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Why do merchants continue to use mobile payment? A data-information-value perspective

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Abstract: As an information-intensive service, mobile payment provides merchants with the possibility to obtain the real-time transaction data of customers, resulting in a new capability for merchants to get data-driven business intelligence for value creation. However, little is known about how the availability of this capability motivates merchants' continuance of mobile payment technology. Based on the data-information-value framework and perceived value theory, this study examines the influence of merchants' exploitation of the data on value creation and their continued usage of mobile payment. We departmentalise the new data-enabled capability into consumption data obtainment, customer relationship maintenance, analysis of consumption data. The results confirm their significant influence on perceived value creation for merchants and that perceived value creation significantly predicts merchants' continuance usage of mobile payment.

Keywords: mobile payment; continuance usage; perceived value creation; merchant; consumption data; customer relationship maintenance.

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1 Introduction

In a cashless society or economy, financial transactions are conducted via the trans-fer of a digital representation of money, such as card payment, digital currency, and electronic payment, other than cash or any physical banknotes (Chakravorti and Mazzotta, 2013; Fabris, 2019). This represents an increasingly attractive and popular trend. Traditionally, cards are widely used in consumer transactions, especially as contactless technology makes this more convenient. But a mushrooming number of consumers use smartphones to pay bills or process transactions, and something re-ferred to as mobile payment (Dahlberg et al., 2015; Holm et al., 2018). Based on the differences in adopted technologies and usage scenarios, mobile payment can be conducted with the support of different techniques, such as SMS, NFC, QR, Apps payments (de Luna et al., 2019), in-store mobile payment, online payment (de Kerviler et al., 2016), integrative or third-party mobile payments (de Kerviler et al., 2016).

Mobile payment offers merchants the capability to collect more data than a card payment method. As for the latter, cards are scanned or read by terminals in payment processing, but mobile payment conducts more information interactions be-tween payment apps in phones and retailers' POS or collection systems. As a result, merchants have the chance to collect specific consumption data in a real-time way.

Therefore, mobile payments can provide much richer and more valuable data to retailers than card payments. For example, with an integration of mobile payment services with social network services, merchants could obtain customers' internet

socialising data to develop long-term and reciprocal relationships with customers (Lee and Ryu et al., 2019). For example, Twitter has been integrated with mobile payment to allow retailers to maintain closer contact with their customers (Grover and Kar, 2018).

The use of the card and mobile payments varies significantly in different coun-tries, meaning that the advantages of using this data will be unevenly spread. Mobile payment is very popular in China, whereas in the UK, consumers still prefer to use credit and debit cards (Holm et al., 2018). In addition, the use of mobile payment also varies considerably, even in different stores. Some stores may focus on the transaction function of mobile payment, which does not take full potential advantage of mobile payment.

Current studies thoroughly examined the factors influencing consumers to adopt or continuously use mobile payment, but only limited research focuses on merchants' mobile payment use. Extent research verified some factors affecting merchants' adoption of mobile payment, for example, advantage, trust, external pressure, satisfaction (Guo and Bouwman, 2016; Khan and Ali, 2018; Lee et al., 2019; Moghav-vemi et al., 2021). However, with mobile payment usage of in depth, there is a re-search gap to explore the influence of merchants' exploitation of mobile transaction data on continuance usage of mobile payment.

Our research interests lie in how merchants exploit these data, how mobile payment is used, and its effect has on value creation for merchants. We study the main constructs of consumption data obtainment, customer relationship maintenance, consumption data analysis, and perceived value creation. We test the impact of each on retailers' decision to offer customers the option to pay using mobile payment with a field survey of 401 supermarkets, retailers, restaurants, shopping centres, and hotel managers conducted in Yantai and Qingdao, China. Merchants are interested in how to use consumption data to create value and continue to use mobile payment. This study fills the research gap in this field in theory and provides decision support for merchants to create value in practice.

The paper progresses as follows. First, the previous studies are reviewed in Section 2, and then we develop the theories and hypotheses in Section 3. After that, Section 4 is the methodology part. We discuss the research findings in Section 5 and draw conclusions in the last part.

2 Theory background

With the sustained prosperity of mobile payment, there is enduring steam of studies that focus on the adoption or acceptance of mobile payment. A large number of articles examine consumer adoption behaviour, showing that many constructs have significant effects on intention, including perceived usefulness, perceived ease of use, convenience, trust, perceived quality, perceived security, perceived benefits, perceived risk, and perceived cost (Slade et al., 2013; Dahlberg et al., 2015; Liébana-Cabanillas et al., 2018; Park et al., 2019; Hu et al., 2021; Upadhyay et al., 2022). More recent research investigate consumer's adoption of different types of mobile payment (de Kerviler et al., 2016; Halaweh and Al Qaisi, 2016; de Luna et al., 2019), predicts adoption decisions with different methods (Liébana-Cabanillas et al., 2018), or compares the adoption of mobile payment in different countries (Miao and Jayakar, 2016; Holm et al., 2018). Some researchers have also examined individual user's post adoption behaviour, which verifies the factors affecting continued usage intention, recommendation intention to others based on expectation-satisfaction theory, flow theory, and argue that satisfaction, trust, and flow

significantly influence continuance intention (Zhou, 2013; Park et al., 2017; Jun et al., 2018; Shao et al., 2019).

However, there are limited studies concerning merchants' usage of mobile payment. Mallat and Tuunainen (2008) firstly test the main barriers and drivers for merchants to adopt mobile payment. Recently, Moghavvemi et al. (2021) also examined the positive and negative factors for merchants to adopt mobile payment in Malaysia. Others explore merchants' adoption of mobile payment from the perspective of the ecosystem (Guo and Bouwman, 2016), technology-organisation-environment (Khan and Ali, 2018), and both retailer and consumer perception (Lee et al., 2019). The above studies confirm significant classical factors embracing convenience, satisfaction, network externality, trust, external pressure, relative advantage, management support and knowledge, compatibility, security, and cost.

In addition, some studies adopt predicting models to test influencing factors of merchants' adoption of mobile payment. Liébana-Cabanillas and Lara-Rubio (2017) try to use popular factors to predict merchant's adoption intention of mobile payment based on logistic regression and neural network models. Li and Li (2020) indicate the industries merchants operated in, transaction volume and amount per customer, and the adoption behaviour of their neighbouring merchants significantly predict merchants' adoption of mobile payment via machine learning algorithm.

Based on the above review, we find there is a dearth of study shedding insights on merchants' continuance usage after a mass adoption of mobile payment. Although extant studies investigate drivers and barriers of merchants' initial adoption of mobile payment, they do not reflect the advantage of consumption data derived from continuance usage of mobile payment. Therefore, we explore the effects of consumption data exploitation on merchant's continuance behaviour from a value creation view.

3 Theory and hypotheses

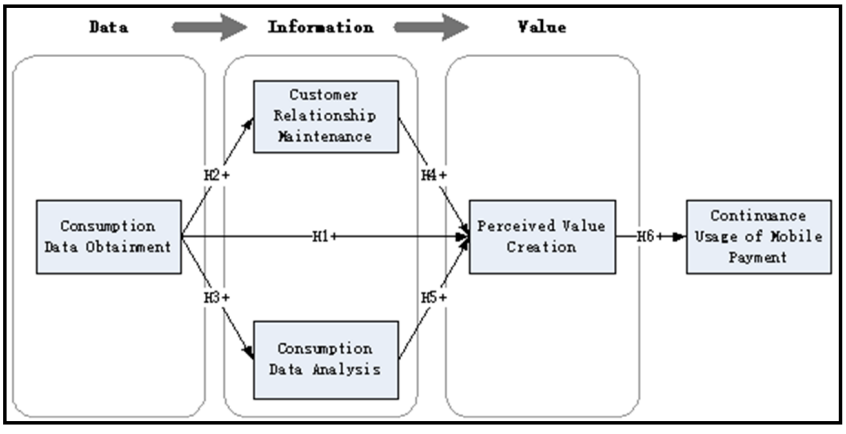
Value creation is a core factor for businesses to use IT innovations (Kazan et al., 2018). Our thinking is around how the data derived from mobile payment create value for merchants. Data has been a critical resource for modern enterprises, leading competitors to create value, achieve better performance or sustainable competitive advantages (Erevelles et al., 2016). Researchers try to explain how data can create value and suggest a path and method from data to value. Lim et al. (2018) argue that information interaction greatly influences value creation in information-intensive services and identifies three phases in the value creation chain: data collection, information creation, and value creation. Erevelles et al. (2016) develop a conceptual framework of data-driven value creation in the context of marketing and propose three value creation processes, including collecting evidence of consumer activity, extracting consumer insights, and utilising the insights i.e., obtaining data-digging information-creating value. There is a similar scenario in merchants' usage of mobile payment, in which merchants have the opportunities to obtain the data, dig information, and seek the value from that. Thus, we adopt a data-information-vale framework to establish a research model.

These qualitative studies lay the foundation for this research. We categorise merchants' activities of dealing with data into three parts: collecting, analysing, and utilising data. Smart merchants do not just use the functions of efficiently transferring money but seek to realise the additional advantages of mobile payment. To do this, they

obtain consumption data via mobile payment platforms, for example, WeChat official accounts, which are available to merchants in real-time. Merchants can get consumers' account information, consumption details, their reviews, and so on. Then, with this consumption data, merchants can analyse their target customers' consumption behaviour or establish relationships with their customers.

Merchants mainly obtain business data through consumers' consumption records and then deeply analyse consumption data, use consumption data to maintain customer relations and create value. Thus, we abstract merchants' exploiting consumption data behaviour as three constructs: consumption data obtainability, analysis of consumption data, customer relationship maintenance. To empirically examine the influence these three constructs, have on value creation for merchants, and their final effects on continued usage of mobile payment, we establish the research model, as shown in Figure 1.

Figure 1 Research model (see online version for colours)



3.1 Consumption Data obtainment

Usage of mobile payment provides merchants the chance to obtain customers' consumption data from the platform, including general information such as product details, quantities, prices, etc., and specific information about the customer such as their account, purchase history, rating, and so on. Merchants can also add customers as their followers via mobile payment apps; thus, merchants obtain customers' ac-count information, and they can get more information through customers' profiles. If customers register on mobile payment apps, they can also give comments or feed-back on their offerings and services.

We define consumption data obtainment as the ability of merchants to acquire customers' consumption data. Merchants vary significantly in their scale, IT infra-structure, staff skills, mobile payment schemes, and therefore their abilities to obtain these data are quite different. Some retailers only focus on the payment processing benefits of mobile payment, and they overlook the potential value of consumption data. However, others may collect all data they can get, thinking it will yield value for them (Hopkins et al., 2011; Green, 2012). Therefore, if merchants have more ability to obtain

consumption data, they may perceive more value from the data. Thus, we propose the hypothesis as follows.

H1 Consumption data obtainment has a significant positive influence on perceived value creation.

At the same time, if merchants possess a higher ability to obtain data, they may have more chances to keep higher intensive relationships with customers and to have a higher level of consumption data analysis. For example, if more and more customers follow merchants' WeChat official accounts, merchants may obtain richer customer information and maintain the better relationship with the customer. They also own the basis to analyse consumption data and have the possibility to implement customised marketing activities.

Therefore, we propose the following hypotheses.

H2 Consumption data obtainment has a significant positive influence on custom-er relationship maintenance.

H3 Consumption data obtainment has a significant positive influence on consumption data analysis.

3.2 Customer relationship maintenance

There is a trend for mobile payment firms to utilise socialising services to build their customers' loyalty (Grover and Kar, 2019; Lee and Ryu et al., 2019). For example, WeChat wallet integrates well with WeChat's socialising functions, and Alipay incorporates Koubei into the platform either in China. Based on the consumption data obtained via mobile payment apps, merchants can establish a long relationship with customers. If merchants can convert their customers into their fans and attract fans to their official social networking account, which gives merchants a great opportunity to contact their customers seamlessly. Leading merchants are practicing these tactics: attract customers to follow their WeChat official accounts, and become their fans when customers use mobile payment in their stores for the first time, e.g., Starbucks, PizzaHut. They can push promotion messages to customers, customers can use digital vouchers, and the customer relationship becomes stickier and more loyal.

In this paper, customer relationship maintenance refers to the intensive extent to which merchants maintain relationships with their customers via mobile payment. With intensive customer relationships, merchants can better understand their customers, communicate with them more, serve them better, and create more value for firms (Grover and Kar, 2019). Thus, we propose the hypothesis:

H4 Customer relationships maintenance has a significant positive influence on perceived value creation.

3.3 Consumption data analysis

The leading merchants also try to analyse consumption data derived from mobile payment. They try to dig into the target customer's habits and preferences etc. In addition, they may find the star products and optimise the marketing and purchasing

strategies. Those premium companies can promote ideal products for each specific customer via big data analysis (Erevelles et al., 2016; Rehman et al., 2016).

We define consumption data analysis as the extent to which merchants analyse consumption data obtained via mobile payment. The analysis of consumption data provides cues for merchants to make sound operation strategies, and they can earn more value from it. Thus, the hypothesis is proposed:

H5 Consumption data analysis has a significant positive influence on perceived value creation.

3.4 Perceived value creation

Value creation is a critical factor for an enterprise to consider when deciding whether to adopt or continue to use ICT innovations (Ram et al., 2014; Kazan et al., 2018). In the same way, merchants also consider whether mobile payment creates value for them. As an innovative payment manner, mobile payment has many advantages; for example, it improves transaction efficiency, reduces payment processing costs, and attracts more customers, i.e., creates value for firms. Managers of stores in our study perceive the value creation, so we adopt the construct of perceived value creation that is defined as the manager's perception of value created for merchants due to the usage of mobile payment.

In this way, mobile payment may create great value for merchants (Mallat and Tuunainen, 2008). However, for different merchants, the value created by mobile payment may vary dramatically, which depends on merchants' usage strategy of mobile payment. Some merchants taking full advantage of mobile payment perceive more value creation from it. A higher perception of value creation leads merchants to keep using mobile payment. Thus, we propose the hypothesis:

H6 Perceived value creation has a significant positive influence on merchant's continuance usage of mobile payment.

4 Research methodology

We adopt empirical research to test our research model. First, the data was collected from a field survey. Then the constructs were confirmed by factory analysis, and the validity and reliability of the scale were tested later. After that, we employed SmartPLS to establish the structural equation model and test the hypotheses.

4.1 Measures development

Firstly, we borrow the measures of all constructs from extant literature and make some revisions to adapt our research context. Secondly, we conduct a field interview with managers of local merchants, e.g., Suning and Jusco, and propose semi-structured questions such as how to obtain consumption and customer data from mobile payment, how to keep customer contact with the data, how to analyse and use the data, and what value is created by mobile payment, and the continuance usage strategies of mobile payment. After that, we revise measures for constructs, which make the questions clearer, more accurate, and specific. Before the formal survey, we also used a pilot test to examine the questionnaire. Thirty merchants at-tended the pilot test, and they were

invited to fill out the questionnaire and give their feedback about it. At last, we finalise the questionnaire based on the pilot test analysis. The measures are shown in Table.1

Table 1 The measure of constructs

Constructs	*Items*	*Description*	*Sources*
Consumption data obtainment (CDO)	CDO1	We can obtain comprehensive consumption data from mobile payment apps	Mallat and Tuunainen (2008)
	CDO2	We can obtain feedback or comments from consumers via mobile payment apps	
	CDO3	We can obtain account information about consumers from mobile payment	
Customer relationship maintenance (CRM)	CRM1	We can establish customer relationships via mobile payment platforms	Becker et al. (2009)
	CRM2	We can communicate with customers via integrated functions of mobile apps	
	CRM3	We can push promotion information to customers via the integrated functions of mobile payment apps	
Consumption data analysis (CDA)	CDA1	We analyse consumption data to infer consumers' habits and preferences	Erevelles et al. (2016)
	CDA2	We analyse consumption data to better marketing strategies	
	CDA3	We analyse consumption data to optimise purchasing strategies	
Perceived value creation (PVC)	PVC1	Using mobile payment creates more sales for us	Zhu and Kraemer (2005)
	PVC2	Using mobile payment creates more profits for us	
	PVC3	Using mobile payment creates more efficiency for us	
	PVC4	Using mobile payment creates more value for us	
Continuance usage of mobile payment (CUMP)	CUMP1	We will continue to use mobile payment to process payment business	Lu et al. (2017)
	CUMP2	We will encourage customers to use mobile payment via discount activities	
	CUMP3	We will take all the advantage of the full functions of mobile payment in the future	

4.2 Data collection

We will focus on offline consumption scenarios of retailing or service sectors in which consumers use cashless payment most. We sent our research assistants to retailing stores, shopping centres, restaurants, hotels to make field surveys. All the items are measured through seven Likert scales. The survey was conducted in Yantai and Qingdao, China. Research assistants were sent to supermarkets, retailers, restaurants, shopping centres, and hotels to do surveys, 500 managers of merchants were asked to fill out the

questionnaire. There are 401 valid responses. According to statistics, 28 samples never provide mobile payment services, taking up 7.0%; 36 pieces launched mobile payment at the beginning, but cancelled it later, which took up 9.0%. We received 337 pieces that stick to using the mobile payment for at least half a year, which takes up 84.0%.

Operation managers of the stores are asked to fill out the questionnaires. And we put their logo on our website as a reward to encourage them to participate in the sur-vey. According to descriptive statistics, respondents consist of 40.6% male managers and 59.4% female managers. Most of them are aged between 25 to 35. Nearly 74.8% have college education backgrounds. 80% of the stores' operations have lasted more than one year, and most of their target customers are young consumers from universities or businesses.

We make a more comprehensive description of merchants keeping mobile payment services as Table. 2

Table 2 Description of merchant's usage of mobile payment

Variables	*Options*	*Percent*	*Variables*	*Options*	*Percent*
Mobile payment methods	WeChat wallet	76.0	Use period	Less than 12 months	24.0
	Alipay	66.5		1 year to 2 years	37.7
	Official apps	12.8		More than 2 years	38.3
	Apple pay	10.1	Sales per month (CNY)	Less than 500,000	26.4
	WeChat official account	26.1		500,000 to 1 million	40.1
	Other Apps	23.7		More than 1 million	33.5
Push promotion advertisement	Yes	47.8	Mobile payment proportion	Less than 30%	30.0
	No	51.0		30% to 50%	49.5
	Missing value	1.2		More than 50%	20.5

4.3 Factor analysis

We used SPSS to conduct the factor analysis via principal component analysis with varimax rotation. Firstly, the Kaiser-Meyer-Olkin Measure of sampling adequacy was 0.861, and the Bartlett's test of sphericity is significant, which means the data collected is factorable (Hair et al., 2010). The factor analysis results are shown in Table 3. All the loadings of items were higher than 0.7 on the individual factors but lower than 0.3 on any other factors, which meets the standards suggested by Nunnally (1978). The five factors were extracted clearly according to the standard of 'Eigen-values over one', and 76% cumulative variance of all the items were explained.

4.4 Reliability and validity

We employed SmartPLS 3 to conduct our research model path analysis (Ringle et al., 2015). It also gives the outcomes of reliability and validity, as summarised in Table 4. We can assess scale reliability by Cranbach's α and composite reliability (CR). All the values of Cranbach's α and CR ranged from 0.7 to 0.9, which is well above the threshold suggested by Fornell and Larcker (1981). We also use the measure of rho_A to assess the consistent reliability all of the rho. As are greater than 0.7, which indi-cates the

acceptable reliability for each construct (Fornell and Larcker, 1981). Convergent validity was estimated via average variance extracted (AVE) that were all greater than 0.5 in the results, indicating it is reasonably accepted (Fornell and Larck-er, 1981). Discriminant validity was assessed by comparing inter-correlation coefficients with AVE's square roots. As shown in Table 4, all of the correlation coefficients between constructs are smaller than the corresponding values on diagonal, suggesting constructs have reasonable discriminant validity (Fornell and Larcker, 1981).

Table 3 Factor analysis results

Factors	*1*	*2*	*3*	*4*	*5*
CDO1	0.141	0.113	0.041	0.888	0.085
CDO2	0.142	0.243	0.097	0.818	0.166
CDO3	0.148	0.298	0.130	0.747	0.060
CRM1	0.203	0.836	0.143	0.214	0.101
CRM2	0.177	0.861	0.078	0.192	0.025
CRM3	0.199	0.810	0.195	0.246	0.105
CDA1	0.106	0.098	0.049	0.150	0.734
CDA2	0.106	0.090	0.102	(0.021)	0.863
CDA3	0.089	(0.005)	0.094	0.130	0.817
PVC1	0.807	0.097	0.174	0.199	0.167
PVC2	0.832	0.206	0.179	0.108	0.096
PVC3	0.809	0.190	0.190	0.130	0.044
PVC4	0.822	0.156	0.249	0.081	0.119
CUMP1	0.234	0.117	0.870	0.038	0.123
CUMP2	0.214	0.213	0.801	0.130	0.051
CUMP3	0.233	0.066	0.854	0.095	0.111
Initial eigenvalues	6.134	1.966	1.749	1.303	1.128
Cumulative variance %	38.337	50.627	61.559	69.700	76.751

Table 4 Reliability and validity

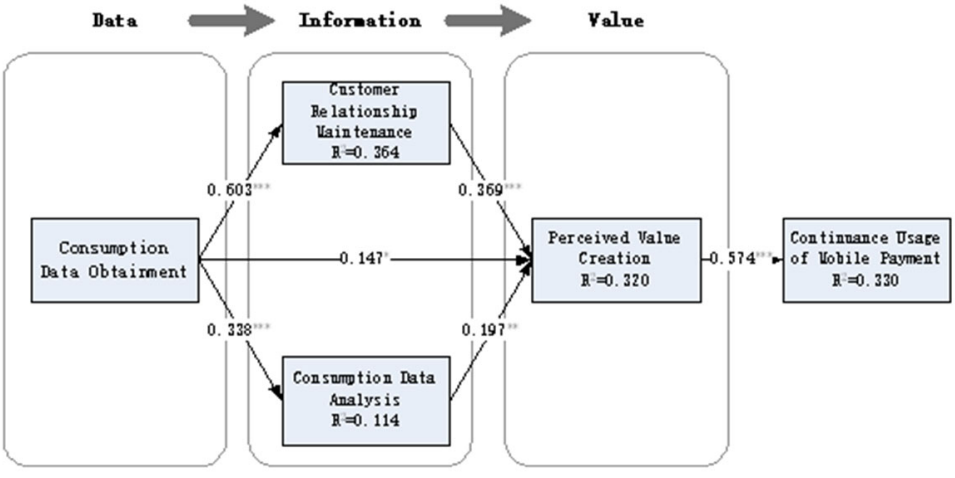
Constructs	*Cronbach's alpha*	*rho_A*	*Composite reliability*	*AVE*	*CDA*	*CDO*	*CRM*	*CUMP*	*PVC*
CDA	0.762	0.765	0.757	0.511	0.715				
CDO	0.841	0.848	0.840	0.638	0.338	0.799			
CRM	0.884	0.888	0.885	0.719	0.268	0.603	0.848		
CUMP	0.871	0.872	0.871	0.693	0.305	0.329	0.423	0.833	
PVC	0.896	0.896	0.896	0.682	0.346	0.436	0.510	0.574	0.826

4.5 Hypothesis analysis

The results of the hypothesis test are shown in Figure.2. All of the hypotheses are supported. The salient influences of merchants' exploitation of consumption data on value creation and indirect effects on merchants' continuance usage of mobile payment

are confirmed. Firstly, consumption data obtainment is positively related with perceived value creation, customer relationship maintenance, and consumption data analysis at a significance level of 0.05, 0.001, and 0.001, respectively. Customer relationship maintenance and consumption data analysis positively affect perceived value creation at a significance level of 0.001 and 0.01. And continuance usage of mobile payment is affected by perceived value creation at a significance level of 0.001. The R square of customer relationship maintenance, consumption data analysis, perceived value creation, and continuance usage of mobile payment are 0.364, 0.114, 0.320, and 0.330, respectively.

Figure 2 Hypotheses test results (see online version for colours)



4.6 Multicollinearity and model FIT

We also check the multicollinearity of the constructs in the research model to ensure each one is particular. Based on the rigorous definitions and measurement, each factor extracted from the items should be meaningful distinct. Moreover, we tested the multicollinearity by the indicator of the variance inflation factor (VIF). All the values of VIF were calculated by SmartPLS, and less than 1.660, which suggests the independence of the three dimensions of data exploitation is not violated (Hair et al., 2016) (see Appendix).

The model fit parameters can also be gotten from path analysis. The value of SRMR is 0.053, less than 0.08, and NFI is greater than 0.9, which illustrates a good model fit (Hair et al., 2014), as shown in Appendix.

5 Discussion

As the hypothesis tests suggested, we can see all of them are supported. Customer relationship maintenance is a strong predictor of perceived value creation, which means keeping seamless contacts and communication with fans exactly creates value for merchants. Merchants should pay attention to the use of mobile consumption

information. Based on this, adopt a variety of ways to maintain closer contact with consumers so that consumers can spend more in the enterprises to create more value.

Consumption data obtainment is the fundamental work for merchants to dig value from data derived from mobile payment. The comprehensive consumption data affects the managers' perception of value creation by mobile payment. Based on the importance of consumption data, merchants should adopt more ways to encourage consumers to use mobile payment, to obtain more consumption data, to lay a solid foundation for in-depth data mining, and create greater value for enterprises.

The influence of consumption data analysis on perceived value creation is also salient. Still, maybe only big-scale enterprises have the ability to analyse the data, so the path coefficient is not greater than customer relationship maintenance does. Small-scale enterprises may not have the machines and people that large enter-prises have to analyse consumption data. However, small-scale enterprises should also find another way to increase the analysis of data. For example, it can cooperate with universities or research institutions to mine customer consumption data using its machines and people.

The 32.0% variance of perceived value creation is explained, which means that merchants' post usage behaviour of mobile payment plays a significant role in value creation derived from mobile payment. Merchants should pay attention to using consumption data derived from mobile payment, but not just focus on transaction functions. The value of consumption data lies not only in the success of a single consumption, but also in the long-term interests of businesses through in-depth mining and utilisation of consumption data.

The significant relationship between perceived value creation and continuance us-age of mobile payment illustrates that value creation is one of the key factors affecting merchants to keep enthusiasm for mobile payment. Therefore, businesses should adopt various ways to encourage consumers to use mobile payment to lay the foundation for subsequent value creation.

Our research has achieved good results, but there are still some limitations. Firstly, since retailing and service sectors are the sectors in which consumers use the most cashless payment, we mainly study retailing stores, shopping centres, restaurants, and hotels. However, there are many sectors involving mobile payment, such as education, culture, sports, entertainment and so on. Customers in these sectors also make extensive use of mobile payment, especially in China. These sectors are different from the sectors studied in this paper and have other characteristics. Therefore, it is necessary to study mobile payment in these sectors to verify whether it meets the assumptions of this paper.

Secondly, the data collected in this paper are from relatively developed Qingdao and Yantai, so it is necessary to study the situation of underdeveloped areas in China. In China's underdeveloped areas, what is the proportion of consumers using mobile payment, how to collect these consumer data, and how to analyse different amounts of data; How merchants use consumers' mobile consumption data to maintain and improve customer loyalty, how to create value, what value to create, and how to affect the sustainable use of mobile payment. These need follow-up research.

Thirdly, this paper mainly studies the impact of mobile payment on Chinese merchants, which needs to study the situation of other countries. In other countries, what is the proportion of consumers using mobile payment, whether consumers can pro-vide sufficient mobile consumption data, and whether merchants are able and willing to analyse these consumption data. In other countries, what is the impact of mobile payment on enterprises, whether merchants can use mobile payment to create value for enterprises,

and what strategies do enterprises adopt to let consumers choose and continue to use mobile payment. Finally, a comparative study is also needed to verify the applicability of the conclusions of this paper.

6 Conclusions

Through an empirical study, we confirm the distinct influences of merchants' post usage behaviour of mobile payment on value creation for merchants and continuance usage intentions. We verified that consumption data obtainment, customer relation-ship maintenance, and consumption data analysis have significant positive effects on value creation derived from mobile payment usage, and value creation evidently affects continuance usage of mobile payment.

The article empirically explains merchants' continuous usage of mobile payment from driving factors of exploitation of consumption data, which improves the re-search on merchants' post-adoption behaviour of mobile payment. We enrich the literature about IS usage behaviour by adopting a data-information-value framework in the research model that reflects the reality of merchants' in-depth usage of mobile payment. We adopt perceived value creation as a core construct to predict continuance usage of mobile payment, which shows innovation in post-adoption behaviour studies.

Additionally, the findings of our research also provide some meaningful insights for merchants to utilise other advantages of mobile payment except convenient transaction functions. Firstly, merchants can obtain consumption data via their own apps, the official accounts of social media, or platforms of professional data companies. They can encourage more and more customers to follow their accounts or use their apps. Then keep friendly relationships with their target customers, push attraction promotion information, and so on. More importantly, they'd better analyse the consumption data and optimise their marketing strategy. Thus, they can win the sustain-able competitive advantage in the cashless economy age.

Based on the limitations of our research, we believe that the following research should be carried out in the future. Firstly, in addition to retail and service industries, it is necessary to study whether the conclusions of this paper are applicable to other industries. According to the characteristics of different industries, whether merchants use mobile payment information in different ways, and how merchants encourage consumers to continue to use mobile payment. Several other typical industries should be selected to make an in-depth analysis of the merchants in the selected industries, and whether they have the same characteristics as the retail industry and service industry. Whether merchants in these industries conduct similar analysis and utilisation of mobile consumption data, and whether they can create value. Secondly, people should study different regions, mainly including China's underdeveloped regions and regions outside China. Due to different economies and cultures, different regions may have different attitudes towards mobile payment. For areas where mobile payment is less used, how can merchants make better use of mobile payment infor-mation to create value, how can consumers who use mobile payment continue to use mobile payment, and how can consumers who do not use mobile payment use this payment method. Due to the great differences between other countries and China, the research outside China should consider whether to establish different hypotheses based on different theories. In short, in future research, it is necessary to conduct relevant research on industries with different

consumption characteristics and regions, countries with different economies and cultures, so as to expand this research.

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Appendix

Table A1 Multicollinearity analysis results

	CDA	*CDO*	*CRM*	*CUMP*	*PVC*
CDA					1.137
CDO	1.000		1.000		1.660
CRM					1.584
CUMP					
PVC				1.000	

Table A2 Model fit results

Indicators	*Saturated model*	*Estimated model*
SRMR	0.040	0.053
d_ULS	0.215	0.388
d_G	0.164	0.172
Chi-square	284.497	297.362
NFI	0.907	0.903