

Merchants' Evaluation of Critical Determinants of Mobile Payment Services Adoption: A Scoping Review of the Literature

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Abstract

As physical and electronic payment instruments are being integrated into mobile payment services, the uptake of the mobile payment service solutions by merchants and other market actors such as Big Tech, device manufacturers, financial institutions, consumer and regulators, has been increased. However, this paper highlights that despite considerable research on the adoption and use of mobile payment published in academic journals across disciplines, there has been little progress in the promotion of the adoption and use of mobile payment services by merchants. With the desire to strengthen the field, this study embarked on a scoping review of research to assess the progress of merchants' evaluation of mobile payment services over 12 years. Seven online databases were searched, of which 53 articles were eligible for review. Results show that most studies were exploratory in nature, using a quantitative approach, rather than a mixed-method approach. Among the studies, 22 underpinning theories were found, of which the TOE framework, TAM and UTAUT2 were adopted in most of the studies. The study reported 66 critical determinants of the adoption of mobile payment solutions by merchants. In addition, the study has made recommendations and suggestions to help future research move in new and diversified directions.

Keywords: Merchant, Mobile Payment Services, PRISMA-Scr, Scoping Review.

Introduction

Mobile payment services have long been distinguished from other methods of payment (Dahlberg et al., 2008; Schierz, Schilke & Wirtz, 2010). Characteristics that help differentiate mobile payment service solutions from other payments include the mobility of mobile device and its digital application capability and wireless connectivity. Thus, these unique characteristics prompt many market actors such as Big Tech, device manufacturers, financial institutions, consumer and merchants to capitalise on mobile device to facilitate electronic transactions. While mobile payment services enable consumers to easily and conveniently pay for their purchases via a mobile device (Phonthanukitithaworn et al., 2016), such services are also expected to enable merchants to receive payments for products sold or services provided. Thus, the merchants' role in mobile payment ecosystems is as important as that of the consumer. However, the literature reviewed shows that previous research has mostly embraced topics on customer and technological perspectives of mobile payment services (Liébana-Cabanillas et al., 2014; Joseph et al., 2018; Shao et al., 2019; Behera et al., 2023; Chen & Lai, 2023) and failed to give enough attention to topics related to merchants' adoption (Dahlberg, Guo & Ondrus, 2015; Moghavvemi et al., 2021). Moreover, it is a concern that despite considerable research on the adoption and use of mobile payment services published in academic journals across disciplines, we know very little about the drivers of the adoption and use of mobile payment services by merchants. Merchants have a key role in the mobile payment ecosystem. As one of the market actors, the merchants' role in the ecosystem is strictly defined and can easily be performed with the availability of special technologies and other market factors such as banking, consumer demand, network, and regulations (Dahlberg et al., 2015). In the case of mobile financial transactions, payment services authorise consumers to execute wireless-enabled payments for goods or services they have purchased using their mobile technology (Gao et al., 2009; Pal, Vanijja & Papasratorn, 2015; Phonthanukitithaworn, Sellitto & Fong, 2016), whereas merchants receive wireless-based electronic payments for goods or services they have sold or provided.

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As mobile payment services evolve, the number of consumers and merchants adopting mobile payment has also increased. Despite being an important and critical solution to m-commerce (Yang et al., 2012; Behera & Kumra, 2024), mobile payment services have now been fully integrated into conventional businesses as one of payment solutions to their point-of-sale, especially at a local level (Behera & Kumra, 2024). However, we have identified that the review of social science studies on the adoption of mobile payment services from the merchants' perspective is scarce. Most of the systematic reviews identified in the literature include only a minor section on the merchants' perspective of mobile payments adoption (Dahlberg et al., 2008; Behera & Kumra, 2024). Although we have found a few empirical studies on the topic, our motivation is that a study in isolation may offer only limited information on the phenomenon under investigation. Motivated by the knowledge gap and the desire to strengthen the field, the present study embarked on a scoping review to assess the progress of merchants' evaluation of mobile payment services over a period of 12 years (2013-2024). The study sought to contribute to this overlooked area by synthesising merchants' opinions, the market actors who also play an important role as users of mobile payment systems. This scoping review was carried out to meet the following objectives:

- To review the type of paper, geographic area, and methodological considerations employed in empirical studies on mobile payment services for merchants;
- To assess and summarise theories underpinning studies on the adoption of mobile payment services by merchants;
- To assess critical determinants (i.e. themes and constructs or dimensions) of the adoption of mobile payment services by merchants;

Method

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) provides reviewers with guidelines on systematic review of the reporting and evaluation of interventions (McKenzie & Page, 2024). By laying out the minimum set of items, PRISMA's reporting guidelines help reviewers to review prior studies and report findings with the greatest degree of transparency (Tricco et al., 2018). The present research focuses on Scoping Reviews, one of the evidence syntheses of PRISMA extensions, for reporting merchants' evaluations of critical determinants of the adoption and use of mobile payment services. Scoping reviews are usually conducted to assess the extent, range or nature of the evidence on a complex phenomenon (Tricco et al., 2018). It enables reviewers to synthesise findings from different disciplines and the knowledge gap identified in the literature, to provide researchers with new directions.

Eligibility Criteria

Peer-reviewed journal papers that were included in the review had to focus on the following descriptors: "mobile payment", "m-payment", and "wireless payment". These descriptors should match at least one of the following interventions: merchant, firm, SMEs, business, retailer, company, and enterprise. In addition, papers were considered if they were reported in English, and empirical studies employing qualitative, quantitative or mixed-method approaches, and published between 2013 and 2024. The 12-year publication period was considered to ensure that the present study includes recent views of adoption and use of m-payment by merchants, as prior systematic reviews also covered the same or similar descriptors. Besides the search inclusion criteria, the reviewers also set exclusion criteria for the study. Search exclusion criteria were the year of research publication, which is categorised as "time frame" (excluded years before 2013), duplicate publication, publications that have the views of other populations, conceptual studies, and studies reported in other languages.

Information Source

One of the reviewers started the literature review by searching for potential papers published from 2013 to November 2024 on the following databases: ScienceDirect, Emerald Insight, IEEE Xplore, Google

Scholar, Springer, ACM, and Sage Publishing. The reviewer's search focus was on papers that investigated mobile payment adoption or use, particularly at the organisational level.

Search

Syntax rules of the databases were used to limit the search to publications related to the adoption or use of mobile payment by organisations. On the database, the search was limited to published materials from 2013 to 2024. Since the databases contain a wide variety of relevant materials reporting subjects in different fields, the above-defined criteria were used with the Boolean operators (such as OR, AND) to filter the data from a stream and remove the data that is not wanted. The primary keywords searched were “mobile payment” OR “m-payment” OR “wireless payment” AND merchant OR firm OR SMEs OR business OR retailer OR enterprise. Besides using keyword searches, we went backwards, checking the bibliography/list of references of other authors' work to identify potential papers.

Source of Evidence

Before the systematic scan of databases, screening criteria and data extraction discussions were held. Upon getting the results of the search criteria from databases, using keyword searches, the systematic literature review approach was applied, where the reviewer read each piece of information that appeared in the results, and then the inclusion criteria began with the description of records identified from databases. This stage was followed by the evaluation and reading through research publications' titles and abstracts stage. In evaluating the publications, the descriptors were to be identified in the paper's title or abstract. Thereafter, potential studies were separated to be manually extracted, followed by a full test review of all potential studies identified from the searches.

Data Charting

Upon having discussions and reaching an agreement, we developed a data-charting form where we filled in all variables extracted from eligible studies. All relevant information that was required for the review was charted, using Microsoft excel spreadsheet. Data was manually extracted, and the form was updated as needed.

Data Items

The relevant data we extracted from eligible studies for the review were related to the paper itself (e.g. author, year of publication, title, database, type of paper, geographic area), methodological considerations (e.g. quantitative or qualitative, sample characteristics such as merchant and consumer or supplier, and level of analysis), theoretical underpinning of the study, results of the intervention (e.g. competitive advantage, attitude, compatibility, convenience).

Synthesis of Results

We used the narrative descriptive-analytical method, where we employed a common analytical approach to all studies' data that was collected (Arksey & O'Malley, 2005). The focus was on basic numeric analysis and producing tables and charts for presenting charted information about the studies we reviewed. Information on author(s), year of publication, and database is presented and analysed with other key items. The findings were thematically organised, grouping them into seven different headings patterned according to the common characteristics of studies included in the review, which are the type of paper, geographic area, methodological consideration, theoretical underpinning of the study, and critical determinants. After analysing them, we started identifying the knowledge gap in the literature.

Results

Our searches of the electronic databases generated a total of 25276 records, after which 20952 records were excluded based on the screening by title, and 800 were duplicate publications. The remaining 3524 were

considered for abstract reviews. During the abstract review stage, 1859 records were excluded for being publications that had the views of other populations such as consumers, banks, mobile payment service providers and professionals; 1252 were unrelated to mobile payment, they were oriented towards m-commerce or e-payment, or had just a minor section on mobile payment services; 121 were conceptual studies, which were in the form of narrative or were only based on review; 75 were reported in another language; 68 articles were analyses of m-payment ecosystem reviews; and nine were m-payment commentaries. In the abstract review stage, 140 articles were sought for retrieval, but there were four articles which we were unable to retrieve. The remaining 136 articles were retrieved for full text, of which 38 were excluded for being analyses of m-payment Protocol, 33 analyses of mobile payment security, 11 conceptual business models of mobile business or payments, and 8 were neither a qualitative nor a quantitative study. We realised that papers that focus on ecosystem, protocol or security can explain the adoption and use of mobile payment by merchants, but in a small proportion, hence, they were excluded. The review resulted in 53 eligible papers published between 2013 and 2024. The above breakdown is graphically presented in Figure 1.

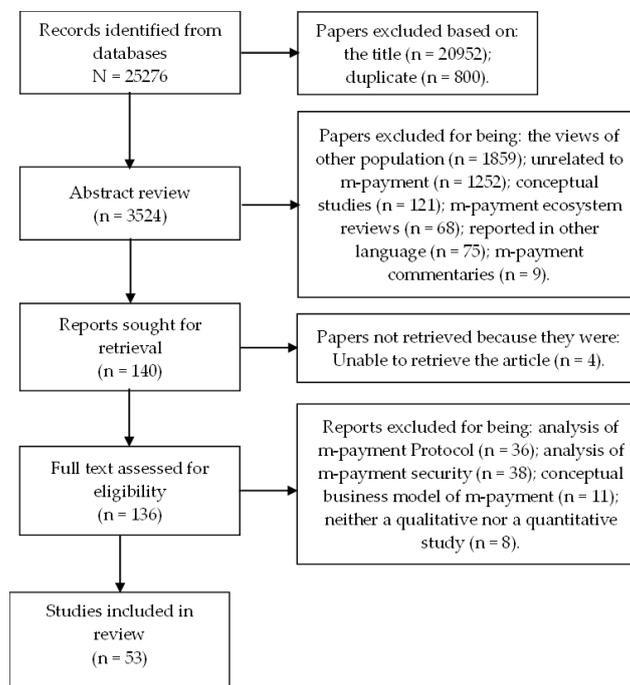


Figure 1 Selection of Source of Evidence.

Type of Paper

According to their databases, 30% of articles were accessed from Springer Nature, and nearly 19% were retrieved from both Emerald Insight and ScienceDirect databases. From other databases such as Google Scholar, ACM, IEEE Xplore, and Sage, we assessed nearly 17%, 8%, 4%, and 4%, respectively. In this study, nearly 85% of papers reviewed were published in 35 academic journals across disciplines, from which about 9% of papers were from the *Journal of Financial Services Marketing*, and 7% from the *Journal of Retailing and Consumer Services*. Other journals such as *Electronic Commerce Research*, *Small Business Economics*, *Technology in Society*, *Technological Forecasting and Social Change*, and *Journal of Science and Technology Policy Management*, each is represented by two papers. In this review, we also included eight articles from eight conference proceedings, each of which is represented by one article.

Year of Publication

In 2024, the number of articles (23%) surpassed all other years. In 2020, nearly 21% of articles were published, followed by 2022 (13%) and 2021 (11%). Excluding 2014 and 2015, with zero records, the cumulative number of articles published in 2017 and 2013 was comparatively lower than in other years.

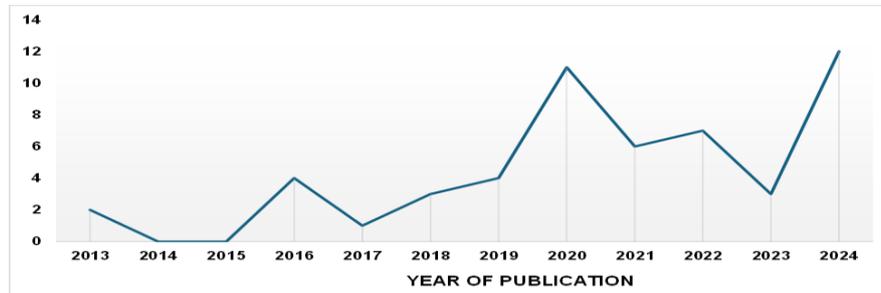


Figure 2 Number of Articles Published Annually.

Geographic Area

Our review shows studies that were carried out in the context of one country (92%), i.e. studies which were or were not undertaken with a holistic view of the country (Figure 3), and studies that were conducted as a comparative analysis of two or more countries (8%), i.e. intercountry analysis. We found that most studies were conducted in India (25%), followed by China, Malaysia, and Ghana, with 13%, 11% and 8%, respectively. Apart from Indonesia (6%) and Taiwan (4%), other countries were represented by one paper each and accounted for 26%.

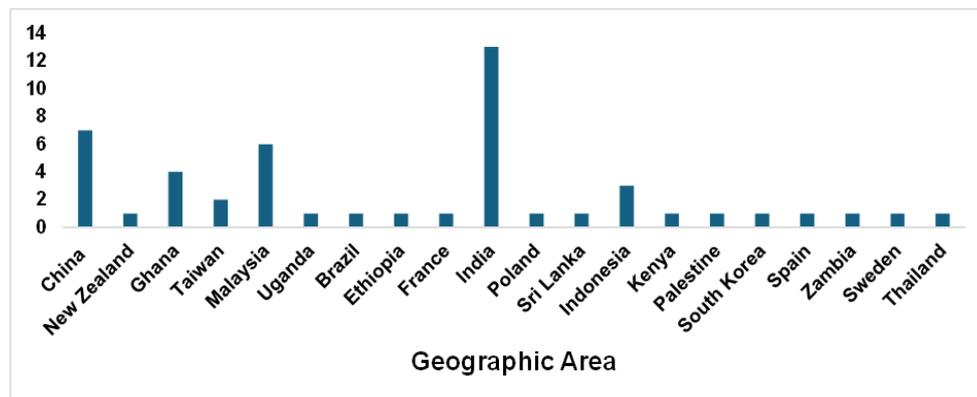


Figure 3 Geographic Area

*Methodological Considerations**Nature of Study*

The empirical nature of studies was quantitative (64%), qualitative (26%) and mixed methods (9%). The mixed methods were either empirically based, qualitative and quantitative data in nature, or first conceptually driven (e.g. a review) and then empirically tested.

Level of Analysis

Most of the studies focused on the micro level analysis (58%), of which only merchants participated in the studies. Other studies focused on the analysis of both micro and meso levels (28%), or all level of analysis

(13%), where participants were either merchants, or merchants with customers, or merchants with customers, suppliers/service providers, or professionals.

Theoretical Underpinning of the Study

Among the studies reviewed, 22 underpinning theories were found, of which 13% of studies had employed the Technological-Organisational-Environmental (TOE) framework as their underpinning theory, while 9% of studies used the Technology Acceptance Model (TAM), 6% used the extended Unified Theory of Acceptance and Use of Technology (UTAUT2). Other models or frameworks were used in one study (Table 1). Our findings indicate that these studies are more likely to integrate TAM and/or Diffusion of Innovation (DOI) theory with other theories in mobile payment services adoption by merchants.

Table 1 Theory Applied in the Study

Theoretical underpinning	Articles
TOE framework	7
TAM	5
UTAUT2	3
DOI, TAM	1*
UTAUT	1
Theory of business ecosystem	1
Expectation Confirmation Model (ECM), UTAUT	1*
Trust-Theoretic Model, TAM	1*
Schumacher's Appropriate Technology theory	1
Recursive bivariate probit model	1
Protection motivation theory (PMT)	1
Adaboost model, random forest, XGBoost model	1*
Dahlberg et al. framework for mobile payment	1
Data-information-value framework	1
DOI, Push-Pull Theory	1*
Game theory	1
Innovation resistance theory	1
Institutional theory	1
TAM, DOI, e-services adoption model, theory of reasoned action	1*

* = Integrated models/theories

Critical Determinants of M-Payment Services

In our analysis, beside identifying definitions of different variables that overlap with each other in many aspects, we also found certain papers with variables that were only presented in their Abstract and Conclusion sections but were not discussed in the literature review or findings section, especially for the quantitative paper, nor in the findings section for the qualitative paper. Thus, variables that were not found in the findings or the literature review of its study's intervention were excluded from the analysis. We identified 66 critical determinants of the adoption of mobile payment services by merchants (Table 2). We found that perceived usefulness and its variety, i.e. benefits, were found to be the dominant determinants in this study, with 15 (28%) studies evaluating them. Other determinants which followed were ease of use and its varieties, such as effort expectancy and operability (21%), trust (17%), relative advantage and its varieties, such as perceived value and technology value (15%), and performance expectancy (13%). Technology competence and its immense varieties, including technology readiness, employees' readiness,

ICT infrastructure, ICT expertise and resource configurations, and facilitating conditions and its varieties, such as external support and environment, each accounted for 11% of reviewed paper.

Table 2 Critical Determinants of M-Payment Services (Promoting)

Critical determinant - Promoting	Articles	Author(s)	Critical determinant -Promoting	Articles	Author(s)
Perceived usefulness	15	Mukhopadhyay (2016); Liébana-Cabanillas and Lara-Rubio (2017); Islam et al. (2018); Lee et al. (2019); Abebe and Lessa (2020); Bounie and Camara (2020); Li and Li (2020); Malaquias and Silva (2020); Singh and Sinha (2020); Yeboah et al. (2020); Prihatini et al. (2021); Mujahed et al. (2022); Sinha and Singh (2022);	Perceived expectations consumer	2	Petrova and Wang (2013); Apanasevic et al. (2016)

		Ahmed and Sur (2023); Naysary (2024)			
Ease of use	11	Lee et al. (2019); Abebe and Lessa (2020); Malaquias and Silva (2020); Pal et al. (2020); Yeboah et al. (2020); Sinha and Singh (2022); Ahmed and Sur (2023); Nandru et al. (2023); Ojo (2024); Tan et al. (2024); Tang and Tsai (2024)	Perceived efficiency	2	Petrova and Wang (2013); Abdulai et al. (2024)
Trust in mobile payment systems	9	Lee et al. (2019); Abebe and Lessa (2020); Fitriani et al. (2020); Malaquias and Silva (2020); Singh and Sinha	Time efficiency	2	Polasik et al. (2013); Tang and Tsai (2024)

		(2020); Yeboah et al. (2020); Nandru et al. (2023); Naysary (2024); Nugroh o and Paramita (2024)			
Relative advantage	8	Liébana- Cabanillas and Lara- Rubio (2017); Khan and Ali (2018); Abebe and Lessa (2020); Kumar et al. (2021); Kwabena et al. (2021); Mahakit tikun et al. (2021); Moghav vemi et al. (2021); Mishra et al. (2022)	Mobile service provider characteristics	2	Apanasevic et al. (2016); Yeboah et al. (2020)
Performanc e expectancy	7	Kwabena et al. (2021); Mahakit tikun et al. (2021); Jayarath ne et al. (2022); Ahmed	Mobile characteristics technology	2	Guo and Bouwman (2016); Yeboah et al. (2020)

		and Sur (2023); Nandru et al. (2023); Tan et al. (2024); Tang and Tsai (2024)			
Technology competence	6	Guo and Bouwman (2016); Cao (2021); Kwabena et al. (2021); Mujahed et al. (2022); Rahman et al. (2022); Ojo (2024);	Social influence	2	Malaquias and Silva (2020); Kwabena et al. (2021)
Facilitating conditions	6	Cao (2021); Mahakit tikun et al. (2021); Jayarathne et al. (2022); Ramtiyal et al. (2022); Nandru et al. (2023); Tang and Tsai (2024)	Business factors	1	Cao (2021)
Lower transaction cost	5	Islam et al. (2018); Pal et al. (2020); Abdulai et al. (2024);	Marketing strategies	1	Guo and Bouwman (2016)

		Hassan (2024); Tang and Tsai (2024)			
Strategy orientations	5	Guo and Bouwman (2016); Liu et al. (2019); Mujahed et al. (2022); Ojo (2024); Srinivasan et al. (2024)	Platform openness	1	Guo and Bouwman (2016)
Management support	5	Guo and Bouwman (2016); Khan and Ali (2018); Kwabena et al. (2021); Mujahed et al. (2022); Rahman et al. (2022)	Institutional pressure	1	Guo and Bouwman (2016)
Critical mass	5	Guo and Bouwman (2016); Khan and Ali (2018); Li and Li (2020); Mahakit tikun et al. (2021); Rahman et al. (2022)	Government support/	1	Mujahed et al. (2022)
Competitive pressure	5	Kwabena et al. (2021);	Hedonic motivation	1	Jayarathne et al. (2022)

		Mahakit tikun et al. (2021); Rahman et al. (2022); Ojo (2024); Srinivas an et al. (2024);			
Convenience	4	Petrova and Wang (2013); Moghav vemi et al. (2021); Abdulai et al. (2024); Tang and Tsai (2024);	Consumption data obtainment	1	Yang et al. (2024)
Regulatory environment	4	Fitriani et al. (2020); Mishra et al. (2022); Mujahed et al. (2022); Hassan (2024)	Household outcome variables	1	Peprah et al. (2020)
Compatibility	4	Lee at al. (2019); Singh and Sinha (2020); Kwabena et al. (2021); Rahman et al. (2022)	User context	1	Ramtiyal et al. (2022)
Network effects	4	Lee at al. (2019); Fitriani et al. (2020);	Investment	1	Islam and Muzi (2022)

		Kumar et al. (2021); Tan et al. (2024)			
Attitude	4	Lee at al. (2019); Abebe and Lessa (2020); Prihatini et al. (2021); Ahmed and Sur (2023)	Transaction tax exemptions	1	Bongomin et al. (2020)
Awareness	4	Singh and Sinha (2020); Mahakit tikun et al. (2021); Tan et al. (2024); Tang and Tsai (2024)	Financial inclusion	1	Bongomin et al. (2020)
Partner readiness	3	Guo and Bouwm an (2016); Kumar et al. (2019); Mujahed et al. (2022)	Response efficacy	1	Hamzah (2024)
Imitation effects	3	Li and Li (2020); Wang and Lai (2020); Kumar et al. (2021)	Demonetization	1	Ahmed and Sur (2023)
Business size	3	Liébana-Cabanillas and Lara-	Pandemic effect	1	Ahmed and Sur (2023)

		Rubio (2017); Srinivasan et al. (2024); Tiwasin g et al. (2024)			
Customer relationship maintenance	3	Kumar et al. (2019); Fitriani (2020); Yang et al. (2024)	Accessibility	1	Lee et al. (2019)
Retailer's satisfaction	3	Lee at al. (2019); Fitriani et al. (2020); Tan et al. (2024)	External pressure	1	Khan and Ali (2018)
Innovative products	3	Pal et al. (2020); Mahakit tikun et al. (2021); Tiwasin g et al. (2024)	Information intensity	1	Rahman et al. (2022)
Market opportunity	2	Guo and Bouwm an (2016); Naysary (2024)	Changing consumer payment habits	1	Tang and Tsai (2024)
Advertisements	2	Peprah et al. (2020); Sinha and Singh (2022)	Non-regulatory bodies	1	Mishra et al. (2022)
Brand value	2	Lee at al. (2019); Fitriani et al. (2020);	Influencing future trends	1	Tang and Tsai (2024)

Merchant's age	2	Ramtiyal et al. (2022); Hamzah (2024)	Changing the habits of receiving and transferring funds	1	Tang and Tsai (2024)
Increased creditworthiness	2	Islam et al. (2018); Islam and Muzi (2022)	Customers' digital financial literacy	1	Nandru et al. (2023)
Business experience	2	Sinha and Singh (2022); Hamzah (2024)	Merchant disposition	1	Mishra et al. (2022)
Education	2	Peprah et al. (2020); Hamzah (2024)	Inertia associated with card and cash usage	1	Kumar et al. (2021)
Self-efficacy	2	Ahmed and Sur (2023); Hamzah (2024)	Culture	1	Kumar et al. (2021)
Perceived value creation	2	Singh and Sinha (2020); Yang et al. (2024)	Comfort and familiarity	1	Pal et al. (2018)

In our analysis, we also identified studies that reported variables that discourage merchants from adopting mobile payment services. There were in total 18 variables (Table 3), from which perceived risk (8%) was the dominant variable discouraging adoption, followed by lack of critical mass, and low awareness of benefits, each one of them accounted for 6% of studies. Variables such as cost of investment, lack of training and support, and sensitivity to incentive or sign-up incentives, each accounted for 4%, while the other factors were represented by one study.

Table 3 Critical Determinants of M-Payment Services (Discouraging)

Critical determinant - Discouraging	Articles	Author(s)
Perceived risks	4	Taylor (2016); Abebe and Lessa (2020); Ramtiyal et al. (2022); Nugroho and Paramita (2024)
Lack of critical mass	3	Moghavvemi et al. (2021); Jayarathne et al. (2022); Kapoor et al. (2024)

Low awareness of benefits	3	Petrova and Wang (2013); Moghavvemi et al. (2021); Kapoor et al. (2024)
Cost of investment	2	Abebe and Lessa (2020); Moghavvemi et al. (2021)
Lack of training & support	2	Jayarathne et al. (2022); Kapoor et al. (2024)
Sensitivity to incentive	2	Liu et al. (2019); Vashistha et al. (2019)
Perceived severity	1	Hamzah (2024)
Unnecessary burden	1	Vashistha et al. (2019)
Referral rewards	1	Vashistha et al. (2019)
Early adoption hesitation	1	Kapoor et al. (2024)
Preference for cash	1	Kapoor et al. (2024)
Technological complexity	1	Moghavvemi et al. (2021)
Safety and privacy concerns	1	Kapoor et al. (2024)
Lack of trust and confidence	1	Kapoor et al. (2024)
Customers lack computer literacy	1	Jayarathne et al. (2022)
Poor management orientation	1	Jayarathne et al. (2022)
Technological incompatibility	1	Moghavvemi et al. (2021)
Vulnerabilities	1	Taylor (2016)

The Moderating Factor

We found 15 moderating factors out of 15 studies (Table 4). These factors were used to moderate the proposed relationships between independent and dependent variables in the proposed theoretical models of the studies reviewed. Among the moderating factors, satisfaction was evaluated in three studies, followed by the merchant's age, business experience and trust, each of which was evaluated in two studies. Other moderating factors, such as SME size, SME type, SME year of existence, perceived value creation, gender, education, perceived usefulness, attitude, perceived strategic value, adoption of MPS, and performance expectancy, were found in one study.

Table 4 Evaluated Moderating Factors

Moderating factors	Articles	Author(s)
Satisfaction	3	Lee et al. (2019); Fitriani et al. (2020); Tan et al. (2024)
Merchant's age	2	Ramtiyal et al. (2022); Hamzah (2024)
Business experience	2	Sinha and Singh (2022); Hamzah (2024)
Trust in mobile payment systems	2	Singh and Sinha (2020); Yeboah et al. (2020)
SME size	1	Mujahed et al. (2022)
SME type	1	Mujahed et al. (2022)
SME year of existence	1	Mujahed et al. (2022)
Perceived value creation	1	Yang et al. (2024)
Gender	1	Ramtiyal et al. (2022)
Education	1	Hamzah (2024)

Perceived usefulness	1	Malaquias and Silva (2020)
Attitude	1	Lee et al. (2019)
Perceived strategic value	1	Ojo (2024)
Adoption of MPS	1	Kwabena et al. (2021)
Performance expectancy	1	Nandru et al. (2023)

Discussion

The main objective of this scoping review was to assess the progress of merchants' evaluation of mobile payment services over a period of 12 years (2013-2024). Specifically, the study sought to determine the methodological considerations that have been employed, the underpinning theory selected, and the critical determinant evaluated in empirical studies on the adoption of mobile payment services by merchants. To achieve the above objective, the study reviewed 53 empirical studies and found significant evidence on merchants' evaluation of critical determinants of mobile payment services adoption.

Evidence shows that most studies (85%) were published by academic journals across disciplines and a few of them were conference proceedings (15%). The analysis of the research methodology employed in the studies shows that most of these studies were exploratory in nature, using a quantitative approach (64%) rather than a mixed-method approach (9%). This study's results are successively supported by Boateng and Sarpong's (2019) study. Suggesting that new studies should critically consider using methodological triangulation of qualitative and quantitative data to obtain a holistic view of new developments in mobile payment services (Abdullah & Khan, 2021). With regards to the geographic area covered, most research has been conducted in developing countries, with India (25%), China (13%), Malaysia (11%), and Ghana (8%) taking the lead, respectively. A limited number of studies were conducted in developed countries, and intercountry comparative analyses (8%). Karsen, Chandra and Juwitasary (2019) support that the three Asian countries, India, China, and Malaysia have commonly taken the lead in m-payment studies, which encourages other countries to conform to the same pace.

Our review also revealed that studies on mobile payment services from merchants' perspectives are gaining momentum, mostly in recent years, as we found that the year 2024 (23%) surpassed all other years, followed by 2020 (21%), 2022 (13%) and 2021 (11%). These results are also supported by Pramana (2021) who observed the proliferation of mobile payment services adoption in recent years. Moreover, we found 22 underpinning theories among the reviewed studies. The TOE framework (13%) and TAM (9%) were the dominant theories used in most studies. Although, the extended Unified Theory of Acceptance and Use of Technology (6%) has also been applied in a few studies, we found that these studies were more likely to integrate TAM and/or diffusion of innovation (DOI) theory with other theories in mobile payment services adoption by merchants. These results concur with Karsen et al. (2019) and Abdullah and Khan's (2021) studies which found that TAM was the most adopted theoretical underpinning as well as the most integrated model with DOI theory in technological innovation acceptance studies. In addition to the above, this study found 66 critical determinants of the adoption of mobile payment services by merchants, of which perceived usefulness (28%), and ease of use (21%), trust (17%), relative advantage (15%) and performance expectancy (13%), and their varieties were found as the most dominant factors in this study. Similarly, the two theoretical constructs of TAM (Davis, 1989), i.e. perceived usefulness and ease of use have been successively found as most prevalent antecedents/predictors of an innovation in Mondego and Gide's (2018) study. Besides identifying critical determinant factors (promoting factors), this study also found 18 factors that cause barriers to merchants' mobile payment services adoption. Among these factors, perceived risk (8%), i.e. security and privacy risks (Nugroho & Paramita, 2024), the lack of critical mass (6%), low awareness of benefits (6%), and cost of investment (4%), the lack of training and support (4%), and sensitivity to incentive (4%), were the most dominant. Furthermore, we found that satisfaction, besides being a significant critical determinant, it is also a dominant moderating factor (Fitriani et al., 2020; Tan et al., 2024). As a moderating factor, satisfaction was followed by the merchant's age, business experience and trust. The age and experience moderating factors' dominance has been supported by previous study (Pramana, 2021).

This study provides detailed account on research methodologies and findings of prior studies on the adoption and use of mobile payment by merchants. Findings show that most of the studies adopted the TOE framework, TAM, or UTAUT2 as the theoretical underpinning. While other portion of the studies were more likely to integrate TAM and/or DOI theory with other theories. Based on the above, it is safe to say that in the face of rapid technological change, the above theories and their constructs, include perceived usefulness and ease of use (TAM), relative advantage (DOI) and performance expectancy (UTAUT2) found in research from more than 10 years ago in the adoption and use of mobile payment services by merchants, are still relevant and interesting in the context of current conditions.

Implications and Limitations

Contributions from this review of the literature to the relevant practitioners is that it may provide the market actors, particularly merchants, banks, mobile payment service providers, professionals, academics, and regulators with emergent variables that explain merchants' adoption of mobile payment instruments in many areas of intervention. Researchers and academics may be informed of the progressing area of research in the adoption of mobile payment services.

Our scoping review only focused on empirical studies on merchants' adoption of mobile payment services. The study's search is limited to seven databases and publications over 12 years (2013-2024). Thus, future research could search the databases we used and include other databases.

Suggestion for Future Research

Methodological Considerations

Since we found that very few studies employed a mixed-method approach, we encourage researchers to employ mixed-method research approaches to triangulate data and strengthen the analysis and interpretation of data and take a holistic view of the phenomenon. Researchers may use the methodological triangulation of qualitative data collection instruments, such as interviews or focus groups, and quantitative data collection instruments, such as observations, questionnaires and surveys (Tan et al., 2024) concurrently in pursuit of an answer to the new development in mobile payment services.

While retrieving studies for full text, we realised that papers that focus on ecosystem, protocol, or security, can explain the adoption and use of mobile payment by merchants, but in a small proportion. Some of the papers were too technical, focused on computer science or engineering aspects of m-payment, and hence, they were excluded. For a case study research design, we suggest that technological development researchers and adoption researchers should work together, especially for empirical validation and testing of work related to merchants' technology security and trust, protocols, and encryption.

We observed that very few studies were based on empirical longitudinal data. As mobile payment services continue to evolve, studies in which researchers can engage with the same participants over time to examine their new experiences or changing response patterns would help to understand any emerging factors. This would also widen the scope of the analysis of mobile payment services (Rahman et al., 2022) and help to better understand its benefits and firm performance, and differentiate the temporal effects (Tiwasing et al., 2024).

Novice Researcher

Mobile payment systems remain a complex phenomenon as they still allow various types of services and technologies to improve current mobile payment services. Thus, novice researchers are encouraged to systematically review previous studies to untangle the complexities surrounding mobile payments. Comparing studies of mobile payment produced during COVID-19 and post-COVID-19 periods to assess different types of evidence, using a scoping review method, may also be a helpful avenue for future study (Cao, 2021; Jayarathne et al., 2022).

Contextual Studies and Intercountry Comparative Analysis

Most of the studies on mobile payment services adoption by merchants were conducted in India, whereas many other countries were represented by only one study. We encourage further studies in developed and developing countries to continue to seek contextual development of and solutions to mobile payment by adding contextual variables into the existing models of user acceptance of information technology to help explain merchants' adoption of mobile payment instruments in many areas of intervention. We further encourage studies that address country-level heterogeneity within groups of mobile payment services users, such as customers and retailers (Kumar et al., 2021; Naysary, 2024). Since we also found a limited number of research studies across different countries, we suggest further studies to carry out intercountry comparative analyses of the adoption of mobile payment services by merchants and/or comparative analyses of their views of the same mobile payment service provider operating across different countries. In this way, we can address the heterogeneity of mobile payment adoption across different countries (Kumar et al., 2021) and contribute detailed knowledge to societal and cultural differences (Hamzah, 2024; Liébana-Cabanillas & Lara-Rubio, 2017).

Underpinning Theory

Since mobile payment is a relatively emerging phenomenon, researchers should endeavour to adapt and use or integrate theories from other disciplines that help understand new developments and strengthen the field of mobile payment. Future studies should consider adding contextual variables into an existing theoretical model of Information Systems, or integrating two or more relevant models to explain. Furthermore, consumers' and retailers' models should use similar variables to allow comparison of the two models.

Merchants' Mobile Payment Services Adoption

Several studies lack a holistic view of merchants' adoption of mobile payment services, thus affecting their comprehensive approach to merchants' experiences as well as the appropriate intervention. It is therefore important that researchers look at issues like merchants' experiences with (i) the handling of different consumer mobile payment service providers, and (ii) mobile payment services and other payment instruments. We encourage comparative studies on merchants' views of different mobile payment services, such as mobile wallet and QR (Singh & Sinha, 2020). There should be further studies to answer the following question: Which mobile payment service provider is a merchant more likely to adopt as a result of its compatibility with customers' m-payment service adoption options? We also suggest further studies that address the heterogeneity among categories of merchant adopters, such as SMEs, large retailers, the service sector and online businesses (Nugroho & Paramita, 2024; Naysary, 2024; Sinha & Singh, 2022).

Business External Context

In countries where laws on electronic commerce and/or wireless transactions need to be implemented, are both small and large companies receiving mobile payments? Hence, studies that evaluate the regulatory barriers and the policy environments that could hinder merchants' adoption decisions are needed (Abdulai et al., 2024).

We also suggest research to investigate mobile payment services and/or the specific characteristics of apps. Researchers should give attention to technological features such as system user support, functionalities, handling of data security and privacy, and speedy accessibility. Comparative studies should be undertaken on the performance of these features and of other relevant features, such as technical performance and design (Ojo et al., 2024).

Conclusions

The main objective of this scoping review was to assess the progress of merchants' evaluation of mobile payment services over a period of 12 years (2013-2024). Specifically, the study sought to determine the type of paper, geographic area, and methodological considerations that have been employed, the underpinning

theory selected, and the critical determinant evaluated in empirical studies on the adoption of mobile payment services by merchants. To achieve the above objective, the study reviewed 53 empirical studies and found significant evidence on merchants' evaluation of critical determinants of mobile payment services adoption, which we grouped according to their categories. Evidence shows that most studies of mobile payment services adoption by merchants are published by academic journals across disciplines. The analysis of the research methodology employed in the studies shows that the vast majority of these studies have used a quantitative approach rather than a mixed-method approach. We therefore recommend that researchers use methodological triangulation of qualitative and quantitative data to obtain a holistic view of new developments in mobile payment services, which would help strengthen the analysis and interpretation of data. With regards to geographic area covered, most research has been conducted in developing countries, with India, China, Malaysia, and Ghana taking the lead. A limited number of studies were conducted in developed countries, and intercountry comparative analyses. We recommend further research in these contexts.

In addition, it was revealed that most of the studies adopted the TOE framework, TAM, or UTAUT2 as the theoretical underpinning. However, the review also indicated that the other portion of the studies were more likely to integrate TAM and/or DOI theory with other theories in the adoption of mobile payment services by merchants.

Among the critical determinants discussed in mobile payment services research, our study revealed 66 determinants that require particular attention, of which perceived usefulness and ease of use, trust, relative advantage and performance expectancy and their varieties were the most prevalent antecedents or predictors of the adoption of mobile payment services by merchants. In contrast, perceived risk, lack of critical mass, low awareness of benefits and cost of investment, lack of training and support, and sensitivity to incentives were the most prevalent barriers to the adoption of mobile payment.

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