Factors Affecting the Intention to Use Mobile Commerce in Malaysia: An Integration of TAM and IS Success Model

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Abstract
Mobile commerce transactions adoption among consumers in Malaysia has become a major challenge for mobile commerce providers. This paper aims to determine the factors affecting the intention to use mobile commerce by integrating the Technology Acceptance Model and the updated IS Success Model. A non-probability convenience sampling is employed, collecting 395 questionnaires from Klang Valley residents of Malaysia. A two-stage structural equation modeling is employed to test the hypotheses. The findings indicate that system quality, service quality, and perceived enjoyment significantly affect the intention to use mobile commerce. However, the findings further revealed that information quality, perceived ease of use, and perceived usefulness do not significantly influence the intention to use mobile commerce in Malaysia. These findings will benefit mobile commerce providers and businesses aiming to improve the acceptance of mobile commerce transactions in Malaysia. However, this study is valuable for academicians, researchers, policymakers, and practitioners.
Keywords: Mobile Commerce, Intention, Service Quality, System Quality, Malaysia

Introduction
Advancements in mobile technology have significantly progressed in recent years, fostering creativity (Wanof, 2023). Currently, many services like mobile social networks, mobile payments, and mobile commerce are commonly accessible through mobile devices due to adaptable communication networks that are not limited by time or location (O'Dea, 2020). Mobile devices are increasingly becoming the primary method of communication access. The mobile network is more cost-effective than landlines and provides consumers with greater freedom and accessibility (Asampana et al., 2022). In emerging and developing countries, mobile devices are increasingly becoming the primary way of conducting commercial transactions, revolutionizing firms in several sectors. The increased use of mobile

devices in commercial transactions has significantly affected traditional corporate operations, with wireless telecommunications becoming the main way to enhance traditional infrastructure using standard technology (Nokia et al., 2023; Jain et al., 2021). The growing use and attractiveness of mobile devices and advancements in mobile technology have led to the emergence of a new business trend called mobile commerce (Sarkar et al., 2020). However, businesses can now redefine how they interact with potential clients due to the communication revolution facilitated by wireless technology and mobile devices.

The World Bank estimates that over 8.27 billion individuals use mobile phones, with over 6.5 billion using smartphones. This number is projected to increase significantly in the coming years (Statista, 2022). In 2021, 63% of the global population, almost 4.9 billion individuals, accessed the Internet, as the International Telecommunications Union (ITU) reported. This is a significant increase from the 16% recorded in 2005 (ITU, 2022). According to Statista (2022), the global internet user count as of April 2022 was 5 billion, representing 63% of the total global population. Statista further reported that 4.65 billion people worldwide utilize social media, which accounts for almost 93% of the global population.

Malaysia has a population of over 32.78 million, of which 29.35 million are mobile internet users, making up about 89.53% of the total population (Statista, 2022). Around 16.53 million Malaysian internet consumers, with 62% using mobile devices for shopping, totaling 20 million Malaysians shopping using mobile devices. Morgan (2019) observed that mobile cell phones make up 47% of all electronic commerce transactions in Malaysia. Consumer sales through mobile commerce grew at a compound annual growth rate of 31.4% by 2021, reaching a total of US$5.6 billion (RM23.9 billion). Consequently, Malaysian internet buyers have begun utilising mobile shopping as an alternative purchase platform. The smartphone penetration rate is high in Malaysia; however, the adoption rate of mobile commerce is quite low (Yahaya et al., 2022). Malaysia has experienced significant technological advancements and the rise of m-commerce in recent decades. However, m-commerce adoption in Malaysia remains relatively low at 68.4% compared to Indonesia, Thailand, and the Philippines, with penetration rates of 79.1%, 75.2%, and 68.6%, respectively (Ganbold, 2021). In Malaysia, mobile commerce transactions are lower at 80% compared to e-commerce at 84.2% (Mordor Intelligence, 2022; Ganbold, 2021).

Mobile commerce, often known as m-commerce, includes various activities such as mobile payments and transactions as well as the creation of mobile applications for exchanging commodities information (Borambayeva et al., 2023; Gaghana & Sutomo, 2023). The adoption of mobile live commerce is driven by characteristics such as convenience, ubiquity, and social presence (Lee et al., 2023). Contemporary concerns and obstacles in mobile banking through Islamic banks, especially in e-commerce and mobile commerce, require attention (Yazid et al., 2023). Mobile technologies and live streaming commerce significantly impact mobile commerce and are a crucial subject of research (Gilstrap & Gilstrap, 2023). Creating a commerce solution for easy meal ordering using a mobile app Gallera (2023) and introducing a customised and flexible usability model for mobile commerce apps Yazid et al (2023) emphasise mobile commerce's various uses and possibilities. The study examines the elements that impact trust in mobile shopping apps and purchase intents, highlighting user experience, online customer reviews, and mobile app design as key drivers (Lee et al., 2023).

Therefore, this paper aims to determine the factors affecting the intention to use mobile commerce by integrating the Technology Acceptance Model (TAM) and the Updated IS Success Model (ISSM). The research questions are: (1) what are the effects of information

quality, service quality, and system quality on the intention to use mobile commerce? (2) How do perceived usefulness, perceived ease of use, and perceived enjoyment affect the intention to use mobile commerce?

Literature Review
Mobile Commerce

Mobile commerce refers to using handheld mobile devices for e-commerce purposes (Taneja, 2021). According to Grădinaru et al (2022), mobile commerce has no globally agreed-upon definition; despite this, researchers have tried to define it. For instance, Ramana et al (2022) defined it as any monetary transaction using a wireless internet-enabled device. Personal digital assistants (PDAs) Nigam & Kk (2022), smartphones (Kao & L'Huillier, 2022), mobile phones (upta et al (2022), tablets Aamir (2022), and laptops Rajendran et al (2022) are devices commonly utilised for mobile commerce. Mobile commerce involves using electronic devices to connect to networks for transferring ownership or usage rights of products and services, as defined by (Abdelkarim and Nasereddine, 2010). Mehedintu and Soava (2022) define the process of buying and selling services and goods over a wireless handheld device as mobile commerce or m-commerce.

Mobile commerce is a natural advancement from online buying that allows customers to interact wirelessly with other customers or companies at any time and place (Mollick et al., 2023). It is defined by Jin and Youn (2022); Sánchez et al (2022) as any transaction conducted over a cellular telecommunications network, either directly or indirectly. Alkailani and Nusairat (2022) agreed that any transaction involving economic value through a mobile device using wireless telecommunications is considered mobile commerce.

However, the field has experienced significant expansion, especially in studying customer behaviour Sari & Subriadi (2022) and its effects on sales concentration and inventory management (Jain & Tan, 2021). Balagué and Zhao (2021) have also investigated the transition from online social business to mobile social commerce. El-Ebiary et al (2021) examined the opportunities and challenges associated with platforms like Foodpanda. Generation Z is persuaded to adopt mobile commerce, particularly favouring mobile applications (Puiu et al., 2022). The COVID-19 pandemic has hastened the expansion of m-commerce, focusing on improving factors like internet speed and confidence in mobile devices (Vărzaru & Bocean, 2021). Williams (2021) emphasised the significance of perceived innovativeness, usefulness, and convenience in the mobile context.

Technology Acceptance Model and IS Success Model

Various theories have been suggested to comprehend consumers' intention to utilise information systems technology. The technology acceptance model (TAM) is designed to predict the application of information technology. TAM focuses on the factors that affect the adoption of computer technology by end-users across various user demographics. This study will focus solely on one aspect of the Technology Acceptance Model (TAM), specifically intention, to assess consumers' intention to utilise mobile commerce in Malaysia.

The Technology Acceptance Model (TAM) has been extensively utilised in different scenarios such as mobile commerce Barry & Jan (2018), mobile payment (Anwar et al., 2024), mobile shopping Wibasuri et al (2024), QR code payment Ponsree (2024), mobile banking Karki et al (2024), electronic money Harnida (2023), online learning platforms (Abuhassna et al (2023), government IT governance Amali et al (2022), and FinTech adoption (Natsir et al., 2023). These studies repeatedly concluded that perceived ease of use and perceived

usefulness are crucial factors influencing individuals' attitudes towards using and actual utilization of technology. Additional elements influence technology uptake, including self-efficacy, social norms, perceived interest, perceived pleasure, and pricing.

DeLone and McLean introduced the IS success model in 1992. This approach was developed to assess the efficiency of information systems (IS). The model presents six essential concepts: individual impact, organisational impact, system quality, information quality, utilisation, and user satisfaction. The model has been widely embraced and selected as a foundation for additional theoretical and empirical investigations (DeLone & McLean, 1992). The notion is widely acknowledged and applied in IS studies (Cho et al., 2011). Research on mobile commerce often employs the IS success model (Ivanova & Noh, 2022; Nani & Lina, 2022; Yoo, 2020; Al-Naimat et al., 2020).

The information system success model (ISSM) has been largely utilised in different contexts such as mobile commerce Liu et al (2023), e-commerce (Tan et al., 2023), mobile payment Al Amin et al (2023), mobile shopping Singh (2024), QR code payment (Mai et al., (2024), mobile banking Oppusunggu et al (2024); Yu et al (2024), electronic money (Ahmed et al., 2024), online learning platforms Ahmad (2024), and mobile fintech (Hornuf et al., 2024).

Previous studies have tried to integrate TAM and ISSM (Ahmad, 2024; Won et al., 2023). Therefore, this paper will integrate these two theories to determine the factors affecting the intention to use mobile commerce in Malaysia. Thus, the independent variables of this paper are perceived usefulness, perceived ease of use, information quality, service quality, and system quality, and the dependent variable is the intention to use mobile commerce. These independent variables and their relationship with the dependent variable are thoroughly discussed in the following section based on studies from previous scholars.

Hypotheses Developments
Intention to Use Mobile Commerce

Various factors influence the intention to adopt mobile commerce. Key attributes of mobile live commerce that enhance purchase intention include convenience, ubiquity, social presence, attractiveness, and vividness (Lee et al., 2023). Ankadhitra et al (2023) identified perceived satisfaction, subjective norms, perceived ease of use, and perceived usefulness as important elements influencing the continuous intention to utilise mobile payment systems. In developing economies, factors such as performance expectancy, effort expectancy, social influence, facilitating situation, intrinsic motivation, price value, and prior experience are significant predictors of continuous intention in mobile payment platforms (Nwosu & Ike-Elechi, 2023). Social influence and peer influence have a substantial impact on the intention to purchase in e-commerce according to (Gunawan et al., 2023).

According to Ifada and Abidin (2023), social influence, trust, and contentment are crucial reasons for the continued use of QR code mobile payment services. Factors such as performance expectancy, effort expectancy, facilitating environment, perceived trust, and digital financial literacy play a crucial role in determining the intention of marginalised street sellers to utilise QR code mobile payment systems (Nandru et al., 2023). Functional, hedonic, and social motivations benefit active involvement, subsequently influencing the inclination to engage in electronic word-of-mouth communication on WeChat (Pang & Wang, 2023). Personal innovativeness, trust, perceived simplicity of use, and perceived utility are key factors influencing the inclination to use mobile food delivery applications (Ankadhitra et al., 2023).

An individual's intention becomes obvious when a factor organically influences their interest in something and directs it towards an objective aim. Intention is presumably connected to a person's involvement in an action based on their belief in an item. Davis (1989) defined consumption intention as "the subjective probability of an individual adopting a specified behaviour." Venkatesh et al (2012) concur that an individual's behavioural purpose impacts technology use, namely their readiness to utilise and uphold it.

Intention to use m-commerce in the context of m-commerce refers to consumers' perceived likelihood of adopting the innovation, as defined by (Vinerean et al., 2022). According to Wu and Wang (2005), the intention to use mobile commerce is the likelihood of an m-commerce user conducting online transactions using m-commerce. The researchers in this study define intention to use mobile commerce as the probability that a user will engage in online shopping through mobile commerce.

Information Quality

"Information quality" refers to the value of information people perceive (Gani et al., 2023). Information quality is determined by the semantic level and attributes of the information product, including accuracy, importance, and timeliness (DeLone & McLean, 2003). Consumers are prone to distraction and must exert more effort to comprehend low-quality information. If the application developer does not offer precise and up-to-date information, users may feel unsatisfied with the apps and stop using them (Park et al., 2023). Mobile commerce websites and applications are anticipated to meet high standards and offer users precise and current information. Maduku and Thursi (2023) suggest that a successful system providing clear information appeals to clients due to its perceived reliability and trustworthiness. It can be challenging and time-intensive to analyse and assess each product to make the best option, even with ample information available to users.

Several studies have investigated how information quality influences the intention to adopt mobile commerce. For instance, Restianto (2024) discovered that information quality impacts the decision to continue using a product through user satisfaction and digital literacy. Lee et al (2023) discovered that high-quality information significantly impacts perceived value, subsequently influencing purchase intention. Han et al (2023); Camilleri et al (2023) found a favourable correlation between information quality and purchase intention. Han et al (2023) focused on cross-border e-commerce, whereas Camilleri et al (2023) research centered on travel apps. Yoo et al (2023); Setiadi et al (2023) discovered that information quality, among other criteria, considerably impacts purchase intention in mobile commerce. Rahardja et al (2023); Kumari and Biswas (2023) studied how information quality affects user emotions and satisfaction, which then affects continuance intention. Ramadhina et al. (2023) highlighted the significance of information quality in developing interpersonal relationships, which might influence purchasing intention. Consequently, the researchers put up the following hypothesis considering the literature.

H1: Intention is positively impacted by information quality.

Service Quality

Organizations in modern business environments are increasingly prioritizing service quality (Kuhle, 2023). The quality-of-service influences customer perception of a firm they receive (Zhang et al., 2023). This will continue to influence their frequency of purchases. Measuring and recognising the components of service quality is essential for understanding

and enhancing it (Kuhle, 2023). Customers often scrutinise the quality of a product before making a purchase. Quality and pricing are often considered before making a purchase decision. Customers prioritise quality to enhance the safety and durability of products. Customers' future purchase decisions are contingent on the quality of the items and services they receive (Abdullah et al., 2022).

However, multiple studies have repeatedly shown a direct correlation between service quality and the intention to use mobile commerce. For instance, Bahtar et al (2022) discovered that reliability, website design, and customer service substantially impact stickiness intention in Malaysia. Nani and Lina (2022) emphasized the need for timely delivery and product compatibility in Indonesia. Rahardja et al (2023) found the same for the intention to use mobile payment in Indonesia. These results indicate that service quality is crucial, but brand equity, system quality, and user experience also substantially influence the intention to utilise mobile commerce. Apriliani et al (2024); Romadhoni et al (2024) emphasised the impact of electronic service quality, trust, and e-WOM on consumer satisfaction and purchase decisions inside digital payment and e-commerce platforms. Therefore, the researchers put up the following hypothesis considering the literature.

H2: Intention is positively impacted by service quality.

System Quality

Customer shopping habits have changed during the COVID-19 pandemic, with an increased reliance on mobile apps (Gao et al., 2020; Eger et al., 2021). Businesses are currently focusing on transitioning to mobile e-commerce platforms and adjusting their websites accordingly (Sarkar et al., 2020). Mobile commerce websites have enhanced the shopping experience by allowing customers to browse several stores, get product information, and make purchases at their convenience (Mehedintu & Soava, 2022). Ensuring the quality of business applications from the users' standpoint, including content search and navigation, is crucial for enhancing trust (Brush & Rappel, 2020). Business applications should prioritise the fundamental requirements as the foundation for creating effective mobile commerce websites. Websites improve user experience by expanding Wi-Fi and 5G network availability, boosting Internet speed and accessibility, and building confidence in mobile applications and devices (Vărzaru & Bocean, 2021).

Various researchers have investigated how system quality affects the intention to use mobile commerce. For instance, Bahtar et al (2022) discovered that e-service quality has a notable impact on stickiness intention in e-commerce platforms, while Reswanto and Ishak (2022) pinpointed a substantial influence of brand equity on m-commerce intention. Suardana et al (2022); Lee et al (2023) emphasised the favourable impact of ease of use, transaction success rate, and technology system capabilities on trust and interest in mobile banking. They also studied the attributes of mobile live commerce that influence purchase intention. Saleem et al (2022); Ligaraba et al (2023) discovered that website quality and characteristics, including perceived usefulness, peer review, and attitude, substantially impact e-commerce intention. Therefore, the researchers put up the following hypothesis considering the literature.

H3: Intention is positively impacted by system quality.

Perceived Usefulness

According to the Technology Acceptance Model (TAM), perceived ease of use impacts perceived usefulness, and both are influenced by external factors like trust in the system, environmental facilitation, social influence, gender, and age. Perceived usefulness is believed to be the main factor. Perceived usefulness has a greater impact on behavioural changes than perceived ease of use, according to (Davis, 1989). People utilise systems and technology mostly for their utility rather than their comfort level, as stated by (Davis, 1989). Perceived usefulness refers to an individual's belief that using a specific strategy or technology would improve their work performance (Davis, 1989).

Various researchers have repeatedly shown a direct correlation between perceived usefulness and the intention to adopt mobile commerce. Chan et al (2022) and Ferdianto (2022) discovered that perceived utility substantially impacts the intention to utilise mobile shopping. Ferdianto (2022) also highlighted its contribution to enhancing repurchase intention. Anifa and Sanaji (2022); Widiar et al (2023) discovered that perceived usefulness positively impacted repurchase intention, with Widiar et al (2023) emphasising its mediating function. Lee et al (2023); Ligaraba et al (2023) pinpointed perceived utility as a factor affecting purchase intention and re-usage intention, respectively. Susanti and Alamsyah (2022); Yu and Huang (2022) investigated how perceived usefulness is related to the intention to use mobile payment and play games on mobile commerce platforms. Both studies found a favourable connection. Therefore, the researchers put up the following hypothesis considering the literature.

H4: Intention is positively impacted by perceived usefulness.

Perceived Ease of Use

The user's utilisation of a system is influenced by its user-friendliness. Users are motivated to utilise the system due to incentives (Asastani et al., 2018). Perceived ease of use refers to an individual's belief that using a specific system will require minimal effort, as defined by (Davis, 1989). The perceived usability of a system is determined by how quickly a user believes it can be grasped (Basuki et al., 2022). The usability of a system can be influenced by the frequency of use and the way users interact with it (Zuniarti et al., 2021).

Various studies have repeatedly shown a favourable correlation between the perceived ease of using mobile commerce and the propensity to utilise it. Chan et al (2022) and Anifa and Sanaji (2022) discovered that perceived ease of use had a substantial impact on the desire to embrace mobile shopping. Anifa also noted that trust had a mediating role in this relationship. Susanti (2022); Ferdianto (2022) both found that perceiving mobile payment as easy to use positively influenced users' intention to use it and repurchase intention in mobile purchasing, respectively. Widiar et al (2023); Abdullah (2022) confirmed these results. Widiar et al (2023) focused on the mediating influence of perceived utility and trust in mobile banking, while Abdullah emphasised the impact of perceived risks and barriers in social commerce. Lee et al (2023) found that ease is a key feature of mobile live commerce that enhances purchase intention. Therefore, the researchers put up the following hypothesis considering the literature.

H5: Intention is positively impacted by perceived ease of use.

Perceived Enjoyment

Perceived enjoyment or delight refers to the level of pleasure experienced when utilising a certain system, regardless of its impact on performance, as defined by (Wei et al., 2023). Hedonic motivation involves emotional states like fun and pleasure (Lew et al., 2020) and can be defined as a type of motivation that includes perceived pleasure (Chang et al., 2023). Lee et al (2022); Chang et al (2023) suggest that people's reactions, whether positive or negative, might either encourage or impede their impulse buying behaviour. This study defined perceived enjoyment as the extent to which m-commerce users considered using their mobile commerce devices enjoyable.

Various research have investigated how perceived enjoyment reported by users affects their intention to utilise mobile commerce. For instance, Chan et al (2022) discovered that perceived enjoyment had a substantial impact on the desire to adopt mobile purchasing, whereas Lee et al (2023) recognised it as a key feature in mobile live commerce that positively influenced pleasure value. Esawe (2022); Anifa and Sanaji (2022) emphasised the important impact of felt enjoyment on behavioural intention and usage behaviour in the areas of e-wallets and augmented reality, respectively. Wang et al (2022); Yu and Huang (2022) highlighted the beneficial influence of perceived enjoyment on the intention to implement mobile shopping and play games. The findings indicate that perceived enjoyment significantly influences consumers' intention to use mobile commerce. Barry and Jan (2018) found a significant relationship between perceived enjoyment and intention to use mobile commerce. Therefore, the researchers put up the following hypothesis considering the literature.

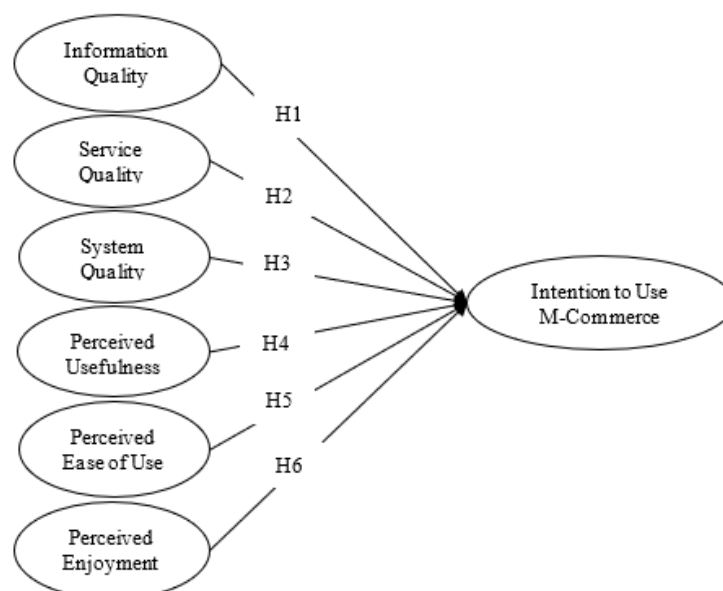**H6:** Intention is positively impacted by perceived enjoyment.

Figure 1. Research model

Research Methodology
Development of Measurement Instrument

The survey questions assessing perceived usefulness, perceived ease of use, and intention were adapted from studies conducted by Davis (1989); Davis et al (1989) to develop the questionnaire used in this research. Survey items for additional variables, such as

information quality, system quality, and service quality, were developed by adapting those used in DeLone and Mclean's (1992) and (2003) studies. Nevertheless, all items were adjusted and revised from other studies to suit this research. Various tests were undertaken to verify that these items are suitable for the research model's framework. The survey's items were measured using a 5-point Likert scale, where 1 represents strongly disagree and 5 represents strongly agree. Research assistants and faculty members were tasked with assessing the survey's validity by reviewing the instrument and providing feedback. The survey items have been enhanced as needed.

Data Collection

Non-probability convenient sampling was utilized where self-administered questionnaires were distributed to smartphone owners involved in mobile commerce in the Klang Valley of Malaysia. Participation was completely optional. Participants were informed that they had the option to decline participation in the survey. There were 400 participants. 5 out of 400 respondents were excluded due to incomplete responses. The suitable sample size was 395. The 395 surveys meet the minimal sample size criteria for Structural Equation Modelling as outlined by Kline (2011) and Nunnally (1978). Table 1 shows the demographic characteristics of the respondents.

Table 1

The respondents' demographics profile.

Demographic variables		Study Sample (n = 395)	
		Frequency	Percentage (%)
Gender	Male	194	49.1
	Female	201	50.9
Age	18 – 27	178	45.1
	28 – 37	112	28.4
	38 – 47	72	18.2
	48 – Above	33	8.3
Nationality	Malaysian	356	90.1
	Non-Malaysian	39	9.9
Marital Status	Single	279	70.6
	Married	116	29.4
Level of Education	Diploma	29	7.3
	Bachelor	206	52.2
	Master	118	29.9
	PhD	42	10.6

Source: Authors' computation

Data Analysis

Analysis of Momentum Structure (AMOS 24) and Statistical Package for Social Sciences (SPSS 25) were used as statistical software tools for data analysis. Below is the data analysis.

Reliability

Reliability tests were conducted on each factor within every sample group to evaluate the instrument's internal consistency. The Cronbach's alpha values in Table 2 exceeded the reliability level of 0.70 as defined by Nunnally (1978). The internal consistency of the measurement device is deemed adequate based on the reliability test findings.

Table 2

Reliability statistics

Constructs	Cronbach's α	Number of items
INT	0.897	4
SVQ	0.951	5
SYQ	0.959	6
INQ	0.897	5
PE	0.974	5
PU	0.907	5
PEOU	0.937	5

Source: Authors' computation

KMO and Bartlett's Test

Bartlett's Tests and the Kaiser-Meyer-Olkin (KMO) measure were used to assess the unidimensionality of the scales, as shown in Table 3 below. The p-values for the sphericity tests in all seven sample groups were below 0.001. Furthermore, values of 0.904 indicated that the sample adequacy was upheld.

Table 3

KMO and bartlett's tests

KMO and Bartlett's Test		
KMO Sampling Adequacy Measurement		0.904
Sphericity Test	Approx. Chi-Square	11124.659
	Degree of Freedom	595
	Significance	0.000

Source: Author's computation

Common Method Bias

Harman's single-factor test was used to ensure the model was not affected by common method bias. The result was achieved by an unrotated, single factor constrained factor analysis using the SPSS software. The cumulative variation accounted for by the seven components is 80.747%, as indicated in Table 4. The data shows that there is no common method bias in the dataset.

Table 4

Total variance explained.

Co mpo nent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.0	34.50	34.5	12.0	34.50	34.5	5.14	14.69	14.6
2	4.76	13.60	48.1	4.76	13.60	48.1	4.65	13.28	27.9
3	3.76	10.75	58.8	3.76	10.75	58.8	4.23	12.09	40.0
4	2.84	8.137	67.0	2.84	8.137	67.0	4.01	11.46	51.5
5	1.87	5.358	72.3	1.87	5.358	72.3	3.72	10.65	62.2
6	1.66	4.745	77.1	1.66	4.745	77.1	3.58	10.24	72.4
7	1.27	3.641	80.7	1.27	3.641	80.7	2.9	8.292	80.7

Analysis of Factor Loadings

The factor loadings were used to validate that each survey question was loaded onto the appropriate component. The survey items were found to correlate with seven factors, explaining 80.747% of the total variation. Items with factor loadings below 0.5 were excluded from the data analysis, as recommended by Hair et al. (2010). Therefore, all elements associated with each component have a value greater than 0.5. Thus, all components exhibit a factor loading ranging from 0.634 to 0.943 as seen in Table 5.

Table 5

Factor analysis

	Component						
	1	2	3	4	5	6	7
SYQ2	.848						
SYQ5	.808						
SYQ1	.803						
SYQ4	.796						
SYQ6	.784						
SYQ3	.777						
PE2		.883					
PE4		.863					
PE3		.861					
PE5		.842					
PE1		.831					
SVQ4			.844				
SVQ2			.842				
SVQ3			.831				
SVQ1			.828				
SVQ5			.719				
PEU3				.933			
PEU4				.928			
PEU1				.905			
PEU2				.899			
PEU5				.761			
PU3					.943		
PU2					.917		
PU4					.899		
PU5					.831		
PU1					.634		
INQ3						.878	
INQ2						.871	

Rotated Component Matrix^a

									.860	
INQ1									.860	
INQ4									.823	
INQ5									.774	
INT4										.838
INT1										.795
INT2										.716
INT3										.689
Extraction Method: Principal Component Analysis.										
Rotation Method: Varimax with Kaiser Normalization.										
a. Rotation converged in 6 iterations.										

Source: Authors' computation

Convergent and Discriminant Validity

The AVE for each variable was calculated to ensure it exceeded 0.5, as shown in Table 6, to evaluate convergent validity (Cheung et al., 2023). The square root of the average variance extracted (AVE) was computed and compared with the inter-variable correlations to assess discriminant validity. The results in Table 6 confirm discriminant validity as the square root of the average variance extracted for each variable exceeded the correlation of that variable with all other variables (Cheung et al., 2023; Fornell & Larcker, 1981; Hulland, 1999).

Table 6

Construct validity and reliability

	CR	AVE	MSV	ASV	1	2	3	4	5	6	7
PE	0.974	0.881	0.434	0.195	0.939						
SYQ	0.959	0.796	0.520	0.234	0.659	0.892					
INT	0.904	0.704	0.520	0.207	0.592	0.721	0.839				
PEU	0.938	0.754	0.059	0.011	0.048	0.020	0.019	0.868			
PU	0.914	0.689	0.059	0.012	0.014	0.092	0.005	0.242	0.830		
INQ	0.898	0.640	0.007	0.003	0.006	-0.044	-0.014	-0.085	0.037	0.800	
SVQ	0.952	0.800	0.437	0.199	0.617	0.661	0.609	0.008	0.047	0.067	0.895

Source: Author's computation

Multicollinearity Test

The research model included an evaluation of a multicollinearity test due to its potential detrimental implications (Morales-Oñate & Morales Oñate, 2023). The variance inflation factor (VIF) spans from 0.989 to 1.687, which is below 10. Thus, this indicates that the data is free from multicollinearity issues, as seen in Table 7 below.

Table 7

Multicollinearity test

Coefficients[a]							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-0.462	0.132		-1.232	0.020		
PEU	0.346	0.095	0.356	5.451	0.163	0.852	1.480
PU	0.230	0.063	0.234	4.509	0.205	0.730	1.394
SVQ	0.380	0.165	0.221	3.210	0.002	0.926	0.989
SYQ	0.271	0.120	0.172	2.924	0.000	0.460	1.687
PE	0.222	0.069	0.270	2.364	0.005	0.212	0.996
INQ	0.180	0.056	0.194	5.150	0.806	0.642	1.568
a. Dependent Variable: Intention							

Source: Authors' Computation

Structural Equation Model

The study model was analysed via SPSS AMOS 24. The whole model's goodness of fit was assessed using five Structural Equation Modelling (SEM) fit metrics. The model demonstrated a satisfactory match with the data as all goodness of fit indices were within acceptable thresholds (West et al., 2023; McNeish & Wolf, 2023). The findings indicate that the Normed Chi-square (χ^2/DF) is 2.624, which is below the threshold of 5.0. The degree of freedom (DF) is 549, the Chi-square (χ^2) is 1440.536, and the RMSEA index is 0.074, below the threshold of 0.08. Additionally, the CFI, GFI, TLI, and NFI values are 0.939, 0.929, 0.912, and 0.919 respectively, all exceeding the threshold of 0.90. Thus, the structural model hypothesis test yielded a satisfactory outcome. The results are shown in Table 8 below.

Table 8

Fit indices for the models

Indices of Fit	Value Recommended	Model Value
Df/Chi-square	≤3.00	2.624
Goodness of fit	≥0.90	0.929
Adjusted Goodness of fit	≥0.80	0.861
Root Mean Square Error of Approximation.	≤0.08	0.074
Comparative fit index	≥0.90	0.939
Tucker-Lewis index	≥0.90	0.912
Normed fit index	≥0.90	0.919

Source: Authors' Computation

Hypotheses Testing

The results of the hypothesis testing are displayed in Table 9. Figure 2 displays the properties of the causal routes, including the standardised path coefficients. Three out of the six hypotheses examined in this study were found to be supported. Perceived enjoyment, system quality, and service quality significantly influence the intention to use mobile

commerce. In contrast, the intention to use mobile commerce is not significantly influenced by perceived usefulness, perceived ease of use, or information quality in this study.
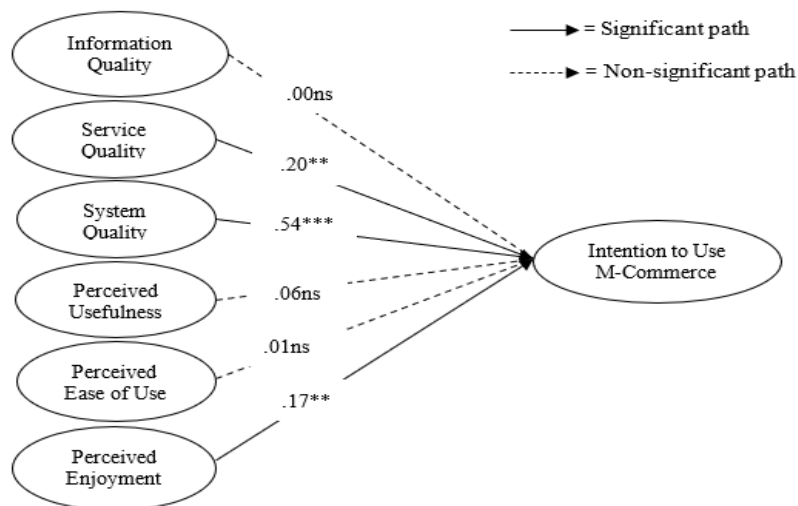

Figure 2. Factors affecting the intention to use mobile commerce

Table 9

Hypotheses testing and results

Hypotheses	Paths	β	Critical Ratio	P	Supported
H1	INQ ---> INT	-0.004	-0.079	0.937	NO
H2	SVQ ---> INT	0.200	2.870	0.004	YES
H3	SYQ ---> INT	0.536	6.923	***	YES
H4	PU ---> INT	-0.058	-1.200	0.230	NO
H5	PEU ---> INT	0.014	0.294	0.769	NO
H6	PE ---> INT	0.171	2.662	0.008	YES

Note: *** indicates significance level < 0.001

Result and Discussion
Among the six hypotheses tested in this study, only three were supported as can be shown in Table 9 above. According to the findings for hypothesis H1, intention is negatively impacted by information quality. However, this negative influence is not statistically significant (β = -0.004, p = 0.937). This result is consistent with Vo and Wu (2022); Nani and Lina (2022); Setiadi et al (2023) who found that information has a negative and insignificant relationship with intention to use mobile commerce. However, the finding contradicts the results of previous studies such as Pang & Ruan (2023); Han et al (2023); Camilleri et al (2023); Setiadi et al (2023); Han et al (2023) who all found a significant relationship between information quality and intention. Thus, H1 is not supported.

Regarding hypothesis H2, the intention is positively impacted by service quality. (β = 0.200, p = 0.004). Therefore, H2 is proven. This finding is supported by previous scholars including (Kuhle, 2023); Zhang et al., 2023; Abdullah et al., 2022; Asampana et al., 2022; Barry et al., 2024). The finding indicates that when consumers are aware of the quality of the services, they are more inclined to participate in mobile commerce activities. Thus, mobile

commerce providers need to improve their services to increase the acceptance of mobile commerce among Malaysian mobile commerce users.

The H3 result indicates that system quality has a positive impact on Malaysian customers' intentions to adopt mobile commerce (β = 0.536, p < 0.001). Hence, H3 is supported. This result indicates that system quality is the strongest influential factor of intention to use mobile commerce among consumers in Malaysia. The result of this hypothesis is supported by previous studies, including (Mahedintu and Soava, 2022; Brush and Rappel, 2020; Vărzaru and Bocean, 2021; Barry et al., 2024). This indicates that consumers will have a favourable intention toward mobile commerce and are more willing to accept it when the industry builds websites or app systems that improve their mobile shopping experience. To boost the intention of Malaysian mobile commerce users to use their mobile devices for business purposes, mobile commerce providers should focus more on the user experience of their websites and applications.

Regarding hypothesis H4, the results show that perceived usefulness negatively impacts the intention (β = -0.058, p = 0.230). Nevertheless, there is no statistically significant correlation between perceived usefulness and intention. Consequently, it can be said that H4 is not supported. This outcome is consistent with Paramita and Hidayat (2023), Anifa and Sanaji (2022); Suhadi and Alamsyah (2022); Rahman (2018) findings. However, this outcome contradicts the research of earlier researchers, including An et al (2023); Asampana et al (2022); Chan et al (2022); Sarkar et al (2020); Barry and Jan (2018), and Barry and Jan (2016) who discovered a strong relationship between perceived usefulness and the intention to adopt mobile commerce in Malaysia.

The result of hypothesis H5 shows that the intention is positively impacted by perceived ease of use (β = 0.014, p = 0.769). Thus, the positive impact of perceived ease of use on intention is not statistically significant. Therefore, H5 is not supported. However, this finding is consistent with the findings of (Hammouri et al., 2023; Paramita and Hidayat, 2023; Tavera-Mesia et al., 2022). In contrast, this result contradicts the findings of previous scholars such as An et al (2023); Basuki et al (2022); Chan et al (2022); Sarkar et al (2020); Barry and Jan (2018) discovered that perceived ease of use has a significant impact on the intentions to use mobile commerce.

Regarding hypothesis H6, perceived enjoyment positively impacts intention (β = 0.171, p = 0.008). However, the positive impact of perceived enjoyment on intention is statistically significant. Therefore, H6 is supported. Therefore, the result of the hypothesis is consistent with earlier research showing that intention is significantly impacted by perceived enjoyment. (Chan et al., 2022; Lee et al., 2023; Esawe, 2022; Barry & Jan, 2018; Barry & Jan, 2016; Ahmed & Barry, 2023). This implies that the more consumers find mobile commerce entertaining, the better they will favour adopting it. In contrast, the finding contradicts Putra and Salim (2023) and Mahaputra and Mahaputra (2023), who found no significant relationship between perceived enjoyment and intention.

Conclusion and Study Implications

The survey evaluated customers' intention to adopt mobile commerce. The study was based on the technology acceptance model (TAM). The ultimate study model comprised seven factors that were suggested and examined by Structural Equation Modelling (SEM) and statistical software tools: AMOS 23 and SPSS 24. The TAM was extended to include service quality, information quality, and system quality from the IS Success Model, along with perceived enjoyment, which positively influenced the intention to use mobile commerce.

Therefore, the factors affecting the intention to use mobile commerce in Malaysia are service quality, system quality, and perceived enjoyment.

Therefore, this study's findings will serve as a source of literature for academicians as the study introduces several crucial factors and empirically tests the model to determine factors affecting the intention to use mobile commerce among consumers in Malaysia, making a vital contribution to the existing knowledge. The study will also benefit mobile commerce providers by allowing them to make informed strategic decisions to enhance the intention to use mobile commerce among consumers in Malaysia. This is because mobile commerce systems that have minimal obstacles to entry can enable providers to expand their customer base, resulting in more sales and job creation (Barry et al., 2024). As a result, it will contribute to the Malaysian economy. Additionally, the study contributes to the theory by integrating the technology acceptance model and the information system success model to determine factors affecting the intention to use mobile commerce among consumers in the Malaysian context.

Theoretical Implication

The study's theoretical significance lies in its focus on Malaysian mobile commerce, a sector with substantial promise in a developing country. The factors influencing the intention to use mobile commerce discovered here can serve as a valuable reference framework for other countries seeking to support and promote the growth of mobile commerce in their economies.

Prior studies combining the Technology Acceptance Model and the revised IS Success Model produced inconclusive findings because of differences in mobile commerce complexity. Some studies have shown that perceived usefulness and ease of use were statistically significant, while others did not find the same results. This study argues that consumer acceptance of mobile commerce depends on their perception of how easy and beneficial it is. Hence, it highlights the importance of a single element in the Technology Acceptance Model.

Finally, a crucial finding of this study is that the intention to use mobile commerce was considerably and favourably influenced by both service quality and system quality. Prior studies have analysed information quality, system quality, and service quality impacts independently of the technology acceptance model. The study utilises an extended model that integrates information quality, service quality, and system quality from the updated information system success model into the technology acceptance model for further research on mobile commerce platforms.

Practical Implication

This study shows a significant correlation between the intention to use mobile commerce and perceived enjoyment, system quality, and service quality. Businesses involved in mobile commerce should prioritise perceived enjoyment, service quality, and system quality. They must collaborate with phone providers to create mobile interfaces or design settings that are simple to use and useful. The interface environments should facilitate consumers' participation in different levels of mobile commerce activities.

The material should have a clear, logical structure and navigation to help users easily access relevant information, assess products and services, and make well-informed purchasing decisions. Consumers are more likely to use mobile commerce when they perceive its benefits and find the process easy and fun.

Service quality is essential in mobile commerce. Consumers will embrace mobile commerce once they are assured of the industry's provision of high-quality goods and services. Users are more likely to engage with and use mobile commerce platforms in the future if they perceive them to provide high-quality services. Mobile commerce providers should partner with mobile phone providers and the telecommunications industry to enhance service quality by investing in a robust technology infrastructure to reduce internet disruptions. They should enhance their payment and delivery processes. This could enhance the acceptance of mobile commerce among customers in Malaysia. Abdullah et al. (2022) suggest that managers in competitive marketplaces should enhance their service facilities and provide top-notch services to sustain a competitive advantage.

System quality is an important component that significantly influences the intention to use mobile commerce. Customers will increase their mobile commerce usage when the system is enhanced with high-quality standards, a top-notch interface or layout, and an improved mobile purchasing experience. Mobile commerce providers in Malaysia should enhance the quality of their services to increase consumer engagement in mobile commerce activities. Mobile commerce providers should create top-quality applications or websites that are user-friendly and easy to browse. They should prioritise delivering a flawless and intuitive user experience to minimise customer resistance to mobile commerce adoption. This could boost the intention to use mobile commerce in Malaysia.

Perceived enjoyment is vital in determining the intention to use mobile commerce in Malaysia. This suggests that when consumers see mobile commerce transactions as enjoyable, they are more likely to engage in mobile commerce activities in Malaysia. Mobile commerce providers in Malaysia should consider the user experience when selling their services. Mobile commerce providers and marketers should focus on developing user-centric, engaging, and culturally relevant experiences to take advantage of the positive influence of perceived enjoyment on the intention to use mobile commerce in Malaysia. This may involve considering regional preferences, incorporating entertainment features, and consistently enhancing mobile commerce platforms based on user feedback. Marketing efforts can highlight the enjoyment of using mobile commerce platforms to attract and retain users.

Limitations and Directions for Future Research

Like many empirical studies, the sample used has a crucial constraint. The sample data were collected from consumers residing in the Klang Valley of Malaysia. Most survey participants used social media. It is possible that this poll may not accurately represent mobile commerce users who do not engage with social media platforms. Therefore, drawing generalisations from this study may be difficult. Collecting sample data that could result in more widely applicable conclusions from other states in Malaysia could help reduce this limitation in future research. In future studies, national culture could be integrated into the model to identify differences between collectivist and individualistic societies. Future research could include a comparative analysis between two distinct countries to determine if comparable outcomes can be achieved. The study concluded that the key factors influencing the intention to use mobile commerce in Malaysia are service quality, system quality, and perceived enjoyment.

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