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The Next Big Thing in Online Payments: The Digital Wallet

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Abstract
This article covers Digital Wallet research and sets research goals for comprehending the mechanism. ABDC-approved Digital Wallet Science was compiled from SCOPUS journals. For the analysis, Paul et al. (2021) and Paul and Rosado-Serrano (2019)'s SPAR-4-SLR framework and TCCM methodology (theories, contexts, characteristics, and techniques) were employed. This idea, technique, and circumstance study examines digital wallet research bibliometrics. Emphasises key strategy building components. The 2018–2024 analysis comprised SCOPUS-indexed and ABDC-rated publications. Conference proceedings and journal publications may have missed the criterion. SPAR-4-SLR and TCCM would allow academics to study this issue and suggest user experience improvements to retain clients. The review is organised by the "SPARC-4-SLR framework" and digital insights are provided by the "TCCM methodology" employing multiple theories, settings, characteristics, and methodologies. Our strategy offers researchers and practitioners many opportunities.

Keywords: Contactless, Mobile Payments, Electronic Money, Wireless Technologies, Mobile Wallet, Mobile Apps, Digital Payments, E-Wallets, Initiatives, Challenges and Opportunities, Mobile Wallets.

Introduction:
The Global Payment methods are changing rapidly. Digital payments have become more popular due to the necessity for safe and anonymous payment methods (Mainetti et al., 2023; Román-García et al., 2024; Abdul-Halim et al., 2021). Smartphones have revolutionised mobile payment systems and have progressed from SMS to digital wallets (Kumar et al., 2020). The financial services industry has evolved from metal coins to paper money, ATMs, and now Digital-Wallets (Joshi & Chawla, 2024; Liu et al., 2023; Akanfe et al., 2020; Blyznyuk & Maistrenko, 2023). To achieve a cashless society, Digital Wallets have become popular (Sakalauskas et al., 2018; Singh et al., 2019; Mambina et al., 2022; Adesida et al., 2021). Digital Wallets are famous for payments and money transfers (Hamsin et al., 2023; R. H. Kim et al., 2023; Mistry & Singh, 2021). Although convenient, merchants in India confront high expenses, poor infrastructure, and little financial literacy, making adoption difficult (Subaramaniam, 2020; Sugu & Hussain, 2011); demonstrate that the November 2016 demonetisation in India changed the digital payment ecosystem, increasing Digital Wallets

and UPI transactions (Chawla & Joshi, 2021; He & Tan, 2020; Kraus et al., 2022; Osman et al., 2021).

India has 5.4 billion internet users but 7.9 billion by 2029 (Statista, 2024). Prime Minister Narendra Modi introduced the BHIM e-wallet in 2016 to improve digital transactions and electronic payments (Wicaksono & Zahra, 2022; Malik et al., 2019). Mobile payments are growing, but rural communities still use cash on delivery and worry about security and fraud (Hammouri et al., 2023; Kim et al., 2024; Reza, 2024). E-commerce and mobile internet use have accelerated urban digital payment adoption (Ming & Jais, 2022). Mobile technologies boost consumer satisfaction and save operating costs, while digital wallets increase financial services' availability and quality.

Literature Review:

The Committee on Payment and Settlement Systems of the Bank for International Settlements defines an electronic purse or wallet as a reloadable prepaid card used for modest retail transactions instead of cash. A Digital wallet holds financial, identification, loyalty, and ticketing data (Amoroso & Magnier-Watanabe, 2012; Almeida et al., 2019; Ch'ng, 2024). By allowing mobile transactions, Digital Wallets enhance this paradigm. Mobile apps for online buying and payment services are growing as cell phone ownership grows (Singh et al., 2017; Venkateswararao, 2018). Digital wallet payments are becoming more popular, although they are less well-studied than e-commerce, m-commerce, and phone banking (Esawe, 2022; Aisyah & Sesunan, 2023). The payment sector has grown significantly, offering consumers various transaction options like credit and debit card payments, electronic banking, Digital Wallets, and Unified Payments Interface (UPI) services (Malik et al., 2019; Abdullah et al., 2020; Rao & Padmaja, 2019; Kaĉena et al., 2019; Kang et al., 2019). A payment gateway makes online transactions possible by securely connecting e-commerce platforms and financial institutions (Veronica et al., 2024; Limantara, 2021; Raharjo, 2023). User and transaction data must be protected during this procedure (Kavitha & Kannan, 2020; Manickam et al., 2022).

Digital Wallets have moved from smartphones to smartwatches, boosting adoption (Yeh et al., 2024; Yang, 2022; Alam et al., 2021). By 2024, Juniper Research expects Digital Wallets users to reach 4 billion, or 50% of the global population. Global Digital Wallet transaction values are predicted to increase 77% from $9 trillion in 2023 to over $16 trillion in 2028. Digital Wallets' tokenisation has dramatically improved security, reducing card data leaks online (JUNIPER RESEARCH, 2024). From 2019 to 2020, electronic transactions in Indonesia increased by 38.62%, indicating growing trust in Digital Wallets (Johan et al., 2022).

Globally, digital wallet expenditures are expected to surpass US$10 trillion by 2025, spurred by China and Malaysia's rapid user adoption (Lim et al., 2022; Shaw et al., 2021). Mobile theft and personal data breaches make rural clients leery of Digital Wallets despite their rising

popularity (Yeh et al., 2024; Tang et al., 2022). The Digital Wallets sector must overcome these concerns to encourage greater adoption, particularly when integrating wearable technology (Senali et al., 2022; Rubel, 2018).

Research Objective / Research Intervention Required:

This review mainly emphasises current research on digital wallets and possible future research initiatives. Considering this, the present article expounds upon the following research questions:

RQ1: What is the current stipulate of the literature on Digital Wallets, including the yearly number of published papers, respective authors, and journal venues?

RQ2: "How do we be aware" embraces the ideas, context, traits, and methods academics extensively use to examine Digital Wallets.

RQ3: What areas of expertise should be focused on strengthening our comprehension of "Digital Wallet"?

Research Structure:

Each comprehensive evaluation of the current literature is grounded in a theoretical framework to augment comprehension and give readers novel insights into a phenomenon. This study employs the TCCM framework to elucidate the phenomenon of utilising wallets by examining diverse theories, contexts, attributes, and methodologies used in prior research organisations seeking to offer direction for prospective scholars (Hassan & Shukur, 2021; Koerhuis et al., 2020; Ocak & Cagiltay, 2016; Aji & Adawiyah, 2021).

Figure 4 illustrates the organisational framework of this inquiry, incorporating the findings of Digital Wallets (Adjei et al., 2019; B & G, 2024).

Research Methodology:

This study covers all relevant Digital Wallets studies since their academic appearance using "scientific procedures and rationales for systematic literature review (SPAR-4-SLR)". The process has three steps: Figure 1 indicates that the first step selects and obtains literature, the second builds and enhances literary synthesis, and the third assesses and demonstrates information.

Table 1 displays 2000–2004 research. We discovered 517 papers from 327 sources. The research industry expanded by 13.05% annually. The study had 1489 authors, 52 of whom contributed uniquely. Notably, 19.92% of writers collaborated with foreign researchers. Each paper averaged 3.24 per cent of authors. The authors used 1542 words to explain the findings. The average annual citation count for organising papers was 16.32.

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Table 1: MainInformation

Sr.no.	Description	Occurrence
1	Timeline	2000-2024
2	Sources	327
3	Document	517
4	Annual Growth Rate	13.05%
5	Authors	1489
6	Single Authors	52
7	International Co-authorship	19.92%
8	Co-authorship per document	3.24
9	Author's Keywords	1542
10	Average citation per year	16.32

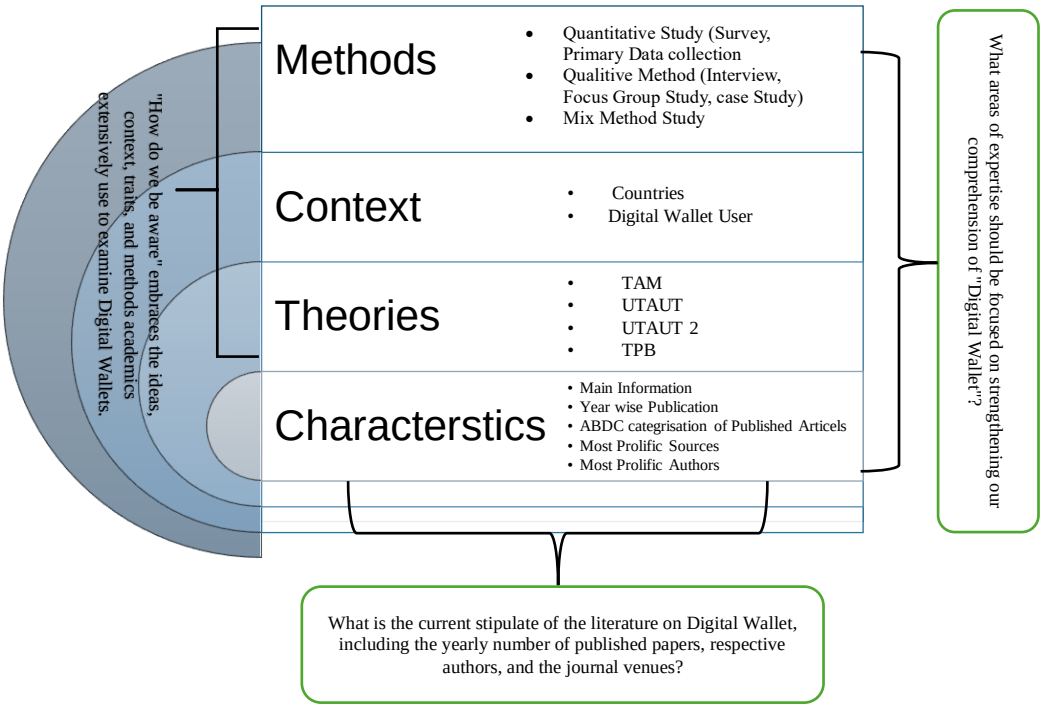

Figure 1: TCCM organising framework (Source: Author's creation)

Assembling

1. Identification of Literature

The present study selected topics using the literature identification (Azman & Zabri, 2022; Guggenberger et al., 2023) approach. This method suggests that a captivating literature review should analyse the topic's significance, be unpublished, and offer new perspectives. This study analysed the Digital Wallet and provided valuable insights into digital payment phenomena. This study focuses on the Digital Wallet phenomenon from

its beginning to its motivating factors and its current level of investigation using "the TCCM framework". Moreover, only articles published in journals indexed by the SCOPUS consortium and assessed by ABDC are included, eliminating ambiguity and emphasising peer-reviewed research. In conclusion, more avenues for research are proposed.

1.2 Acquisition of literature

The journal papers for this research were obtained from "SCOPUS" and "Web of Science" and selected for their extensive repository of academic research. The literature review encompassed the period from 2000 to August 2024, concentrating on "Digital Wallet" and associated terminology such as "online wallet," "mobile wallet," "electronic wallet," and "E-wallet." This research resulted in many articles reviewed by experts, proceedings from conferences and chapters of books. Terminology such as "digital payment" and "mobile payment" were incorporated to expand their reach. Snowball sampling was employed on reference lists until their Organisation was reached, culminating in 517 articles.

Arranging

1. Systematisation and Refinement of Research Articles

At this level of our research, researchers have employed the TCCM (theories, contexts, characteristics, and methodologies) framework to classify and evaluate the literature on Digital Wallets. The criteria for selecting relevant and accurate research publications for this study's analysis were established based on (Huawei et al., 2023; Bhattacharya & Bera, 2023; C. O. Baxi et al., 2023)

The subsequent events were the emphasis of our comprehensive research papers:

(1) Every article must be available online in English and must have been published subject to peer-reviewed academic publications between 2000 and 2024.

(2) Symposium procedures, literature chapters, and seminar papers will be disallowed due to their fragmentary nature or absence of peer review.

(3) Duplicate papers will be excluded.

(4) Particularly, articles from journals indexed on the ABDC quality list (with superior indexing and restricted to premier publications) and indexed by SCOPUS will be considered.

The screening procedure adhered to this sequence. A query for "business management" produced 370 articles. Reviewed by expert journal publications in English, paperback chapters, course materials, and conference proceedings. After filtering by source type, we

found 190 peer-reviewed journal publications that were published or in preparation. Peer-reviewed journals were evaluated using the ABDC journal quality list. Only academic journal articles were considered from the entire corpus of scholarly papers. The remaining journal articles were checked for duplicates and removed. 46 Duplicate articles were removed from the total number of journal articles, resulting in the final count of 134.

Assessing

1. Evaluation

They evaluated the research publication data corpus using co-occurrence analysis. Figure 2 shows that VOS reader 1.6.20 identified 65 keywords that appeared at least three times out of 617 written and indexed terms. Thus, we calculated the total impact of the relationships between the remaining words. Vos viewer 1.6.20 picked words with solid and dependable associations.

Figure 2: Word cloud of Primary Keywords

The KCN (keyword co-occurrence network) map above shows how much research has explored mobile wallets. Also, mobile commerce, e-commerce, mobile wallets, and COVID-19 have directly boosted Digital Wallets. Many research studies have examined the use of Digital Wallets in digital payment technology.

Table 2: Most Citated Keywords

Sr.No.	Keywords	Frequency
1	e-wallet	73
2	mobile wallet	56
3	blockchain	40
4	Digital Wallet	38
5	cryptocurrency	27
6	trust	27
7	fintech	26
8	mobile wallets	25
9	mobile payment	24
10	e-wallets	22

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Table 2 shows the terms most often derived from research articles. Keywords are graded by literature frequency. The most common terms are "e-wallet," "mobile wallet," "blockchain," and "Digital Wallet." Digital payment solutions are becoming more popular and essential. The list prominently includes keywords related to cryptocurrency and trust, highlighting their importance in emphasising wallet adoption. They also use fintech, a comprehensive term for financial technology, to emphasise the contemporary digital payment systems. "Mobile wallets," "mobile payment," and "e-wallets" emphasise digital payments' mobile nature and dependence on electronic wallets.

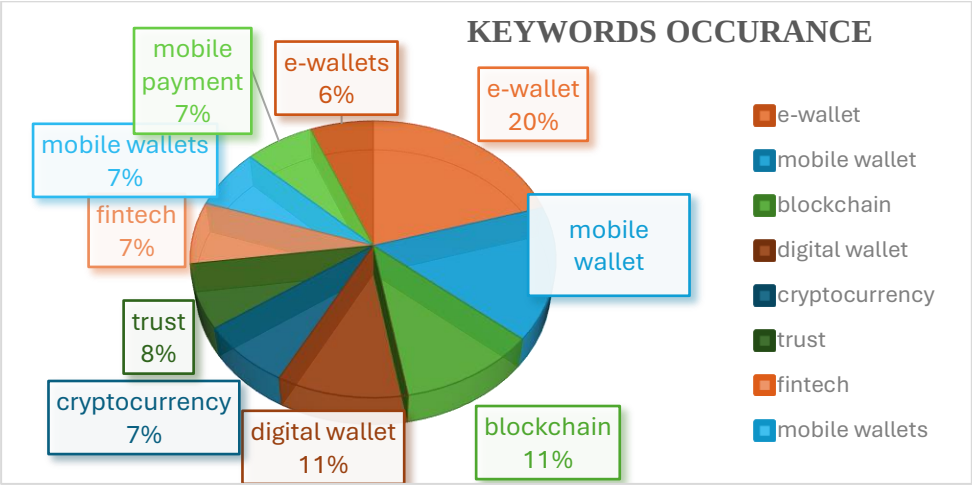

Figure 3: Keyword Occurrence

Mobile wallet keyword acceptance and prevalence are presented in the pie chart Figure 3. Section dimensions show keyword literary frequency in %. The top keyword is "e-wallet," 20%. This demonstrates its study value. Numerous "mobile wallet" and "blockchain" uses show a tight relationship. More terms like "Digital Wallet," "cryptocurrency," "trust," and "fintech" show how complicated mobile wallet research is. Though less prominent, "mobile payment" and "e-wallets" matter.

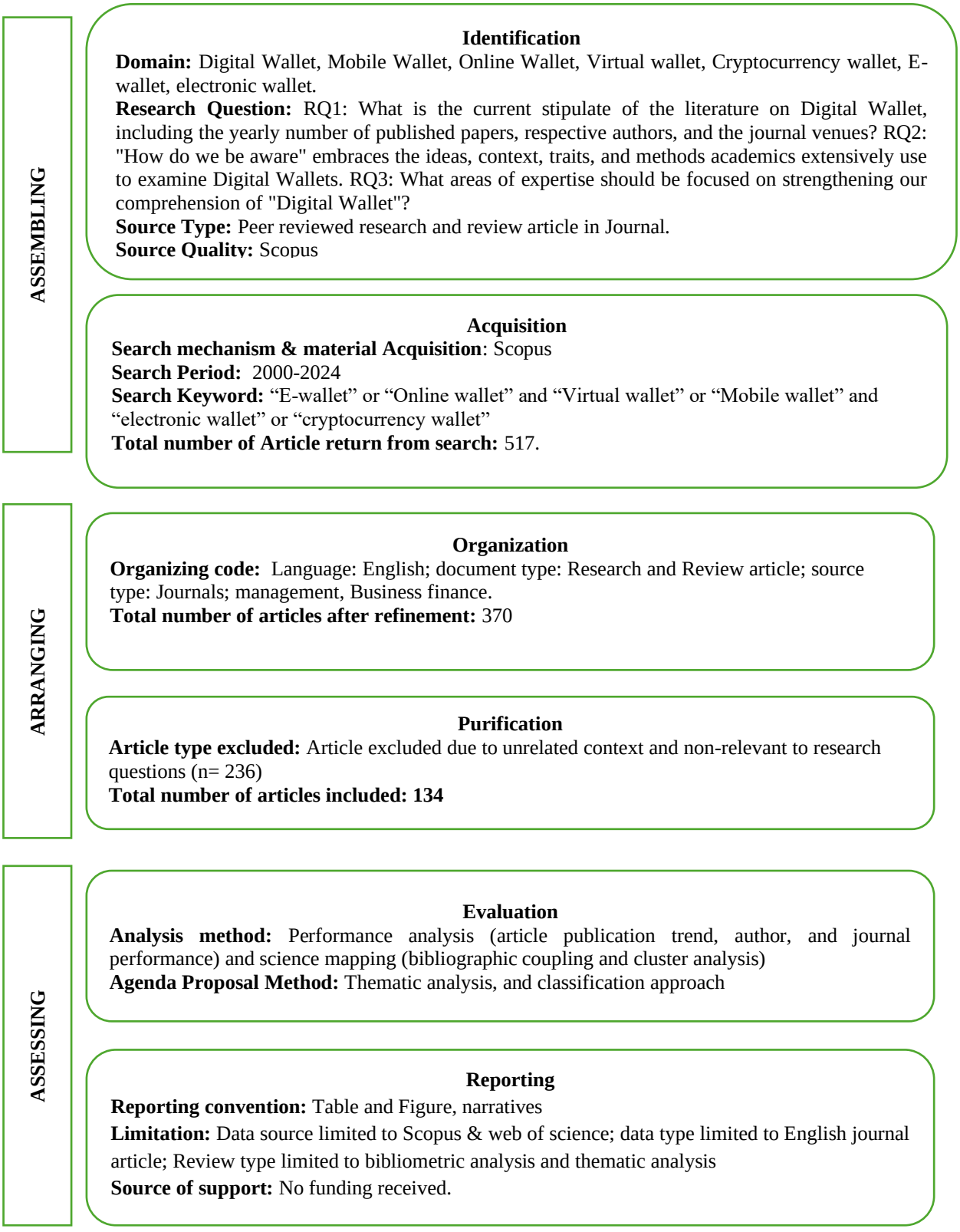

Figure 4: Process of SPAR4SLR

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Reporting: *What is the current scope of the literature on Digital Wallets, including the yearly number of published papers, respective authors, and journal venues?*

Figure 5 shows research corpus data on a yearly timeline with publications. Digital Wallet articles have increased steadily since 2000. Most Digital Wallet academic publications (80-85%) were published after 2018. Digital Wallets received the most articles (128) in 2023. The figure shows the number of articles accessible till August 2024.

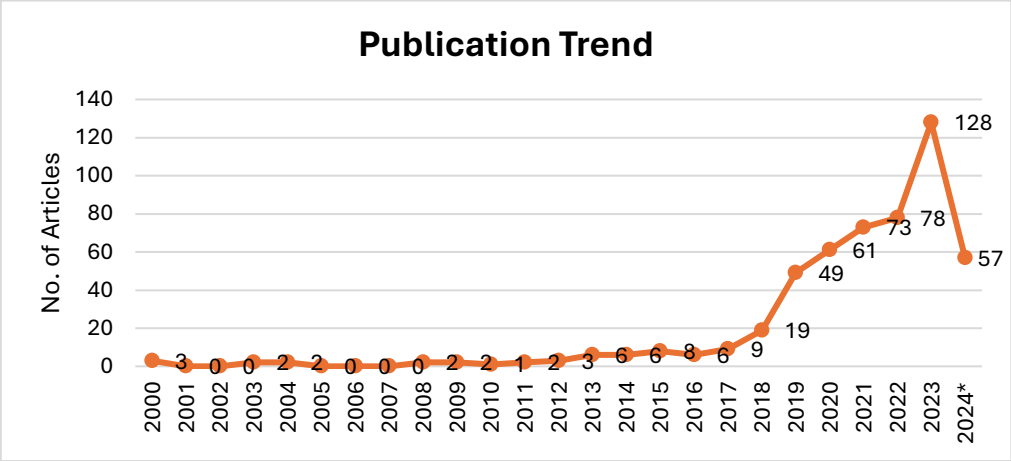

Figure 5: Annual Publication on Mobile Wallet (Source: Author Own creation)

This graph shows the publication pattern of research on a specific topic from 2000 to 2024. The x-axis represents the year, while the y-axis represents the number of published articles. The figure shows an increasing publication rate. From a low point in the early 2000s, articles have risen. The number of publications increased significantly from 2020 to 2024, reaching 128 in 2022. This pattern reflects rising domain awareness and research. Technology, financing, and social awareness have contributed to publication growth.

Articles under different journals

Table 4 shows that the Journal of Retailing and Consumer Services has published the most "Digital Wallets" studies. Other journals are the Journal of Financial Services Marketing, International Journal of Bank Marketing, International Journal of Human-Computer Interaction, International Journal of Information Management, Technology In Society, Global Business Review, International Journal of Business and Society, and International Journal of Electronic Marketing and Retailing Explore Digital Wallets. The appendix in Table 9 lists the papers' journal outlets in detail. They are classifying Digital Wallet journal papers by ABDC journal quality.

Table 5 shows citation metrics and indexing status for ten academic articles in Digital Wallets. Paper count ranks journals. The first column lists magazine serial numbers, then the

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title. The last three columns show citation metrics: number of articles, h-index, g-index, and m-index. These metrics evaluate the journal's articles' quality and influence. Journal indexing databases are listed in the last column. Scholars need this information to render the journal's content visible and accessible.

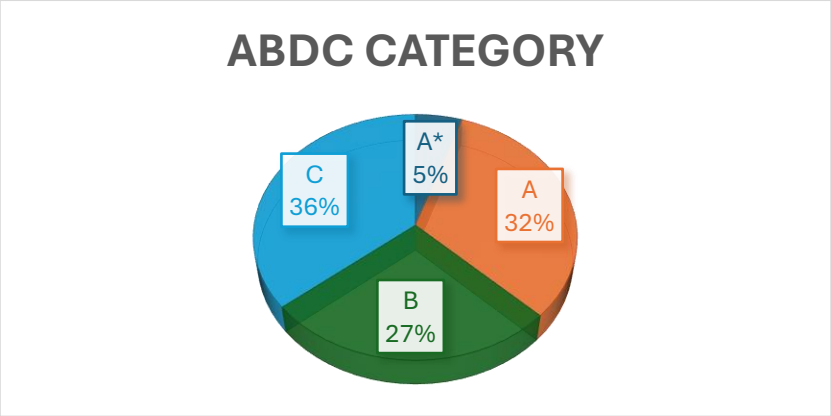

Figure 6: Author's Own complication

The ABDC journal quality list categorises journal papers on Digital Wallet (see Figure 6). In India, the ABDC category categorises academic journals by influence and quality. Each portion of the graphic represents an ABDC category: A*, A, B, and C. Section sizes represent the proportion of journals in each category. The majority of journals are "C," 36%. This category comprises mediocre publications. 32% of journals are rated "A"—the second largest category. These journals are good. "A*" and "B," which comprise 5% and 27% of journals, survive. The "A*" and "B" journals are considered high-quality.

Most Prolific Authors

Table 3 below highlights the individuals who have contributed significantly to Digital Wallet. The authors of more than two Digital Wallet articles are Urbach N, Akanfe O, Irfan M, Kumar V, Ooi K-B, Rao Hr, Schlatt V, S, Sedlmeir J, Sharma S, and Singh N. The following Table 5 ranks ten scholarly publications by citation count. Authors, h-index, g-index, m-index, and total citations are listed for each publication. The h-index measures the number of an author's publications with a minimum citation count. Similarly, the g-index measures an individual's article count and citation count. Unlike the h-index, the m-index considers an author's article output and average citation count. In the table, all ten articles have h-, g-, and m-indices of 2, indicating a low citation effect. Number of citations ranges from 11 to 464. Despite comparable total citation numbers, each article's impact varies based on the number of citations achieved.

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Table 3: Most Prolific Author

Sr.no.	Authors	h-Index	g-index	m-index	Total Citation
1	Urbach N	3	3	0.75	82
2	Akanfe O	2	2	0.4	20
3	Irfan M	2	2	0.4	11
4	Kumar V	2	2	0.5	79
5	Ooi K-B	2	2	0.4	412
6	Rao Hr	2	2	0.4	20
7	Schlatt V	2	2	0.5	42
8	Sedlmeir J	2	2	0.5	78
9	Sharma S	2	2	0.333	28
10	Singh N	2	2	0.25	464

Table 4 lists ten research studies on mobile wallet acceptance. This includes critical information, including article title, journal name, TC, mean citations per year, year of publication, and author citations. The article with the most citations is "Towards a Normalising of the Consumer Acceptance of "Mobile Wallet" by Shin D-H, 2009 (518). In the normalised TC column, citation impact is assessed by comparing the number of citations received to the average for papers published in the same year. The mean citations per year column shows an article's average annual citations. The article year and author citation columns list the article's publication date and authors.

Table 4: Most Citated Article

Sr.no	Title	Journal Name (italic)	Total Citation (TC)	Normalised TC	Mean Citation	Year of Publication	Author Citation
1	Towards an understanding of the consumer acceptance of mobile wallet	*Computer in Human Behavior*	518	1.98	32.38	2009	Shin D-H, 2009
2	Determining factors in the adoption and recommendation of mobile wallet services in India: Analysis of the effect of innovativeness, stress to use and social influence	*International Journal of Information Management*	324	8.08	64.80	2020	Singh et al., 2020
3	Predicting mobile wallet resistance: A two-staged structural equation modeling-artificial neural network approach	*International Journal of Information Management*	276	55.20	6.89	2020	Leong et al., 2020
4	Consumer attitude and intention to adopt mobile wallet in India – An empirical study	*International Journal of Bank Marketing*	222	37	13.98	2019	Chawla & Joshi, 2019

5	How perceived trust mediates merchant's intention to use a mobile wallet technology	*Journal of Retailing and Consumer Service*	*211*	42	5.26	2020	Singh & Sinha, 2020
6	Point of adoption and beyond. Initial trust and mobile-payment continuous intention	*Service*	206	41.20	5.14	2020	Talwar et al., 2020
7	The effect of product-related, personal-related factors and attractiveness of alternatives on consumer adoption of NFC-based mobile payments	*Technology in Society*	205	20.50	3.96	2015	Pham & Ho, 2015
8	The mediating influence of trust in the adoption of the mobile wallet	*Journal of Retailing and Consumer Service*	202	18.36	5.56	2014	Shaw, 2014
9	Behavioral intention to adopt mobile wallet: a developing country perspective	*Journal of Indian business research*	192	21.33	5.14	2016	Madan & Yadav, 2016
10	How pre-adoption expectancies shape post-adoption continuance intentions: An extended expectation conformation model	*International Journal of Information Management*	153	30.60	3.82	2020	Gupta et al., 2020

Sr.no.	Sources	Articles	h-index	g-index	m-index	Indexing	Publication House	Citations
1	Journal Of Retailing And Consumer Services	11	6	11	0.667	Scopus, Social Sciences Citation Index (SSCI), SCImago Journal Rank (SJR), SNIP	Science Direct	266
2	Journal of Financial Services Marketing	6	5	6	1	Scopus, ABS Academic Journal Quality Guide, ABDC "B", EBSCO, Emerging Sources Citation Index, Google Scholar, UGC-CARE List (India)	Science Direct	252
3	International Journal of Bank Marketing	7	4	6	1	Scopus, SJR, SNIP	Taylor & Francis online	46
4	International Journal of Human-Computer Interaction	5	3	5	0.75	Scopus, Scimango, Google Scholar,	JATT Research Publishing house	59
5	International Journal of Information Management	3	3	3	0.75	Scopus, DOAJ, EBSCO	Growing Science	84
6	Journal of Science And Technology Policy Management	3	3	3	0.429	Social Science Citation Index SSCI, EBSCO, Emerald Review, ABDC "A".	Emerald Insight	92
7	Technology In Society	3	3	3	0.12	Scopus, SJR, Google Scholar, DRJI etc.	Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP)	154
8	Global Business Review	4	2	4	1	Scopus and Cabell's Directories	Henry Stewart Publications	36
9	International Journal Of Business And Society	2	2	2	0.667	Scopus	Technoscience Academy	51
10	International Journal Of Electronic Marketing And Retailing	2	2	2	0.5	Scopus, SJR, Scimago	Palgrave Macmillan Publisher	16

Table 5: Most Prolific Sources

"How do we be aware" embraces the ideas, context, traits, and methods academics extensively use to examine Digital Wallets.

History of Digital Wallet:

From 600 B.C., currency emerged. China introduced Jiao Zi, the first paper currency, 960 to replace coins. American John Biggins invented the credit card in 1946, and the UK built the first ATM in 1967. In Figures 7 & 8, e-payment replaced cash transactions in the 1990s as the network grew. The first convenient online payment solution was Google Wallet in the early 2010s. About 2000 years ago, China, Carthage, and the Roman Empire issued promissory notes, although banknotes have altered since the 7th century. Credit coins and charge plates have been used for trade since the late 1800s. Cards became popular 50 years ago. Since 2011, mobile phones have replaced cash, checks, and credit cards for services and digital or physical goods. The 4 May 2016 launch of Apple Pay, followed

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by Samsung and Android Pay, streamlines payment customisation options; mobile wallets can promote customer loyalty, value, and customisation. Large firms adopting various payment methods may increase wallet share rivalry.

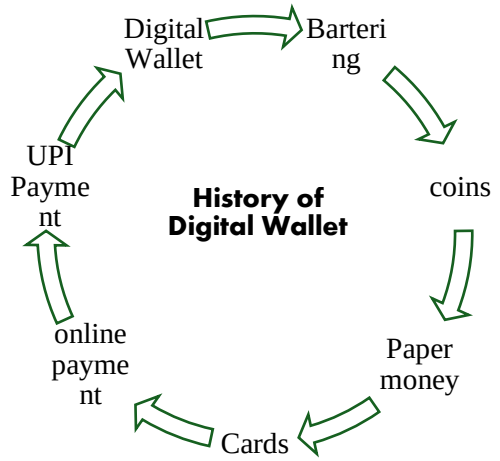

Figure 7: History of Digital Wallet

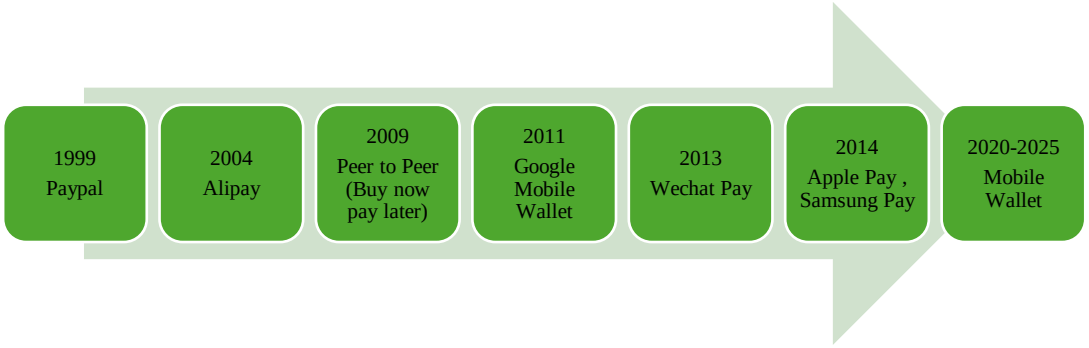

Figure 8: Evolution of Digital wallet (Author's own complication)

Players in Wallet-based Operations:

1. Device makers/ vendors: The company evaluates electronics' scientific capabilities and limitations. Many gadget manufacturers support mobile payments.
2. Financial Services Provider: Banks, telecoms, and prepaid accounts provide payment settlement and credit organisations' infrastructure.
3. Payment Service Provider: Provides financial services organisations' gateway and infrastructure. It now provides software and interfaces for financial service provider, customer, and merchant interactions.
4. Network Service Provider: Encrypts mobile device payment initiation. They already charge mobile phone users.

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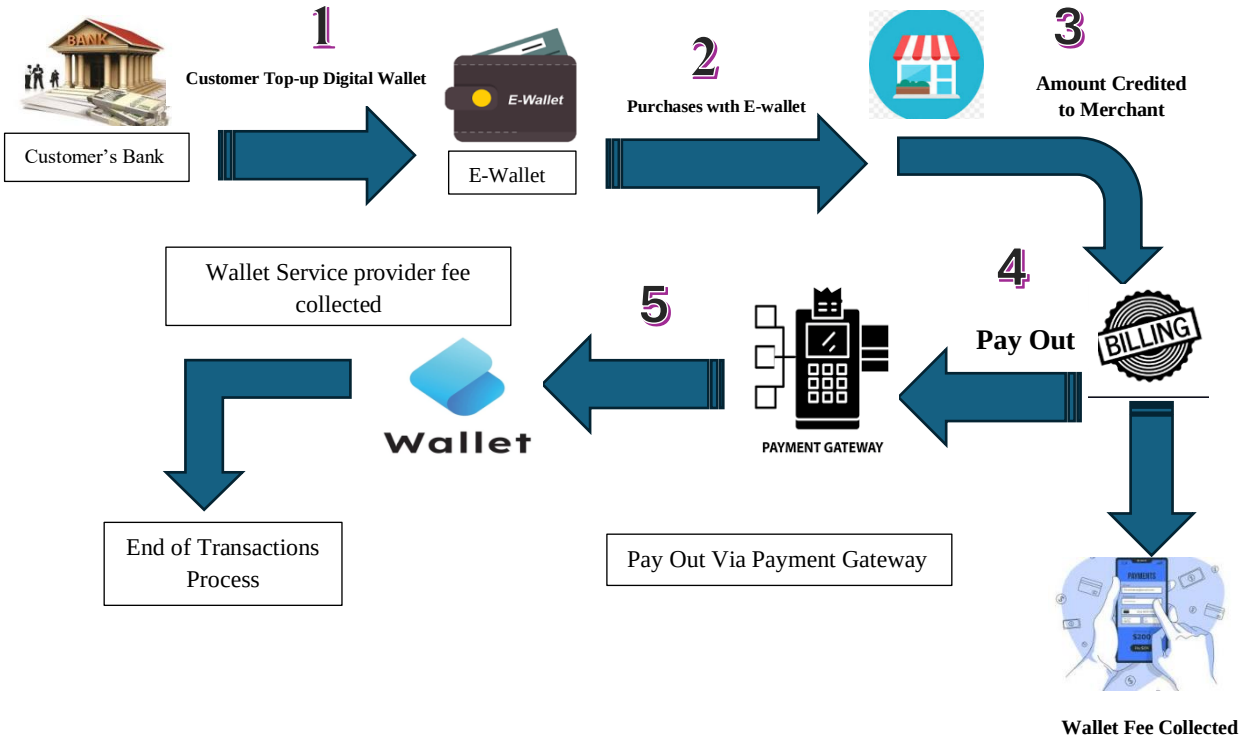

Figure 9: Players in Digital Wallet

Matrix of Payment Goals

1: Deutsche Bank and Fin Lync, an aggregator of global banking APIs, offered embedded real-time payments and cash management in 2022, giving corporate clients real-time treasury services. APIs for applications enable real-time treasury, allowing corporate clients to make quick choices and increase cash oversight.

2: In 2023, Sofi and Mastercard launched a Buy Now, Pay Later (BNPL) program that lets customers pay for USD 50–$500 products in four interest-free instalments.

3: In 2022, UBS moved over 50% of its apps to Microsoft Azure's cloud infrastructure.

4: Citibank's VAM infrastructure gives business customers automated accounts receivable and payable perks. Citibank reported an 82% increase in utilisation account balance growth in 2022 due to 33% virtual standardised software utilisation.

5: BIS created Nexus Gateway, an Ethernet model, to standardise IP system multilateral interconnection. The 2021 pilot integrated Europe, Malaysia, and Singapore systems.

6: NatWest adopted Icon Solutions' low-code Icon Payments Framework (IPF) for ISO 20022 communications in September 2023.

7. Wero (we + euro), EPI's Digital Wallet, launched in October 2023. By mid-2024, EPI will launch in Belgium, France, Germany, and then the Netherlands.

8: The BIS and Israel, Norway, and Sweden's central banks launched the Initiative Icebreaker in 2023 to demonstrate the efficacy of the unified tokenisation of the CBDC system.
9: Discover Global Network introduced its cloud-based tokenisation solution to improve payment organisation for companies. DeFi allows people to transact without banks or through decentralisations. Blockchain and smart contracts automate financial transactions in decentralised finance (DeFi).
10: SAP launched a neural network-based expense management solution. Customers can find cost-saving possibilities and improve operations using the SAP Spend Control Tower.

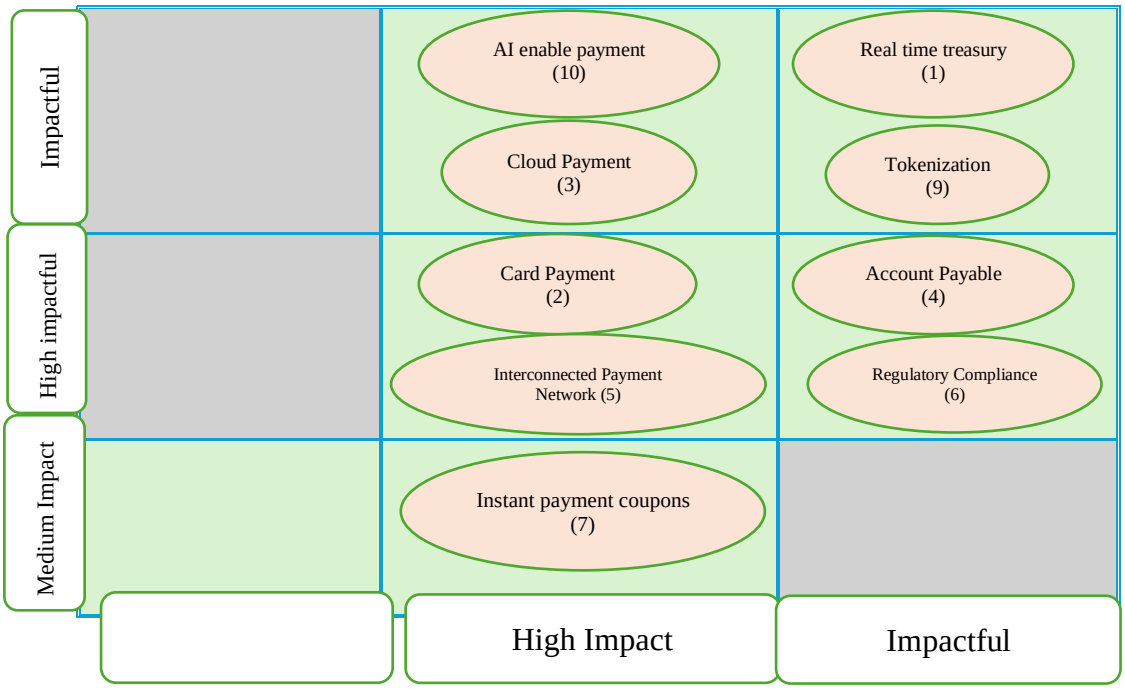

Figure 10: Matrix of Payment Goals

Figure 10 shows the many facets and developments of digital payments. It highlights important factors, their linkages, and sector impacts. The left vertical axis indicates each component's "Medium Impact" to "Impactful." The horizontal axis at the top illustrates each factor's "Medium Impact" to "High Impact." Each of the nine cells represents a different aspect of tokenisation. AI-enabled payments, real-time treasury management, cloud-based payments, tokenisation, card payments, accounts payable, linked payment networks, regulatory compliance, CBDC payments, and instant payment vouchers are factors. The location of graphic elements indicates their relevance and impact. AI-enabled payments and real-time treasury were placed in the top-right quadrant to demonstrate their sector significance. On the other hand, card payments and accounts payable are in the bottom-left analysis, reflecting less influence.

Theories

Theories allow researchers to analyse their study subjects, enhancing academic proficiency meticulously. Table 6 summarises major academic theories and models on technology uptake and user behaviour. The most widely used paradigm, the TAM Model, uses perceived usefulness and ease of use to forecast technology adoption with 38 references. Next, the 28-article UTAUT incorporates numerous models and is often changed (16 references) for specific study situations. The TPB (7 sources) and the DOI (8 references) examine behavioural goals driving technology use.

Table 7 includes niche and emergent theories beyond standard frameworks. Blockchain Theory, Task Technology Fit Theory, and ECM are mentioned numerous times, while Machine Learning and Deep Learning Theory, Web 3.0 Theory, and Innovation Resistance Theory are only mentioned once. This paper shows academics' various paradigms to study technology adoption, security, and user behaviour in changing digital landscapes.

Table 7: Theories in Digital Wallet

Theory Name	**Count Article**
TAM	28
UTAUT	15
UTAUT 2	16
TAM 2	10
DOI Theory	8
TPB Theory	7
HBM Theory	3
The Expectation-Confirmation Model	3
Theory of Blockchain	3
Task Technology fit theory	2
Grounded in security analysis theory	1
Grounded in Islamic finance principles Theory	1
User Behaviour Technology Adoption Model	1
Elliptic Curve Cryptography Theory	1
Theories of Consumer Behaviour	1
Web 3.0 Theory	1
The Information Systems (IS) success model	1
Statistical learning theory	1
Federated Byzantine Agreement consensus algorithm	1
Cryptographic Theories	1
SPPMC Theory	1
Machine learning and Deep learning Theory	1
The FP-Growth algorithm	1
Impulsive buying Theories	1
M. Rokeach's model	1
S-O-R Theory	1
The Hedonic Motivation System Adoption Model (HMSAM)	1
Theories related to gender disparities	1
Modified Diffusion of Innovations theory	1

Design Science Research Approach	1
Theories of supply chain management	1
Dialectical and Systemic Approach	1
Theory of Reasoned Action	1
Theory of Economic behaviour and network analysis	1
Multifactor Authentication Theory	1
Theory of Tying	1
Technology Continuous Theory (TCT)	1
Customer citizenship behaviour (CCB)	1
Theory of Perceived Risk (TPR)	1
Self-efficacy theory	1
Critical mass theory	1
Flow theory	1
Innovation Resistance Theory (IRT)	1
Theory of Digital Forensics	1
The Principles of Cellular Automata	1
The Decentralized Multi-Constrained Derangement Model	1
The Theory of financial infrastructure & digital payment systems	1
The Federated Byzantine Agreement (FBA) consensus algorithm	1
Cognitive absorption Theory	1

Table 8: Summary of Approaches and Methodology

Context	**Count**	**Percentage**
Platform		
Online	55	41.04
Offline	46	34.32
Online + Offline	33	24.62
Grand Total	**134**	
Sampling		
Purposive Sampling	37	27.61
Convenience Sampling	34	25.37
Random Sampling	29	21.64
Network Sampling	10	7.46
Snowball Sampling	9	6.71
Non-probability Sampling	6	4.47
Judgement Sampling	4	2.98
Probability Sampling	1	0.74
Multistage Random Sampling	1	0.74
Expert Opinion	1	0.74
Face to Face Interview	1	0.74
Simulation Sampling	1	0.74
Countries		
Global Context	42	31.34
Malaysia	38	28.35
India	16	11.94

Indonesia	14	10.44
South Korea/ Korea	2	1.49
Jorden	2	1.49
Canada	2	1.49
Germany	2	1.49
Pakistan	1	0.74
Philippines	1	0.74
Latin America	1	0.74
Turkey	1	0.74
Bulgaria	1	0.74
Ukraine	1	0.74
Ghana	1	0.74
Nigeria	1	0.74
South Arabia	1	0.74
Hungry	1	0.74
Thailand	1	0.74
China	1	0.74
Vietnam	1	0.74
Oman	1	0.74
Japan	1	0.74
Singapore	1	0.74
Data Analysis		
Structured Questionnaire: closed-ended questionnaire Open-ended Questionnaire	34 (21+13)	25.37 (15.67+ 9.70)
Survey	20	14.92
Structured Interviews	18	13.43
ISM & MICMAC	10	7.46
Focus Group Discussion	10	7.46
Experimental Trials	10	7.46
Secondary Data Analysis	8	5.97
Case Study	7	5.22
Semi-Structured Interview	6	4.47
Content Analysis	6	4.47
Simulation Network Node Analysis	5	3.73
Types of Study		
Qualitative Study	30	22.38
Quantitive Study	21	15.67
Review Research Paper	13	9.70
Empirical Study	13	9.70
Experimental Study	10	7.46
Descriptive-Causal Study	10	7.46
Mix method Research	10	7.46

Applied Research	6	4.47
Conceptual Study	6	4.47
Analytical Study	5	3.73
Case Study	4	2.98
Ethnographic	3	2.23
Descriptive Analysis	3	2.23

Table 8 summarises the research methodology and shows the variety of approaches. Platform, sampling methods, countries, and data analysis categories highlight essential aspects of research design and execution. About half of the study (41.04%) uses both online and offline methods, indicating an increasing tendency towards hybrid approaches to reach larger samples and use both digital and traditional instruments. In exploratory investigations, focused sampling might offer more relevant insights. Therefore, sampling methods that prefer non-probability emphasise purposive (27.61%) and convenience (25.37%). This is common in studies that emphasise depth over breadth, especially in areas requiring expert input or where random sampling is impossible.

Malaysia (28.35%) and India (11.94%) contribute significantly to global research, demonstrating they actively participate in scholarship. Diversity improves external validity and reflects cultural and regional perspectives. Based on data analysis methodologies, structured questionnaires (25.37%) and surveys (14.92%) favour quantitative analysis, while structured interviews (13.43%) and focus group talks (7.46%) provide qualitative investigation. Such flexibility helps researchers to adjust their methods to individual study topics, assuring robust and nuanced insights. Qualitative (22.38%) and quantitative (15.67%) research are used in the study, demonstrating a balanced methodological spectrum for exploratory and confirmatory research. This balance is essential for trustworthy, in-depth findings and statistical validation. The data shows that modern research procedures are complicated and integrative, making them vital in creating well-rounded and productive studies that cover varied research objectives and situations.

Future Research Directions:

To direct subsequent investigations into the Digital Wallet behavioural intention to use. The author outlines directions for prospective study informed by theoretical, contextual, characteristic, and methodological insights.

The Theories

The Technology Acceptance Model (TAM) (Thomas et al., 2020; Uduji & Okolo-Obasi, 2018; Umer et al., 2023; Wong & Kim, 2016; Xia et al., 2024; Xu et al., 2020), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatraman, 2008; Sarmah et al., 2021; Schlatt et al., 2021; Sedlmeir et al., 2022), the Modified Unified Theory of Acceptance and Use of Technology (UTAUT 2) (Yaakop et al., 2021; Yakean, 2020; Yang & Shi, 2024), and the Modified Technology Acceptance Model (TAM 2) (Chen et al., 2015; Johan et al., 2022; Liu et al., 2021; Rahmayanti et al., 2021; Anshari et al., 2021; Chou et al., 2014) have

been extensively employed in present research to elucidate the Digital Wallet phenomenon. However, these perspectives focus solely on the positive aspects of adoption. Moreover, the behavioural reasoning theory and the innovation resistance theory illustrate concepts that could be beneficial from multiple viewpoints, allowing future researchers to collect arguments for and against the Digital Wallet behavioural intention to use. Therefore, the author suggests the following:

Examine the factors that facilitate and hinder customers' intentions to utilise Digital Wallets through the perspectives of behavioural reasoning theory or conventional prejudice within a unified framework. Future studies might investigate additional dimensions of service integration and their impact on Digital Wallet intention within the framework of flow theory (Research, 2023; Iscan et al., 2023). The author conducted further research to comprehend Digital Wallet user behaviour from the consumer viewpoint by employing various constructs of the Unified Theory of Acceptance and Use of Technology (UTAUT/UTAUT-2) and perceived value across multiple product categories with unique symbolic and experiential dimensions (Bukhari et al., 2024; Ilieva et al., 2023; Leong et al., 2020).

Context:

Investigations into the behaviour of digital wallet customers have been carried out in 24 countries. Eighty-four per cent of these come from the Global abstraction, with Malaysia at the forefront, followed by India and Indonesia, complicating the inference of their findings. Since technology has rapidly transformed global consumer behaviours, authors may acquire valuable insights by examining and contrasting different countries and cultures (Castonguay & Smith, 2020; Iqbal et al., 2020). Customer engagement behaviour (CEB) is contingent upon the engagement instrument utilised (Chawla & Joshi, 2021; Jain et al., 2004). Moreover, interactive marketing is transformed by the changing participatory culture in various societies. The potential research enquiries may include:

Q. Analyse the effective permutation and combination of Customer Engagement tools and strategies that can cultivate loyal Digital Wallet users across diverse cultural contexts. (Iscan et al., 2023; Lim et al., 2022; Radzi et al., 2024).

Q. Examine Digital Wallet user engagement using integrated interactive marketing across Nations (Rusdianti & Fajar, 2023; S & G, 2022; Saragih et al., 2023).

Characteristics:

Kamath (2023), H et al. (2019), Daragmeh et al. (2021), and Jung and Jang (2014) are only some of the studies that have made substantial use of the Technology Acceptance Model in their research on Digital Wallets, specifically regarding the techniques that users employ utilising and offline. Nevertheless, there is still a chance for a study to be conducted using the principles of technology acceptance theory. Considering the current state of the industry and the advancement of technology, for instance, studies that have already been conducted have predicted customer adoption. Therefore, academics have the opportunity to examine the factors that lead to the non-retention of customers on Digital Wallet services. This research study will facilitate the execution of an optimal strategy to retain customers and deter

switching. (Ariffin et al., 2021; Das & Jadhav, 2021) or encourage loyal use of Digital Wallets. In light of this, proposed the following:
Q. To keep customers for an extended period, it is essential to investigate the elements that fall within the category of Digital Wallet usage (Sakas et al., 2023; Zet et al., 2023; Zlati, 2023).

Q. Using the TAM Modified theory, analyse the impact that technological complexity has on consumers who use Digital Wallets (Wei et al., 2023; Kraiwanit et al., 2023; Kumar et al., 2020; Paul et al., 2021; Akanfe et al., 2023; Bodziony et al., 2021)

In this question, we will investigate the impact that different technologies, such as blockchain, may have on the amount of effort prioritise undertaken throughout its use.

Method:
Table 8 indicates that most researchers prioritise qualitative investigations. Study experts gave quantitative studies little weight in Digital Wallet usage studies. Empirical research is commonly acknowledged for understanding a phenomenon due to its quantitive nature (Al-Okaily, 2023; Canepa et al., 2022; Ilyas & Yasin, 2021). Gamification is emerging as a prevalent model for Digital Wallet services; hence, a quantitative research technique could elucidate its potential consumer advantages by examining various elements. (Phuong et al., 2020). Digital Wallet research rarely uses mixed methods or Case Studies. Mixed-method studies are becoming the preferred method for in-depth analysis. Thus, our study anticipates a more prominent use of qualitative and mixed-method approaches to understand Digital Wallets better. The following is suggested.
Q. Quantify the impact of gamification on Digital Wallet services to contend with the lack of gamification tools using a mixed method. More discounts, coupons, and loyalty points may be considered (Lew et al., 2020; Yang & Shi, 2024).
Q. Design an experimental study to investigate the effect of gamification on customer behavioural intention. (L. Leong et al., 2019; Putra et al., 2020).
Q. Conduct a qualitative study to determine how supplementary factors improve customer retention by interviewing a broader and more diverse sample, encompassing individuals with varying socio-demographic and behavioural backgrounds. (Igboanusi et al., 2021; Latupeirissa, 2020; Phan et al., 2020).
The study may also triangulate the experiences of customers and other stakeholders.

Concluding Remarks and Potential Implications:
Over the past decade, technological advances have transformed the world and consumer behaviour. Covid-19 also accelerated proceedings. Therefore, the "Digital Wallet User" would only grow in popularity, affecting the digital payment industry. Academics will certainly study this phenomenon, and corporations will profit from it. Management and academia have several ramifications from this study. A SPAR-4-SLR thorough literature review was done and summarised. The author then discussed how the growth of the tech-

payment industry affects Digital Wallet services. Three questions were answered using the TCCM model:

"What information do we possess regarding Digital Wallets? What is our understanding of Digital Wallets? What are the probable potential paths for Digital Wallets?"

Prior studies have given academics several opportunities to study "Digital Wallet" features. Further analysis will illuminate this fast-growing phenomenon and add to Digital Wallet development knowledge. Consumer technology adoption, networking theory, and unified technology acceptance theories generalise the concepts. A broad-based framework integrating global economies would lead to generalised findings since the Internet has no bounds and marks conceptualise growth prospects elsewhere. Other studies should use mixed methods to properly conceptualise a phenomenon, as they have become increasingly popular.

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