship between broadband economic growths, mostly conducted for developed countries, with little attention being paid to developing countries (Rohman, 2011). In other study, Wardani and Warsono find that different people have different aims in using the mobile internet, influenced by their own culture (Wardani, 2012). Mobile telecommunications industry in Indonesia has grew rapidly due to low penetration of fixed line users and lack of supporting infrastructure (Dachyar, 2013), but most users in Indonesia don't obtain the full benefit of the internet, because only less than eight million of 40 million internet users are classified as broadband users (Habibie, 2012).

Methodology:

The pilot test is administered to college student in West Jakarta Region, as part of sampling area of this research, to have a good representative of broadband users, where 80% of internet users are teenagers aged 15-19 years old (Kemkominfo, 2014). Jöreskog and Sörbom (1993) explain that the first problem in the social and behavioral sciences is concerned with the measurement properties – validities and reliabilities of the measurement instrument, and the second is concerned with the causal relationships among the variables and their relative explanatory power (Jöreskog, 1993) and in this study, we concern for both of problems regarding to the scope of this paper. In this study, we used Confirmatory Factor Analysis, to test, statistically, the significance of a hypothesized factor model – that is, whether the sample data fit the model further confirm that model (Schumacker, 2010). The model is based on a priori information about the data structure in the previous studies based on extensive data (Jöreskog, 1993).

RESULTS AND DISCUSSIONS

(i) Pilot Test:

For this research, we operationalize constructs by using measurement scale items from Dwivedi, *et al (2006)*, which consists of ten scales, 39-item, and for scale type we use 5 likert scale. Hair, *et al* explained that when measures are either developed for study, or they are taken from various sources, some type of pretest should be performed (Hair Jr., 2006). All construct are greater than 0.70 and 5 construct are greater than 0.80, indicate that these nine constructs are internally consistent, and we can continue the research using this instrument (Dwivedi, 2006).

(ii) Data Analysis:

This data are based on 224 respondents from five regions in Jakarta, to represent Jakarta Broadband consumer. Hair *et al* explains that one recommended sample size is 200, which provides a sound basis for estimation (Hair Jr., 2006). The purpose of a measurement model is to describe how well the observed indicators serve as a measurement instrument for the latent variables (Jöreskog, 1993). To examine whether the measurement properties are valid and reliable, Confirmatory Factor Analysis are conducted, using LISREL 8.2. Construct Reliability above 0.7 show good internal consistency of the instrument (Wijanto, Setyo Hari, 2008)]. Model re-specification involves removal of 1 latent variable, Hedonic Outcomes, which construct reliability only 0.52. For the next study, it is recommended to develop a new measurement scale items for Hedonic Outcomes construct. This is also in accordance with research conduct in UK, which found that Hedonic Outcomes not significantly influence consumer's behavior in adopting broadband (Dwivedi, 2009).

The Construct Reliability of 8 latent variables were above 0.7, and 1 latent variable was 0.67 (Secondary Influence), so overall we conclude that the measurement model reliability are good. T-values of loading factor for all observed variables were above 2.58 and standardized loading factor for all observed variables were above 0.5, meaning that all indicators to measure each latent variable are valid. Confirmatory factor analysis model fit indexes for all latent variables. Hypothetical model test results show that the hypothetical model used in this study met the "fit" criteria. The construct reliability coefficients for latent variables of Attitudinal, Normative, Control Factor, and Behavioral Intention were 0.64, 0.56, 0.61, and 0.86. Fit indexes of the final model are shown in Table 1. The ratio of Chi-square to degree

of freedom, RMSEA, NFI, NNFI, and CFI were within acceptable levels. The path analysis of the structural relationship of the structure model can be seen in Fig. 1.

Table 1: Confirmatory Factor Analysis Fit Indexes (n=224)

Good Fit Indexes	χ^2/df	RMSEA	NFI	NNFI	CFI
	1.0 ~ 3.0	.05 ~ .08	>.90	>.90	>.90
Final Model	1.67	0.05	0.95	0.97	0.98

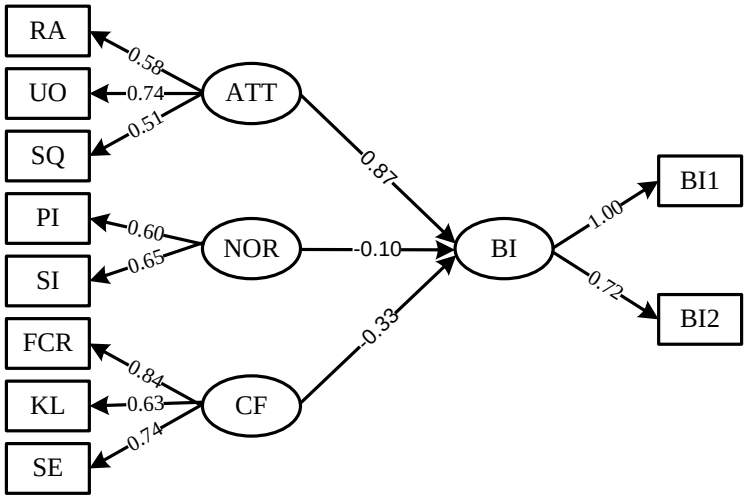

Fig. 1: Standardized Solution of Path Diagram Full Model.

The standard structural coefficient between Attitudinal and Behavioral Intention was 0.87 and t-value was 3.13 (p-value < 0.05), indicating that there is positive relationship between these two constructs. This coefficient was an evidence that consumer perception of advantage of broadband for internet access, broadband utility for daily life activities, and their perceived quality of service from broadband provider, has a positive influence to Behavioral Intention. The standard structural coefficient between Normative and Behavioral Intention was -0.10 and t-value -0.68(p-value < 0.05), indicating that there is negative relationship between primary influence (influence from friends, colleagues, and family) and secondary influence (influence from electronic advertising and newspaper) with Behavioral Intention to adopt broadband. The standard structural coefficient between Control Factor and Behavioral Intention was -0.33 and t-value -1.59 (p-value < 0.05), indicating that there is negative relationship between facilitating condition resources, knowledge about broadband, and self-efficacy on internet using with Behavioral Intention to adopt broadband.

For future research, it is recommended to re-develop the new scale to operationalize the construct, according to the |t-value| for path Normative to Behavioral Intention, and Control Factor to Behavioral Intentionare below 1.96. Increasing the number of samples as well as expand the scope of sampling is expected to be more representative for the hypothetical model.

Summary:

This paper describes the study of determining mobile broadband adoption factors to support digital lifestyle First-order and second-order Confirmatory Factor Analysis show that all constructs are valid and reliable. Structural Equation Modeling method was used to analyze path analysis among Attitudinal, Normative, Control Factor, and Behavioral Intention. The path analysis shows the relationships of 4 latent variables and there are 1 positive significant paths for Attitude to Behavioral Intention and 2 negative significant paths. But overall, the instruments that has developed by Dwivedi, *et al* (2006) are quite relevant to find out Indonesian consumer's perception of adopting broadband, and to design a better product based on consumers' expectations.

This result triggers the operator in order to serve customer with best quality, by designing their network in such way without ignoring the environment esthetics. As we see a lot of player/provider in Indonesia, especially in Jakarta area that has their own BTS tower. Although the competitiveness is high among another, doesn't mean to fight in silo infrastructure. So, they still can serve customers with the behavior, while having common infrastructure and Jakarta wouldn't be tower forest.

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