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Behavioural intention to use mobile payments in the light of the UTAUT2 Model

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Abstract

Subsequent years have witnessed massive growth in the prominence of mobile payments (M-payment) research in information technology. Despite the M-payment used by many sectors and in various settings, its influencing variables are still unclear. Multiple information systems (IS) theories/models were created to research the adoption of a particular new technology. The “Unified Theory of Acceptance and Use of Technology (UTAUT)” model is one of the most frequently utilized and validated in empirical investigations. The study's primary goal is to review and summarise the research on M-payment acceptance that uses the UTAUT as a theoretical framework. Additionally, our findings showed that all the UTAUT model indicators and extensions significantly impact behavioral intention and use behaviour. Performance expectancy was found to be the best indicator of behavioral intention. This study's findings have significant implications for the development and implementation of M-payment technologies. By using the UTAUT model as a theoretical framework, researchers and practitioners can gain a better understanding of the factors that influence M-payment adoption and tailor their strategies accordingly. Ultimately, this can lead to more effective M-payment systems, increased user satisfaction, and greater acceptance and adoption by consumers.

Keywords: Mobile payment, UTAUT, Adoption, Behavioural intention and Usage

Introduction

The advancement of information technology has had an impact on different aspects of our life, mostly the economic one. The rise of virtual commerce and the following expansion of mobile commerce, the building block of the development of financial transactions carried out using a mobile device through mobile banking services, has attracted interest globally. Numerous business opportunities have arisen due to the widespread use of cell phones and the internet, including one in the industry of financial services. The emergence of “financial technology” (Fintech) as a solution to the problems presented by the impending Industrial Revolution 4.0 seems imminent, thanks to disruptive innovation. This program transforms how people conduct financial transactions, starting with comfortable home shopping (Nur & Panggabean, 2021) ^[21]. Users' attitude toward mobile payment and its acceptance has drastically changed as the global demand for digital and cashless transactions increases. Mobile payment services, regarded as a global payment option for both merchants and end-users, have been extensively studied by researchers to understand how behavior and technology use are affected. According to numerous surveys, consumers choose a system that offers quick, practical, and helpful services available on a single platform. Mobile payment methods are an example of a sophisticated method with multiple uses that incorporates these aspects. Any payment service conducted via a mobile device is called a mobile payment. Numerous mobile payment service options are accessible for online and offline transactions. In the first place, point-of-sale systems like “near-field communication” payments and sound wave-based payment methods provide a secure website via which credit or debit card transactions can be made from the bank of customers to merchants. Second, it offers both in-store and online payment options, such as -mobile wallets and QR codes (m-wallets).

On the other hand, QR codes integrate debit/credit card information through a few banking and retail apps. However, M-wallet, which must be installed on the smart-phone, allows users to store money and make virtual purchases directly from their wallet. In addition, we provide some remote payment options, including SMS, internet payments, mobile banking, etc. (Singh *et al.*, 2020) ^[30]. A collaborative study by the “Associated Chambers of Commerce and Industry of India” and “PwC projects” that by 2022.

“There will be 859 million smartphone users in India, up from 468 million in 2017” (Economic Times 2019) [8]. In parallel, 504 million fewer Indians will own non-smartphones in 2022. With more people owning smartphones, it is anticipated that data usage and time spent on mobile devices will multiply. Consumers now prefer using mobile devices when performing transactions. The digital or smart version of a physical wallet- a mobile wallet, allows users to add funds via various methods, including credit cards, debit cards, internet banking, and others. Once downloaded, this program (app) enables financial transactions between accounts and allows customers to make purchases using credit and debit cards. Users of the app can use it to pay for services like power and phone bills and at retail locations like grocery stores and malls. India's most well-known mobile wallets are Freecharge, “Amazon Pay”, “Paytm”, “Google Pay”, “Phonepay”, “BHIM”, “JioMoney”, “ICICI Pockets”, and “Mobikwik”. Mobile wallets are comparatively easier to use and administer than digital payment systems like mobile banking, telebanking, and Internet banking. It isn't easy to manage numerous debit and credit cards, log-in and transaction passwords, security pins, etc. Adoption patterns may differ depending on how mobile wallets compare to other digital payment methods in terms of usability, security, and efficiency (Chawla & Joshi, 2021) [4].

Research Methodology

In a narrative review, the paper reviews the existing literature on the variables affecting the adoption of the mobile-payment system by the “UTAUT” model. Both conceptual and empirical studies have been reviewed. The form is based on the review of research articles published in the Scopus database, Emerald, and google scholar and the reports published by the RBI and government. The study is based on secondary data. In this regard, various online journals were also reviewed in this direction. The paper is segregated into two stages. The first stage includes an initial literature survey, and the second stage comprises the primary literature related to the m-payment and UTAUT model. The search keywords for relevant research articles are “Mobile payment,” “m-payment”, and “UTAUT.” The authors eliminated irrelevant abstracts that had no relevance to the customers' adoption and behavioral intention in relation to mobile payments after carefully reading the abstracts of the publications.

Literature Review

M-Payment/mobile-payment

Between service providers and customers, m-Payment enables quick and safe business transactions. Using mobile devices to start, authorize, and complete financial transactions are known as “m-Payment” (Mallat, 2007) [15]. The main methods of m-payment are “unstructured supplementary service data (USSD)”, “short message service (SMS)”, “mobile wallet”, “wireless application protocol (WAP)”, and “near-field communication (NFC)”. Mobile payments, which offer clients a platform for cashless transactions, quick and convenient transactions, and high-volume secure transactions, are appropriate for adoption due to the widespread use of mobile phones. By using m-payment, both customers and service providers gain a lot. As market players recognize their advantages, m-payment services are expanding quickly in many nations. M-payment is a strategic instrument business can utilize to obtain a

competitive advantage. Mobile banking and mobile payment have both been compared to one another by some authors. However, the amount of participants involved in these two systems makes them different from one another (Shankar & Datta, 2018) [26]. While banks and users can communicate directly through mobile banking, m-payment requires a third-party to execute the transaction (Oliveira *et al.*, 2016) [22].

Regarding development environments, there are two types of mobile payment services. The initial form of mobile payment was created especially for portable electronics. The second group expands on comparable web services already available on PCs rather than beginning in the mobile environment. Benefits derived from web services are distinguished from mobile payment services (MPS) developed specifically for mobile devices, primarily by prospective users who have not used the program continuously since it began. As opposed to using a personal computer, MPS offers more efficiency, portability, and ease. Users must boot and shut down their PCs to make PC-based online payments, which is irritating and takes longer than MPS. Thanks to the always-on nature of mobile devices, users can process transactions at any time and from any location. Mobile payments are much quicker and more practical than internet payments (Susanto *et al.*, 2022) [35].

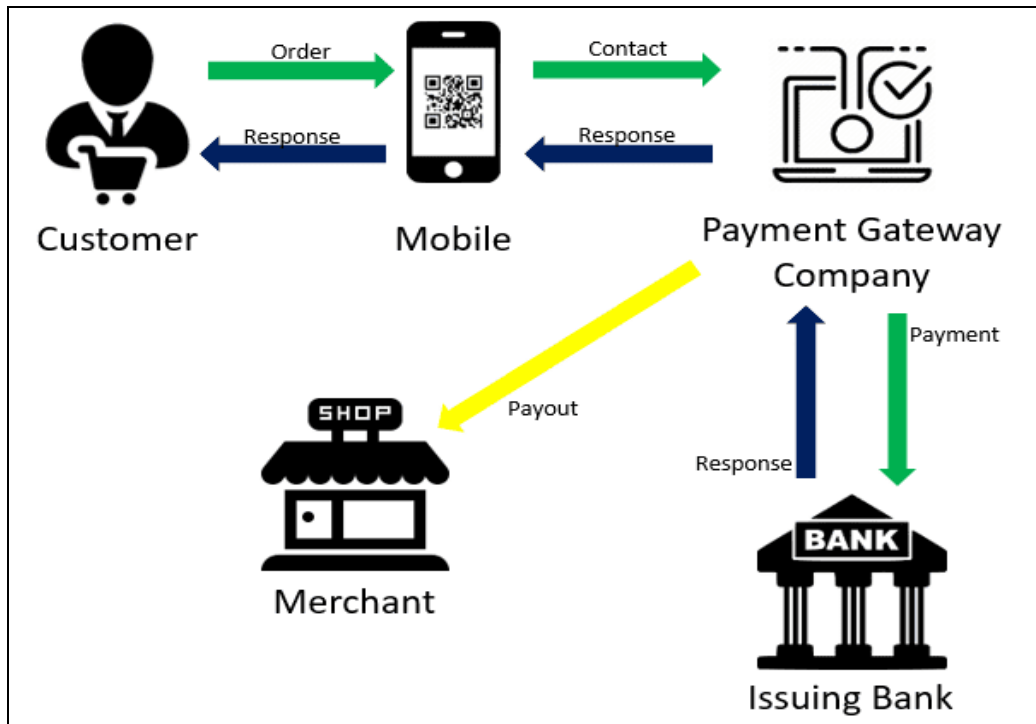
Mobile payment, also known as “mobile money”, “mobile money transfer”, and “mobile wallet”, is the general category of digital wallet that includes all mobile-based payment processing services that are regulated by the financial industry. Instead of using cash, checks, or credit cards, a consumer can use a payment app on a mobile device to pay for a variety of services and tangible or digital commodities. Although the use of monetary systems that aren't based on coins has been around for a while, it wasn't until the 21st century that the necessary technology became publicly accessible. Different countries throughout the world are embracing mobile payment in different ways. The first patent (2000) was submitted that precisely specified a “Mobile Payment System.” The four main mobile payment models are “bank- or operator-centric”, a bank or an operator serves as the model's hub, managing transactions and allocating property rights. In a collaborative paradigm, financial intermediaries and phone operators collaborate to handle responsibilities and share intellectual property ownership. In the ISP model, a trustworthy third party serves as an objective mediator between financial operators and agents. The ISPs most commonly linked to this strategy in recent months are Apple Pay and PayPal (Wikipedia, 2022) [39]. Figure 1 shows the process of mobile payment, which starts with customers' orders and payments via mobile.

Theoretical background

The first generic theory of its kind, the “theory of reasoned action” (TRA), which sought to explain behavior in connection with the adoption of technology, postulated that the actual behavior of an individual is determined by their performing the behavior and that their attitude or subjective norm jointly influences this intention (Sobti, 2019) [33]. Perceived behavioral control, claimed to influence actual behavior and behavioral intention, was added to the TRA by (Sheppard Jon Hartwick Paul R Warshaw *et al.*, 1988) [27], expanding its use. The theory of planned behavior (TPB) by (Ajzen, 1991) [2] became the most popular theory. When defining intrinsic and extrinsic motivation, (Kesharwani & Bisht, 2012) [13] also added perceived use, and perceived enjoyment, and considered fun as exogenous variables, a plethora of psychological theories known as motivational theories soon followed. Perceived usefulness

and ease of use later included the technology adoption model (TAM) as additional variables that are important in

elucidating behavioral intention. The main flaw in the TAM theory, as was put forth by (King *et al.*, 1994) [14].



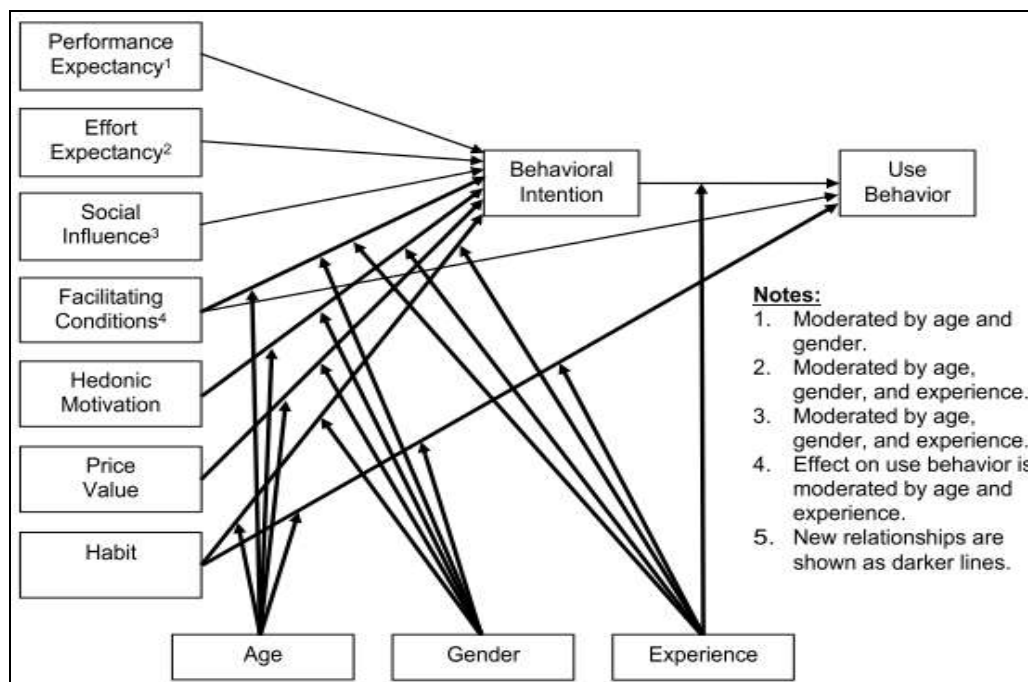
Source: www.google.com

Fig 1: Process of Mobile payment

UTAUT

The “Unified theory of acceptance and use of technology” (UTAUT), which was put forth by “(Venkatesh *et al.*, 2003) [36]”, aimed to provide an explanation for users' motivations for using an information system and their actual behavior. Due to the limitations of TAM, several extensions were developed, with the “UTAUT model” proposed by (Venkatesh *et al.*, 2003) [36] being the most well-liked. This model combined eight existing technology acceptance

models: TPB, TRA, TAM, combined TAM-TPB, motivation theory, innovation diffusion theory, model of PC utilization, and social cognitive theory. It identified 2 endogenous variables, “behaviour intention”, and “usage”, which were affected by “gender”, “experience”, “age”, and “voluntariness of use”. It also identified 4 exogenous variables, “social influence”, “performance expectation”, “effort expectation”, and “facilitating conditions” shown in figure 2.



Source: (Venkatesh *et al.*, 2012) [37]

Fig 2: UTAUT2 Model

Various technical developments, including mobile banking, e-commerce, telephony, health, and e-learning have been assessed using the UTAUT paradigm, with variable degrees of success. According to the concept, 4 fundamental variables—"performance expectancy", "effort expectancy", "social influence", and "facilitating conditions"—directly influence behavioral intention and use behavior (Sobti, 2019) [33]. Shin (2009) [28] combined the "UTAUT" model with the components of "self-efficacy", "trust", "security", and "social influence". UTAUT has been presented as a TAM extension, and prior research has shown that it is valid in explaining technology adoption (Williams *et al.*, 2011) [40] performed a systematic review of earlier research that used the "UTAUT" model to understand the model's justification, benefits, and limitations. They discovered that most of the studies did not include all of the model's constructs and included a variety of outside variables to test a specific hypothesis instead the model as a whole. UTAUT has also come under fire for not being flexible enough to accommodate services and institutions other than those for

which it was designed. Some research discovered perceived risk and perceived cost as potential antecedents of the behavioral intention in addition to the essential "UTAUT" antecedents. They noticed that economic incentives and results were frequently emphasized in most information system adoption studies (Sobti, 2019) [33]. The UTAUT 2 model, has a thorough structure and comprises seven constructs ("performance expectancy" (PE), "social influence" (SI), "effort expectancy" (EE), "facilitating conditions" (FC), "price value" (PV), "hedonic motivation" (HM), and "habit" (HB)) was developed by (Venkatesh *et al.*, 2012) [37] in consideration of the UTAUT model's weaknesses (HA). The "UTAUT 2" (Venkatesh *et al.*, 2012) [37] model was examined in light of past studies on the uptake of mobile payment. To understand the acceptance and uses of virtual payment systems, this study uses the "UTAUT 2" model. To discuss the BI to use digital payments, "UTAUT 2" is considered with seven constructs: PE, SI, EE, FC, PV, HM, and HA.

Table 1: Factors included in UTAUT Model

Construct	Meaning	Sources
"Performance Expectancy"	"The degree to which people realize that a system such as a mobile technology is useful in carrying out their tasks in day-to-day work."	"(Venkatesh <i>et al.</i> , 2003) [36]"
"Effort Expectancy"	"The degree of ease associated with the use of the system. It originates from three constructs of existing models: perceived ease of use (TAM/TAM2), complexity (MPCU), and ease of use (IDT)."	"(Venkatesh <i>et al.</i> , 2003) [36]"
"Social influence"	"The degree of influence that opinions of others can have on the adoption of a given system. Social influence as a direct determinant of the intention of use is represented as a subjective standard TRA, TAM2, TPB/DTPB, and C-TAM-TPB; social factors in MPCU and image in IDT."	"(Venkatesh <i>et al.</i> , 2003) [36]"
"Facilitating conditions"	"The degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system."	"(Venkatesh <i>et al.</i> , 2003) [36]"
"Habit"	"HB (Habit) is defined as the degree to perform behaviors due to past learning."	"(Venkatesh <i>et al.</i> , 2012) [36]"
"Hedonic motivation"	"Hedonic motivation is defined as the fun or pleasure derived from using a technology, and it has been shown to play an important role in determining technology acceptance and use"	"(Venkatesh <i>et al.</i> , 2012) [37]"
"Price value"	"Price value as consumers 'cognitive trade-off between the perceived benefits of the applications and the monetary cost for using them. The price value is positive when the benefits of using technology are perceived to be greater than the monetary cost, and such price value positively impacts intention."	"(Venkatesh <i>et al.</i> , 2012) [37]"
"Use Behaviour"	"It refers to the actual usage of technology either measured as a binary variable or as a combination with frequency of usage."	"(Im <i>et al.</i> , 2011) [10]"
"Behavioral intention"	"This refers to the intention of effective use by the consumer of a future product or service"	"(Venkatesh <i>et al.</i> , 2003) [36]"

Discussion on papers

Previous Research on customers' intention to adopt mobile payments using UTAUT Model

(Singh, 2017) [29] Illustrates the importance of the suggested model and how well it works to comprehend consumer behavior in North-India. In North India, demographic factors like gender and age impact how satisfied customers are with mobile wallets and how frequently they are used. The research also showed that North-Indian men use mobile payments more frequently than North Indian women for all their financial needs. Males use more of the services offered by mobile wallets than females do.

(Sobti, 2019) [33] Suggested that behavioral intention, demonetization, and enabling circumstances significantly and favourably affect the uptake of mobile payment methods in India. Overall, it was found that Model 3, an enhanced version of the UTAUT model, did a better job describing the causes of behavioral intention and usage. Perceived risk and perceived cost both have significant explanatory strength as antecedents to behavioral intention and UTAUT antecedents. Age consistently functions as a

moderating factor across all 3 models, suggesting that youth users place more value on mobile payment services' user-friendly interfaces and are more affected by peers and society when deciding whether or not to use them.

According to (Sivathanu, 2017) [31], the frequency of use of digital payment systems is influenced by the behavioral intention (BI) to utilize them. The link between the BI to use of digital payment methods and the AU (Actual Usage) of digital payment systems is moderated by the stickiness to cash payments. It is discovered that the research significantly-positively influences BI's decision to adopt digital payment systems constructs PE (Performance Expectancy), SI (social influence), EE (Effort Expectancy), HM (Hedonic Motivation), FC (facilitating conditions), and HA (Habit). PE significantly affects BI's decision to employ digital payment solutions. This demonstrates that people use digital payment systems because these technologies improve their everyday financial activities. EE significantly impacts the usage of digital payments by BI. The outcome also demonstrates that SI greatly influences BI's decision to employ digital payment systems.

(Patil *et al.*, 2020) ^[23] had examined that ‘use intentions’, ‘performance expectations’, and ‘grievance redressal’ were identified by empirical analysis of the UTAUT model among 491 Indian consumers as significant positive predictors of the user behaviour of consumers for mobile payments. Furthermore, people's intentions to use were highly influenced by attitude, social influence, and favorable conditions. This study evaluates usage behavior as opposed to most other studies, which solely focus on behavioral intention, and it confirms the critical importance of attitude in research on consumer adoption.

(Manrai *et al.*, 2021) ^[16] This study included perceived credibility and the self-determination theory to the components of the “Unified theory of acceptance and use of technology (UTAUT-2)” to understand better how rural Indian women used technology. The research model was empirically tested in Delhi using the “Structural equation modelling” (SEM) method on 568 respondents. Effort expectancy, habit, facilitating circumstances, and perceived expectancy significantly impact user behaviour. In addition to these direct connections, two more constructs—habit and facilitating circumstances—were discovered to moderate the link between behavioral intention and behaviour.

(Venkatesh *et al.*, 2012) ^[37] Examined the acceptance and the usage of technology in a consumer environment by an expanded unified theory of acceptance and use of technology (UTAUT). The results of the current study demonstrated that hedonic motivation, price value, and habit affect how customers use technology. Firstly, age, gender, and experience all function as moderators of the influence of hedonic incentives on behavioral intention. Secondly, age and gender have a moderating impact on the influence of price value on (BI) behavioral intention. Finally, individual differences can attenuate the impacts of habit on technology use, which can have both direct and indirect consequences.

(Indrawati & Putri, 2018) ^[11] used a “Modified Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) Model” with a Trust variable to investigate factors impacting Go-Pay uptake in Indonesia. Habit, social influence, price saving, hedonic motivation, and performance expectations positively and significantly affect the consumer's decision to continue using Indonesia Go-pay, respectively.

(Deana *et al.*, 2021) ^[7] included UTAUT2 (Unified Theory of Acceptance Technology) to examine the baby boomer and X generation's continued interest in adopting digital payments. The results suggest that UTAUT variables have a favorable influence on user satisfaction. Inertia is positively influenced by user pleasure. The intention to continue is positively influenced by overall satisfaction and inertia. By focusing more on the elder age, such as the X generation and the baby boomers, banks using digital services and digital payment providers can expand their target markets beyond Millennials.

(Nur & Panggabean, 2021) ^[21] demonstrated how behavioral intentions to use mobile payments for online transactions are highly influenced by performance expectations, perceived enjoyment, social influences, facilitating conditions, and trust. No discernible effect can be seen for effort expectation. Using the expanded UTAUT model, the findings of this research provided evidence for the variables affecting ‘Generation Z's’ inclination to use mobile-payment technology as a tool for virtual purchases.

(Gupta & Arora, 2019) ^[9] Had examined in the study that

performance expectations, habits, effort expectations, and facilitating factors all play a significant role in predicting behavioral intention and use of mobile payment systems. Social pressure and hedonic incentives were insufficient predictors of behavioral intention.

(Ming Ming *et al.*, 2021) ^[19] using the UTAUT2 model to look into how prepared Malaysians are for using e-wallets and how they perceive them. With partial least squares structural equation modeling, 309 valid data in total were collected and examined. The results showed that the respondents had confidence in the new technology and a propensity to think that an e-wallet was helpful to them in some way. The outcomes demonstrated that performance expectations, price value, facilitating conditions, and social influence significantly impacted people's intentions to adopt e-wallets. However, the degree of insecurity had no appreciable effects on the e-wallet's expectations for effort and performance.

(Martinez & Mcandrews, 2022) ^[17] had investigated how gender and age affected the usage intentions for three different types of mobile payment solutions. The theoretical model, UTAUT2, was examined in a quantitative study using structural equation modeling (SEM) that was conducted in the United States with a sample gathered from Qualtrics. The results show that each mobile payment type has a different intention to use it, with habit and performance expectancy serving as excellent predictors of use behavior and intention. The intention could not be accurately predicted by social influence or effort expectations. Additionally, supportive conditions did not alter user behavior.

(Morosan & Defranco, 2016) ^[20] had reviewed “The Unified Theory of Acceptance and Use of Technology (UTAUT2)” in this study to create a thorough model which explains the intentions to use NFC-MP (near field communication-mobile payment) in hotels. The biggest predictor of intentions was performance expectancy, while hedonistic incentives, habits, and social influences had comparatively less impact. Several significant conclusions are drawn for academics and business decision-makers.

(Wu & Liu, 2022) ^[41] discovered that in countries with high adoption of mobile payment services (MPS), the UTAUT2 model was less accurate (i.e., China). On the other hand, the UTAUT2 model performed better in countries with lesser MPS adoption (i.e., the US and Belgium). The researchers found no more variation that might be attributable to personal preferences. When it comes to cultural aspects, the researchers discovered that individualism reduced the influence of social cues on behavioral intention to use mobile payment services (MPS), with the effect being stronger in individualistic and culturally diverse persons. However, the scientists were unable to find a moderation effect from uncertainty avoidance.

(Bailey *et al.*, 2022) ^[3] evaluated the proposed framework of MP adoption in “Latin America”, therefore two tests were conducted among a sample of Colombian consumers using Colombia as the sample location. Follow-up studies on all tests revealed that effort expectancy affects the MP performance expectancy, which in turn affects MP usage intention. Since it has an impact on system confidence, bank trust indirectly influences MP use intention. In Study 2, age was more strongly connected with mobile payment use intention than education was.

(Widyanto *et al.*, 2021) ^[38] focused on examining the factors that influence behavioral intention to use (BIU) mobile payments in Indonesia by adding user privacy constructs to the “Unified theory of acceptance and use of technology (UTAUT)”, namely “Perceived security” (PS), “perceived risk” (PR), and “trust” (Tr). According to this study, BIU mobile payment usage among Indonesian users is significantly and directly influenced by social influence, facilitating conditions, perceived security, performance expectancy, and Trust. Although perceived risk and BIU were not found to be significantly and directly correlated, trust, the mediating component, may have some indirect influence on the latter.

(Jaiswal *et al.*, 2022) ^[12] discovered key confirmation antecedents in the data, including “individual mobility”, “facilitating conditions”, “performance expectancy”, and “effort expectancy”. The results also supported satisfaction's partial mediating roles between intentions to confirm and continue. According to the results, the association between confirmation and satisfaction was moderated by age and education.

(Saha & Kiran, 2022) ^[25] investigated the variables influencing baby boomers' behavioral intention to adopt UPI, and UTAUT was expanded to include privacy risk, ubiquity, and perceived security. The study found that COVID-19, along with “social influence”, “performance expectancy”, “effort expectancy”, “ubiquity”, and “perceived security”, was the external factor that impacted baby boomers' adoption of UPI-MP. Regarding baby boomers' adoption of UPI, privacy risk had a negative impact on how secure they felt, however, the link between ubiquity, risk, and the behavioral intention was successfully mitigated by perceived security.

(Purohit *et al.*, 2022) ^[24] Comprehend the variables that affect Generation Z customers' acceptance of mobile payments among young people. A behavioral intention to embrace mobile payment services was significantly and favorably influenced by performance expectancy, social influence, and effort expectancy. The supporting factors and pricing value, however, had little impact. The lack of a positive relationship between price and the intention to use mobile banking shows that promotional offers (discounts, cash-backs) do not encourage uptake.

(Oliveira *et al.*, 2016) ^[22] examined adoption intention in Portugal using UTAUT2 and DOI models. They discovered that innovativeness, compatibility, performance expectancy, effort expectancy, and social impact all significantly correlate with m-payment usage intention.

According to earlier research, behavioral intentions are highly impacted by perceived financial cost. Some of these studies include characteristics influencing individual acceptance of mobile banking (Sripalawat *et al.*, 2011) ^[34], and the adoption of mobile banking services (Yu, 2012) ^[42].

If users believe mobile banking will be expensive or burdensome financially, they will be hesitant to use it. (Martins *et al.*, 2014) ^[18] created a theoretical model that combines UTAUT and perceived risk to describe the behavioral intention and internet banking usage behaviour in Portugal. UTAUT model was used by (Abrahão *et al.*, 2016) ^[1] to analyse Brazilian m-payment usage intentions. They explained that perceived risk has a negative impact, while social influence, performance expectations, and effort expectations have favorable effects. M-payment is a largely unexplored area of research compared to internet and mobile banking. The report reiterates that it is still in the early phases of researching the uptake of mobile payments (Slade & Williams, 2013) ^[32]. Studies on the use of mobile payments have significantly increased in past years (Dahlberg *et al.*, 2008) ^[6]. The adoption of mobile payments has been aided in recent years by the arrival of smartphones with NFC integration. According to earlier studies, more research on the acceptance of mobile payments is needed. An in-depth study is required for mobile payments because most studies are still in their early stages.

Results

Over two billion people use mobile payments worldwide, and millions more people join the internet every year. The younger generation has abandoned the traditional method of owning a credit or debit card in favour of using mobile apps in India, South-east Asia, and South America. In wealthy countries like Germany and France, where it is difficult to give up using cash and credit cards, mobile payments are the least widely adopted. In India, Paytm, PhonePe, and Google Pay are in competition with one another for market dominance. Although Paytm has the most customers and transactions, PhonePe and Google Pay handle more UPI payments.

The two leading worldwide payment options are Apple Pay and Google Pay, with Samsung Pay coming in third place. PayPal, which first gained popularity during the eBay period, has created a super-app to take on Cash App and other innovative mobile payment options. Venmo is also owned by PayPal. In 2021, the amount of mobile payments transactions hit \$1.7 billion, a rise of 27% annually. According to Mobile Payments App Revenue and Use Data (2023), over two billion people used mobile payments in 2021. The two Chinese mobile payment systems Alipay and WeChat Pay had the most users. Apple Pay was the most widely used mobile payment service in the US.

The amount of mobile payments transactions, which reached \$1.7 trillion in 2021, is shown in Figure 3 (Curry, 2022) ^[5], but is predicted to slow pace in 2022. The tiny interchange fees that each vendor charges per transaction account for the majority of the company's income.

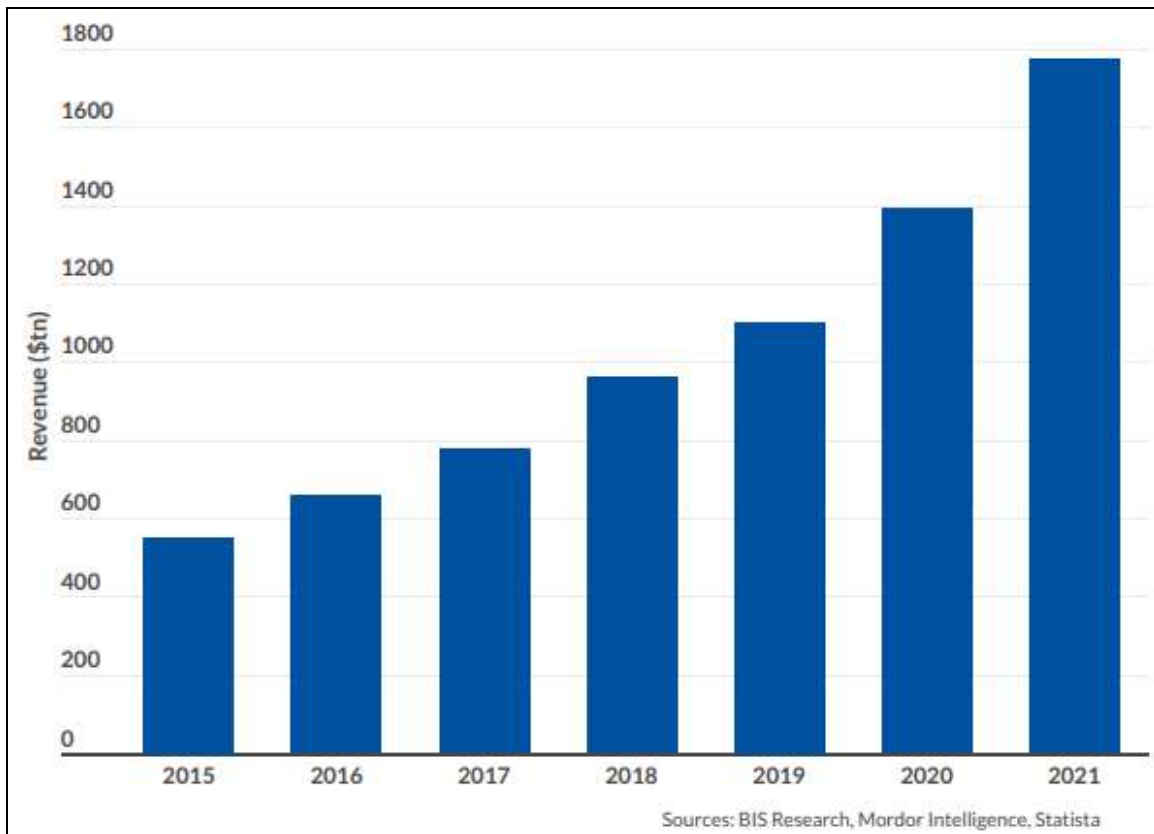


Fig 3: Mobile payments transaction volume

In Figure 4 (Curry, 2022) ^[5] shows China has by far the largest acceptance rate for mobile payments, with buskers, street food vendors, and taxis all offering QR codes to pay. The use of QR codes is growing rapidly in India. Due in part

to banks' and consumers' reservations about mobile payments, Germany and France have much lower adoption rates.

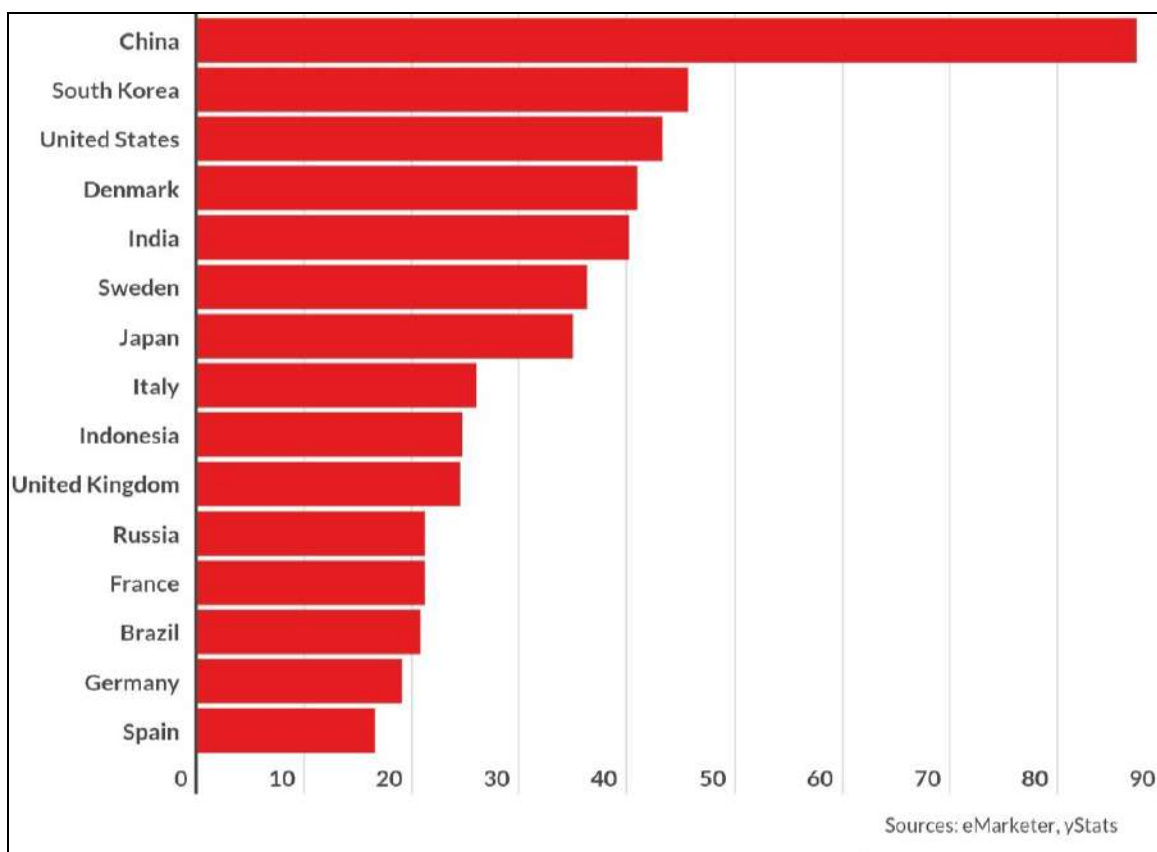


Fig 4: Mobile payments app adoption by country

The results show that the constructs "PE (Performance Expectancy), SI (Social Influence), EE (Effort Expectancy), HM (hedonic motivation), FC (Facilitating Conditions), HA (Habit), and PV (Price Value)" have a significant positive effect on BI's choice to implement mobile payment systems. The results of the current study demonstrated that hedonic motivation, price value, and habit all have an impact on how consumers use technology. Performance expectancy was the most important predictor of intentions, while hedonic motivations, habits, and social factors had relatively less of an effect. Although demographic variables like age, gender, and experience have a significant effect on behavioural intention and how frequently people use mobile payments.

Conclusion

This study set out to thoroughly evaluate the existing literature on mobile payments in light of the UTAUT and UTAUT2 models' contributing variables. Most studies employed UTAUT and its extensions as the conceptual framework to examine variables influencing the inclination to embrace mobile payment methods. The results demonstrate that UTAUT indicators positively impact user satisfaction. According to the findings, BI's decision to adopt mobile payment systems is considerably favourably affected by the constructs "PE (Performance Expectancy), SI (Social Influence), EE (Effort Expectancy), HM

(Hedonic Motivation), FC (Facilitating Conditions), HA (Habit), and PV (Price Value)".

The present study's findings showed that customers' use of technology is influenced by hedonic motivation, price value, and habit. The most significant predictor of intentions was "performance expectancy", while "hedonic motivations", "habits", and "social influences" had comparatively a lesser impact. The UTAUT was extended to study the adoption of mobile payments, and the most often used factors were "perceived risk", "perceived security", and "perceived trust". "Privacy risk" had a negative impact on how secure they felt, whereas "perceived security" effectively moderated the connection between behavioral intention and risk. While demographic factors like age, gender, and experience significantly impact behavioral intention and how often they utilize mobile payments. Males utilize mobile wallet services more frequently than females do. Younger consumers are more influenced by friends and society when determining whether or not to utilize mobile payment services, and they place higher importance on user-friendly interfaces. The younger generation has abandoned the traditional method of owning a credit or debit card in favour of using mobile apps in India, South-east Asia, and South America. In wealthy countries like Germany and France, where it is difficult to give up using cash and credit cards, mobile payments are the least widely adopted.

Table 2: UTAUT indicators used in articles

Variables used in UTAUT Model	Articles
"Performance Expectancy"	"((Sivathanu, 2017) [31], (Oliveira et al., 2016) [22], (Patil et al., 2020) [23], (Indrawati & Putri, 2018) [11], (Abrahão et al., 2016) [1], (Nur & Panggabean, 2021) [21], (Gupta & Arora, 2019) [9], (Ming Ming et al., 2021) [19], (Martinez & Mcandrews, 2022) [17], (Morosan & Defranco, 2016) [20], (Bailey et al., 2022) [3], (Widyanto et al., 2021) [38], (Jaiswal et al., 2022) [12], (Saha & Kiran, 2022) [25] and (Purohit et al., 2022) [24])".
"Effort Expectancy"	"((Oliveira et al., 2016) [22], (Abrahão et al., 2016) [1], (Sivathanu, 2019) [31], (Nur & Panggabean, 2021) [21], (Gupta & Arora, 2019) [9], (Martinez & Mcandrews, 2022) [17], (Bailey et al., 2022) [3], (Jaiswal et al., 2022) [12], (Saha & Kiran, 2022) [25] and (Purohit et al., 2022) [24])".
"Social Influence"	"((Sivathanu, 2017) [31], (Oliveira et al., 2016) [22], (Abrahão et al., 2016) [1], (Patil et al., 2020) [23], (Indrawati & Putri, 2018) [11], (Nur & Panggabean, 2021) [21], (Gupta & Arora, 2019) [9], (Ming Ming et al., 2021) [19], (Martinez & Mcandrews, 2022) [17], (Morosan & Defranco, 2016) [20], (Bailey et al., 2022) [3], (Wu & Liu, 2022) [41], (Widyanto et al., 2021) [38], (Saha & Kiran, 2022) [25] and (Purohit et al., 2022) [24])".
"Facilitating conditions"	"((Sivathanu, 2019) [31], (Nur & Panggabean, 2021) [21], (Ming Ming et al., 2021) [19], (Bailey et al., 2022) [3], (Jaiswal et al., 2022) [12] and (Widyanto et al., 2021) [38])".
"Habit"	"((Sivathanu, 2017) [31], (Indrawati & Putri, 2018) [11], (Venkatesh et al., 2012) [37], (Manrai et al., 2021) [16], (Gupta & Arora, 2019) [9], (Martinez & Mcandrews, 2022) [17] and (Morosan & Defranco, 2016) [20])".
"Hedonic Motivation"	"((Sivathanu, 2017) [31], (Indrawati & Putri, 2018) [11], (Venkatesh et al., 2012) [37], (Gupta & Arora, 2019) [9] and (Morosan & Defranco, 2016) [20])".
"Price Value"	"(Indrawati & Putri, 2018) [11], (Venkatesh et al., 2012) [37], (Ming Ming et al., 2021) [19], and (Purohit et al., 2022) [24])".
"Behavioural Intention"	"((Sivathanu, 2019) [31], (Venkatesh et al., 2012) [37], (Manrai et al., 2021) [16], (Patil et al., 2020) [23], (Sobti, 2019) [33], (Nur & Panggabean, 2021) [21], (Gupta & Arora, 2019) [9], (Wu & Liu, 2022) [41], (Widyanto et al., 2021) [38], (Abrahão et al., 2016) [1], (Saha & Kiran, 2022) [25] and (Purohit et al., 2022) [24])".
"Use Behaviour"	"((Sobti, 2019) [33], (Sivathanu, 2017) [31], (Oliveira et al., 2016) [22], (Venkatesh et al., 2012) [37], (Manrai et al., 2021) [16], (Patil et al., 2020) [23], (Indrawati & Putri, 2018) [11], (Nur & Panggabean, 2021) [21], (Gupta & Arora, 2019) [9], (Ming Ming et al., 2021) [19], (Martinez & Mcandrews, 2022) [17], (Wu & Liu, 2022) [41], (Morosan & Defranco, 2016) [20], (Bailey et al., 2022) [3], (Widyanto et al., 2021) [38], (Jaiswal et al., 2022) [12], (Saha & Kiran, 2022) [25] and (Purohit et al., 2022) [24])".

Future research directions and limitations

While the conclusions drawn from this research should be considered in light of the following limitations, it does provide a concise review of the studies related to mobile payments acceptance. For this review, only the Scopus

database, Emerald, and Google Scholar were used; papers not indexed in these databases were probably not included. New databases and geographic contexts should be used in future literature analyses to address the study's limitations. As part of this continuous effort, the remaining articles will

be scrutinized to identify any drivers or inhibitors that should be included in future research. Additionally, just a sample of the discovered research was examined. These findings provide a comprehensive reference for researchers seeking to explore M-payment further.

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