INFLUENCING FACTORS OF DIGITAL CHANNEL USAGE TO SUBSCRIBE INTERNET SERVICE

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Abstract*: In 2020, Pandemic of COVID-19 shocked the world and has been affecting many aspects of life, from economy to lifestyle. People begin to change their habit and adapt to the "new normal" by shifting their routine outside activities into at home internet-based activities, such as online shopping and online learning. This situation becomes the opportunity for internet-based business, including Indihome, an internet service provider in Indonesia, to acquire more customers from digital sales channels. This research is intended to examine factors that influence the usage of digital channels to subscribe Indihome internet services using a modified technology acceptance model (TAM) approach. We applied quantitative online survey to 204 internet users and used structural equation model to measure the relationship among TAM variables. The result showed that perceived ease of use and perceived usefulness significantly and positively influence consumers attitude toward the use of digital channel to subscribe internet service. While level of income significantly influences perceived usefulness of digital channel, we also found that consumers' perceived access barrier such as confidentiality of personal data and capability does not have significant effect on consumer attitude toward the use of digital channel. Last, as the managerial implication, this study provides key insights for managers to develop digital channel strategy based on research findings.*

Keywords*: Technology Acceptance Model, Digital Channel, Internet Service*

Introduction

In recent years, the internet has experienced very rapid development both in terms of technologies such as Wi-Fi, 5G broadband cellular network, and the number of users. It is because internet is necessary for people to be able to lead minimally decent lives, and is considered as universal entitlement (Reglitz, 2019). Based on data taken from Hootsuite (2020), as of January 2020, from a total of 7.75 billion people worldwide, 4.54 billion have already become internet users (59% penetration), and the growth of internet users has increased by 7% or an increase of 298 million users compared to 2019. In Indonesia, out of a total of 272.1 million people, 175.4 million are internet users (64% penetration) and experienced a high growth of 17% compared to the previous year or an increase of 25 million users.

Pandemic of COVID-19 also become one of factor which make internet technology adoption faster. The danger of this virus paralyzes almost all sectors, including the government, community especially from low-income people, and hospitality business feel the negative impacts (Karunathilake, 2020). In line with government order for people to stay at home, nearly all activities, convert to internet-based activities that can be conducted from home or remote (Ristyawati, 2020). This phenomenon leads to increasing demand of internet services, and becomes an opportunity for internet service provider to get consumer who need internet for their daily activities.

In addition to changing people's behaviour by using the internet more as a support for activities, nowadays people are more likely to use digital channels to buy what they need compared to using traditional channel such as social media and e-commerce (Durmaz & Efendioglu, 2016; Tarik et. al., 2018). Indihome as market leader of internet service provider in Indonesia, also seeks this opportunity to generate more revenue. By having digital channel as a medium to increase awareness and offer its internet services, Indihome can attract and reach potential consumers who need the internet services. However, Indihome needs to find significant factors which can influence consumers using digital channels as their preference to subscribe internet services and make the growth of digital sales channel exponential.

The objective of this research is to examine factors which can influence consumers to use digital channels to subscribe internet services. More precisely, we seek to understand which consumer perception that could explain attitudes toward the use of digital channels by using a modified Technology Acceptance Model (TAM) approach.

Literature Review

We elaborate two important concepts that will be used as the literature support for this study, i.e., Technology Acceptance Model and Digital Channels; and develop hypotheses in accordance with previous TAM research.

Technology Acceptance Model

Technology acceptance model or known as TAM, first is introduced by Davis (1986), with the adaptation of a previous theory called theory of reasoned action (TRA). It is used and become literature for modelling user behaviour for technology acceptance (C.-T. Chang et al., 2017). TAM is helpful not only for prediction but also for explanation, thus researchers can identify why particular technology may be unacceptable or acceptable, and construct corrective steps.

According to TAM, there are two factors or beliefs called perceived usefulness and perceived ease of use, which become primary relevance for technology acceptance behaviours. Perceived of usefulness is prospective users' subjective probability that by using particular technology will increase their performance and productivity. Perceived ease of use is defined as degree to which the prospective users expect the particular technology can be use with no effort or difficulties (see Figure 1). These two factors are influenced by external variables such as cultural, economical, political, and social. Attitude toward using is about users' evaluation of the desirability to use particular technology and behavioural intention to use is to calculate likelihood of people employing the technology.
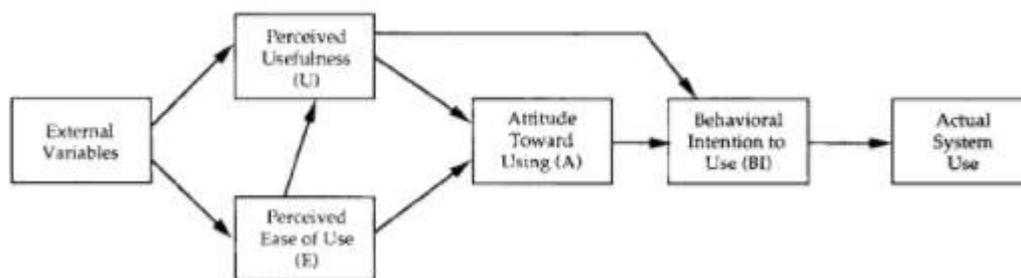

Figure 1: Technology Acceptance Model
Source: Davis, et al (1989)

As the most common applied framework used to analysed people's motivation to use particular technology by researchers, TAM has been growing rapidly. TAM has been applied to assess online consumer behaviour (Bruner and Kumar, 2005). Salloum et al. (2019) use TAM to explore e-learning, Rahimi et al. (2018) to review TAM for health informatics, Fedorko, Igor et al. (2018) to identify what system is the most used for e-commerce. Zhongqing et al. (2019) added trust, brand image, government support, perceived risk, and user innovativeness to analyse technology adoption in the Fintech industry. Research about technology acceptance for personal computers at home is also developed by using TAM (Venkatesh, 2000) and furthermore proofing perceived usefulness is influenced by perceived ease of use (Venkatesh and Davis, 2000). Porter and Donthu (2006) use TAM to explain the role of perceived access barriers and demographics in internet services. This study adapted previous research conducted by Porter and Donthu (2006), which focused on the relationship among perceived ease of use, perceived usefulness, perceived access barrier, age, education, income, attitude, and usage variables.

Digital Channel

A digital channel is a sales channel based on digital technologies. It is use to create an integrated, targeted, and measurable communication process that help company get and retain customers while building a deep relationship with them (Mulhern, 2009). Digital channels have important roles in sales support, as media for conducting external marketing communication and gathering information on sales, to lead using digital tools, and to become internal communication between sales and marketing division (Karjaluoto et. al., 2015). According to Spiralytics (2020), the example of digital channels for sales are:

1. Social Media
2. Email
3. Website
4. Display Ads

5. Mobile Apps
6. Search Engine Optimization (SEO)
7. Search Engine Marketing (SEM)

Hypothesis Development

In previous research of technology acceptance model (TAM), individual attitude toward technology can be influenced by perceived usefulness and perceived ease of use (Davis et al., 1989). Perceived access barriers such as cost to applied technology, could influence the use of personal technology (Hoffman et al., 2000). Moreover, ability of people to use the technology also closely related to age, education, income and race (Porter & Donthu, 2006), such as millennials are more proficient in using technology compared to older generations (Smith, 2015). Therefore, the hypotheses of this research are as follow:

H1:   An individual's attitude toward digital channel is positively associated with their use of digital channel to subscribe internet services.

H2:   The higher an individual's perception of access barriers associated with using digital channel, the less favourable their attitude toward digital channel to subscribe internet services usage.

H3:   The more that an individual perceives the digital channel as useful, the more favourable that individual's attitude toward use of digital channel to subscribe internet services.

H4:   The more that an individual perceives the digital channel as easy to use, the more favourable that individual's attitude toward use of digital channel to subscribe internet services.

H5:   The more that an individual perceives the digital channel as easy to use, the more that individual will perceive digital channel to subscribe internet services as useful.

H6:   Age is negatively associated with perceived ease of use of digital channel to subscribe internet services.

H7:   Perceived ease of use associated with the digital channel to subscribe internet services is higher for individuals who are more educated.

H8:   Perceived usefulness associated with digital channel to subscribe internet services is lower for individuals who are older.

H9:   Perceived usefulness associated with digital channel to subscribe internet services is lower for individuals who have lower incomes.

H10: Perceived access barriers associated with digital channel to subscribe internet services is higher for individuals with lower incomes.

Methods

Population and Sample

Two hundred and four (204) respondents were chosen based on a judgmental sampling. The criteria of respondents are internet users from all socio-economy group as defined by Nielsen (2010); and live in West Java, Indonesia, where Indihome internet service is operated in the market. Our sample represented a cross-section of gender, age generation cohort, income and education. The male to female distribution was 36 and 64 percent, respectively. More than half (57 percent) of our respondents came from generation Z who are born at 1995-2015, then followed by generation Y (born at 1977-1994) with a percentage of 38%. In related to education, 63 percent of the respondents held undergraduate degree, followed by high school and equals with a percentage of 19%. The majority of the respondents comes from socio-

economic group C with monthly expenses between Rp 1,000,001 until Rp 2.000.000 (28%) and followed by socio-economic group B with the range of expenses more than Rp 3.000.000 (22%).

Operationalization of Variables
Adapted the work of Porter and Donthu (2006), the operationalization of variables is presented in Table 1.

Table 1: Operationalization of variables

Variables	Indicators	Code	Reference
Perceived Ease of Use	Learning to use / access digital channels to purchase internet services is easy	PEOU1	Davis et. al., 1989
	Using / accessing digital channels to purchase internet services is clear and understandable	PEOU2	
	It is easy to become skilled in using / accessing digital channels to purchase internet services	PEOU3	
	Overall, the digital channel for buying internet service is easy to use	PEOU4	
Perceived Usefulness	Using / accessing digital channels to purchase internet services can make someone more productive	PU1	Davis et. al., 1989
	Digital channels can make it easier to purchase internet services	PU2	
	Using / accessing digital channels to purchase internet services can fulfil my needs	PU3	
	Overall, digital channels are useful	PU4	
Perceived Access Barrier	I am not able (capabilities and materials) to be able to access the digital channels	AB1	Hoffman et. al., 2000
	I don't have personal internet access to be able to access the digital channels	AB2	
	I have a slow internet connection to access digital channels	AB3	
	I am afraid that the confidentiality of personal data will be spread because of accessing the digital channels	AB4	
Attitude	I am positive about the digital channel for buying internet service	ATT1	Davis et. al., 1989
	It makes sense to use digital channels to buy internet services	ATT2	
	People should adopt / use digital channels to buy internet services	ATT3	
Usage	I quite often access digital channels	USG1	Davis et. al., 1989
	I spend a lot of time accessing digital channels	USG2	
	I have been accessing digital channels for personal use for a long time	USG3	

Source: Authors, 2020

Based on development of hypotheses and operationalization of variables, the authors developed conceptual model as presented in Figure 2.
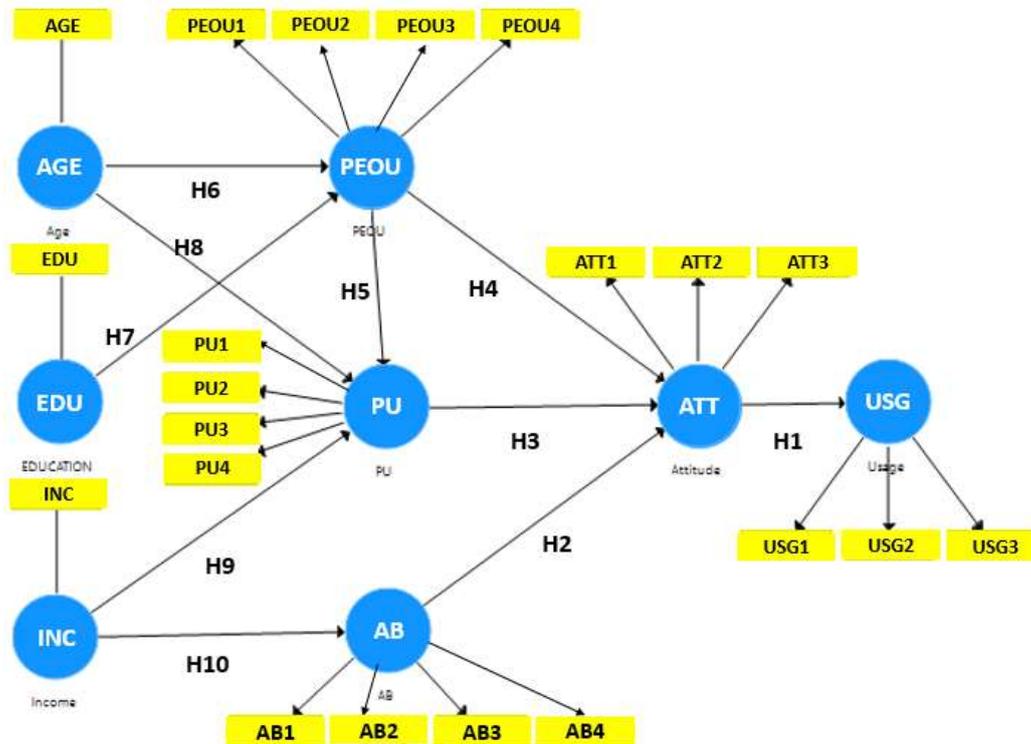

Figure 2: Conceptual Model

Source: Authors, 2020

Analysis Result

Descriptive Analysis

The Authors calculated the mean value of each variable (see Table 2.13). As the result, respondents still feel doubtful or neutral about the perceive ease of use (3,806) and perceived usefulness (3,806) of using digital channels to subscribe internet services. In particular, perceived access barrier such as internet connection to access digital channel (AB3 2,613) and customer privacy and data security (AB4 2,971) indicate the reasons why respondents do not use Indihome digital channels, which is represented by low average of usage (2,964).

Table 2: Mean value of variables

Variables	Code	Indicators	Mean (indicators)	Mean (variables)
Perceived Ease of Use	PEOU	PEOU 1	3,784	3,806
		PEOU 2	3,784	
		PEOU 3	3,784	
		PEOU 4	3,873	
Perceived Usefulness	PU	PU 1	3,564	3,803
		PU 2	3,951	
		PU 3	3,799	
		PU 4	3,897	

Perceived Access Barrier	AB	AB 1	3,613	3,25
		AB 2	3,804	
		AB 3	2,613	
		AB 4	2,971	
Attitude	ATT	ATT1	3,667	3,737
		ATT2	3,848	
		ATT3	3,696	
Usage	USG	USG1	3,01	2,964
		USG2	2,819	
		USG3	3,064	

Source: Authors, 2020

Structural Equation Model Analysis

According to Malhotra (2010), Structural Equation Modelling (SEM) is a technique to estimate a sequence of dependency relationships between a set of hypotheses or constructs specified by several measured variables and implemented into an integrative framework. SEM consist of measurement model test which measure validity and reliability, and structural model test to explain one or more dependency relationships which are close to the construction of the hypothesized model.

This study applied Partial Least Square of Structural Equation Modelling (PLS-SEM) by using software Smart-PLS version 3.0 to process and assess the data. PLS-SEM is a soft modelling approach without concerns related to the distribution of data. PLS is good to analyse data with small sample size and applications with little available theory (Vinzi et al., 2010).

Measurement Model

The measurement model defines the rules for correspondence among measurable and latent variables (Hair et al., 2010). The key principles used in the PLS framework for evaluating the measurement model or what is alternatively referred to as the outer model are validity and reliability (Ramayah, Lee, & In, 2011).

Validity concerns the appropriateness of the accuracy of a measure or the degree to which a score honestly represents a concept (Zikmund et. al, 2013). In order to attain a validation analysis, two types of validation tests were carried out on the measurement model; convergent validity and discriminant validity (Sekaran & Bougie, 2010; Tore, 2005). Convergent validity is the degree to which the variable is positively compared with an equivalent measure of the same design. The loading factor and Average Variance Extracted (AVE) should be evaluated (Hair et al., 2013).

High factor loadings show that the factors measured converge on the same structure. All factor loadings should be significant and greater than 0.5, preferably higher than 0.7. The loading of 0.7 or higher implies that the construct describes 50% or more of the variance in the component observed (Malhotra, 2010). Using path modelling method procedure, the Authors removed 5 indicators which are PEOU2, PEOU3, AB3, AB4 and PU1 due to they are below the preferable value. As the final result, the Smart-PLS 3.0 output for the loading factor gives in the survey

is at Table 3. It indicates that the loading factor defines a value above the preferable value of 0.7.

Table 3: Loading factor

	AB	AGE	ATT	EDU	INC	PEOU	PU	USG
AB1	0.959							
AB2	0.882							
AGE		1.000						
ATT1			0.840					
ATT2			0.851					
ATT3			0.799					
EDU				1.000				
INC					1.000			
PEOU1						0.901		
PEOU4						0.902		
PU2							0.892	
PU3							0.888	
PU4							0.893	
USG1								0.949
USG2								0.919
USG3								0.920

Source: Authors, 2020

Another method for assessing convergent validity is to look at the square root of the average extracted variance (AVE) which is identified as the variance in the indicators explained by the latent variable. The AVE of 0.5 or more means sufficient convergent validity, since it implies that the latent variable reflects on average 50% or more of the variance in the variables measured (Malhotra, 2010). The AVE value of all variables as shown in Table 4 is above 0.5. These measurements from factor loadings and AVE indicate that the metrics used in this analysis are valid or have fulfilled the convergent validity.

Table 4: AVE

Variables	Average Variance Extracted (AVE)
AB	0.849
AGE	1.000
ATT	0.689
EDU	1.000
INC	1.000
PEOU	0.813
PU	0.794
USG	0.863

Source: Authors, 2020

In order to create discriminant validity, we must show that the construct is different from the others and thus makes a unique contribution. Discriminant validity can be check from the cross loadings. Cross-loadings show the inadequacy of distinctiveness and possible concerns in the assessment of discriminant validity (Malhotra, 2010). The result of cross-loadings is shown in Table 5. An indicator is categorized as valid if it has the maximum loading factor for the

planned construction opposed to the loading factor for other constructions. The result indicates that the loading factor for the AB1 to AB2 indicators has a loading factor for the AB construct (0.959; 0.882) that is greater than the other constructs on the right side (or the left side if any). Thus, indicators on their structures better than indicators on other structures. The result is that all indicators have the maximum loading factor rather than the other constructs.

Table 5: Cross loading

	AB	AGE	ATT	EDU	INC	PEOU	PU	USG
AB1	0.959	-0.043	0.074	0.133	0.168	-0.020	-0.041	-0.319
AB2	0.882	-0.072	0.081	0.119	0.080	0.042	0.035	-0.243
AGE	-0.058	1.000	0.082	0.126	0.669	-0.081	0.071	0.078
ATT1	0.085	0.094	0.840	-0.012	0.096	0.448	0.427	0.340
ATT2	0.033	0.029	0.851	0.078	0.090	0.461	0.524	0.287
ATT3	0.095	0.089	0.799	0.145	0.086	0.293	0.344	0.252
EDU	0.138	0.126	0.077	1.000	0.313	-0.034	0.066	-0.026
INC	0.145	0.669	0.109	0.313	1.000	-0.051	0.114	0.039
PEOU1	-0.037	-0.086	0.483	0.020	-0.026	0.901	0.643	0.350
PEOU4	0.043	-0.060	0.407	-0.081	-0.067	0.902	0.701	0.329
PU2	-0.024	0.039	0.537	0.105	0.105	0.657	0.892	0.256
PU3	0.064	0.101	0.426	0.081	0.183	0.616	0.888	0.232
PU4	-0.069	0.052	0.445	-0.010	0.024	0.715	0.893	0.335
USG1	-0.291	0.043	0.379	-0.021	-0.008	0.382	0.308	0.949
USG2	-0.380	0.056	0.262	-0.034	-0.007	0.315	0.230	0.919
USG3	-0.222	0.120	0.332	-0.021	0.122	0.343	0.311	0.920

Source: Authors, 2020

According to Malhotra (2010), the degree to which the scale shows reliable outcomes when repeated observations are made of the attributes. One of the reliability measures is to look at Composite Reliability (CR) and Cronbach Alpha. Composite Reliability (CR) which is identified as the total value of true score variance in comparison to the total score variance. CR of 0.7 or higher is deemed to be decent. Cronbach's Alpha is used to measure the reliability or internal consistency of data set.

Table 6. Composite reliability

	Cronbach's Alpha	Composite Reliability
AB	0.832	0.918
AGE	1.000	1.000
ATT	0.777	0.869
EDU	1.000	1.000
INC	1.000	1.000
PEOU	0.770	0.897
PU	0.870	0.920
USG	0.922	0.950

Source: Authors,2020

The table above reveals that the CR value for all variables is above 0.7, which means that all constructions in the approximate model follow the discriminant validity criterion. The smallest value is 0.897 for Attitude. As for Cronbach Alpha value, all of variable have α coefficient above 0,7 which is have strong face validity and construct validity or accepted.

Structural Model Test

The structural model is used to explain one or more dependency relationships which are close to the construction of the hypothesized model (Malhotra, 2010). In the PLS analysis, the predictive influence of a given construct and the assessment of the path coefficient of each relationship between endogenous and exogenous variables are measured using the R-squared (R2) values of the endogenous variables (Chin, 1998). The R-square value reflects the degree of variance in the construct which shows the amount of variance described by the exogenous component in its endogenous (Chin, 1998). R-square values bigger than 0.75 are deemed substantial, those at 0.50 are deemed as moderate and 0.25 are deemed to be weak (Hair et al., 2014). However, the R² level also depends on the specific research discipline, for instance, according to Hair et al. (2017), the R2 value 0.20 are high in discipline such as consumer behaviour studies. The table 2.18 shows the R-square value of the endogenous variables.

Table 7: R Square

Variable	R Square
AB	0.021
ATT	0.309
PEOU	0.007
PU	0.580
USG	0.127

Source: Authors, 2020

Table 7 shows the R-square value of the endogenous variables. R-square of PU are 0.580 which means that the exogenous variables of PU can explain the variance of PU in the value of 58%. The endogenous variable ATT has a 0.309 R-square value indicate the exogenous variables PEOU, PU, and AB are able to explain the variance 30.9% of ATT variable. Usage, AB, and PEOU variables have weak R-square value (less than 20%) due to there are still some variables outside the related exogenous variables that have not been explored.

Hypothesis Testing

Hypothesis testing was conducted by measuring the path coefficients and looking at the T statistics from Bootstrapping techniques in Smart-PLS 3.0. T-statistics from each should be greater than 1.96 at 0.05 level (Hair et. al., 2014). The result is presented in Table 8.

Table 8: Hypothesis testing

Hypothesis	Coefficient Value	T Statistics	Result
(H1) ATT -> USG	0.356	6.550	Accepted
(H2) AB -> ATT	0.086	1.287	Not Accepted
(H3) PU -> ATT	0.365	3.634	Accepted
(H4) PEOU -> ATT	0.221	2.222	Accepted
(H5) PEOU -> PU	0.756	18.402	Accepted
(H6) AGE -> PEOU	-0.078	0.960	Not Accepted
(H7) EDU -> PEOU	-0.024	0.336	Not Accepted
(H8) AGE -> PU	0.053	0.891	Not Accepted
(H9) INC -> PU	0.118	2.010	Accepted
(H10) INC -> AB	0.145	1.940	Not Accepted

Source: Authors, 2020

Discussion and Conclusion

The structural equation model analysis generates finding on the relationship among variables of modified Technology Acceptance Model and identified six important factors that may relate to the usage of digital channel for subscribing internet service as follow:

Age

Based on structural analysis, age differences do not have significant effect on perceived ease of use and perceived usefulness to use digital channel for subscribing internet services. The result implies digital channel for subscribing internet services could be used by all generation of age. However, it is to be noted that majority of the respondents are young generation which known as tech savvy; while the minority of the respondents are older people which reported user interface of digital channels are not user friendly for them. Young generation such as generation Z and Y is heavy internet user. This could be opportunity for internet service provider to encourage the use of digital channel for younger generation who are more adept to technology, for instance by improving digital channels with interactive, attractive and informative content.

Income

Based on structural analysis, income has significant and positive effect to perceived usefulness toward digital channel for subscribing internet services. The result implies that consumers with lower income perceive digital channel will not give them more benefits compared to the non-digital channels. Based on demographic profile, Internet become basic need for respondents from middle lower until upper class. They use internet to support their daily activities such as study, working, and social networking. Furthermore, access barrier to use digital channel such as having capabilities to access digital channels and data security does not significantly relate to income, which implies consumers from all classes are willingly to use digital channels as long as they see it needed. Internet service provider can target consumers from socio-economic group A, B, and C; have middle to higher income; perceive digital channel is beneficial to them; and not having difficulties in using it.

Education

Based on structural analysis, education does not have significant effect to perceived ease of use digital channel for subscribing internet services. This show that consumers educational background is not relevant when it comes to the ability of using digital channels of internet service provider.

Perceived Ease of Use

Perceived ease of use has significant and positive effect to attitude and perceived usefulness toward digital channel for subscribing internet services. This show that consumers have more favourable attitude toward digital channels; and think them as useful method to subscribe internet service if they are easy to use. In other words, as long as internet service provider makes its digital channels are easy to use by all consumers, it can increase the positive attitude of consumers towards digital channel. When user think that it is easy to learn and operate digital channel to subscribe internet services, and the steps are clear and understandable, it will lead to the positive perception of using digital channel.

Perceived Usefulness

Perceived usefulness has significant and positive effect to attitude toward digital channel for subscribing internet services. This indicates that if consumers perceive positively the benefits of using digital channels, such as to make them more productive and fulfil their needs to subscribe internet service easier, then the attitude of customer will be positive toward using digital channels. Perceived usefulness can be an opportunity for internet service provider to offer many alternatives of digital channels to accommodate the need of consumers for subscribing internet services. With improvement on the digital channel content to become more interactive, informative and communicative, consumer will see it as more useful and increase the favourable attitude toward digital channel.

Perceived Access Barrier

Perceived access barrier does not have significant effect to attitude toward digital channel for subscribing internet services. This indicates customer does not consider access barriers, such as slow internet connection and data security, as obstacle to generate more favourable attitude toward digital channel for subscribe internet services.

As the conclusion, the findings of this study can give key insights for manager or strategic maker in internet service industry. Digital channels can be effective for people with all ages and education as long as they found it can be useful and give benefits to them. Potential target market for digital channels are consumers from middle to upper class (socio-economic group ABCDE Nielsen A, B, and C) since they have sufficient purchase power to subscribe internet services monthly, and millennials due to their capabilities to adapt faster for technologies and internet, with further consideration of the content of the digital channels itself which suits to millennials characteristics.

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