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M-PAYMENT ADOPTION IN SMEs; VIRTUAL ENTREPRENEURS

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ABSTRACT

The technological and communication revolution has driven the rapid development and popularity of M-payment services. The purpose of this study is to explore the M-payment adoption and consequences among SMEs context informal virtual entrepreneurs and provide insights for them to continue their venture operations to compete with the technologically advanced environment. This study addressed the enterprise perspective to explore the unknown facts from the M-payment phenomenon. The present study is quantitative, and the model was developed based on constructs of Unified Theory of Acceptance and Use of Technology 2 and empirical findings of previous literature. Using the Unified Theory of Acceptance and Use of Technology model and empirical findings, a generally validated and reliable model was developed for the study. Primary data of the study were collected from 122 SME entrepreneurs who expanded their businesses to virtual platforms. Study findings emphasized that relative advantage and absorptive capacity, perceived transaction convenience, compatibility have a significant impact on M-payment adoption, and perceived risk has a significant negative impact on M-payment adoption among informal virtual entrepreneurs in the SME context in Sri Lanka. Furthermore, social influence does not significantly impact M-payment adoption. Study results are beneficial for developers, vendors, policymakers to identify the desires of most growth sectors of the economy, SMEs entrepreneurs, and the model developed from the current study can be used for future studies by eliminating existing limitations of the same study.

Keywords: Unified Theory of Acceptance, and Use of Technology (UTAUT 2), M-payment, Virtual Enterprises, SME, Technology adoption

1. Introduction

Smartphones connect and drive the world towards the success of technological processes. In recent years a gradual increase in the usage and ownership of smartphones can be recognized especially in the emerging markets of the world. These smartphones serve people multi purposely (Singh and Sinha, 2020). The enhancement of mobile technologies, enables the users of smartphones to access various mobile applications very quickly at any time (Al-Emran, Alkhoudary, Mezhuyev, 2019). M-payment is one such technology that is used to engage in online transactions via mobile (Kim Mirusmonov & Lee, 2010). and m-payment service has a major contribution to the potential development of m-commerce (Skeldon, 2011). According to (Mallat, 2007) “mobile payments are defined as the use of a mobile device to conduct a payment transaction in which money or funds are transferred from a payer to a receiver via an intermediary or directly without an intermediary” (p.415). Further, M-payments are also known as mobile money, virtual, digital, or mobile wallets and it can be explained as financial transactions such as ‘payments for goods, services, and bills with a mobile device by taking advantage of wireless and other communication technologies’ (Dahlberg, Mallat, Ondrus, & Zmijewska, 2008).

However, even after 20 years of first mobile payment still, the mobile payment adoption of both consumers and merchants is at a lower rate (Park, Ahn, Thavisay, & Ren, 2019). Extant literature suggests that there is only a little research regarding the adoption of mobile payment by merchants (Dahlberg et al., 2015; Verkijika, 2020; Abebe and Lessa, 2020). Further, Dahlberg et al. (2015) stated that the research studies conducted on mobile payment adoption from 2007-2014 were mostly focused on the aspects of customer adoption and technology. Thus, the present study strives to understand the mobile payment adoption by the business sector specifically in SMEs.

According to existing literature, the adoption of m-payment systems is measured through using models such as the technology acceptance model, unified theory of acceptance and use of technology, theory of planned behavior, theory of reason action, technology organization environment, and the technology fit model (Al et al., 2019). These studies illustrate those businesses concentrate more on the benefits and the functional and technical aspects of the technology or services (Singh and Sinha, 2020). As they have focused heavily on technology adoption factors, the other determinant factors (eg: environment factors and personal factors) have not been studied properly. Previous studies (Lee, Park, Chung, & Blakeney, 2012; Pham & Ho, 2015) explained that the absorptive capacity of an individual directly affects the intention to use mobile financial services. Perceived risk is also a significant factor of new technology adoption (Chong, Chan, & Ooi, 2012; Mallat, 2007; Pham and Ho, 2015). Therefore, researchers have developed an integrated model by combining factors from the UTAUT 2 model (Perceived convenience, Compatibility, Social Influence, and Relative advantage), personal factors (Absorptive capacity), and inhibiting factors (Perceived risk).

In Sri Lanka, 75% of total enterprises are SMEs and the majority are informal businesses and it contributes to 52% of the country's GDP. Out of them, about 65% have a dedicated contact number for their business and only 85% use a mobile number. Yet only 51% of SMEs use smartphones. However, 96% of SMEs do not utilize mobile money payment

methods and 18% of them are not even aware of the mobile money services (Jayasinghe, 2020). In developing countries, the adoption rate of mobile payment is low and there arises a need to investigate the reasons for the low adoption rate (Jaradat & Faqih, 2014). Hence Sri Lanka is also a developing country, this study intends to investigate the factors affecting mobile payment adoption of SMEs to improve this fast-growing technology which translates into a knowledge gap in this context.

The objective of this study is to explore the M-payment adoption and consequences among SMEs context virtual entrepreneurs by empirically investigating the mobile payment adoption determinants. The study adds value to existing M-payment adoption research studies. It is done by examining them-payment adoption in the business sector which is still an under-researched area. Further, the study provides an understanding of technological m-payment adoption determinants; Perceived convenience, Compatibility, Social Influence, and Relative advantage to enhance mobile payment adoption. Also, the present study generates the foundation for future research by extending the model considering the environmental factors and personal factors.

2. Literature Review

2.1. M-Payment

The use of mobile phones or other mobile devices to purchase products or services has been described as mobile payment generally M-Payment (Kim, 2008). M-Payment services also encompass any commercial operations that rely on mobile devices to effectively conduct economic transactions (Liébana-cabanillas, Marinkovic, Ramos, Luna, & Kalinic, 2018). According to (Koenig-lewis, Marquet, & Palmer, 2015), M-Payments enable flexibility, mobility, and efficiency to address everyday issues or meet the desires of its users. Transferring money to services or commodities via mobile devices via Short Message Service, Browser, payment applications, and Quick Response (QR) code is a contribution to the M-payment specifications.

2.2. M-Payment Adoption

M-payment uptake has gotten the greatest attention from marketing researchers for a variety of reasons. The first argument is that M-Payment has enormous potential and, due to its ease, can help millions of people and enterprises worldwide (Liébana-cabanillas et al., 2018). M-payment is recognized as a disruptive technology. (Schmidhuber & Hilgers, 2017), thus worthy of attention. Therefore, it is critical to understand users' preferences and the reasons why they are willing to use or not and, in this way, can M-payment services produce value for stakeholders (Dahlberg, Agahi, & Lennartsson, 2018).

2.3. Conceptualization

The extended unified theory of acceptance and use of technology UTAUT2 is the most recent widely used theory for explaining technology adoption and usage. Perceived Transactional Convenience (PTC), Compatibility (C), Relative Advantage (RA), and Social Interaction (SI) were adopted from UTAUT2. In addition, Perceived Risk (PR) and Absorptive Capacity (AC) was adopted from the previous literature to construct the

theoretical foundation of the current study. Based on that figure 1 conceptual framework was developed.

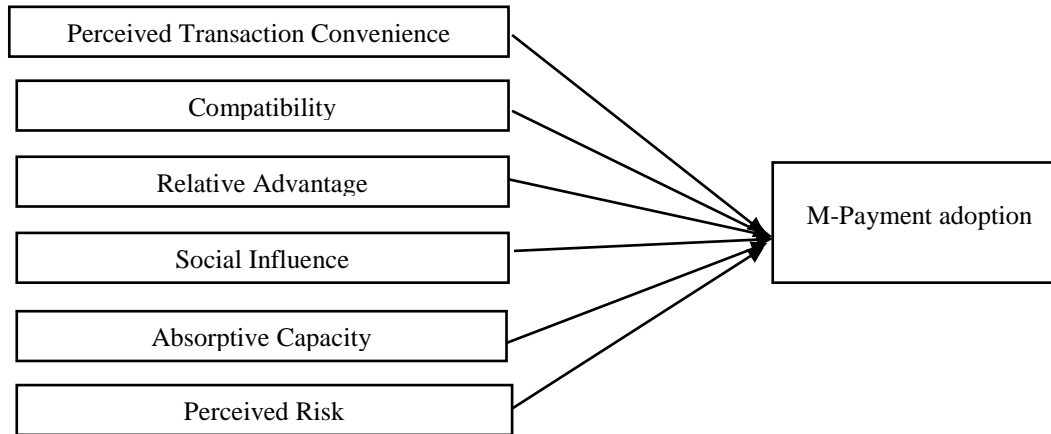


Figure 1- Conceptual framework

(Source: Authors Constructed, 2021)

2.4. Hypothesis Development

The term "perceived transaction convenience" refers to users' perceived effort and time spent on a transaction process (Berry, Seiders, & Grewal, 2002). Most of the prior studies adopted the Unified Theory of Acceptance and Use Technology UTAUT2 model to explore the usage and adoption intentions about M-Payment adoption as well as usage and results indicated that perceived transaction convenience has a positive impact on intention of M-Payment adoption (Ooi & Tan, 2016), (Khalilzadeh, Ozturk, & Bilgihan, 2017), (Gao & Waechter, 2015). (Hayashi, 2012) discovered that the primary motive for adopting a given payment method is convenience. Compatibility is the degree to which new technologies are consistent with customers' past life experiences, habits, and requirements (Chen, Gillenson, & Sherrell, 2003). (Pham & Ho, 2015), (Mbogo, 2010), (Nasri & Charfeddine, 2012), (Lou, Tian, & Koh, 2017), (Khalilzadeh et al., 2017), (Liébana-cabanillas & Luna, 2015), (Nasri & Charfeddine, 2012), (Liébana-cabanillas et al., 2018) indicated that high compatibility leads to the higher adoption rate of technology and positive influence for users' M payment adoption. Relative advantage refers to the degree to which an invention is evaluated as being superior to the notion it replaces. When people learn that M-Payment can provide value that traditional devices or payment services cannot, they have an even more positive effect on M-Payment services adoption (Yang, Lu, Gupta, Cao, & Zhang, 2012), (Pham & Ho, 2015). Social influence refers to the user's view of "the extent to which important individuals feel they should utilize a new technology" (Dang, Zhang, & Morgan, 2015). Many studies have integrated social influence into their study models in the context of the adoption of mobile technology services in recent years, and they have discovered that social influence has a favorable impact on technology (Oliveira, Thomas, Baptista, & Campos, 2017), (Ooi, Lee, Tan, Hew, & Hew, 2017), (Morosan & Defranco, 2016), (Koenig-lewis et

al., 2015), (Liébana-cabanillas & Luna, 2015). (Ooi et al., 2017), (Koenig-lewis et al., 2015), (Khalilzadeh et al., 2017), (Merhi, Hone, & Tarhini, 2019), (S. W. Lee, Sung, & Jeon, 2019), (Shaw & Sergueeva, 2019) indicated that social influence has a positive impact on M-payment adoption. Absorptive capacity is defined as their ability to have prior knowledge of M-Payment and apply that information to the use of M-Payment. Studies indicate that if individuals have prior knowledge about M-Payment and can apply this information to M-Payment, they are more likely to use M-payment (Y. Lee, Park, Chung, & Blakeney, 2012). (Leong, Hew, Tan, & Ooi, 2013) observed that absorptive capacity had a significant impact on user technology adoption. Furthermore, (Pham & Ho, 2015) and (Raton, Salehi-esfahani, & Hua, 2016) demonstrated that absorptive capability influences M-Payment adoption. According to (Liébana-cabanillas, Sánchez-fernández, & Mu, 2014), perceived risk is defined as the uncertainty or potential negative repercussions of purchases as perceived by new users. When there is greater anticipation of loss, the perceived risk rises (Featherman & Pavlou, 2003). The number of recent works of literature on banking innovations pointed out that the perceived risk is a vital factor affecting intention to continue to use M-Payment. (Khalilzadeh et al., 2017), (Pham & Ho, 2015), (Baganzi, 2017), (Ozturk, 2016), (Kim, 2008) confirmed that perceived risk had a negative influence on the desire to use M-Payment services. Based on the discussion following hypotheses were derived.

H1. *Perceived transaction convenience positively impacts the M-Payment adoption intention.*

H2. *Compatibility positively impacts the M-Payment adoption intention.*

H3. *Relative Advantage positively impacts the M-Payment adoption intention.*

H4. *Social Influence positively impacts the M-Payment adoption intention.*

H5. *Absorptive capacity positively impacts the M-Payment adoption intention.*

H6. *Perceived risk negatively impacts the M-Payment adoption intention.*

3. Methodology

The current study is categorized under descriptive research as the objective is to describe the antecedents of M- payment adoption. The research question of the present study is to identify the key factors determined by the adoption in M payment of virtual in Sri Lanka. The theoretical population of this study is virtual entrepreneurs in Southern province, Sri Lanka and due to the time and financial constraints select informal entrepreneurs doing their business activities on virtual platforms in Southern province, Sri Lanka as the study population. Due to the convenience of gathering data in the current uncertain period, questionnaires were developed using google form and sent through social media networks directly by following the convenience sampling technique. Perceived transaction convenience (Ooi & Tan, 2016), compatibility (Khalilzadeh et al., 2017), relative advantage (Pham & Ho, 2015), social influence Merhi, Hone, & Tarhini, 2019), absorptive capacity (Pham & Ho, 2015) and perceived risk (Featherman & Pavlou, 2003) theoretical constructs were measured using validated instruments from prior relevant research and operationalization of the study included in table no 1. 150 questionnaires were distributed among informal virtual

entrepreneurs and 122 responses were received by indicating 81.3% response rate and above responses data analyzed by using SPSS 25 version.

Table No 1: Operationalization

variable	Construct	Source
Perceived Transaction Convenience	I believe that using mobile payment will be convenient for doing business	(Jiang, Yang & Jun 2013)
	I think that it is easy to use mobile payment to accomplish my business payment tasks	
	Mobile payment saves transaction time	
	Compared to traditional payment methods, I believe that mobile payment methods are more convenient for operating business	
Compatibility	Using mobile payment fits into my business style	(Fleury, Tom, Jamet, Maheux, 2017)
	I believe that using mobile payment fits well with the way I like to do business transactions	
	Using mobile payment is compatible with the way I like to operate a business	
	I would use mobile payment over other kinds of payment services	
Relative Advantage	Mobile payment is more efficient than Internet or offline payment.	(Fleury, Tom, Jamet, Maheux, 2017)
	The mobile payment provides greater flexibility	
	The mobile payment provides quicker access to the transactions that I need to make	
	Mobile payment is more convenient than Internet or off-line payment	
Social interaction	Customers who are important to me expect me to use mobile payment	(Fleury, Tom, Jamet, Maheux, 2017)
	Those people that influence my behavior think that I should use mobile payment	
	I will use mobile payment if the service is widely used by people in my community	
Absorptive capacity	I have the necessary knowledge to understand mobile payment services	(Cadiz, Sawyer & Griffith, 2009)
	I understand clearly the goals, tasks, and responsibilities of mobile	

	payment services	
	I have the technical capability to absorb mobile payment knowledge in business	
	I have superior skills and capabilities to perform tasks using mobile payment compared to other entrepreneurs	
Perceived Risk	I have trust in the M-payment applications	(Kim, 2008)
	I have enough idea about the security management of m-payment applications	
	I am satisfied with the included security methods of the M-payment applications	
	Overall, I believed that M-payment applications security risk is lower than others	
Adoption Intention	I intend to use mobile payment in the future business tasks	(Fleury, Tom, Jamet, Maheux, 2017)
	I predict I would use mobile payment in the future	
	I am willing to use mobile payment services in the future	
	I will always try to use mobile payment in my business operations	

4. Data Analysis

First, the examined outliers and missing values and based on the Shapiro Wilk test results indicated that the data set is normally distributed. Cronbach alpha test runs to confirm the reliability of the constructs and checked the validity of the study. Frequency distributions were used to analyze the sample profile of the respondents and correlation analysis was used to measure association among independent variables and results indicated that correlation among independent variables is high. Then after verifying that there were no multicollinearity issues multicollinearity analysis was done and according to the tolerance and VIF value results confirmed that there is no multicollinearity among independent variables of the present study. Finally, multiple regression analyses were run to test the hypothesis postulated based on the conceptual model of the study.

4.1. Demographic Analysis

Out of the 122 respondents, 57.4% were female and 42.6% were male. 30.3% of the respondents were between the ages 18-24 while 65.6% were between 25-31 years. Only 4.1% were recorded for ages 32-38 years. Most of the respondents were degree holders which were 54.8% and the lowest rate (2.5%) were postgraduates. In terms of the nature of the business, the highest values were recorded for Other, ICT, and service sectors which were 33.6%, 24.6%, and 22.1% respectively. Among the M-Payment

applications, most of the SMEs frequently use eZ cash 36.1%, and only 2.5% use U-pay for their M-Payments.

4.2. Reliability and validity

Table No 2: Reliability and validity Analysis

	CA	CR	AVE	PTC	C	RA	SI	AC	PR	M-payment adoption
PTC	0.867	0.894	0.629	0.793						
C	0.850	0.868	0.621	0.679	0.788					
RA	0.902	0.912	0.628	0.661	0.603	0.742				
SI	0.614	0.700	0.569	0.602	0.617	0.792	0.792			
AC	0.851	0.871	0.721	0.621	0.611	0.631	0.602	0.849		
PR	0.792	0.806	0.732	0.708	0.645	0.621	0.600	0.702	0.855	
M payment adoption	0.914	0.941	0.801	0.706	0.732	0.728	0.771	0.745	0.692	0.970

(Source: Survey Data, 2021)

CA: Cronbach's Alpha, CR: Composite Reliability, AVE: Average Variance Extracted

For measuring internal consistency Cronbach's alpha (CA) values were used. According to Bagozzi and Yi (1988), a threshold level of 0.6 or higher is required to demonstrate satisfactory reliability. The current study indicates all variables Cronbach's alpha values are greater than 0.6 and Composite Reliability greater than 0.7 Based on table no 2 results this study achieved internal consistency.

To achieve convergent validity if the AVE (Average Variance Extracted) threshold level should be more than 0.5, composite reliability is better than 0.7, and standardized factor loadings of individual items in their respective constructs are greater than 0.6 (Fornell & Larcker, 1981). Based on the table 2 result, convergent validity was proven in this study. To verify discriminant validity, Fornell and Larcker (1981) suppose that the square root of each latent variable's AVE should be larger than the latent variable correlations. Every latent variable's square root of AVE is greater than the correlations of the latent variables. As a result, it may be stated that the researchers were instrumental in delivering discriminant validity.

4.3. Hypotheses Testing

The hypothesis was tested using multiple regression analysis using SPSS and regression results are shown in Table 3. The Adjusted R Square value amounts to .651. Thus, the regression model explains 65% of the variance in the M-Payment Adoption with the six independent variables specified in the research model and ANOVA test confirmed that the regression model is statistically significant ($F = 38.664$, $P = 0.000$).

Table No 3: Regression results

Model	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
Perceived Transaction convenience	0.399	0.118	3.375	0.001
Compatibility	0.190	0.129	1.159	0.049
Relative Advantage	0.192	0.523	0.370	0.000
Social Influence	-0.117	0.116	-1.004	0.317
Absorptive Capacity	0.540	0.089	6.058	0.000
Perceived Risk	-0.139	0.117	-1.189	0.027
Adjusted R square	0.651			
ANOVA	F change=38.664 Sig=0.000			

(Source: Survey Data, 2021)

According to the table 3 Perceived Transaction Convince ($b = .399$, $p = 0.001$), Compatibility ($b = .190$, $p = 0.049$), Relative Advantage ($b = .192$, $p = 0.000$), Absorptive Capacity ($b = .540$, $p = 0.000$), and Perceived Risk ($b = -.139$, $p = 0.027$), have significant positive effect on M-Payment Adoption. This impact was derived with the control effect of age, gender, education level and business nature. Thus, derived H1, H2, H3, H5 and H6 hypotheses were accepted with observed data in the study. Social Interaction has a negative direction, and it is not a significant impact on M-Payment adoption ($b = -.117$, $p = 0.317$). Thus H4, not supporting the current study.

5. Discussion

Based on the data analysis it can be examined that this model satisfactorily demonstrates the intention to adopt the M-Payment by SMEs for their business purposes. The results suggest that Perceived Transaction Convenience, Compatibility, Relative Advantage, and Absorptive Capacity have a positive impact on the M-Payment adoption intention which is consistent with the research results of the (Khalilzadeh, Ozturk, & Bilgihan, 2017), (Lou, Tian, & Koh, 2017), (Pham & Ho, 2015) and (Leong, Hew, Tan, & Ooi, 2013). Among them Relative Advantage and Absorptive Capacity denote the highest impact, making these two the key factors determining the M-payment adoption by SMEs. This means the entrepreneurs can understand and apply their knowledge to the use of M-Payment and that are willing to use M-payment as they are more efficient than traditional methods.

In addition, the Perceived Transaction Convenience and Compatibility are also factors affecting M-payment. This indicates the entrepreneurs use M-payment due to the convenience usage and its consistency with their living habits. Perceived risk, which shows a negative impact with M-payment adoption intention, is per the prior research studies of (Baganzi, 2017) and (Ozturk, 2016). Interestingly, the hypothesis of Social Influence positively impacts the M-Payment adoption intention rejects in the present study denying the findings of (Morosan & Defranco, 2016) and (Koenig-lewis et al., 2015). This implies that the SMEs are less interested in the opinions of their family, friends, and relatives.

6. Conclusion

In conclusion, this study is done by examining the SME's m-payment adoption and consequences. During the Covid 19 circumstances, a considerable number of SMEs moved to virtual platforms to continue their businesses. Due to that, this study focused on SME context virtual entrepreneurs' M-Payment adoption. Study results confirmed that perceived transaction convenience, compatibility, relative advantage, absorptive capacity, and perceived risk have a significant impact on the M-payment adoption of virtual entrepreneurs. Moreover, social interaction is not significantly affected by the M-payment adoption of virtual entrepreneurs in the SME context. However, the current study confirmed the UTAUT2 model results excluding the social interaction variable. Study results will point to that more effort could be paid to make the M-payment adoption process a success. It gives a deeper view of the preferences of virtual entrepreneurs in the case of M-payment system adoption and uses, as well as what these virtual entrepreneurs would want from the M-payment adoption phase. Therefore, that potential adoption, use, and current installations can be better tailored to meet these virtual entrepreneurs' needs and desires. Finally, this study provides insights to policymakers regarding the SME sector in government, Mobile application developers, vendors, and researchers about M-payment adoption consequences of virtual entrepreneurs in SME context seek from them.

7. Theoretical and practical implications

There are several implications derived from this research study. The UTAUT 2 model has been explored by many researchers yet the combination of personal (Absorptive Capacity) and inhibiting factors (Perceived Risk) were not well documented. This study proved that even though the Absorptive Capacity was rarely examined in previous studies; it is one of the most influencing factors regarding the M-payment adoption intention. Perceived risk which was also incorporated by the researchers into the model, has also indicated a positive impact on M-payment adoption intention. Therefore, this study has generated insight into M-payment adoption by developing a comprehensive framework.

According to the findings, the two major factors affecting M-payment adoption were Relative Advantage and Absorptive Capacity. Hence, the app developers or mobile communication companies have to focus more on enhancing these two aspects in their M-payment services. They can develop strategies to improve the convenience and effectiveness of the services while the application of the service being simpler. Further, it is important to upgrade the features related to Perceived Transaction Convenience, Compatibility, and Perceived Risk. Ensuring the security and safety of payments by providing authentication and developing stable transaction processes are methods to minimize the perceived risk. Digital encryption, digital signature, 2-factor authentication, and certificate authentication are security features that can be developed in M-payment services. Transaction convenience can be enhanced by providing solutions for processing multi-currency and Simple and reliable UI.

8. Limitations and Future Research

We acknowledge the following limitation of the study while indicating directions for future research. Due to time and financial constraints, the sample was limited to 122 respondents and a larger sample would increase the statistical power and offer rigorous findings (Hair et al., 2010). Thus, future studies with a larger sample size representing underrates with offline venture owners are therefore required. This study employed a cross-sectional design, with data collected at a single moment in time. Future studies using a longitudinal study design would substantially contribute to the literature since adoption and usage are considered as psychological constructs that require longitudinal empirical investigations to obtain a thorough understanding. Current study used only six factors based on UTAUT theory and empirical findings. Additional variables specified in other theories, Theory of planned behavior, institutional theory, transaction cost theory, Diffusion of Innovation Theory might have an impact on M-payment adoption. Future studies in the same phenomena can overcome these limitations on their studies.

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