

ONLINE CUSTOMER BEHAVIOR IN MOBILE PAYMENT E-WALLET: THE MODEL OF RELATIVE ADVANTAGE

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ABSTRACT

The use of mobile payment e-wallet in Indonesia continues to increase due to the advantages of this payment method. Based on the phenomenon of mobile payment users, this study aims to examine the relationship between smartness, mobility, perceived ease of use, and relative advantage. This research investigates a model that can form the relative advantage of mobile payment e-wallet users. The research method used is a quantitative survey; the survey is carried out on 290 mobile payment e-wallet users in Bandung. The data from users obtain through a questionnaire. Then the data is processed through SmartPLS with several tests, namely the Inner and Outer test and the research hypothesis test. The research variables studied are smartness, mobility, perceived ease of use, and relative advantage, while the relationship between variables is described in the research model. The study results show that smartness has a relationship with perceived ease of use; mobility is said to be able to change perceived ease of use. Perceived ease of use has a positive relationship in increasing relative advantage, while directly smartness and mobility are said to have a positive relationship with relative advantage. Mobile payment e-wallet users seem to give the view that relative advantage is more able to be directly influenced by perceived mobility and perceived ease of use. The perceived ease of use can be well supported through the assumption of smartness and mobility. The findings from the research model explained the ability of perceived ease of use in mediating the relationship between smartness and relative advantage. However, perceived ease of use is not able to mediate the relationship between mobility and relative advantage. The findings from the research are useful for companies in implementing business strategies, where determining business strategies need to understanding user behavior on mobile payments. Furthermore, the research model can be used as an insight in determining marketing strategies to increase the value of mobile payment w-wallet by increasing morning users' relative advantage. The more benefits that the user feels, the more impact the user's interest in using a mobile payment e-wallet.

Keywords: *Smartness, Mobility, Perceived Ease of Use, Relative Advantage.*

1. INTRODUCTION

Technology continues to develop and becomes an important part of human needs, especially in supporting activities and performance, however, the sustainable use of technology depends entirely on the speed of technology adaptation [1], [2]. Technological adaptation depends on many factors, in daily activities usually technological adaptation can be contained by the motivation of the user [3]. This motivation is related to the needs of users with technology, the higher the level of need, the higher the motivation to use [4]. On the other hand, technological adaptation can be influenced by the

use value of the technology that is considered to have innovation for users [5], [6]. One technology that has innovation value is mobile payment [7], in fact it replaces transactions in cash or credit which are faster and easier. The speed and convenience felt by users through mobile payments are advantages that ultimately stimulate the use of mobile payments [8]. The main advantage of mobile payment is that it supports more effective user activities, meaning that the presence of technology is able to support the performance of its users [9]–[11]. The use of mobile payments will continue to increase, due to the advantages of technological innovation [12]. Especially in the Covid 19 pandemic in Indonesia,

which limits face-to-face meetings. The limitations of human interaction force all-digital transactions such as mobile payments [13]. The phenomenon of changing transaction methods is considered good because it increases technology adaptation to mobile payments more quickly [7]. The fact that can be conveyed is the benefits of mobile payments such as e-wallet in supporting user performance.

There are several mobile payment e-wallet providers in Indonesia, among which are known as GoPay, OVO, Dana and ShopeePay [14]. Users of mobile payment e-wallet are unlimited, meaning that each user can have more than one e-wallet provider [15], [16]. This depends on the convenience and benefits obtained by the user. Some users feel the use of mobile payments because of the ease of access and support for user performance [17]. However, some users feel there are financial benefits in using e-wallet. Based on the different needs of users, it is certain that the use of e-wallet can be more than one provider. The choice of mobile payment e-wallet certainly determines the sustainability of the service provider [11]. If it is felt that there is no advantage, the use of e-wallet can be reduced or even stopped by the user. These problems support service providers to continue to maintain the quality of e-wallet with various advantages [18]–[20]. The advantages of e-wallet can be seen from its usability, more precisely the use value of mobile payment that is considered by users [12], [21]. The advantages of e-wallet can be seen from its usability, more precisely the use value of mobile payment that is considered by users [22]. Perceived ease of use is the level where users feel the ease of using and adapting to technology in mobile payments [18]. Perceived ease of use is commonly used to assess the level of technological adaptation, it was found that there was a good influence from the perceived ease of use in supporting the relative advantage assessed by users [23].

Relative advantage is related to technology and innovation received by users, meaning that there are several supporting factors such as smartness and mobility [24]. Smartness provides the intellectual value of the user when adapting to technology in mobile payments. The better the value of smart that is assessed ultimately supports the value of excellence from mobile payments [25]. Meanwhile, mobility is an inherent character of mobile payment, namely the freedom of payment methods that can be taken anywhere [26]. Besides that, this freedom is also related to the time and place of the transaction, because mobile payment supports the activities of users with high mobility [23]. This means that

mobility is able to support the creation of a relative advantage [27], [28].

This study explores the relationship between smartness, mobility, perceived ease of use, and the relative benefits of mobile payment e-wallets, based on the phenomenon of problems in the adaptation of mobile payment electronic wallets and user behavior. The purpose is to investigate how to increase the level of relative advantage by user. Also, this study focuses only on user behavior and assesses the value of technology adaptation to measure the sustainability of the use of electronic wallets in mobile payments. The analysis is only performed for users of mobile payment e-wallet. The information found in this survey is a useful recommendation for service providers before creating a mobile payment policy.

2. LITERATURE REVIEW

Consumer behavior in online apps includes several variables. This research looks at four variables: smartness, mobility, perceived ease of use, and relative advantage. The theoretical discussion revolves around online customer behavior and the relationship between variables to develop a hypothesis design. The literature review begins with an explanation of each research variable theory and concludes with a review of prior research. The output of the literature review is designed research hypotheses and research models.

2.1 The Smartness and Mobility of Mobile Payment

Mobile payments have technological innovations that make it easier for users to make financial transactions [29]. This transaction is considered practical and makes it easier for users, thus supporting user performance [15]. The technology used is related to smartphones and can maintain the privacy of its users [30]. In general, it is said that mobile payments are considered to have smartness because they are attached to smartphones and can image intelligence for users [31]. These theories asserts that the adaptation of mobile payments depends on the level of user knowledge. In the end, mobile payments are considered smart when used by users in their activities. There are several indicators that support in measuring the smartness of mobile payments including intelligent of technology, smart of technology and smart of image [14], [24].

The characteristic of mobile payment is mobility, this is related to the ease of access and use in payment transactions [12]. Mobile payments are found on smartphones, where smartphones are

always carried by users in their activities, this makes it easier for users to use mobile payments [32]. Financial transactions using mobile payments are considered safe, because the funds are stored on a personal smartphone and the flow can be maintained by the user [32]. There is a feature to maintain privacy to make it easier for users to continue to protect transactions through mobile payments. The value of mobility is considered important in technology adaptation because this feature benefits users to continue using mobile payments. There are several indicators commonly used in mobility, including transactions, mobility, time, and place [24], [33].

2.2 The Perceived Ease of Use of Mobile Payment

Technology in mobile payments can be well received by users depending on the perceived ease of use [23]. Because ease of use is the belief of users in adapting to easy technology [34]. If mobile payment is considered easy, it can support the use of mobile payment. Perceived ease of use is commonly found in the Technology Acceptance Model, which is used to measure technology adaptation by users [35]. Because innovation from technology cannot be well received by users if the adaptation process does not go well [36]. The use that is considered beneficial to the user becomes the main value of the perceived ease of use [37]. In the end, the use of mobile payments is related to the perceived ease of use. There are several measurements that are commonly used to evaluate perceived ease of use, including easy to learn, easy to use and the level of skill of use [14], [35], [38].

2.3 The Relative Advantage of Mobile Payment

Every technology used by users certainly has advantages [39]. If it is considered weak to provide benefits for users, the sustainability of the technology does not last [40]. Mobile payments such as e-wallet certainly have advantages that are assessed by users, this is the bargaining power of mobile payments as part of the application that is continuously used [32]. Relative advantage itself is said to be a technological innovation that is considered easy and profitable compared to other services [41].

Mobile payment provides convenience and practicality for users, so this is the first factor of the advantages of mobile payment [32]. Transaction security from mobile payments is one of the features

expected by users, because finance is a sensitive matter in terms of user convenience [33]. Because mobile payments are used through smartphones, this application can be used anywhere and anytime. Moreover, there is a transaction history, so that it can increase the trust of users. Another advantage that is often the main reason for adapting mobile payments is the number of promotions delivered by service providers, including price discounts [27], [31]. This attracts the attention of users and leads to the use of more than one mobile payment. Assessing several reasons for mobile payment, indicators that can be assessed in measuring relative advantages include method advantage, benefit advantage, payment advantage, and pleasant advantage [27], [31]

2.4 Research Review and Hypotheses

The goal of this study is to evaluate the level of relative advantage of mobile payment users, so that models are known that can support the perceived relative advantage. There are several supporting variables including smartness, mobility, and perceived ease of use. Through a review of previous research, it is known the design of the hypothesis and the research model that will be tested in this study. The first review is related to the relationship between smartness and mobility on perceived ease of use, where in previous studies related to NFC technology it was explained that NFC is a technology that prioritizes the level of smart users [24], [26]. It was concluded from previous studies that the smartness of mobile payments has support for perceived ease of use [29]. It is the same with mobility, because mobility has been conveyed as the main feature of mobile payment, which is able to support perceived ease of use [15]. Based on the analysis of previous research, it is known that perceived ease of use can be influenced by smartness and mobility.

Furthermore, in the study of mobile payments in the US, it is known that perceived ease of use is said to be a variable that can increase the user's relative advantage [32]. It is emphasized in the research on e-learning adoption in Malaysia, where it is stated that ease of use is the main factor in increasing the user's relative advantage [27]. Based on this study, it can be conveyed that the relative advantage can be controlled by increasing the perceived ease of use. Relative advantage is in fact related to the value of excellence [25], it is known that there are many factors that can support them, including smartness and mobility. Previous studies explained that smartness and mobility are features that are inherent in mobile payments, and make mobile payments

have advantages [24], [26]. Indirectly it is interpreted that smartness and mobility have a role in increasing the relative advantage of using mobile payments.

Based on a review analysis of previous research, it is known that smartness and mobility have a relationship with perceived ease of use but are also able to directly support relative advantage. On the other hand, it is known that perceived ease of use is a variable that can change in a positive direction from relative advantage. The analysis of the analysis can be submitted hypotheses design where there are five hypotheses to be tested and analyzed.

Hypothesis 1. Smartness positively influences to perceived ease of use of mobile payment e-wallet.

Hypothesis 2. Mobility positively influences to perceived ease of use of mobile payment e-wallet.

Hypothesis 3. Perceived ease of use positively influences to relative advantage of mobile payment e-wallet.

Hypothesis 4. Smartness positively influences to relative advantage of mobile payment e-wallet.

Hypothesis 5. Mobility positively influences to relative advantage of mobile payment e-wallet.

3. METHODS

This study focuses on four variables to be studied including smartness, mobility, perceived ease of use and relative advantage. Each variable is measured based on indicators where for smartness three indicators, mobility is measured by four indicators, while for perceived ease of use is measured by three indicators and relative advantage is measured through four indicators in line with the discussion in the literature review.

The research method used is a quantitative survey. The survey was conducted on e-wallet mobile payment users in the city of Bandung, considering that the city of Bandung is one of the cities in Indonesia with the highest mobile payment users. The survey was conducted through a quantitative questionnaire that had predetermined answers with a Likert Scale approach, namely the value of "1" explaining the answer strongly disagreed and the value "5" for explaining the answer strongly agreeing. Questionnaires were distributed through an online form for two months.

Based on the research hypothesis design, the data from the questionnaire was processed using a path

analysis approach. The final goal of the research is to examine the right model for relative advantage. Data analysis used the SmartPLS analysis tool, so that the research instrument was tested with Inner and Outer Tests. Do not forget to confirm the results of the research and the research model is carried out by testing the research hypothesis.

4. RESULT AND DISCUSSION

The results of the research are presented starting with an analysis of the profile of the respondents. In fact, 300 respondents filled out the questionnaire from the online research. However, after checking the suitability of the data, only 290 have valid data, so that the data is processed through SmartPLS with valid data. The SmartPLS test was carried out twice with the PLS Algorithm and Bootstrapping. It is known that the results of the processed data are presented in full in Table 1, Table 2, Table 3, and Table 4. While the results of the research model test are shown in Figure 1.

The results of the first test conducted an analysis of the research instrument test to confirm the feasibility of the data used in this study. The test is carried out with the Inner and Outer Test model, the test results are summarized in Table 1 and Table 2. The inner test model is known from the evaluation of Cronbach's Alpha, ρ_A , Composite Reliability and Average Variance Extracted values. It is said to be accepted if the Cronbach's Alpha, ρ_A , and Composite Reliability values are above 0.700, and the Average Variance Extracted is considered acceptable if it is above 0.500. The test results in Table 1 are related to the Constructs Validity and Reliability Test, all the values above are recommended, so that the Inner test model can be accepted. The next test of the Outer test model with the results presented in Table 2, where the table describes the relationship between the latent variable and the manifest variable. Evaluation is done by measuring the value of T Statistics or P Values, which is said to be accepted if the P Value is less than 0.050. When examined from Table 2, it appears that all P Values are accepted and explains that the outer test model is accepted for further analysis of the research model from the path analysis in this study.

The first analysis of the Loading Factors tests which explains how much the size of the indicator explains its contribution to form the main variable. The test results are known in Table 3, where smartness is measured by three measurements with the best loading factors on the X1.3 indicator. Furthermore, mobility is measured by four indicators

and the highest indicator is known from items X2.1 and X2.2. In the perceived ease of use, there are three indicators with all high loading factors. As for the relative advantage with four indicators, it is known that only three have the highest loading factors including Z1, Z2 and Z4. Based on the results of the evaluation of the loading factors, it is known which

indicators are of important concern, seen from the largest value. However, other indicators are also used with different priority scales. The analysis of loading factors was not studied further considering that it was not the purpose of the study. As for the next analysis of the research model that appears in Figure 1.

Table 1: Constructs Validity and Reliability Test

Constructs	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Mobility	0,780	0,817	0,854	0,598
Perceived Ease of Use	0,843	0,843	0,905	0,761
Relative Advantage	0,841	0,843	0,894	0,678
Smartness	0,718	0,720	0,842	0,639

Table 2: T Statistics and P Values.

Measurements	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
X1.1 <- Smartness	0,780	0,777	0,036	21,885	0,000
X1.2 <- Smartness	0,787	0,786	0,034	22,824	0,000
X1.3 <- Smartness	0,831	0,831	0,023	36,345	0,000
X2.1 <- Mobility	0,859	0,861	0,017	51,447	0,000
X2.2 <- Mobility	0,834	0,833	0,027	30,497	0,000
X2.3 <- Mobility	0,737	0,734	0,040	18,358	0,000
X2.4 <- Mobility	0,643	0,641	0,054	11,964	0,000
Y1 <- Perceived Ease of Use	0,890	0,888	0,022	40,475	0,000
Y2 <- Perceived Ease of Use	0,874	0,872	0,022	38,908	0,000
Y3 <- Perceived Ease of Use	0,853	0,855	0,018	46,932	0,000
Z1 <- Relative Advantage	0,823	0,826	0,022	36,700	0,000
Z2 <- Relative Advantage	0,866	0,867	0,020	43,419	0,000
Z3 <- Relative Advantage	0,766	0,768	0,038	20,324	0,000
Z4 <- Relative Advantage	0,835	0,834	0,025	33,789	0,000

Table 3: Outer Loadings Value.

Indicators	Mobility	Perceived Ease of Use	Relative Advantage	Smartness
X1.1				0,780
X1.2				0,787
X1.3				0,831
X2.1	0,859			
X2.2	0,834			
X2.3	0,737			
X2.4	0,643			
Y1		0,890		
Y2		0,874		
Y3		0,853		
Z1			0,823	
Z2			0,866	
Z3			0,766	
Z4			0,835	

Table 4: Hypothesis Test.

Correlations	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Mobility -> Perceived Ease of Use	0,487	0,492	0,063	7,709	0,000
Mobility -> Relative Advantage	0,541	0,545	0,054	9,991	0,000
Perceived Ease of Use -> Relative Advantage	0,319	0,319	0,065	4,872	0,000
Smartness -> Perceived Ease of Use	0,316	0,310	0,065	4,848	0,000
Smartness -> Relative Advantage	0,346	0,343	0,053	6,515	0,000

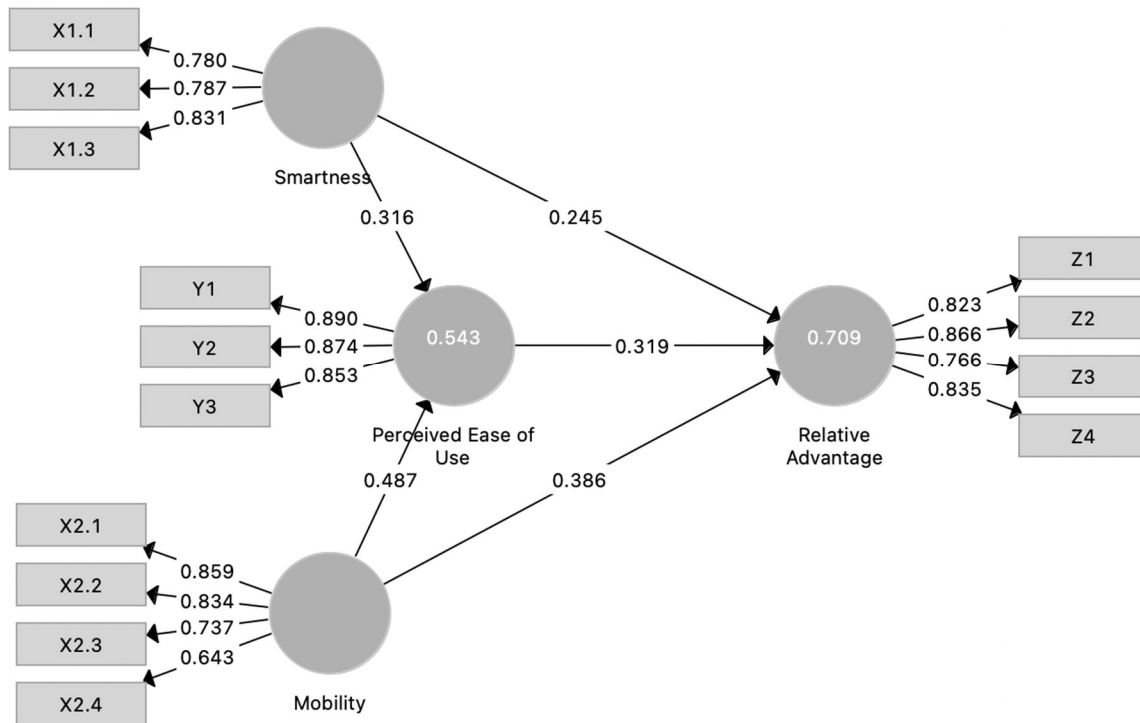


Figure 1: Result of Model Test

4.1 Relationship of Smartness, Mobility and Perceived Ease of Use on Mobile Payment

The first discussion is a discussion to answer the design of hypothesis 1, and hypothesis 2. This hypothesis explains the relationship of smartness and mobility with perceived ease of use. The results of the model test are known to appear in Figure 1, which is known based on the results of research for smartness to have a positive relationship with the perceived ease of use of mobile payment e-wallet users. The correlation value is known to be 0.316 which means that the higher the smartness, which is considered by the user, the better it is accepted by the user, assuming the use of mobile payment e-wallet. The test results are confirmed by the research hypothesis test that appears in Table 4, for the

relationship between smartness and perceived ease of use has a P value below 0.050, meaning that the hypothesis can be accepted. Furthermore, it is known that the results of research related to the relationship between mobility and perceived ease of use, it is clear from Figure 1 that mobility has a correlation value of 0.487. It appears to be greater than the relationship between smartness and perceived ease of use. These results explain that the priority scale in controlling the perceived ease of use needs to prioritize the perceived mobility of the mobile payment e-wallet. The test results from the second hypothesis are clarified in Table 4 where the value of the relationship between mobility and perceived ease of use has a p value lower than 0.050.

This part of this study enhances previous research where it has been explained that the notion of smartness and mobility in mobile payments is important in relation to perceived ease of use [24], [26]. Further development of this research is carried out more specifically for e-wallet.

4.2 Relationship of Perceived Ease of Use on Mobile Payment to Relative Advantage of User

The next discussion explains the relationship of the third hypothesis regarding the relationship of perceived ease of use with relative advantage. The test results appear to have been presented in Figure 1 with the results known that the correlation value of perceived ease of use to relative advantage is 0.319. These results explain the higher the value of perceived ease of use, the better it is to increase the relative advantage. It is known that there are several measurements of perceived ease of use that can support its impact on relative advantage, including easy to learn, easy to use and skill level of use. All values on leading factors are known to be high, namely above 0.800, at least explaining that all these indicators can explain perceived use.

Part of this research is in line with previous research on the same study for mobile payments and user adaptation. In his research, he conveyed the importance of perceived ease of use as the assumption of mobile payment users who could increase the advantages of mobile payment e-wallet [25]. It is also known in this study that perceived ease of use can be well supported by two factors, namely smartness and mobility. This means that the relationship between perceived ease of use and relative advantage will work well if it is supported by the notion of smartness and mobility from mobile payment e-wallet. Furthermore, to confirm the above assumptions, testing of the next hypothesis design is carried out.

4.3 Relationship of Smartness, Mobility and Relative Advantage on Mobile Payment

The final discussion explains the relationship of smartness, mobility to relative advantage. The final goal of the study is to explain a model that can form a relative advantage, it is known that relative advantage can be influenced by the perceived ease of use of mobile payment users. However, in this discussion, it is known that there are other factors that can explain changes in a positive direction from relative advantage, namely smartness and mobility which are assessed by users. The results of the model test in Figure 1 show that smartness has a positive

relationship with a relative advantage of 0.245. Meanwhile, mobility appears to have a relationship with relative advantage with a correlation value of 0.386. The results of this study are in line with previous research studies which found that smartness and mobility are factors that can increase relative advantage [24], [26]. This finding is confirmed by testing the research hypothesis, the results of which have been summarized in Table 4. The relationship of smartness and mobility to relative advantage is known to have a p value below 0.050 which means the hypothesis is accepted.

If we look more deeply and compare it with previous findings, namely the relationship of perceived ease of use to relative advantage, it is known that the correlation value of mobility is greater than relative advantage. This means that perceived ease of use is not able to mediate between mobility and relative advantage. Mobility has a level equivalent to perceived ease of use, so it can be directly used to increase relative advantage. The correlation of smartness with relative advantage is known to be smaller than perceived ease of use. This result is different from previous results where it is said that perceived ease of use is able to mediate and strengthen the relationship of smartness to the relative advantage of mobile payment users.

The behavior of mobile payment e-wallet users has been explained in the research results based on research hypothesis testing, the essence of the research is presented in the research model that has been presented in Figure 1. The model has not been changed considering the results are able to support the final goal of supporting the creation of a relative advantage. The research findings explain the existence of a relative advantage model for mobile payment e-wallet users. This research model can be used as a reference for companies that provide mobile payment e-wallet services, where attention is needed on perceived ease of use, smartness and mobility in order to support increasing the user's relative advantage.

5. CONCLUSIONS

Relative advantage is the perception of users on mobile payment e-wallet, in this study studied models that can be formed from relative advantages. The research findings were conveyed that relative advantage can be influenced by smartness, mobility, and perceived ease of use. Perceived ease of use in the research model mediates smartness and mobility on the relative advantage of mobile payment users. However, it does not fully mediate, considering that it can only mediate the relationship between

smartness and relative advantage. On the one hand, it is known that perceived ease of use does not mediate mobility with relative advantage. Another finding was conveyed that smartness and mobility were actually able to increase perceived ease of use. The findings from this study are actually useful for service providers in understanding user behavior and adaptation to technology in mobile payment e-wallet. The main thing that can be used as decision support is the importance of perceived ease of use in supporting the achievement of relative advantage.

This research has limitations, where the study focuses on the behavior of smartness and mobility users. It is recommended in further research to improve the antecedent variables of perceived ease of use such as external factors from users. Besides that, the moderation of user behavior is not studied, meaning that the study can still be deepened by conveying moderation based on user behavior.

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