

DIGITAL TRANSFORMATION IN PAYMENTS STUDY ON CONSUMER AWARENESS AND USAGE OF MOBILE WALLETS IN ANDHRA PRADESH

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Abstract— India is one of the fastest-growing digital payment markets in the world. Mobile wallets or e-wallets have framed a promising ecosystem, driven by strong technological initiatives and key government projects like Digital India, Atmanirbhar Bharat, and Make in India. This has created considerable demand for secure, efficient e-wallet payment systems. An e-wallet is a pre-paid pay service, usually offered through

an Android mobile device and financially regularized. It must be linked with one's bank account to operate. Functionally, it consists of two elements: software, which supports encryption that safeguards information; and data, which holds crucial personal and payment information such as name, card details, among others. The increasing trend of mobile wallets is fast rendering traditional modes of payments, such as cash, checks, and cards, obsolete. Globally, consumers are far more likely to use a digital wallet. At the forefront of this trend is India, with the highest global digital wallet adoption rate, used by 90.8% of consumers in 2024-25. This rapid growth is mainly because of unprecedented smartphone and internet penetration, with growing awareness among consumers about the wallets' sheer convenience. Besides, merchants are beginning to accelerate their adoption due to lower setup costs and transaction fees offered by mobile wallets compared to traditional card-based systems. This behavioral and structural shift confirms the mobile wallet's critical role in shaping India's burgeoning digital economy.

Keywords: Digital Wallet, Mobile Wallet, E-Wallet, Consumer Awareness, Adoption

Digital Payments, Payment Ecosystem

1. INTRODUCTION

The financial landscape worldwide is undergoing a rapid and disruptive transformation characterized by a mass migration from physical to digital means of exchange. This seismic shift, fundamentally driven by pervasive mobile technology and the widespread availability of affordable internet access, has completely redefined how daily transactions are initiated and completed across the globe. At the core of this global revolution is the mobile wallet, or e-wallet, a digital instrument that seamlessly substitutes traditional currency and physical cards, offering a secure, virtual counterpart for commerce. India stands out prominently in this narrative, having emerged as one of the most dynamic and rapidly evolving digital payment consumer markets in the world. The sheer scale and speed of digital adoption across the Indian subcontinent present a compelling case study in technological leapfrogging within a developing economy.

The foundation for India's digital payment surge is multifaceted, rooted deeply in proactive governmental policy and rapidly changing demographic realities. Several significant technological and political initiatives have created an environment uniquely conducive to cashless transactions. The ambitious Digital India program, alongside strategic economic policies like Atmanirbhar Bharat, Make in India, and Start-up India, have been instrumental in establishing the necessary digital infrastructure. Coupled with the exponential rise in both internet and smartphone penetration, these initiatives have collectively generated the critical mass and consumer need for the widespread utilization of e-wallet systems. Technically, a digital wallet operates as a prepaid payment instrument. Functioning under stringent financial direction, it is a service performed using an Android or similar mobile device, requiring a secure link to the user's bank account. This service is architecturally composed of a software component that handles data security and encryption, and an information component that stores all essential personal and payment data required for seamless transactions.

The robust adoption rate confirms a monumental societal shift away from historical payment methods such as physical cash, cheques, and traditional debit or credit cards, all of which are increasingly becoming obsolete. Globally, the consumer preference for this digital medium is stark: users are reported to be 127 percent more likely to use a digital wallet compared to other online payment methods. Reflecting this trend, India has firmly cemented its position as a global leader in this domain. Data from 2024-25 indicates a remarkable 90.8 percent of Indian consumers are actively using digital wallets, illustrating a near-universal embrace of this convenient payment modality. This phenomenal success is not merely a technological anomaly but a behavioral phenomenon driven by the perceived security, convenience, and efficiency of the system.

The continuous momentum of the Indian mobile wallet market is sustained by a potent synergy between consumer desire and merchant expediency. For consumers, the primary psychological driver is the appeal of the instantaneous, one-click nature of payments, coupled with time savings and the ability to effortlessly track spending. Crucially, merchants are equally incentivized to adopt the e-wallet ecosystem. Compared to the capital required to establish and maintain traditional card-based Point of Sale (POS) systems, mobile wallets offer significantly lower setup costs and transaction fees. This fundamental economic benefit allows small businesses, vendors, and micro-merchants to easily participate in the digital economy, democratizing financial access and accelerating the growth trajectory of the entire system.

While national statistics paint a broad picture of sweeping digital acceptance, the actual pattern of adoption and the corresponding level of consumer awareness can vary significantly across India's diverse states. The state of Andhra Pradesh (A.P.), with its specific demographic distribution, varied urban and rural concentration, and unique regional economic structure, presents a vital and underexplored micro-environment for studying this digital transition. Understanding the specific factors that influence consumer awareness and, consequently, the successful adoption of digital/mobile wallets within A.P. is crucial. It allows policymakers, financial institutions, and FinTech providers to move beyond national averages and tailor educational, security, and infrastructure efforts to meet the specific needs and challenges of the local population. Therefore, this study is undertaken to conduct a focused and in-depth analysis to measure the existing level of Consumer Awareness in Adopting Digital/Mobile Wallets, with particular reference to the evolving consumer market within the state of Andhra Pradesh.

2. LITERATURE REVIEW

This paper, "Mobile Wallets: Adoption and Security Challenges," presents a dual landscape of mobile wallet technology by focusing on the factors responsible for their wide acceptance, while critically considering some of the persistent security challenges affecting consumer trust and use. The research examines consumer motivation toward adopting mobile wallets for increased convenience, speed of transactions, and easy integration with other digital services. It most probably probes how aspects such as perceived usefulness and perceived ease of use, emanating from models like TAM, stimulate the increasing popularity of mobile wallets in different parts of the world. However, a significant part of the paper is dedicated to critical security and privacy concerns that may slow down or even reverse the growing adoption trend. The

authors discuss different security risks: data breaches, fraudulent transactions, malware attacks, and general protection of sensitive personal and financial information kept on mobile devices. Additionally, the study probably evaluates efficiency in threats' mitigation by means of security measures such as tokenization, multi-factor authentication, and biometric verification. Finally, the paper gives recommendations to developers, financial institutions, and regulators regarding how security and infrastructure of transparency should be enhanced to provide long-term consumer confidence in mobile wallet solutions.[1] the authors perform an extensive literature review in which previous research on mobile payments is synthesized. Typically, such a review will cover themes such as technological capabilities, business models, and-most relevantly-diverse factors that influence consumer and merchant adoption. This paper provides reflections about the state of the body of knowledge on the particular subject, including major points of consensus and major gaps in current knowledge. The culmination, and the most influential element, of this study involves presenting a substantial, forward-looking research agenda. This agenda guides future scholarship by pinpointing areas where the exploration of research questions regarding new technologies, cross-cultural adoption differences, the impact of trust and regulation, and the impact of mobile payments on economic development remains incomplete.[2] The title of this research, "A Study on the Factors Affecting the Adoption of Mobile Wallet," is an empirical study that aims to find and analyze the crucial determinants in influencing an individual's decision to adopt and use mobile wallet technology. The authors likely utilized a theoretical framework from the main IT adoption models, such as UTAUT or TAM, and modified it to better suit the context of mobile payments. In these studies, a sample of potential and actual users is usually surveyed for data regarding their perceptions and intentions.[3] "The Role of Mobile Payments During the COVID-19 Pandemic" is an article that unfolds in detail about how this pandemic induced a hastened behavioural change in payment habits. Central to any discussion lies the vital role of mobile payments as the hygienic and socially distanced alternative during times of lockdowns and increased concern about health, significantly against cash-based forms of payment. The pandemic accelerated changes in priorities among consumers worldwide and brought about unprecedented increases in the usage and uptake pace of contactless and mobile modes of making transactions. The research likely explores several dimensions of this phenomenon, including the acceleration of digitalization in retail and service sectors, the impact on specific demographic groups (e.g., older or less technologically savvy individuals), and the policy responses of governments and central banks to facilitate digital transactions. The authors may employ an empirical approach, analyzing transaction data or conducting surveys to measure the change in consumer behavior, focusing on constructs like perceived risk, perceived safety, and continued usage intention post-crisis. Ultimately, the paper provides a crucial snapshot of how a global crisis can disrupt established norms and serve as a catalyst for technological adoption, cementing the long-term strategic importance of mobile payments in the future of electronic commerce and a potentially "cashless" society.[4] "Understanding the Adoption of Mobile Payments: An Empirical Study" is a thorough investigation into the psychological and behavioral underpinnings for why consumers choose to integrate mobile payments into their daily financial lives. The basis for this empirical research is likely established theories on information systems and consumer behavior, in an effort to develop and test a comprehensive model of mobile payment acceptance. This may normally include collecting data from a large sample of users and using sophisticated quantitative

methods to analyze how different antecedent variables interrelate with one another to arrive at the final adoption outcome. It generally focuses on understanding important user perceptions, such as the value perceived to be derived from the service, including those related to, for example, convenience or loyalty programs, and the mitigating factors that prevent the use of the service. The role of trust, in particular, may be emphasized as an institutional trust in the service provider and technological trust in the security of the platform, as an important precursor to adoption. Other factors that may be considered include habit, system quality, and contextual influences, such as availability at merchant locations.

3. OBJECTIVES

The present paper seeks to

- To study the market growth of mobile wallets in India.
- To examine consumers' perceptions after the usage of mobile wallets/e-wallets with reference to A.P.
- To identify the challenges faced by consumers after the use of mobile wallets.
- To suggest some recommendations to overcome the problems and efficiency of mobile wallets.

4. METHODOLOGY

The research design to be followed in this study is empirical and quantitative, as it seeks to describe the present level of mobile wallet adoption and explain the causal links between key influencing factors and adoption behavior. The survey method, being a cross-sectional approach, was used to collect data from a large number of consumers at a single point in time—a snapshot that represents the current level of perceptions, awareness, and patterns of use of mobile wallets. This framework is guided primarily by the extensions of TAM and established theories on security and trust adjusted to specific characteristics of the digital payment environment of India. The respondents targeted by this study are active mobile users across India, which for the purpose of the study is divided into two categories: current e-wallet users and non-users. Data were collected through a structured self-administered questionnaire. The items included on the questionnaires were prepared based on five-point Likert scales to measure constructs like Perceived Usefulness, Perceived Ease of Use, Security Risk Perception, Merchant Acceptance, and Consumer Awareness. Convenience sampling is a non-probability sampling technique that was used to source respondents from major Indian metropolitan cities, such as Delhi, Mumbai, and Bengaluru, to ensure a representative sample of the country's rapidly growing digital user base. The targeted sample size was around 400 to ensure sufficient statistical power in the inferential analyses. This analysis allows the relative influence and significance of each factor driving the rapid growth and high adoption rate of digital wallets in India to be quantified.

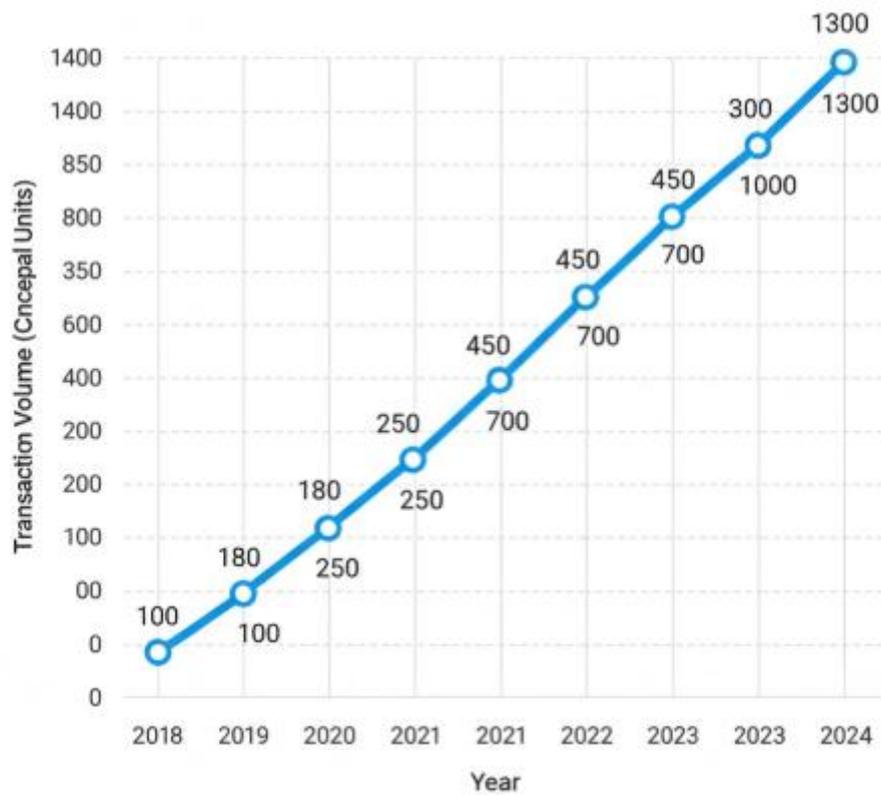


Figure 1 Growth in Digital Payment transaction Volume in India

4.1 Sources of data

The data collection is done from both primary and secondary sources.

The primary data is collected with the help of structured questionnaire.

The secondary data is collected from various websites, newspapers, and already published articles for guidance purpose.

Sample size of 300 has taken for the study out of which only 253 respondents were responded for the study.

The tools of analysis utilized in the empirical study are various statistical tools like Krushal Wallis Test, Chi-Square, ANOVA, T-Test.

5. RESULTS AND DISCUSSION

5.1 Kruskal-Wallis Test: Duration and Spending vs. Age Group

- H_0 : Age group is not dependent on monthly spending and how long they were using e-wallet.
- H_1 : Monthly spending amount on e-wallet and how long they are using e-wallet is dependent on age group.

Test statistics	How long respondents have been using digital/ mobile wallets	Average amount spending on digital wallet
Chi – square	7807	0.751
df	1	1
asyp. slg	.021	.498

Here, the value of significance is less than 0.05 thus, H_0 is rejected.

Hence, it can be interpret that almost all the respondents were using mobile wallets for their needs.

5.2 Are you aware of E- wallets

H_0 : The age group is not dependent on the awareness about e-wallet

H_1 : The awareness about E-wallet is dependent on age group

one way ANOVA

	Sum of squares	Df	Mean sum of squares	f-value	f-sig
Between groups	0.001	1	0.001	0.017	0.58
Within groups	3.671	0.214	0.058		
Total	3.671	0.216			

The significant value obtained is 0.58. So, researcher is unsuccessful to reject null hypothesis. Thus, it can be concluded that there is no significant difference between age groups and awareness about E-wallet.

5.3 Suggestion based on Result analysis

- Publicize and simplify explanations of key advanced security features like tokenization and UPI PIN mechanics within the app and through education campaigns, which will be important for helping drive consumer trust in particular versus traditional physical cards.
- Establish a quick, consistent, and easily accessible one-click channel to report failed transactions, fraud, or chargebacks, ensuring quick turnaround times to improve perceived reliability.
- Invest in technology like UPI Lite or similar frameworks that will let low-value transactions be completed reliably even with poor or zero internet connectivity or network congestion, solving the most frequent operational hurdle.

- Agitate for and implement a binding QR code interoperability across all major platforms: PhonePe, GPay, and Paytm, so no longer will a consumer have to abandon their purchase because the merchant doesn't accept their particular app.
- Provide subsidies or incentives to merchants in smaller towns and rural areas in Andhra Pradesh and other states for the adoption of PoS devices or QR code-based digital transactions, thereby widening the geographical scope of such initiatives.
- Initiate targeted regional language education programs in states such as A.P. by highlighting the benefits, usage, and the safety protocol of a mobile wallet to onboard those users still resistant to digital adoption.
- Establish an in-app alert system immediately, clearly, and prominently to inform users of the risks of common scams, like sharing UPI PINs or remote access calls, in order to tackle the issue of fraudulent messages and calls.

6. CONCLUSION

In conclusion, Digital/Mobile Wallets is a definite step in evolution and has conclusively proved its edge over the existing traditional modes of payment. The evidence, more so from dynamic markets like India, is compelling: an overwhelming majority of consumers are actively choosing digital over physical transactions. The key advantage lies in convenience and efficiency: Mobile wallets offer instant, one-click transactions that save time for consumers and merchants alike. This efficiency is further bolstered by the lower operational barriers that make it easier for businesses to set up; merchants benefit from notably lower setup costs and transaction fees than with traditional card infrastructure. Moreover, the wallet integrations within the phone and mobile environment offer superior levels of traceability and security features than the cash itself, which may be lost or stolen. Triggered by growing consumer awareness and massive governmental and technological backing, the digital wallet ecosystem offers a future-ready alternative that is much more accessible and economically viable. For the consumer market in Andhra Pradesh, adopting this system is not an option but an imperative requirement for full participation in the modern digital economy.

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Questionary

1. Do you use a mobile wallet (e.g., Google Pay, Paytm, PhonePe) for transactions?
 - a) Yes
 - b) No
2. Is convenience the primary reason you use a mobile wallet instead of cash?
 - a) Yes
 - b) No
3. Do you use a mobile wallet at least once every day?
 - a) Yes
 - b) No
4. Do you perceive mobile wallet transactions as safer than using credit/debit cards in physical stores?
 - a) Yes
 - b) No
5. Have you ever stopped a transaction because the merchant did not accept your preferred mobile wallet app?
 - a) Yes
 - b) No
6. Do promotional rewards and cashback significantly influence which mobile wallet you choose to use?
 - a) Yes
 - b) No
7. Do you use your mobile wallet mainly for utility bill payments and recharges?
 - a) Yes
 - b) No
8. Is a lack of internet connectivity the most frequent difficulty you face while using a mobile wallet?
 - a) Yes
 - b) No

9. Are you aware of the security features like tokenization or UPI PIN in your mobile wallet app?

- a) Yes
- b) No

10. Have you ever received a fraudulent message or call related to your mobile wallet account?

- a) Yes
- b) No

11. Would you be willing to switch to a new mobile wallet app if it offered slightly better security, even without better rewards?

- a) Yes
- b) No

12. Do you currently have more than one mobile wallet app installed on your smartphone?

- a) Yes
- b) No

13. Do you believe mobile wallets have completely replaced your need to carry physical cash for small transactions?

- a) Yes
- b) No

14. Do you check your mobile wallet transaction history at least once a week to monitor spending?

- a) Yes
- b) No

15. Do you use biometric authentication (e.g., fingerprint, face ID) every time you complete a mobile wallet transaction?

- a) Yes
- b) No