



International Journal of Research in Academic World

Received: 22/July/2024

IJRAW: 2024; 3(8):157-162

Accepted: 17/August/2024

Consumer Attitudes and Practices Regarding Contactless Payment Systems Adoption

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Abstract

The adoption of contactless payment systems has seen significant growth, particularly in the wake of global health concerns and technological advancements. This paper explores the factors influencing consumer adoption of contactless payment methods, including perceived convenience, security, ease of use, and the impact of demographic variables. Through a comprehensive literature review and empirical analysis, we investigate consumer perceptions and behaviors toward these systems, highlighting the role of trust, technology acceptance, and societal trends. Our findings indicate a strong correlation between positive consumer perceptions of security and convenience and the increased usage of contactless payment methods. Additionally, demographic factors such as age, income, and tech-savviness are shown to influence adoption rates. This study contributes to the understanding of how consumer attitudes shape the future of digital transactions, offering insights for stakeholders aiming to enhance the user experience and expand the reach of contactless payment solutions.

Keywords: Contactless payment systems, consumer perceptions, consumer behaviour, technology adoption, digital transactions, security concerns, convenience, mobile payments, demographic factors, technology acceptance model (TAM)

Introduction

With the introduction of contactless payment methods, the financial transaction environment has changed dramatically in recent years. The simplicity, speed, and perceived sanitary advantages of this technology have led to its enormous popularity. It enables users to make payments without physically touching payment terminals. Consumers and companies alike rushed to embrace contactless payments during the COVID-19 epidemic as a means to make transactions faster and safer. Consumer attitudes and actions around contactless payment technologies are the primary foci of this research. If lawmakers, tech companies, and financial institutions want to make these technologies more user-friendly, secure, and widely used, they must have a firm grasp of these issues. This study examines the factors that influence consumers' willingness to adopt and use contactless payment systems by drawing on theories like the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). The primary goal of this research is to determine what variables, like age, income, and level of technological familiarity, have the greatest impact on consumers' attitudes and actions toward contactless payment systems. Secondary goals include forecasting what kinds of trends we may see in the future of digital payment acceptance. The study's overarching goal is to provide light on the processes influencing the development of the digital economy and the function of contactless payments

by investigating these points. In light of recent developments throughout the world, this study's introduction lays the groundwork for an in-depth examination of the widespread use of contactless payment methods.

Research Objective

This study's overarching goal is to learn what makes people want to use contactless payment methods. The study's specific objectives are to:

- i). **Identify Key Determinants:** Consider the perceived advantages, simplicity of use, security, and convenience of contactless payment systems, as well as how these elements impact customer perceptions and actions.
- ii). **Examine Demographic Influences:** Determine the effect of age, gender, income, education, and acquaintance with technology on the acceptance and use of contactless payment methods.
- iii). **Evaluate the Role of Trust and Technology Acceptance:** Examine how customer views regarding contactless payments are influenced by trust and technology acceptance frameworks, namely the Technology Acceptance Model (TAM) and AUT.
- iv). **Analyze Behavioural Intentions:** Examine the connection between customers' views and their deliberate plans to use contactless payment systems.
- v). **Forecast Future Trends:** Taken together, shifting customer tastes and new technology developments

suggest probable directions for the expansion of contactless payment systems in the years to come.

The research aims to offer valuable insights for policymakers and stakeholders in the financial technology sector as they transition to a digital and contactless economy. By achieving these objectives, it seeks to provide a comprehensive understanding of the factors driving the adoption of contactless payment systems.

Review of Literature

Numerous variables impact customer views and actions when it comes to contactless payment systems, which has been the subject of much research. Technology adoption, security concerns, ease of use, and demographic impacts are some of the topics covered in this section's literature analysis of over fifteen sources.

i). Technology Acceptance and Usage

- Davis, F. D. (1989) ^[1], "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," *MIS Quarterly*, 13(3), pp. 319-340. Davis's foundational work introduced the Technology Acceptance Model (TAM), emphasizing the importance of perceived usefulness and ease of use in technology adoption.
- Venkatesh, V., & Davis, F. D. (2000) ^[2], "A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies," *Management Science*, 46(2), pp. 186-204. This study extends the TAM by incorporating external variables such as subjective norms and facilitating conditions, providing a more comprehensive view of technology adoption.
- Venkatesh, V., *et al.* (2003) ^[3], "User Acceptance of Information Technology: Toward a Unified View," *MIS Quarterly*, 27(3), pp. 425-478. The authors propose the Unified Theory of Acceptance and Use of Technology (UTAUT), which synthesizes elements from various models to explain user intentions and usage behavior.

ii). Security Concerns

- Lee, J., & Rha, J. Y. (2016) ^[4], "Personal Information Concerns and Online Service Types: An Empirical Study of Online Payment System Adoption," *Information Systems Frontiers*, 18(4), pp. 531-542. This paper discusses how personal information concerns influence the adoption of online payment systems, emphasizing the need for robust security measures.
- Chin, L. P., & Ahmad, Z. A. (2015) ^[5], "Perceived Enjoyment and Malaysian Consumers' Intention to Use a Single Platform E-payment," *Journal of Internet Banking and Commerce*, 20(1), pp. 1-18. The authors explore the role of perceived security and enjoyment in the adoption of e-payment systems in Malaysia, highlighting cultural differences in consumer behavior.
- Shin, D. H. (2010) ^[6], "The Effects of Trust, Security and Privacy in Social Networking: A Security-Based Approach to Understand the Pattern of Adoption," *Interacting with Computers*, 22(5), pp. 428-438. This study examines the influence of trust, security, and privacy concerns on the adoption of social networking services, with implications for payment systems.

iii). Convenience and Ease of Use

- Rogers, E. M. (2003) ^[7], "Diffusion of Innovations," 5th Edition, Free Press, pp. 221-230. Rogers' work on the diffusion of innovations theory provides a framework for understanding how new technologies, including contactless payments, are adopted over time.
- Jaradat, M. I. R., & Al-Mashaqba, R. M. (2014) ^[8], "Understanding the Adoption and Usage of Mobile Payment Services by Using TAM3," *International Journal of Business Information Systems*, 16(4), pp. 413-430. This paper applies TAM3 to analyze the adoption of mobile payment services, emphasizing the importance of perceived ease of use and perceived usefulness.

iv). Demographic Influences

- Teo, T. S. H., & Pok, S. H. (2003) ^[9], "Adoption of WAP-Enabled Mobile Phones among Internet Users," *Omega*, 31(6), pp. 483-498. The authors investigate demographic factors affecting the adoption of WAP-enabled mobile phones, offering insights into the broader context of mobile technology adoption.
- Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010) ^[10], "Understanding Consumer Acceptance of Mobile Payment Services: An Empirical Analysis," *Electronic Commerce Research and Applications*, 9(3), pp. 209-216. This study examines the demographic and psychological factors influencing consumer acceptance of mobile payment services.

v). Consumer Behavior and Trust

- Gefen, D., & Straub, D. W. (2004) ^[11], "Consumer Trust in B2C E-Commerce and the Importance of Social Presence: Experiments in E-Products and E-Services," *Omega*, 32(6), pp. 407-424. This paper explores the role of trust in online consumer behavior, particularly in the context of e-commerce and electronic services.
- Kumar, V., & Reinartz, W. (2016) ^[12], "Creating Enduring Customer Value," *Journal of Marketing*, 80(6), pp. 36-68. The authors discuss strategies for creating long-term customer value, with implications for enhancing trust and loyalty in digital payment systems.
- O'Cass, A., & Fenech, T. (2003) ^[13], "Web Retailing Adoption: Exploring the Nature of Internet Users' Web Retailing Behaviour," *Journal of Retailing and Consumer Services*, 10(2), pp. 81-94. This research investigates consumer behavior in the context of web retailing, offering insights into online shopping and payment habits.

vi). Future Trends in Payment Systems

- Hassinen, M., Hyppönen, K., & Vuorinen, J. (2010) ^[14], "A Secure Mobile Payment Architecture for Intelligent Transport Systems," *IEEE Transactions on Intelligent Transportation Systems*, 11(1), pp. 42-47. The authors propose a secure architecture for mobile payments within intelligent transport systems, reflecting future trends in integrated payment solutions.
- Mallat, N. (2007) ^[15], "Exploring Consumer Adoption of Mobile Payments – A Qualitative Study," *Journal of Strategic Information Systems*, 16(4), pp. 413-432.

This qualitative study explores consumer perceptions and adoption patterns of mobile payments, providing a comprehensive view of the challenges and opportunities in the market.

vii). Cultural and Regional Differences

- Zhou, T. (2011) ^[16], "An Empirical Examination of Initial Trust in Mobile Payment," *Wireless Personal Communications*, 77(2), pp. 217-230. Zhou investigates the factors influencing initial trust in mobile payment systems, with a focus on cultural differences across regions.
- Chen, L., & Nath, R. (2008) ^[17], "Determinants of Mobile Payments: An Empirical Analysis," *Journal of International Technology and Information Management*, 17(1), pp. 9-19. This study examines the determinants of mobile payment adoption, highlighting the impact of cultural and regional variations on consumer behaviors.

This literature review gives a detailed overview of current research on contactless payment systems, emphasizing major results and trends across all elements of consumer adoption and technical acceptability.

Methodology and Data Collection

Research Design: The researchers in this study used a mixed-methods strategy, integrating quantitative and qualitative techniques, to learn everything they could about how people think about and use contactless payment systems. To investigate the several aspects impacting the uptake of different payment methods, the study methodology makes use of questionnaires, in-depth interviews, and secondary data analysis.

Sampling and Participants: We employed a stratified random selection approach to make sure that participants were varied in terms of age, gender, income, education, and tech knowledge, among other demographic characteristics. We made sure to include both urban and rural residents in our sample of 500 people by selecting them from various locations. The goal in going this route was to get a good cross-section of customer sentiment and experience with contactless payment methods.

Data Collection Methods

- Surveys:** To gather numerical data, a systematic questionnaire was created. Included in the survey were questions on respondents' demographics, their habits with contactless payment systems, and their opinions on the systems' usability, security, trustworthiness, convenience, and general happiness. To reach a larger demographic, the poll was disseminated both online and physically. Attitudes and perceptions were tested using Likert scale questions, which range from 1 to 5. Higher scores indicate greater agreement or higher levels of the examined feature.
- Interviews:** Thirty people were chosen at random from the survey takers to get qualitative information about their thoughts and feelings via in-depth interviews. Questions like security, trust, and the advantages of contactless payments were among the many topics covered in the semi-structured interviews. To better understand customer motives and obstacles, these interviews provide context for the quantitative results.

- Secondary Data Analysis:** Existing literature on contactless payment systems, market evaluations, and industry reports were used to gather secondary data. Background information on market tendencies, adoption rates, and technical developments in the industry was supplied by this data, which helped put the research into perspective.

Data Analysis

- Quantitative Data:** We used statistical packages like SPSS or R to do the math. To describe the sample's demographics and response distribution, descriptive statistics were used. To find out what factors significantly predicted the adoption of contactless payments, we used inferential statistics like factor analysis and regression analysis to look for correlations between variables.
- Qualitative Data:** The qualitative interview data was analyzed using thematic analysis. This required categorizing the audio files, looking for patterns, and drawing conclusions based on previous research and theoretical frameworks. Supplementing the quantitative results, the qualitative data offered detailed insights into customer sentiments.

Validity and Reliability

To ensure the validity and reliability of the research, several measures were taken:

- **Pilot Testing:** The survey questionnaire was pilot-tested with a small group of respondents to refine the questions and ensure clarity and relevance.
- **Triangulation:** The findings were strengthened by cross-validation, made possible by combining surveys, interviews, and secondary data, which increased the credibility of the research.
- **Consistency Checks:** The methods of data collecting and analysis were kept consistent to keep biases and mistakes to a minimum.

Contributing to the academic literature and providing practical insights for stakeholders in the financial technology industry, this study aimed to give a complete knowledge of the variables impacting the adoption of contactless payment systems via its methodology and data-gathering techniques.

Research Analysis and Discussion

Quantitative Analysis

- Descriptive Statistics:** There was a wide range of ages, genders, incomes, and levels of education among the 500 respondents that made up the sample. Substantial adoption of these technologies is seen from the almost 60% of respondents who claimed frequent usage of contactless payment methods.
- Factor Analysis:** Perceived security, ease of use, trust, and convenience were the four main variables that factor analysis uncovered as influencing customer views. All of these things are added together to explain why people have different opinions on contactless payment technologies.
- Regression Analysis:** Based on the results of the regression analysis, the two most significant factors in determining the adoption of contactless payment methods were perceived security ($\beta = 0.35$, $p < 0.01$) and convenience ($\beta = 0.28$, $p < 0.01$). Age and income were also important demographic characteristics; those with

more disposable money and those who were younger had greater rates of adoption.

Qualitative Analysis

i). Thematic Analysis

- Multiple overarching themes emerged from the thematic examination of interview data:
- Many respondents were worried about the safety of contactless payments, citing issues like data leaks and fraud as the main worries. Older users were more likely to express this worry.
- One of the most common reasons people give for favouring contactless payments is how easy and fast it is to use. Users who made minor, routine purchases typically noted this.
- Trust in Technology: One of the most important factors was having faith in the financial institutions and technology suppliers. People were more inclined to make frequent use of the payment systems if they had faith in the underlying technology and organizations.

Conclusion

Contactless payment adoption is driven by several variables, including convenience, security, demographics, and faith in technology. Stakeholders who want to help with or profit from the transition to contactless payments will need to grasp these dynamics as the digital payment environment changes. This research lays the groundwork for further studies and real-world solutions to improve the usability and acceptance of contactless payment systems.

Results and Findings

The purpose of this research was to examine customer attitudes and actions as they pertain to the potential adoption of contactless payment systems. Various factors, including convenience, security, and demographic demographics, influence the use of these technologies, and our investigation shed light on those elements. The following is a synopsis of the most important study results:

i). Adoption Rates and Usage Patterns

- **Widespread Adoption:** Nearly 60% of those who took the survey said they use contactless payment methods often. This points to widespread use of the technology, especially for commonplace, low-priced items.
- **Frequency of Use:** Contactless payments were most often used by frequent users at retail outlets, public transportation, and restaurants, where they shopped numerous times weekly.

ii). Perceived Benefits

- **Convenience and Speed:** Contactless payments were lauded by the vast majority of users (over 70%) for their ease and rapidity. In fast-paced settings, where swift transactions are often desired, these qualities were especially prized.
- **Ease of Use:** Contactless payment methods were more widely used because they were straightforward to use, according to 65% of respondents. One of the most often cited benefits is how easy it is to tap a card or device.

iii). Security Concerns

- **Security as a Barrier:** A major obstacle, especially among the elderly, was security concerns, which

accounted for a large portion of the low adoption rates. Nearly 40% of consumers said they were hesitant to utilize contactless payments for large purchases due to security concerns.

- **Trust in Providers:** Reducing security risks requires faith in financial institutions and suppliers of technology. Contactless payment methods were more widely adopted and maintained by users who had faith in these organizations.

iv). Demographic Influences

- **Age and Adoption:** Adoption rates were greater among users under the age of 35 as compared to older populations. In addition to being more at ease with the technology, people in this age bracket were less worried about vulnerabilities.
- **Income and Usage:** Contactless payments were more popular among those with higher incomes, which may be explained by the higher opportunity costs linked with time savings and the more exposure to technology among this demographic.
- **Technological Familiarity:** Contactless payment methods were more widely used by those who were more comfortable with and knowledgeable about technology, suggesting that digital literacy is a key factor in acceptance.

v). Behavioural Intentions and Satisfaction

- **Positive Correlation with Usage:** How often something was used was positively related to how convenient and secure it was assessed to be. Regular usage was more common among users who saw the devices as safe and easy to use.
- **Overall Satisfaction:** More than three-quarters of customers were pleased with their experience using contactless payment solutions. However, those who were worried about security reported lower levels of happiness.

vi). Future Trends and Recommendations

- **Increased Adoption Potential:** Increased adoption across all demographic groups is possible as technology evolves and security features become better.
- **Need for Education and Awareness:** Particularly among the elderly and those with less technical knowledge, the research found that focused teaching programs might help reduce security worries.
- **Emphasis on Security Enhancements:** Improving and effectively explaining security measures is crucial for financial institutions and technology suppliers to build confidence and encourage wider use.

The research shows that there are several elements, both positive and negative, that affect the spread of contactless payment systems. Stakeholders seeking to enhance digital payment technologies' reach and enhance the user experience will find these insights beneficial.

Recommendations and Suggestions

There are several ways to improve the user experience, remove obstacles, and increase consumer acceptance of contactless payment systems that may be derived from this study's results. Many businesses and individuals are intended recipients of these recommendations, including banks, tech

companies, lawmakers, and consumer advocacy organizations.

i). Enhance Security Measures

- **Implement Advanced Security Features:** Financial institutions and technology suppliers should invest in sophisticated security solutions, such as biometric authentication and tokenization, to secure user data and avoid fraud. Enhanced security measures may greatly alleviate customer anxieties and boost confidence in contactless payment systems.
- **Transparent Communication:** It is the responsibility of providers to inform customers about the safety protocols they have put in place. Personalized advertising, educational materials, and clear policies may all help with this. Gaining customers' confidence and encouraging adoption may be achieved via educating them on data security.

ii). Increase Consumer Awareness and Education

- **Educational Campaigns:** Get the word out about the convenience, safety, and advantages of contactless payment systems via awareness campaigns. If these initiatives are serious about closing the digital literacy gap, they need to reach out to all kinds of people, especially the younger generation and the less tech-savvy.
- **In-Store Demonstrations and Support:** Customers might feel more at ease making contactless purchases if stores and banks provide in-store demos or assistance. This practical method might help to clear up any confusion about the technology and put your fears to rest.

iii). Address Demographic Disparities

- **Targeted Outreach:** Target certain demographics, including the elderly and the economically disadvantaged, with targeted marketing and education campaigns to increase the adoption of contactless payment systems. To boost these groups' engagement with the technology, it is important to understand and address their distinct issues and demands.
- **Inclusive Design and Accessibility:** People with impairments and others who aren't acquainted with digital technology should not have any trouble using contactless payment systems; they should be easy to understand and utilize. Interfaces designed for users should be easy to understand and follow.

iv). Build and Maintain Consumer Trust

- **Strengthen Privacy Policies:** Make sure customers understand how their data is handled and safeguarded by outlining and communicating privacy rules. Trust and wider acceptance may be achieved by transparency in data management procedures.
- **Consistent Customer Support:** Help consumers with any questions or problems they may have with contactless payments by providing dependable and quick customer assistance. Customers are more likely to stick with a brand that has a solid support structure in place.

v). Leverage Partnerships and Innovation

- **Collaborate with Retailers and Merchants:** Collaborate with businesses to increase the usage of

contactless payments by providing discounts or prizes to customers who pay this way. Such partnerships have the potential to standardize the technology and accelerate its adoption.

- **Encourage Innovation in Payment Solutions:** Encourage creativity in the creation of novel payment solutions, such as those that use mobile and wearable technology. To keep contactless payment systems relevant and appealing to tech-savvy customers, it is important to stay ahead of technical advances.

vi). Policy and Regulatory Support

- **Government Incentives:** Businesses may be incentivized to use contactless payment technology by policymakers via the provision of subsidies and tax advantages. Incentives like this may hasten the building of necessary infrastructure for broad adoption.
- **Consumer Protection Regulations:** Create and implement rules to safeguard customers' personal information and prevent fraud while making purchases online. Consumers will feel more comfortable utilizing these technologies if there are robust regulatory frameworks in place.

Stakeholders may promote the benefits of contactless payment systems, ensure that these technologies are available to a wide variety of customers, and address the study's primary concerns by following these suggestions. A digital payment environment that is safer, more inclusive, and more efficient may be created via this all-encompassing strategy.

Discussion

i). **Integration with Existing Literature:** The results line up with what is believed to be the most important factors in technology adoption—its perceived utility, simplicity of use, and trust—according to the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology Acceptance Model (TAM). According to earlier research (Davis, 1989; Venkatesh *et al.*, 2003) ^[1-3], digital payment systems are most widely used when users feel safe and can easily use them.

ii). **Demographic Influences:** Contactless payments are more likely to be adopted by younger, more tech-savvy consumers, according to the data, which reveals demographic inequalities in adoption rates. This lines up with previous studies that found younger people to be more receptive to trying out new technology (Rogers, 2003; Schierz *et al.*, 2010) [7. People with greater opportunity costs of time may place a larger value on the convenience and time savings offered by contactless payments, according to the income impact.

iii). Implications for Stakeholders

- **In the Interest of Banks and Tech Companies:** The results highlight the need to inform customers about the relevance of improving security features. Important steps to increase adoption rates include clear standards for data processing and strong fraud protection measures.
- **For Policymakers:** There has to be an effort to educate and reach out to certain demographics, such as the elderly and those with less technical knowledge, to raise their level of familiarity with and confidence in contactless payment systems, given the disparities in acceptance across these groups.

For Researchers: The study emphasizes the need to do more studies on the cultural and psychological aspects that impact the adoption of technology. Furthermore, consumer views and behaviors may change over time in response to new technologies and shifting market circumstances; this might be better understood with the use of longitudinal research.

Conclusion

Findings from the research on contactless payment system adoption shed light on what influences customers' thoughts and actions. Understanding these dynamics is critical for stakeholders across sectors, including financial institutions, technology providers, retailers, and legislators, as the financial landscape continues to shift toward digital and contactless transactions.

Key Findings Summary: According to the study, the main reasons people utilize contactless payments are because they are quick, easy, and convenient. Concerns about safety and lack of confidence continue to be major obstacles, especially for specific populations like the elderly and those with little experience with technology. Age, income, and level of technical familiarity are three demographic variables that the research highlights as having a significant impact on adoption trends.

Implications: Although there are many advantages to contactless payment systems, the results show that consumers are worried about security and privacy, which is a major barrier to their adoption. It is critical to build trust via strong customer service, open communication, and improved security measures. Furthermore, more widespread usage may be encouraged via focused educational initiatives that help close the digital literacy gap.

Future Outlook: Contactless and digital payment methods are here to stay, thanks to innovations in technology and shifting customer tastes. To overcome these obstacles, more secure and user-friendly payment systems must be developed continuously. All customers should be able to enjoy the benefits of contactless payment technology, thus stakeholders should work together, think creatively, and take an inclusive approach.

Research Contribution and Limitations: This research adds to the existing body of knowledge by systematically examining the variables that are impacting the widespread use of contactless payment methods. Its primary emphasis on customer impressions in certain locations, however, limits its applicability. Possible directions for further study include examining similar dynamics in other cultural and geographical settings and looking at how changing technology affects consumer behaviors in the long run.

Final Thoughts: A dramatic change in monetary transactions has occurred with the introduction of contactless payment technologies. A safer, more effective, and more inclusive payment environment may be created if stakeholders take the time to learn about and work with the things that impact customer behaviours. Contributing to the larger digital revolution of the economy, this study lays the groundwork for future research and practical methods to improve the acceptance and user experience of contactless payments.

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