Understanding Mobile Wallet Adoption among Generation Z in China

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ABSTRACT

Generation Z and mobile wallets are the main driving forces for the realization of a cashless society. The study's main aim is to understand Generation Z's intention to use mobile wallets in the context of China. A questionnaire-based survey was conducted, and 170 valid responses were obtained. The study found that: (1) social influence has a significant positive effect on the intention to use mobile wallets, (2) perceived ease of use has a significant positive effect on the intention to use mobile wallets, (3) perceived security has a significant positive effect on the intention to use mobile wallets. The theoretical and practical implications of the findings are discussed.

Keywords: Mobile Wallet, Generation Z, China, Social influence, Perceived security, Reference Network Size

INTRODUCTION

Alipay and Wechat-based mobile wallets have grown into strong players in the mobile payment market, in which Alipay and Wechat-based mobile wallets have secured 92% of the market share in the mobile payment industry, with more than 500 million mobile payment users. The widespread usage of mobile wallets in China has shown the world a glimpse of a cashless future (Payment & Clearing Association, 2020). Apart from China, the Indian government has also demonstrated high enthusiasm to drive online payment and mobile wallets. They have started to ban issuing high-value paper money (Kaur et al., 2020a). The emergence of the COVID-19 pandemic further speeds up the diffusion of mobile payment. During the COVID-19 pandemic, contactless payments and mobile wallets have become the primary choice of payment as consumers are becoming increasingly concerned about the potential health risks incurred from handling banknotes (Teng & Khong, 2021). In the United States, twenty-seven percent of small businesses had seen increased revenue from contactless payments (e.g., Apple Pay) during the crisis (Teng & Khong, 2021). The Malaysian government also encourages people to redeem credit services via mobile wallets to promote a secure, contactless payment experience (Teng & Khong, 2021). There are signs that mobile wallets have permeated into almost all aspects of our daily life.

The shift to mobile payment systems is gaining traction due to changes in the Internet economy and the increased use of mobile devices. In particular, consumers benefit from the ease and convenience of shopping through e-commerce and mobile commerce (Hoh et al.,

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2022; Lim et al., 2019). Following the advancement of mobile commerce, consumers expect an enhanced shopping experience throughout the pre-purchase and purchase stages. To this end, companies are shifting their business models to accommodate mobile wallets as the new payment system to facilitate business transactions. Following the tremendous increase in transaction amount and number of users, mobile wallets have undergone continuous development by Fintech giants and gradually become the mainstream payment method (Nguyen et al., 2022; Teng & Khong, 2021).

Previous research has shown a considerable adoption rate of mobile wallets in online and offline settings. However, many barriers still hinder consumers' willingness to use them (Kaur et al., 2020b). The low utilization of mobile wallets represents an untapped potential for businesses in their future applications. Many potential reasons contribute to the less desirable adoption rate of mobile wallets, including strong competition in the financial payment system market, lack of knowledge about mobile payments, system complexity, and privacy concern (de Luna et al., 2019). The extant literature on mobile wallet adoption has been founded upon the technology use and acceptance theories, such as the technology acceptance model (TAM). However, research that based purely on TAM cannot yield sufficient insight into the phenomenon (Lew et al., 2020).

Nevertheless, few studies focus on consumers of a specific age group (Leong, Hew, Ooi, & Wei, 2020). This study mainly focuses on the usage intention of mobile wallets among Generation Z, covering individuals born between the mid-1990s to the late 2000s (Shin et al., 2021). Based on the theory of generational cohort, a person's growing environment and experience create values and beliefs that remain relatively unchanged in a person's life (Schewe & Meredith, 2004). This generation of consumers grows in the age of smartphones, social media, and multicultural diversity (Shin, Eastman, & Li, 2021), who may have a high potential to adopt mobile wallets. In addition, Generation Z is taking place as the main force of purchase in the marketplace; thus, a better understanding of this generation cohort is crucial (Fernandez-Duran, 2016).

LITERATURE REVIEW

Technology Acceptance Model and Unified Acceptance and Use of Technology

Davis (1989) proposed the technology acceptance model (TAM) on the ground of the theory of reasoned action (TRA) to predict users' technology acceptance and usage behavior. TAM consists of two primary variables, namely perceived ease of use and perceived usefulness. Previous studies have largely proven the efficacy of the model in explaining users' acceptance of technology. However, according to Venkatesh, Thong, and Xu (2012), TAM is oversimplified and unable to fully capture consumer behavior regarding technology usage. Thus, we further integrate the unified acceptance and use of technology (UTAUT) into our research framework. The UTAUT model pioneered by Venkatesh and Davis (2000) represents a synthesis of traditional TAM and its extensions and has been applied to understand different technology adoption, including mobile payment and banking (Tan & Leby Lau, 2016).

Social Influence

Social influence has been established as a significant predictor to explain consumers' willingness to use mobile payment (Lew et al., 2020). The opinions of significant others

represent the main force to influence consumers' decisions (Cham & Easvaralingam, 2011; Tan & Ooi, 2018). In particular, family members, friends, colleagues, or neighbors may play a crucial role in influencing consumers' decisions to use mobile wallets (Yan et al., 2021). Generally, consumers may adjust their beliefs by referring to the shared values of the group in which they participate (Bankole & Bankole, 2017). According to Lee, Qu, and Kim (2007), Korean consumers tend to consult the opinion of their closest others (e.g., family members and friends) before making purchases. Additionally, Tan, Lee, Lin, and Ooi (2017) found that Malaysians emphasize the attitude of important others in using mobile devices to purchase products (Tan, Lee, Lin, & Ooi, 2017). Thus, we posit that:

H1: *Social influence has a significantly positive effect on the intention to use mobile wallets.*

Perceived Ease of Use

The concept of perceived ease of use refers to the extent to which an individual believes that adopting a specific technology requires effort, time, or knowledge (Chong, 2013). Previous studies have confirmed that perceived ease of use significantly impacts perceived usefulness and use intention (Wang et al., 2022). In the context of mobile payment, the importance of perceived ease of use is further exemplified, as mobile devices are usually restricted in terms of compatibility and operability compared with cash (McLean, Osei-Frimpong, Al-Nabhani, & Marriott, 2020). Similar studies have revealed that if barriers to adoption (e.g., resources such as time and effort) are reduced, consumers' willingness to adopt specific technologies will increase significantly (Morosan, 2014). As a result, the following hypothesis is proposed:

H2: *Perceived ease of use has a significantly positive effect on the intention to use mobile wallets.*

Perceived Usefulness

Perceived usefulness reflects the extent to which a specific technology can help users to improve their task performance (Davis, 1989). In other words, perceived usefulness reflects the perceived benefits of technology usage, such as enhanced productivity and time-saving (Wang et al., 2022). Venkatesh and Davis (2000) emphasized that perceived usefulness plays a crucial role in technology acceptance. For example, past research showed that perceived usefulness significantly influences users' acceptance behavior toward QR code mobile commerce (Yan et al., 2021). According to the above research findings, the following hypothesis is proposed:

H3: *Perceived usefulness has a significantly positive effect on the intention to use mobile wallets.*

Perceived Security

Shin (2010) defined perceived security as the extent to which individuals subjectively believe that the usage of a particular technology is safe and free of risk. Security vulnerabilities may have serious negative consequences (Berezina et al., 2012). Although mobile payment security has improved, it remains a concern for consumers (Morosan, 2014). To explain, the essential operation and experience optimization of mobile wallets entail collecting sensitive personal data (identity cards and mobile contact), which raises a sense of insecurity and loss of control (Aw, Tan, Cham, Raman, & Ooi, 2022). Previous studies suggest that security

practices such as posting security statements (Lim, 2008), enhancing the technology infrastructure, and establishing a legal framework (Peha & Khamitov, 2004) can significantly improve users' willingness to use. Perceived security hinders the deep usage exploration of technology innovation (Aw et al., 2022). Thus, the following hypothesis has been formulated:

H4: *Perceived security has a significantly positive effect on the intention to use mobile wallets.*

Reference Network Size

Network externalities concern network size and complementary goods or services, suggesting that the utility of mobile wallets increases with the number of users (Strader, Ramaswami, & Houle, 2007). Similar to the perceived critical mass and bandwagon effect, the network effect theory highlights that seeing many others adopting technology can foster the perception that the system is valuable to others. The new technology usage may entice consumers following its wide adoption among their social circles (Tan & Ooi, 2018).

H5: *Reference network size has a significantly positive effect on the intention to use mobile wallets.*

Figure 1: Research model
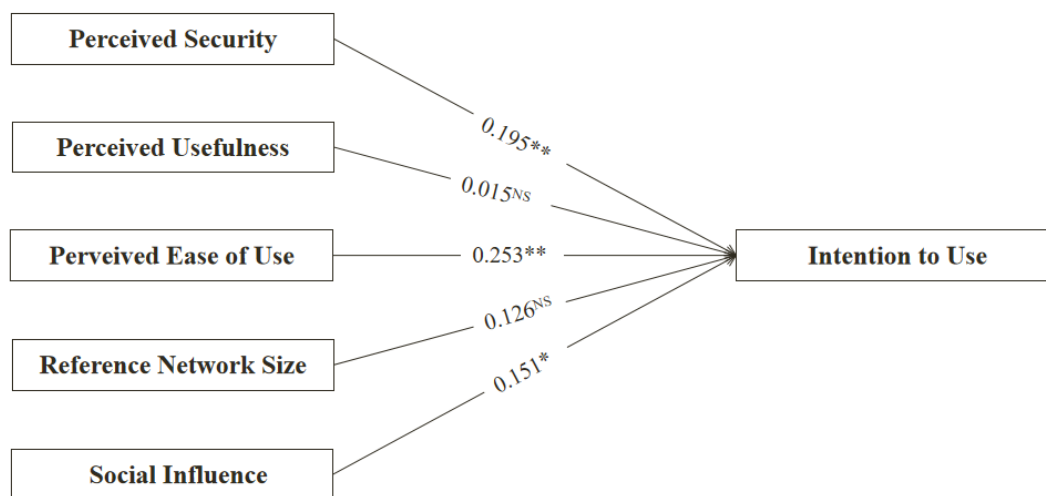
RESEARCH METHOD

Data collection method

The data used in this study was obtained through a web-based questionnaire. To this end, we employed the professional data collection service provided by the Wenjuanxing platform, the largest market survey platform in China. The questionnaire was randomly distributed to respondents with different backgrounds based on the census data. To be eligible for the survey, respondents must have experience using mobile wallets in the past six months (Aw, 2020; Aw, Basha, Ng, & Ho, 2021). The sample of 170 valid responses exhibited adequate statistical power, exceeding the minimum requirement of 43 responses, as determined using G*power, with $f^2 = 0.15$, $\alpha = 0.05$, Power = 0.80, and 5 predictors (Faul, Erdfelder, Lang, &

Buchner, 2007). Table 1 shows the demographic characteristics of the respondents, indicating more male respondents (58.8%) in the sample. Moreover, 46.5% of the respondents were in the range of 15 to 20 years old, and about 70.0% had a bachelor's degree or above.

Table 1: Demographic Profile

Demographic	Frequency	Cases (%)
Gender		
Male	100	58.8
Female	70	41.
Age		
18-24 years old	79	41.2
25-30 years old	43	25.3
31-35 years old	36	21.2
36 years old and over	12	7.1
Education		
High School	15	8.8
Junior College	36	21.2
Bachelor	98	57.6
Master	21	12.4
Work status		
Student	13	7.6
Teacher	52	30.6
Private employee	48	28.2
Government employee	20	11.8
Unemployed	34	20.0
Other	3	1.8

Measures

We adapted well-established and validated measures from the past literature. The scales for reference network size and perceived usefulness were adapted from Zhou and Lu (2011). The scales for perceived security, perceived ease of use, and intention were adapted from de Luna, Liébana-Cabanillas, Sánchez-Fernández, and Muñoz-Leiva (2019). The measurement of social influence was adapted from Venkatesh, Thong, and Xu (2012).

RESULTS

Common Method Bias

In order to deal with the potential threat of common method bias, this study adopted procedural and statistical remedies (Podsakoff et al., 2003). In terms of procedural remedy, the questionnaire was designed after consultation with experts in the field. Simple language and concise items were used (Hew, Tan, Lin, & Ooi, 2017; Low et al., 2021). In addition, the responses submitted were ensured anonymity and confidentiality. Harman's single-factor test was performed as a statistical remedy, and the results indicated that one factor can explain

24.98% of the total variance, which is well below the 40% conservative threshold (Barry, Griffin, & Hair, 2016).

Measurement Model

In assessing the measurement model, we first verified the reliability and validity of the variables. The reliability of the measurement model indicates the consistency of the measured variables' structure (Hair, Hult, Ringle, & Sarstedt, 2017). Convergent validity (CV) was tested using factor loading and average variance extracted (AVE). The composite reliability (CR) values of all structures in Table 2 were higher than 0.70, indicating that the internal consistency was satisfactory. As shown in Table 2, the AVE values were higher than the threshold of 0.50. Thus, the convergence validity of the research model was established (Fornell & Larcker, 1981).

Table 2: Construct Reliability and Convergent Validity

Latent Construct	Items	Loadings	CR	AVE
Perceived Ease of Use	PEU1	0.813	0.759	0.514
	PEU3	0.674		
	PEU4	0.655		
Perceived Usefulness	PU1	0.788	0.742	0.590
	PU2	0.748		
Security	SEC1	0.789	0.795	0.566
	SEC2	0.786		
	SEC3	0.677		
Reference Network Size	RNS1	0.830	0.804	0.672
	RNS2	0.809		
Social Influence	SI1	0.722	0.760	0.513
	SI2	0.686		
	SI3	0.740		
Intention	INT1	0.794	0.771	0.628
	INT2	0.794		

Table 3: Fornell-Larcker Criterion

Latent Construct	1	2	3	4	5	6
Intention	0.792					
Perceived usefulness	0.283	0.768				
Perceived ease of use	0.439	0.449	0.717			
Reference network size	0.321	0.471	0.441	0.820		
Security	0.314	0.220	0.208	0.205	0.752	
Social influence	0.405	0.379	0.486	0.315	0.486	0.716

Structural Model

The inner structural model was assessed using 5000 bootstrapping (Hair, Hult, Ringle, & Sarstedt, 2017). As exhibited in Table 4, the results revealed that perceived ease of use ($\beta= 0.253$, $p < 0.01$), perceived security ($\beta= 0.195$, $p < 0.01$) and social influence ($\beta= 0.151$, $p < 0.05$) significantly influenced behavioral intention. However, perceived usefulness and

reference network size exhibited a non-significant direct effect on the intention to use mobile wallets (p > 0.05). Hence, H1, H2, and H4 were supported, but H3 and H5 were not.

Table 4: Structural model

Hypotheses	PLS Paths	Beta	T Statistics	P Values	Remarks
H1	Social influence -> Intention*	0.151	1.758	0.040	Supported
H2	Perceived ease of use -> Intention**	0.253	2.611	0.005	Supported
H3	Perceived usefulness -> Intentionns	0.015	0.169	0.433	Unsupported
H4	Security -> Intention **	0.195	2.583	0.005	Supported
H5	Reference network size -> Intentionns	0.126	1.443	0.075	Unsupported

Note: ***p < 0.001; **p < 0.01; * p < 0.05; ns Not significant

## Importance Performance Mapping Analysis (IPMA)

In line with the proposals provided by Ringle and Sarstedt (2016), we carried out a follow-up analysis of IPMA to examine variables that are important in predicting the crucial endogenous variable yet exhibit low performance. In this way, IPMA compares the total effect (the importance dimension) and the average latent variable score (performance) among the indicators (Ringle & Sarstedt, 2016). In light of the IPMA results presented in Table 5 and Figure 2, perceived ease of use was the most critical variable in predicting intention to use mobile wallets. In contrast, perceived usefulness was the least important variable.

Table 5: Importance performance map results

Latent Variables	Importance (Total Effect)	Performance (Index Value)
Security	0.195	81.164
Perceived usefulness	0.015	79.786
Perceived ease of use	0.253	82.184
Reference network size	0.126	80.270
Social influence	0.151	80.514

Figure 2: IPMA Result
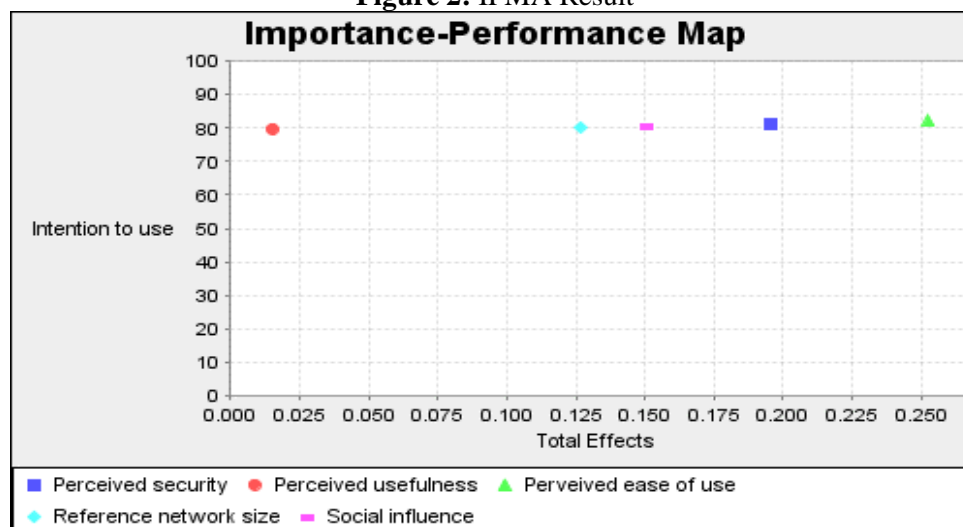
DISCUSSIONS

The recent surge in mobile wallet usage signals the embracement of a cashless lifestyle, paving the way for a new revolution in the payment industry (Lew et al., 2020). Capitalistically, a cashless system reduces business costs and increases market economy efficiency (Kim, Tao, Shin, & Kim, 2010). Nevertheless, individuals' belief in the traditional economic system composed of paper bills, checks, and coins and their distrust of the system hinders the realization of a cashless society (Mohd Thas Thaker, Subramaniam, Qoyum, & Iqbal Hussain, 2022). Mobile wallets have emerged as a critical enabler in achieving a cashless society. Characterized as the tech-savvy generation, Generation Z is the most likely generation to adopt innovative technologies, and drive the global tide of cashless, thus fostering acceptance of mobile wallets in this group of consumers is particularly important.

THEORETICAL IMPLICATIONS

This research enriches the knowledge of mobile wallet acceptance literature in several ways. First, we mainly investigated the phenomenon from Generation Z's perspective. According to the generational cohort theory, individuals born during the same time frame and who have experienced similar life events during early adulthood (17-23 years) share similar values, attitudes, and preferences (Fernandez-Duran, 2016). Generation Z experienced two pandemics, as well as the global subprime mortgage crisis in their growth, which led to a more cautious consumption pattern than Generation X and Generation Y. Gen Z has begun to dominate the global market. Hence, their attitude and adoption of mobile wallets are decisive. This generation's more cautious and openness-to-technology characteristics bring opportunities and uncertainties to the mobile wallet market. Therefore, the present study manifests theoretical value by explaining the intention of Generation Z to use mobile wallets.

Second, we found that perceived ease of use has a significant positive impact on usage intention. Previous studies have confirmed that technological convenience, such as ease of access, navigation, and the popularity of QR codes, can significantly affect consumers' willingness to use mobile payment (Tan & Ooi, 2018; Yan et al., 2021). Gen Z may prefer a hassle-less way of performing tasks (Gabrielova & Buchko 2021). Familiarity with digital technologies probably increases the perceived convenience of Gen Z in using mobile wallets (Gabrielova & Buchko, 2021).

Third, consistent with our hypothesis, the finding indicates that perceived security positively relates to usage intention. According to Loh et al. (2021), mobile payment usage generally evokes fears of improper access and transaction errors. Consumers tend to doubt the ability and integrity of m-payment developers and merchants to protect their personal information and transaction security.

Fourth, social influence is positively associated with usage intention. The opinions of important others, the shared values of the participating groups, and the universal values encouraged by society are vital to forming consumers' attitudes, perceptions, and behavioral responses toward mobile wallets (Sharma, Mangla, Luthra, & Al-Salti, 2018). In adopting an innovation (i.e., mobile wallets), consumers tend to communicate with others to minimize uncertainty concerning the innovation adoption (Park, Ahn, Thavisay, & Ren, 2019). In addition, the social pressure exerted by consumers' reference groups compels consumers to make innovation adoption decisions (Park, Ahn, Thavisay, & Ren, 2019).

One surprising result is that perceived usefulness exhibits no significant effect on use intention. This seems to contradict the universal view of the importance of perceived usefulness in technology acceptance (Tan, Ooi, Chong, & Hew, 2014; Tan & Ooi, 2018). This could probably be explained by the subtle difference in usability and productivity yielded by mobile wallets compared to other payment alternatives, implying more features to be integrated. Further research is needed to identify the causes. Apart from that, it is noteworthy that the reference network size has no significant effect on the intention to use mobile wallets. Previous studies have found that Generation Z shows a more individualistic personality and non-conformity that probably dominate their behavior (Shin, Eastman, & Li, 2021). Moreover, the sense of independence leads them more focus on the central issues of interests and security rather than echoing others (Kautish & Sharma, 2019).

MANAGERIAL IMPLICATIONS

From a managerial standpoint, our findings put forward several important implications for fin-tech giants operating mobile wallets. Whether now or in the future, Generation Z is undoubtedly the target group of mobile wallet market share competition. Given that the usage of mobile wallets can significantly improve consumers' sense of self-efficacy (Lew et al., 2020), individual innovativeness (Yan et al., 2021), and perceived enjoyment (Mohd Thas Thaker, Subramaniam, Qoyum, & Iqbal Hussain, 2022), it is significant for those fin-tech companies to promote their mobile wallets. Our findings have presented helpful knowledge on the strategies mobile wallet service providers could adopt to enhance the reach of their services. Especially for those companies that fail to understand the use intention of Generation Z, we have offered a literature perspective on indicators that may encourage users to use mobile wallets. First, our findings suggested that social influence positively impacts the behavioral intention to adopt mobile wallets. Thus, we have recommended that mobile wallet operators take special care in making their distinct benefits visible and articulate them well in their promotional campaigns and advertisements to improve consumers' inherent impression of mobile wallets.

Second, the results show that the security of mobile wallets significantly affects the willingness of Gen Z to use mobile wallets. Improvement in security algorithm, proof-of-presence, and locality should be reinforced to enhance users' perceived security of mobile wallets. Timely security publicity is the priority of current work in response to the phenomenon of cautious mobile wallets usage intention of Generation Z. Third, given the critical impact of perceived ease of use on adoption intention, we suggest that mobile wallet operators must strive to reduce the effort, time and knowledge required by Gen Z to use mobile wallets. Providing appropriate service guides and network navigation, as well as developing various payment forms, such as QR payment, face recognition payment, and voice command (Lim, Ngew, Cheah, Cham, & Liu, 2022; Yan et al., 2021), can enhance the willingness of Gen Z to use mobile wallets.

FUTURE RESEARCH DIRECTIONS

First, the present research adopted self-report measures in assessing the factors influencing Generation Zs' acceptance of mobile wallets (i.e., social influence, perceived ease of use, perceived usefulness, reference network size, perceived security), which could introduce bias and non-establishment of a causal effect. An experimental design or longitudinal design

might be needed. Second, this study covered only Chinese consumers, which may overlook the differences in mobile wallet perception and usage behavior. Thus, the outcomes cannot be extended to other countries and regions. Third, consumer trait-related variables can be incorporated as the moderating variables because individual differences (e.g., age) can interfere with the emphasis and preference of mobile wallet attributes (Cham, Cheah, Cheng, & Lim, 2021). Fourth, future research could explore the co-creation perspective between consumers and mobile wallet merchants in improving mobile wallet satisfaction and loyalty (Cham, Cheah, Memon, Fam, & László, 2022; Nguyen et al., 2022). Fifth, the study considers only the direct and linear effect of the variables on mobile wallet usage intention. However, the reality is inherently complex and non-linear, which requires different analysis techniques, such as artificial neural networks, to provide further insights. It is expected that with the rise of AI applications, blockchain, and metaverse, the landscape of mobile wallets can experience tremendous changes, thereby requiring further research attention (Aw, Zha, & Chuah, 2023; Koohang et al., 2023; Loh et al., 2023).

REFERENCES

Aw, E. C. X. (2020). Understanding consumers' paths to webrooming: A complexity approach. *Journal of Retailing & Consumer Services*, *53*, 101991.

Aw, E. C. X., Basha, N. K., Ng, S. I., & Ho, J. A. (2021). Searching online and buying offline: Understanding the role of channel-, consumer-, and product-related factors in determining webrooming intention. *Journal of Retailing & Consumer Services*, *58*, 102328.

Aw, E. C. X., Tan, G. W. H., Cham, T. H., Raman, R., & Ooi, K. B. (2022). Alexa, what's on my shopping list? Transforming customer experience with digital voice assistants. *Technological Forecasting and Social Change*, *180*, 121711.

Aw, E. C. X., Zha, T., & Chuah, S. H. W. (2023). My new financial companion! Non-linear understanding of Robo-advisory service acceptance. *The Service Industries Journal*. https://doi.org/10.1080/02642069.2022.2161528

Bankole, F., & Bankole, O. (2017). The effects of cultural dimension on ICT innovation: Empirical analysis of mobile phone services. *Telematics & Informatics*, *34*(2), 490-505.

Barry, B. J., Griffin, M., & Hair, J. F. (2016). Heresies and sacred cows in scholarly marketing publications. *Journal of Business Research*, *69*(8), 3133-3138.

Berezina, K., Cobanoglu, C., Miller, B. L., & Kwansa, F. A. (2012). The impact of information security breach on hotel guest perception of service quality, satisfaction, revisit intentions and word-of-mouth. *International Journal of Contemporary Hospitality Management*, *24*(7), 991-1010.

Bilgihan, A. (2016). Gen Y customer loyalty in online shopping: An integrated model of trust, user experience and branding. *Computers in Human Behavior*, *61,* 103–113.

Payment & Clearing Association of China. (2020). Survey report on mobile payment users in 2020. Retrieved from: http://www.pcac.org.cn/eportal/ui?pageId=598478&currentPage=1&moduleId=1857216286c648cbb84759292e661484

Cham, T. H., and Easvaralingam, Y. (2011, October). Perceptions of service quality, corporate image, and customer loyalty in the hotel industry of Malaysia. In Cham, TH, & Yalini, E.(2011). Perceptions of service quality, corporate image, and customer loyalty in the hotel industry of Malaysia. In The 2nd International Research Symposium in Service Management. Yogyakarta, Indonesia (pp. 126–135)

Cham, T. H., Cheah, J. H., Cheng, B. L., & Lim, X. J. (2021). I Am too old for this! Barriers contributing to the non-adoption of mobile payment. *International Journal of Bank Marketing*, *40*(5), 1017-1050.

Cham, T. H., Cheah, J. H., Memon, M. A., Fam, K. S., & László, J. (2022). Digitalization and its impact on contemporary marketing strategies and practices. *Journal of Marketing Analytics*, *10*, 103-105.

Chong, A. Y. L. (2013). A two-staged SEM-neural network approach for understanding and predicting the determinants of m-commerce adoption. *Expert Systems with Applications*, *40*(4), 1240-1247.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319–339.

de Luna, I. R., Liébana-Cabanillas, F., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2019). Mobile payment is not all the same: The adoption of mobile payment systems depending on the technology applied. *Technological Forecasting & Social Change*, *146*, 931-944.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175–191.

Fernandez-Duran, J. J. (2016). Defining generational cohorts for marketing in Mexico. *Journal of Business Research*, *69*(2), 435-444.

Fornell, C. G., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50.

Gabrielova, K., & Buchko, A. A. (2021). Here comes Generation Z: Millennials as managers. *Business Horizons*, *64*(4), 489-499.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (2nd ed.)*. Thousand Oaks: Sage.

Hew, J. J., Tan, W. H., Lin, B. S., & Ooi, K. B. (2017). Generating travel-related contents through mobile social tourism: Does privacy paradox persist? *Telematics & Informatics*, *34*(7), 914-935.

Hoh, P. Y., Loo, S. J., Tan, G. W. H., Lee, V. H., Aw, E. C. X., Cham, T. H., & Ooi, K. B. (2022). Understanding valences in mobile grocery shopping: Do consumers' characteristics matter?. *Journal of Computer Information Systems*. doi.org/10.1080/08874417.2022.2103855

Kaur, P., Dhir, A., Bodhi, R., Singh, T., & Almotairi, M. (2020a). Why do people use and recommend m-wallets? *Journal of Retailing & Consumer Services*, *56*, 102091.

Kaur, P., Dhir, A., Singh, N., Sahu, G., & Almotairi, M. (2020b). An innovation resistance theory perspective on mobile payment solutions. *Journal of Retailing & Consumer Services*, *55*, 102059.

Kautish, P., & Sharma, R. (2019). Value orientation, green attitude and green behavioral intentions: An empirical investigation among young consumers. *Young Consumers*, *20*(4), 338-358.

Kim, C., Tao, W., Shin, N., & Kim, K. (2010). An empirical study of customers' perceptions of security and trust in e-payment systems. *Electronic Commerce Research and Applications*, *9*(1), 84–95.

Koohang, A., Nord, J., Ooi, K., Tan, G., Al-Emran, M., Aw, E., ... & Wong, L. (2023). Shaping the metaverse into reality: multidisciplinary perspectives on opportunities, challenges, and future research. *Journal of Computer Information Systems*. https://doi.org/10.1080/08874417.2023.2165197

Lee, H. Y., Qu, H., & Kim, Y. S. (2007). A study of the impact of personal innovativeness on online travel shopping behavior - A case study of Korean travelers. *Tourism Management*, *28*(3), 886-897.

Leong, L. Y., Hew, T. S., Ooi, K. B., & Wei, J. (2020). Predicting mobile wallet resistance: A two-staged structural equation modeling-artificial neural network approach. *International Journal of Information Management*, *51*, 102047.

Lew, S., Tan, W. H., Loh, X. M., Hew, J. J., & Ooi, K. B. (2020). The disruptive mobile wallet in the hospitality industry: An extended mobile technology acceptance model. *Technology in Society*, *63*, 101430.

Lim, A. S. (2008). Inter-consortia battles in mobile payments standardisation. *Electronic Commerce Research and Applications*, *7*(2), 202-213.

Lim, Y. M., Cheng, B. L., Cham, T. H., Ng, C. K. Y., & Tan, J. X. (2019). Gender differences in perceptions and attitudes toward online shopping: A study of Malaysian consumers. *Journal of Marketing Advances and Practices*, *1*(2), 11-24.

Lim, X. J., Ngew, P., Cheah, J. H., Cham, T. H., & Liu, Y. (2022). Go digital: Can the money-gift function promote the use of e-wallet apps?. *Internet Research*. doi.org/10.1108/INTR-06-2021-0406

Loh, X. M., Lee, V. H., Tan, G.W. H., Ooi, K. B., & Dwivedi, Y. K. (2021). Switching from cash to mobile payment: What's the hold-up?. *Internet Research*, *31*(1), 376-399.

Loh, X. M., Lee, V. H., Leong, L. Y., Aw, E. C. X., Cham, T. H., Tang, Y. C., & Hew, J. J. (2023). Understanding consumers' resistance to pay with cryptocurrency in the sharing economy: A hybrid SEM-fsQCA approach. *Journal of Business Research*, *159*, 113726.

Low, M. P., Cham, T. H., Chang, Y. S., & Lim, X. J. (2021). Advancing on weighted PLS-SEM in examining the trust-based recommendation system in pioneering product promotion effectiveness. *Quality & Quantity*, 1-30. https://doi.org/10.1007/s11135-021-01147-1

McLean, G., Osei-Frimpong, K., Al-Nabhani, K., & Marriott, H. (2020). Examining consumer attitudes towards retailers' m-commerce mobile applications – An initial adoption vs. continuous use perspective. *Journal of Business Research*, *106*, 139-157.

Mohd Thas Thaker, H., Subramaniam, N. R., Qoyum, A., & Iqbal Hussain, H. (2022). Cashless society, e-wallets and continuous adoption. *International Journal of Finance & Economics*, 1-21.

Morosan, C. (2014). Toward an integrated model of adoption of mobile phones for purchasing ancillary services in air travel. *International Journal of Contemporary Hospitality Management*, *26*(2), 246-271.

Nguyen, L. T., Dwivedi, Y. K., Tan, G. W. H., Aw, E. C. X., Lo, P. S., & Ooi, K. B. (2022). Unlocking pathways to mobile payment satisfaction and commitment. *Journal of Computer Information Systems*. https://doi.org/10.1080/08874417.2022.2119444

Park, J., Ahn, J., Thavisay, T., & Ren, T. (2019). Examining the role of anxiety and social influence in multi-benefits of mobile payment service. *Journal of Retailing and Consumer Services*, *47*, 140-149.

Peha, J. M., & Khamitov, I. M. (2004). PayCash: A secure efficient internet payment system. *Electronic Commerce Research Applications*, *3*(4), 381-388.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879-903.

Ringle, C. M., & Sarstedt, M. (2016). Gain more insight from your PLS-SEM results: The importance-performance map analysis. *Industrial Management Data Systems*, *116*(9), 1865–1886.

Schewe, C. D., & Meredith, G. (2004). Segmenting global markets by generational cohorts: Determining motivations by age. *Journal of Consumer Behavior*, *4*(1), 51-63.

Sharma, S. K., Mangla, S. K., Luthra, S., & Al-Salti, Z. (2018). Mobile wallet inhibitors: Developing a comprehensive theory using an integrated model. *Journal of Retailing Consumer Services*, *45*, 52-63.

Shin, D. H. (2010). The effects of trust, security and privacy in social networking: A security-based approach to understand the pattern of adoption. *Interacting with Computers*, *22*(2), 428-438.

Shin, H., Eastman, J., & Li, Y. (2021). Is it love or just like? Generation Z's brand relationship with luxury. *Journal of Product & Brand Management*, *31*(3), 394-414.

Strader, T. J., Ramaswami, S. N., & Houle, P. A. (2007). Perceived network externalities and communication technology acceptance. *European Journal of Information Systems*, *16*(1), 54–65.

Tan, E. & Leby Lau, J. (2016). Behavioural intention to adopt mobile banking among the millennial generation. *Young Consumers, 17*(1), 18–31.

Tan, G. W. H., Lee, V. H., Lin, B., & Ooi, K. B. (2017). Mobile applications in tourism: The future of the tourism industry? *Industrial Management Data Systems*, *117*(3), 560-581.

Tan, G. W. H., & Ooi, K. B. (2018). Gender and age: Do they really moderate mobile tourism shopping behavior? *Telematics and Informatics*, *35*(6), 1617-1642.

Tan, G. W. H., Ooi, K. B., Chong, S. C. & Hew, T. S. (2014). NFC mobile credit card: The next frontier of mobile payment? *Telematics and Informatics*, *31*(2), 292-307.

Teng, S., & Khong, K. W. (2021). Examining actual consumer usage of e-wallet: A case study of big data analytics. *Computers in Human Behavior*, *121*, 106778.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, *46*(2), 186–204.

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extended the unified theory of acceptance and use of technology. *MIS Quarterly*, *36*(1), 157–178.

Wang, G. Q., Tan, W. H., Yuan, Y. P., Ooi, K. B., & Dwivedi, Y. K. (2022). Revisiting tam2 In behavioral targeting advertising: A deep learning-based dual-stage SEM-ANN analysis. *Technological Forecasting and Social Change*, *175*, 121345.

Yan, L. Y., Tan, W. H., Loh, X. M., Hew, J. J., & Ooi, K. B. (2021). QR code and mobile payment: The disruptive forces in retail. *Journal of Retailing & Consumer Services*, *58*, 102300.

Zhou, T., & Lu, Y. (2011). Examining mobile instant messaging user loyalty from the perspectives of network externalities and flow experience. *Computers in Human Behavior*, *27*(2), 883-889.