



Moderation effect of individualism/collectivism, uncertainty avoidance and long term orientation on adoption e-commerce in batam city SMEs: development of the UTAUT 2

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ABSTRACT

Batam City MSME actors still encounter several obstacles in running their business, such as determining market share, operational costs, marketing outreach, and customer loyalty. To overcome this problem, MSME players in Batam City are required to be more creative in utilizing technology such as e-commerce. This study aims to analyze the factors that influence the adoption of e-commerce in MSMEs in Batam City using the UTAUT 2 model by considering cultural factors. The data used in this study is primary data obtained through a survey of Batam City SMEs using a questionnaire with a purposive sampling method. The sample used was 250 MSME actors. The analytical method used in this study is Structural Equation Modeling (SEM). Based on the results of the analysis, it was found that facilitating conditions, habits, and behavioral intentions directly affect the use behavior variable. Cultural factors of individualism/collectivism, uncertainty avoidance, and long-term orientation also managed to moderate the influence of behavioral intention variables on user behavior.

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1. INTRODUCTION

E-commerce is the use of the internet and websites to carry out various business transactions (Effendi, 2020). E-Commerce can cause changes in consumer lifestyles and open up many business opportunities (Piarna & Fathurohman, 2020). Retaining customers can generate high profits (Liu et al., 2014).

One of the business activities that spearheads the economy in Indonesia is Micro, Small and Medium Enterprises (MSMEs). MSMEs need to adapt and take advantage of technological advances to maintain and improve their performance. Batam City is one of the regions in Indonesia with the rapid development of MSMEs. This can be seen from the data uploaded via the website <http://umkm.depkop.go.id/> which shows the number of MSMEs in Batam City as many as 81575 MSMEs. If MSMEs can follow technology significantly, it can increase national economic growth. E-commerce opens opportunities

for MSMEs to market and grow business networks in all parts of the world. MSMEs are required to be part of the global community by utilizing information technology, one of which is by using e-commerce (Fadilah et al., 2020).

The people of Batam City consist of various ethnic groups, customs and religions. This diversity is due to the fact that the people of Batam City are dominated by immigrants from all over Indonesia. Based on this, this study added the cultural dimension as a moderating variable. Culture is a determinant of desires and habits that apply in a particular environment and is a driving force for consumers to consume or adopt certain products (Effendi, 2020). Cultural moderator is very important in explaining the behavior of technology use. Technology adoption in a business requires an approach, one of which is the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2). UTAUT 2 is one of the latest technology adoption models developed by Venkatesh, et al in 2012 (Baptista & Oliveira, 2015).

The UTAUT model consists of four constructs namely Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI) and facilitating conditions (FC) (Venkatesh et al., 2012). In 2012 the UTAUT model was expanded by Venkatesh et al. into the UTAUT 2 model by adding three constructs to the UTAUT model, namely Hedonic Motivation (HM), Price Value (PV) and Habit (H). The addition of the three constructs aims to overcome the gaps in the UTAUT model (Piarna & Fathurohman, 2020).

Research on culture seeks to identify individual characteristics that are used as a national profile of a society to better understand societal differences (Piarna & Fathurohman, 2020). In this study, cultural factors were used as a moderating variable in the UTAUT 2 model. Moderating variables are variables that can strengthen or weaken the relationship between exogenous and endogenous variables. Variabel moderasi dalam penelitian ini adalah Individualism Collectivism (IC), Uncertainty Avoidance (UA) dan Long Term Orientation (LTO). Although there have been many studies on e-commerce adoption using the UTAUT 2 model, no one has used cultural factors. Based on this, this study aims to determine the factors that influence e-commerce adoption in Batam City SMEs using the culture-based UTAUT 2 model.

2. RESEARCH METHOD

This study uses primary data collected through questionnaires. Each item in this study was measured using a Likert Scale with a value of 1 (strongly disagree) to 5 (strongly agree). The sampling technique used in this study was purposive sampling with sample criteria: (1) Batam City MSME actors who are familiar with online sales activities through e-commerce, (2) Batam City MSME actors who have marketed a product through social media at least once. Determining the number of samples according to the ideal sample size criteria for SEM modeling analysis is 100-200. Based on this approach, the number of samples to be used in this study was determined to be 170 MSME actors.

The analysis used in this research is Structural Equation Modeling (SEM). SEM is used to look at the factors that influence e-commerce adoption in Batam City SMEs. SEM is a model for forming relationships between variables in multilevel linear regression equations (Hair et al., 2014). The hypotheses to be tested in this study are:

- H1: Performance expectancy has a significant and positive effect on behavioral intention.
- H2: Effort expectancy has a significant and positive effect on behavioral intention.
- H3: Social influence has a significant and positive influence on behavioral intention.
- H4: Facilitating conditions have a significant and positive effect on behavioral intention.
- H5: Facilitating conditions have a significant and positive effect on use behavior.
- H6: Hedonic motivation has a significant and positive effect on behavioral intention.
- H7: Price value has a significant and positive effect on behavioral intention.
- H8: Habit has a significant and positive influence on behavioral intention
- H9: Habit has a significant and positive influence on use behaviour

- H10: Behavioral intention has a positive and significant influence on use behavior.
 H11: Individualism/collectivism significantly moderates the effect of behavioral intention on use behavior.
 H12: Uncertainty Avoidance moderates the effect of Behavioral intention on Use Behavior significantly.
 H13: Long Term Orientation moderates the effect of Behavioral intention on Use Behavior significantly.

3. RESULTS AND DISCUSSIONS

Hypothesis testing was carried out on direct and indirect effects. Hypothesis testing on both direct and indirect effects can be seen from the significance value of each path coefficient.

Table 1. Direct effect

Hypothesis	Direct Effect	Path Coefficients	P-Value	Result
H1	PE → BI	0.129	0.038	Significant
H2	EE → BI	0.175	0.024	Significant
H3	SI → BI	0.216	0.010	Significant
H4	FC → BI	0.188	0.022	Significant
H5	FC → UB	0.427	0.000	Significant
H6	HM → BI	-0.019	0.730	Not Significant
H7	PV → BI	0.299	0.000	Significant
H8	H → BI	0.131	0.116	Not Significant
H9	H → UB	0.399	0.014	Significant
H10	BI → UB	0.267	0.030	Significant

Based on the results of the direct effect test in Table 1, it can be seen that the 6th hypothesis and 8th hypothesis are not significant. From these results it can be said that the direct effect of the Hedonic motivation variable on Behavioral Intention, as well as the direct effect of the Habit variable on Behavioral Intention is not significant with $\alpha=5\%$.

Table 2. Indirect effect

Hypothesis	Direct Effect	Path Coefficients	P-Value	Result
H1	BI*IC → UB	0.346	0.037	Significant
H2	BI*UA → UB	0.558	0.024	Significant
H3	BI*LTO → UB	0.267	0.030	Significant

Table 2 shows the effect of the 3 moderator variables used in this study. From Table 2 it can be seen that all moderator variables, namely Individualism collectivism, uncertainty avoidance and Long term orientation, succeeded in moderating the effect of the behavioral intention variable on the Use behavior variable.

The results of testing hypothesis H1 about the effect of performance expectancy on behavioral intention show significant value with a P-value of 0.038 and a path coefficient of 0.129. These results indicate that performance expectancy has a significant and positive effect of 12.9% on behavioral intention with $\alpha=5\%$. This finding is in line with previous research on m-payment adoption by Oliveira et al. (2016) which states that mobile payments provide significant benefits in making payments to mobile payment adoption. Several previous studies also support that performance expectancy has a significant effect on a person's interest in using technology (K. Gupta & Arora, 2020; Hussain et al., 2019; Morosan & DeFranco, 2016; Oliveira et al., 2016; Sivathanu, 2019).

The results of testing the H2 hypothesis about the effect of effort expectancy on behavioral intention show a path coefficient value of 0.175 with a P-value of 0.024. These

results show that effort expectancy has a positive and significant effect of 17.5% with $\alpha=5\%$. This result is in line with the research of Makanyeza & Mutambayashata (2018) which states that effort expectancy has a significant effect on behavioral intention. Several studies have also found that effort expectancy has a positive and significant influence on behavioral intention to use digital technology (K. Gupta & Arora, 2020; Hussain et al., 2019; Sivathanu, 2019; Alalwan et al., 2017; Farah et al., 2018).

The results of testing the H3 hypothesis about the influence of variable social influence on behavioral intention show a path coefficient value of 0.216 with a p-value of 0.01. These results show that social influence has a significant and positive effect of 21.6% on behavioral intention to use e-commerce with $\alpha=5\%$. The results of this study are in line with previous research which found that social influence can increase a person's interest in adopting m-payments, m-banking and smartphone apps (Morosan & DeFranco, 2016; Sivathanu, 2019; Farah et al., 2018; A. Gupta & Dogra, 2017). The results of this study are also in line with Oliveira et al. (2016) which shows that the opinions and recommendations of those who are influential and important can actually drive the adoption of technologies designed for mobile platforms.

The results of testing the H4 hypothesis about the effect of facilitating conditions on behavioral intention to use e-commerce show a path coefficient value of 0.188 with a p-value of 0.022. These results indicate that facilitating conditions have a positive and significant effect of 18.8% with $\alpha=5\%$. This research is in line with research on mobile wallet adoption which states that facilitating conditions affect someone in using a mobile wallet (Madan & Yadav, 2016). Several studies support these results, namely the level of acceptance can be increased by facilitating customers with easy information through online media and providing the necessary knowledge to increase m-banking and e-money transaction activities (Khan et al., 2017; Farzin et al., 2021).

The results of testing the H5 hypothesis about the effect of Facilitating Conditions on Use Behavior using e-commerce shows a path coefficient value of 0.427 with a p-value of 0.000. These results indicate that facilitating conditions have a positive and significant effect at $\alpha=5\%$. This result is in line with the research of Sheikh et al. (2017) regarding the adoption of social commerce states that facilitating conditions have an influence on use behavior where consumers pay special attention to the availability of support, both IT support, physical and human support in their actual purchases. However, several studies are not in line with the results of this study, where facilitating conditions do not significantly influence use behavior (Jadil et al., 2021; Nopiani & Putra, 2021; A. Gupta & Dogra, 2017).

Hedonic motivation is the pleasure or joy derived from using technology, and it has been shown to play an important role in determining the acceptance and use of technology (Indrawati et al., 2017). The results of testing the hypothesis H6 about the effect of hedonic motivation on behavioral intention has a path coefficient value of -0.019 with a p-value of 0.730. These results indicate that hedonic motivation has a negative effect of 1.9% on use behavior but not significant at $\alpha = 5\%$. Other studies have also concluded the same results, such as research on the adoption of m-payments (Oliveira et al., 2016), m-banking (Merhi et al., 2019; Nopiani & Putra, 2021), smarthphone apps (A. Gupta & Dogra, 2017) which states that hedonic motivation does not have a significant effect on the use of a system.

Morosan & DeFranco (2016) argue that the price value will be positive when the customer's perceived benefits when using technology are greater than the financial costs incurred. The results of testing the H7 hypothesis about the effect of price value on behavioral intention have a path coefficient value of 0.299 with a p-value of 0.000. These results show that price value has a significant and positive effect of 29.9% on behavioral intention in using e-commerce with $\alpha=5\%$. The results of this study are supported by research which states that users experience more benefits than the costs incurred (Khan et al., 2017). In addition, this research is also in line with several studies which found that

price value has a positive effect on the tendency of a person's intention to use a system (Farzin et al., 2021; Merhi et al., 2019; Julioe, 2017).

Habit is defined as the extent to which people tend to use information systems automatically based on learning (Morosan & DeFranco, 2016). The results of testing the H8 hypothesis about the influence of habit on behavioral intention have a path coefficient value of 0.131 with a p-value of 0.016. These results show that habit has a significant and positive effect of 13.1% on behavioral intention to use e-commerce with $\alpha=5\%$.

he results of this study are in line with previous research on m-payment adoption conducted by K. Gupta & Arora (2020) which stated that habit is the most influential factor on the intention to use m-payment. Consistent with Baptista & Oliveira (2015) which states that habit is the main predictor of intention to use a system. Hussain et al. (2019) stated that when users experience the experience of using mobile payments and continue to use it, it eventually turns the experience into a habit and has become an important driver for the success of mobile commerce. Other studies also support this finding such as (A. Gupta & Dogra, 2017; Tria, 2015; Sheikh et al., 2017).

The influence of habit is also tested on use behavior where the results of the H9 hypothesis test produce a path coefficient value of 0.399 with a p-value of 0.014. These results show that habit has a positive and significant effect of 39.9% on the behavior of using e-commerce with $\alpha = 5\%$. Consistent with the results of research Merhi et al. (2019) found that habit is one of the most significant factors in behavior. Then Nopiani & Putra (2021) which says that habit will be addictive. The results of this study are also in line with research on m-banking adoption conducted by Baptista & Oliveira (2015) stating that it is important to note that habits are seen by respondents as the most important determinant of technology use behavior. Other studies have also produced the same results as (A. Gupta & Dogra, 2017; Sheikh et al., 2017).

Behavioral intention is a person's subjective possibility that he will perform some behavior (Morosan & DeFranco, 2016). The results of testing the H10 hypothesis about the effect of behavioral intention on use behavior with a path coefficient value of 0.267 with a p-value of 0.03. These results show that behavioral intention has a significant and positive effect of 26.7% on use behavior with $\alpha=5\%$. The results of this study are in line with research on m-payment adoption conducted by K. Gupta & Arora (2020) which shows that positive behavioral intention leads to positive usage behavior towards something. Research by Farah et al. (2018) stated that consumer adoption intentions significantly impact actual usage behavior. This research is also consistent with previous research on the adoption of m-banking, plastic money, e-money, social commerce (Khan et al., 2017; Makanyeza & Mutambayashata, 2018; Nopiani & Putra, 2021; Sheikh et al., 2017).

The results of testing the hypothesis H11 about the influence of behavioral intention on use behavior with moderation of the individualism/collectivism variable produces a path coefficient value of 0.346 with a p-value of 0.037 <0.05. These results indicate that the individualism/collectivism variable significantly and positively moderates the effect of behavioral intention on use behavior where the effect will be stronger by 34.6% with $\alpha = 5\%$. The results of this study indicate that the influence of behavioral intention on use behavior will be stronger in collective people. These results are consistent with the results of Baptista & Oliveira (2015) research which states that individualism/collectivism has a strong and positive moderating effect where the relationship is getting stronger in societies with a collective culture. This research is also relevant to several studies which state that in a collective society, social influence can play an important role on intention, because collective culture usually makes individuals more concerned about the opinions of others (Khan et al., 2017; Sheikh et al., 2017).

People with the Uncertainty Avoidance characteristic are relaxed, don't like to take risks, usually do some improvisation, and have greater receptivity to new ideas, products, and services (Baptista & Oliveira, 2015). In this study, the uncertainty avoidance variable was tested as a moderator variable from the effect of behavioral intention on use behavior

where the results of testing the H12 hypothesis showed a path coefficient value of 0.558 with a p-value of 0.024. These results indicate that the uncertainty avoidance variable significantly and positively moderates the effect of behavioral intention on use behavior where the relationship will be stronger by 55.8% with $\alpha = 5\%$. The results of this study are relevant to the results of research by Khan et al. (2017) who concluded that the cultural dimension of uncertainty avoidance moderates the relationship between intention and behavior. Consumers want to have as much information as possible and only trust and show readiness to accept new technologies when there is clarity over the products available to avoid uncertain situations. Then the results of Sheikh et al. (2017) stated that consumers are highly risk averse and uncertain situations.

The longterm orientation variable is tested as a moderator variable from the effect of behavioral intention on use behavior where the results of testing the H13 hypothesis show a path coefficient value of 0.267 with a p-value of 0.03. These results indicate that the longterm orientation variable positively and significantly moderates the effect of behavioral intention on use behavior where the effect will be weaker by 15.7% and significantly tested at the 95% confidence level. This is relevant to research conducted by Baptista & Oliveira (2015) which found that long term orientation has a strong moderating effect. Then Goularte & Zilber (2019) stated that long term orientation significantly moderates the effect of behavioral intention on use behavior in the use of mobile banking adoption.

4. CONCLUSION

Based on the results this research, the moderator's variable individualism/collectivism, uncertainty avoidance and long-term orientation significantly succeeded in moderating the influence of behavioral intention on use behavior. Thus, the cultural approach can be a consideration of one's decision in adopting technology, in this case e-commerce. For the government, it is hoped that these findings will be a reference for developing strategies in developing services and increasing e-commerce adoption in SMEs in Batam City because culture is a determinant of desires and behaviors that need attention. This study has several limitations, including its location which is limited to the city of Batam and the respondents to this study are only young age groups. For further research, it is better to use a wider scope of location and a balanced composition of respondents, especially in terms of age so that the results shown can be more representative and the advice given can be more specific. In addition, this study only uses three cultural dimensions, namely individualism-colectivism, uncertainty avoidance, and long term orientation. For the next researcher, who will be researching with the model UTAUT2 is expected to improve the quality of questionnaires with items more relevant statements.

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