THE USE OF MODIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY 2 TO PREDICT PROSPECTIVE USERS' INTENTION IN ADOPTING TV STREAMING

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ABSTRACT. The number of TV Streaming users in Indonesia, especially TV Streaming based on Over the Top Technology (OTT) is considered small compared to 120 million cellular internet data users and 50 million smart phone users. In order to increase the adoption of TV Streaming, it is important to identify the key factors influenced behavior intention of internet users to start using TV Streaming. This study identified and predicted the key factors influenced the behavior intention of prospective users of TV Streaming by using a Modified Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model. There were 467 valid data out of 1183 data from respondents in 9 cities which have the 9thbiggest number of internet users in Indonesia. The collected data were analyzed by using Smart PLS 3.0 and the result shows that there were five factors in Modified UTAUT2 which significantly influence the behavior intention of prospective user of TV streaming in Indonesia. The factors were Content (0.325), Hedonic Motivation (0.292), Social Influence (0.179), Performance Expectancy (0.64) and Price Value (0.063). Meanwhile, two other factors, Effort Expectancy and Facilitating Condition, have no significant effect to the behavior intention to adopt TV streaming.

Keywords: TV streaming, modified UTAUT2, intention, adoption, Indonesia

INTRODUCTION

The impact of technological development of the Internet has transformed many industries including broadcasting industries. Both television broadcasting (TV) and radio broadcasting today has undergone many changes from the previous analog based to digital based broadcasting. Receiver devices become varied, such as conventional television, smart-TV, personal computers/PC, laptops and handheld electronic devices/gadgets.

Impact of Internet development in the broadcasting is presented by The Guardian where the number of United States (US) traditional TV viewers in 2014 had decreased by 12% compared to the previous year due to competition with TV streaming services such as Netflix. The same thing happened in the United Kingdom (UK), the average duration of time watching television decreases at 9 minutes per day or 4% decrease. On the other hand, revenue for streaming TV services rises by 41% in the same period (www.theguardian.com, 2015).

The growth of TV streaming highly depends on the level of Internet penetration as a media access. In Indonesia, according to Indonesia's Statistical Bureau (BPS), from 2005 to 2013 the growth of internet penetration was very significant. BPS's data stated that in 2013 the

percentage of households with internet access reached 32.22%, compare to only around 3.34% in 2005 (Badan Pusat Statistik, 2015).

The market penetration of mobile services has also grown rapidly. Based on data from the annual report of three largest mobile communication service providers in Indonesia, mobile users had reached more than 251 million and 120million of them are users of data services and about 20% using smartphones (Telkom, 2013; XL Axiata, 2013; Indosat, 2013).

Results of a study conducted by Nielsen in Southeast Asia revealed that Indonesian spend 20.3 hours a week to watch TV broadcasting, while the time spent on the Internet was 14 hours a week (Nielsen, 2011). The duration for watching television of Indonesian is the longest time compare to other countries in South East Asia. But, the percentage of Internet users who use the internet to see TV streaming broadcast was only around 10%, the lowest percentage among South East Asia's countries (Nielsen, 2011).

One of the TV streaming's service provider in Indonesia is www.useetv.com, Based on the data presented by Alexa.com, the fact that website www.useetv.com was ranked number 941 in Indonesia with an average duration time of visits of approximately only 4 minutes 54 seconds (www.alexa.com accessed on 26 Feb 2015). That data confirmed that the adoption of TV streaming was still quite low.

Based on the data of broadband data services subscribers, smart phone users and behavior of Indonesian in watching television, it can be seen that the adoption of TV streaming is still low but the market potential is huge.

PROBLEM STATEMENTS AND PURPOSE OF THE STUDY

In the process of decision making to buy or to use a service, different factors may have an important role, among others i.e price, brand and performance expectancy. One factor may have more impact or have more roles when compared to other factors. Knowing the factors that encourage consumers to buy or use the product is important because consumers are the ones who make final decision to purchase of a particular product. TV streaming is a technology based product or service which has become a global trend. The most important benefit offered to users were the flexibility of the receiving media, flexibility of time and place to access the services (anywhere and anytime). Meanwhile, for the owner of the website, there was an opportunity to increase revenue. The problems of TV Streaming in Indonesia that exist was the adoption of TV streaming's services remains low even though the growth of the Internet penetration rate is very high. Thus, assessment of the key factors in behavioral intention to adopt TV streaming is critical.

Related to the problem statements, this research focused on predicting prospective user's acceptance of TV Streaming by using Modified Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model. The objectives of the study were to examine the factors in Modified UTAUT 2 model that have influenced the adoption of TV streaming by Internet users in Indonesia and if the differences in age, gender and income have impacts on the relationship of the factors.

This research chose the internet users who had not become a TV streaming's users derived from nine cities with the largest Internet users in Indonesia as the objects. Restriction to only internet users was because they already used internet, therefore so there's no gap of knowledge and technology for using TV streaming. The selection of 9 cities was based on the accumulated number of Internet users where a total internet user from 9 cities is almost 30.87% of the total Internet users in Indonesia (PT. RoyMorgan, 2015).

LITERATURE REVIEW AND CONCEPTUAL MODEL

Implementation of Transmission Control Protocol/Internet Protocol (TCP/IP) as new technologies generated a convergence of different communication infrastructures such as telecommunication and broadcasting infrastructure. The changes of technology brought the business environment more competitive. With the new technology, it was possible to make substitute services that have many advantages both in terms of benefits and value compared to the previous service. The example of that situation was Internet streaming technology in broadcasting that allows individual to watch a television program on Personal Computer (PC) or other communication device such as smart phone using internet connection.

TV Streaming (Internet TV) is a distribution system of digital television content via Internet. There are two types of distribution or broadcasting technology platform which are Over the Top Technologies/OTT and IPTV (Internet Protocol Television). Although both platforms use Internet as media, but there are some technical differences between these two technology platforms.

TV streaming-based on OTT has grown more rapidly in term of the number of users when compared to IPTV. Characteristic OTT that uses an open network can minimize limitation for network coverage so that the TV streaming's service is spreading to all internet users. Low investment that needed to set up a new TV streaming service is another OTT's characteristic that boosts the number of TV Streaming providers. Each TV streaming provider has a different strategy and approach. Due to many providers, users will get greater opportunity to get more choice and freedom for using TV streaming services.

Technology adoption theory which was suitable as a base of theoretical framework of this study was Modified Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2). Due to its ability to explain the acceptance of the technology in the context of consumer use (Venkatesh et al., 2012). UTAUT2 has been used to research the adoption of a product or service in the various studies. One previous study is the research conducted by Wong, Tan, Loke and Ooi in 2014. They studied mobile-TV adoption at college in Kuala Lumpur, Malaysia with 193 respondents as the samples. Mobile-TV is a form of TV streaming services but it is limited only to watch media on smartphones. Modeling in the study used UTAUT2 (Venkatesh et al., 2012) as a reference model to construct variables include Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, Hedonic Motivation, Price Value and Habit while dependent variable is Behavioral Intention. Gender was the only moderate variable in research of Wong et al, other variables e.g Age and Experience were being eliminated because the object of the study was the student in one college which had relatively homogeneous.

This present study used Modified UTAUT2 as the model. The modification had been made to get more suitable model based on observations of the object, the results of discussions with the manager of a TV streaming service and other research, journal literature that have the same characteristic's as a product with TV streaming service as Over the Top Technology/OTT on the internet. The changes had been made are including the addition of other variables that affect the model yet, but have not included which was Content. The addition of variable Content was an input from the manager whom had huge traffic's growth during World Cup 2014. That additional was also supported by the research literature related to internet banking website design (Indrawati, 2012; Al-Qeisi et al., 2013) and a study about adoption of a university website (Indrawati, 2014). This present research eliminated variable habit, since the object of this study is potential users who do not have the habit of using TV streaming. The model used in this study was shown in Figure 1.

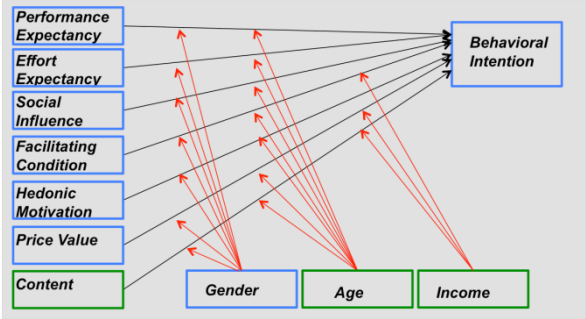

Figure 1. Modified UTAUT2

As it can be seen from Figure 1, this study had seven independent variables, one dependent variable and three moderator variables. The independent variables consist of Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Condition (FC), Hedonic Motivation (HM), Price Value (PV) and Content (CT). While dependent variable was Behavior Intention (BI) and the moderator variables were Gender, Age and Income. The operationalization of variables was shown in Table 1.

Table 1. Operationalization of Variables

Variables	Definition	Items	Source
Performance Expectancy (PE)	Level of benefits of the respondents believed that the use of TV Streaming will provide benefits for the life of the respondents	1.Benefits of TV Streaming for everyday life 2.Increasing the chance of watching television by using TV Streaming 3.Flexibility related to place to watching television 4.Flexibility related to time to watching a favorite TV program 5.Advantage of time and place to watch TV Streaming	Venkatesh et al., 2003; Venkatesh et al., 2012; Indrawati et al., 2010; Indrawati, 2012, 2014; Wong, Choy-Har et al., 2014; Chian-So You 2014; Yeoh Sok Foon et al., 2011
Effort Expectancy (EE)	The easiness level to use of TV streaming by respondents	1.Level of ease in learning how to use TV Streaming 2.Understanding how to use TV Streaming to watch television 3.Understanding the easiness of use of TV streaming to watch television 4.Clarity in the way of watching television through the TV streaming 5.Easiness to become skilled at using TV Streaming to watch television	Venkatesh et al., 2003; Venkatesh et al., 2012; Indrawati et al., 2010; Indrawati 2012, 2014; Wong, Choy-Har et al., 2014; Chian-So You 2012; Yeoh Sok Foon et al., 2011
Social Influence (SI)	The degree to which respondents feel influenced by others that are important to the respondents use the TV streaming	1.The influence of the people that are important to respondents in the use of TV streaming 2.The influence of the influential people to respondents in the use of TV streaming 3.The influence of those whose opinion is valued by respondents in the use of TV Streaming 4.The influence of the people closest to respondents (family and friends) in the use of streaming TV services 5.The influence of the people who are around to respondents in the use of TV streaming	Venkatesh et al 2003; Venkatesh et al 2012; Indrawati, 2012, 2014; Wong, Choy-Har et al., 2014; Chian-So You 2012; Yeoh Sok Foon et al., 2011; Xu, Xiaoyu 2014.

Variables	Definition	Items	Source
Facilitating Conditions (FC)	The availability of facilities that support the respondents use of the TVstreaming.	1.Ownership of the facilities that required to use Stream TV service 2.Ownership of knowledge that's required to use TV streaming 3.Ownership of internet connection to access TV streaming 4.Ownership of equipment(laptops, gadgets, smart phones, etc.) to access TV streaming 5.Aid assistance from TV streaming provider (helpdesk) when there are obstacles in the use of TV Streaming 6.Aid assistance from friends and family when there are obstacles in the use of TV Streaming	Venkatesh et al., 2003; Venkatesh et al., 2012; Indrawati et al., 2010; Indrawati, 2012, 2014; Wong, Choy-Har et al 2014; Chian-So You 2012; Yeoh Sok Foon et al., 2011
Hedonic Motivation (HM)	Level of pleasure gained by respondents when using streaming TV.	1.Feeling pleasure when use TV streaming service. 2.Attractive feeling when use TV streaming 3.Feeling entertain when use TV streaming service 4.Feeling prestige when use TV streaming 5.The use of TV streaming give the trendy impression	Venkatesh et al 2012; Wong, Choy-Har et al., 2014; Xu, Xiaoyu 2014
Price Value (PV)	Perception of benefits and costs incurred by the respondents when using the TV streaming.	1.Feasibility of TV streaming's service fee 2.TV streaming costs currently equal compared to the benefits received 3.The goodness perception that the price value of TV streaming service 4.The willingness of respondents to pay for TV Streaming services	Venkatesh et al 2012; Indrawati, 2012, 2014; Wong, Choy-Har et al., 2014; Chian-So You 2012;
Contents (CN)	Materials prepared by the practitioner or community that will be used by a large number of people, redistributing and accessible through the website	1.Quantity of content choices that can be accessed through the TV Streaming 2.The perception that the content meets with the respondent's needs 3.The suitability of the information contained with the respondent's needs 4.Suitability of entertainment content, with the respondent's needs 5.Content give cozier feeling 6.Up to date content	Indrawati, 2012, 2014

HYPOTHESIS AND MEASUREMENT

Based on the modified UTAUT2 as the research model, the hypotheses of this study are as shown in Table 2.

Table 2. Research Hypotheses

Hypothesis	Source
H1a *Performance Expectancy* has positive influence to *Behavioral Intention* H1b *Age* affects *Performance Expectancy*'s influence to *Behavioral Intention* H1c *Gender* affects *Performance Expectancy's influence* to *Behavioral Intention*	Venkatesh et al., 2012; Wong, Choy-Har et al., 2014
H2a *Effort Expectancy* has positive influence to *Behavioral Intention* H2b *Age* affects *Effort Expectancy's* influence *to Behavioral Intention* H2c *Gender* affects *Effort Expectancy's* influence to *Behavioral Intention*	Venkatesh et al 2012; Wong, Choy-Har et al 2014
H3a *Social Influence* has positive influence to *Behavioral Intention*	Venkatesh et al 2012;

Hypothesis	Source
H3b *Age* affects *Social* Influence to *Behavioral Intention* H3c *Gender* affects *Social* Influence to *Behavioral Intention* H3d *Income* affects *Social* Influence to *Behavioral Intention*	Wong, Choy-Har et al., 2014; Xu, Xiaoyu 2014;
H4a *Facilitating Condition* has positive influence *Behavioral Intention* H4b *Age* affects *Facilitating Condition's* influence to *Behavioral Intention* H4c *Gender* affects *Facilitating Condition's* influence to*Behavioral Intention* H4d *Income affects Facilitating Condition's* influence to *Behavioral Intention*	Venkatesh et al 2012; Wong, Choy-Har et al., 2014
H5a *Hedonic Motivation* has positive influence to *Behavioral Intention* H5b *Age* affects *Hedonic Motivation's* influence *to Behavioral Intention* H5c *Gender* affects *Hedonic Motivation's* influence to *Behavioral Intention* H5d *Income* affects *Hedonic Motivation's* influence to *Behavioral Intention*	Venkatesh et al 2012; Wong, Choy-Har et al., 2014; Xu, Xiaoyu 2014
H6a *Price Value has* positive influence to *Behavioral Intention* H6b *Age* affects *Price Value's* influence to*Behavioral Intention* H6c *Gender* affects *Price Value's* influence to*Behavioral Intention* H6d *Income* affects *Price Value's* influence to *Behavioral Intention*	Venkatesh et al 2012; Wong, Choy-Har et al., 2014; Xu, Xiaoyu 2014
H7a *Content* has positive influence to *Behavioral Intention* H7b *Age* affects *Content's* influence *to Behavioral Intention* H7c *Gender* affects *Content's* influence to *Behavioral Intention* H7d *Income* affects *Content's* influence to *Behavioral Intention*	Indrawati 2010

DATA COLLECTION, ANALYSIS, AND RESULT

Data were collected from respondents through online questionnaires by using Google Forms and the information of these questionnaires is disseminated via email and social media Twitter. It took 7 days for data collection. The distribution through social media Twitter is done through the author's personal account and others twitter account that has a lot of followers such as community of football fan club and traveling in the targeted cities. Data obtained from 1,183 respondents with 467 respondents declared to be valid. The valid respondents were the respondents who were not TV Streaming users, they answered the screening question correctly and they came from 9 selected cities.

Collected data were analyzed by using Partial Least Square (PLS) which has two stages, namely assessment of the measurement model and testing of structural models. The aim of assessment on a measurement model was to make sure that the items used have the ability to measure the variables with reliable and valid. The tests carried out using Cronbach's Alpha (CA) as a reliability indicator with the reference value of 0.7, Composite Reliability (CR) with a reference value of 0.7 and Average Variance Extracted (AVE) with the reference value of 0.5. The collected data were processed by using the SmartPLS 3.0 software and generate results of value measurement testing revealed that all the reliability and validity requirements were fulfilled.

Having the test results that all variables were valid and reliable, then the next testing stages of PLS for Structural Model did to get the value of the path coefficients. The path coefficients and the t values (a result of the bootstrapping method in the application tools of SmartPLS 3.0) of each variable is shown in Table 3.

Based on the results shown in Table 3, it can be concluded that the independent variables Content, Hedonic Motivation, Social Influence, Price Value and Performance Expectancy have positive influences on the Behavior Intention to adopt TV Streaming. While not enough

evidence to suggest that the independent variable Facilitating Condition and Effort Expectancy had positive influences on the adoption of TV Streaming.

Table 3. *T-value* for Each Variable

Correlation of Variables	Path	*t-Value*	Status
CT → BI	0.325***	5.091	Accepted
HM → BI	0.292***	5.323	Accepted
SI → BI	0.179***	3.489	Accepted
PE → BI	0.064*	1.212	Accepted
PV –> BI	0.063**	1.334	Accepted
FC → BI	-0.003	0.059	Rejected
EE → BI	-0.019	0.390	Rejected

*Note : *** Significant Level : 0.95** Significant Level : 0.9 * Significant Level : 0.85*

The results of this study confirmed the research conducted by Wong et al., (2014) who took the object of research on the adoption of Mobile TV by students in Kuala Lumpur. When compared with these studies, there are several similarities factors influencing adoption i.e variables Hedonic Motivation and Social Influence. While different a result with Wong's results, in this study does not prove that Effort Expectancy variable influences Behavior Intention. While testing related to moderating variables are showed in Table 4:

Table 4. Results for Moderation Variables

Correlation of Variables	*t-value* for Moderation Variables		
	Age	Gender	Income
Content → Behavior Intention	-0.242	-1.828**	2.961***
Effort Expectancy → Behavior Intention	0.190	2.214***	-
Facilitating Condition → Behavior Intention	-0.363	0.957	2.937***
Hedonic Motivation → Behavior Intention	-0.192	1.047	2.599***
Performance Expectancy → Behavior Intention	-0.805	0.503	-
Price Value → Behavior Intention	0.674	-0.693	-0.517
Social Influence → Behavior Intention	1.304*	-1.124	1330*

**** Significant Level : 0.95 ** Significant Level : 0.90 * Significant Level : 0.85*

Refer to the t-values of the three moderation variables as shown in Table 4, it was concluded that variable Age only moderated the effect on Social Influence to Behavioral Intention and Gender only moderated the effect of Content and Effort Expectancy to Behavioral Intention. Moderating variable Income moderated the influence of Content, Facilitating Condition and Hedonic Motivation to Behavioral Intention.

CONCLUSION

This research's model had an R-Square value of 0.554 which mean that the 55.4% of behavior intention for TV Streaming in this model can be explained by the *performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, price value* and *content.*

There were five factors in the Modified UTAUT2 were shown to have a positive and significant influence on the intention to adopt TV streaming services in Indonesia, i.e. *Content, Hedonic Motivation, Social Influence, Price Value* and *Performance Expectancy*. Meanwhile, two other factors, i.e. *Effort Expectancy* and *Facilitating Condition* were declared not enough evidence to suggest that these two variables had a positive influence in the intention to adopt TV Streaming.

Based on five factors that had influenced the TV streaming's adoption, it could be defined that respondents perceived TV streaming as a product solution for lifestyle (lifestyle product). This is based on the three most significant variables influencing the Behavior Intention, namely: *Content, Hedonic Motivation* and *Social Influence* which are actually the variables of lifestyle.

The order of the influential factors in the Modified UTAUT2 started from the biggest influence were the Content (0.325), Hedonic Motivation (0.292), Social Influence (0.179), Performance Expectancy (0.64) and Price Value (0.063).

Age had moderated the influence of Social Influence on Behavior Intention. The effect of Social Influence to Behavioral Intention to use TV Streaming was higher in the younger group as compared with the older group. Gender only moderated the influence of content to Behavior Intention while other variables were not affected by the difference between the genders. Content of TV streaming has more influence in the group of women than in men's group. Income differences influenced the effect of Content, Facilitating Condition, Hedonic Motivation and Social Influence on the Behavioral Intention of adopting TV Streaming service.

RECOMMENDATION

A factor that became the most influential factor to the intention to adopt TV streaming was *Content* and the effect were moderated by gender and income level. Based on the descriptive analysis, the respondent suggested that *Content* should be up to date, and entertaining. Based on these findings, this study advised TV streaming managers to focus on managing the content to be displayed set, delivered to the customers up to date.

Hedonic Motivation was the second factor that affects the intention to adopt a TV Streaming. Based on descriptive analysis, there was an interesting fact that respondents think that TV streaming was related to fun and entertaining activities. This fact related to the important item in variable *Content* that content should give pleasure to the viewers. These facts give an important message that the TV Streaming provider should choose the program wisely. In order to give the best experience for the viewers, provider could use big data analytics tools to personalize the profile of each viewer. Based on these personalizations, TV Streaming's provider scans present content that can fulfill the viewer's necessity.

Social Influence became the third factor that influenced the behavior intention to adopt TV Streaming. The influence of social factors also proved to be moderated by age group where there was a difference between the influences of the younger age compare to adult. By knowing these factors, the manager should make a marketing strategy to reach the community, especially for the youth segment. Item that people who valued his opinion became an important item. In the group of young people, people who become role models could be not being defined as physical (anywhere near them) but it could be as an internet avatar. The number of "social media superstar" often becomes role models of technology adoption. At this stage, marketing strategy needs to cover and to take advantage of this phenomenon.

Performance Expectancy was also one of influential factors in the intention to adopt TV Streaming. In case if the TV Streaming provider to act only as content provider not as a net-

work provider, it is advisable to work with Internet access provider through the use of the *Content Data Network* (CDN) services. This service can distribute content to multiple servers so that it can close the distance from the server to the user's location which will impact on increasing the speed of access to the content. In the case of TV streaming's provider is also acting as network operator, they need to set the priority of access for TV streaming. This priority to make sure that the speed of streaming can be maintained.

Price Value was another factor influencing the intention to adopt TV Streaming. The impact is provider must be careful in deciding rates for the services considering there are a lot of alternatives for substitution. Internet business models that are popular today which are more likely to provide free service to the users need to be considered by TV Streaming's providers. Business model's philosophy "The more you give the more you get" will attract the number of users TV streaming. Advertising on the website should be considered as one of revenue streams.

For further research, it is necessary to explore the continuity of usage (use behavior) of this service. This study has proven that Content has the most significant impact on the intentions to adopt TV Streaming. Further research is needed to confirm the type of content that needed and wanted by respondents

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