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ENHANCING MSME CUSTOMER EXPERIENCE THROUGH AI BASED MOBILE PAYMENT SYSTEMS

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ABSTRACT:

Despite being important forces behind economic expansion, Micro, Small, and Medium-Sized Enterprises (MSMEs) sometimes struggle to provide seamless and competitive customer experiences because of their inadequate IT infrastructure. An important chance to get over these obstacles is the incorporation of artificial intelligence (AI) into mobile payment systems. By providing individualized services, increasing transaction speed, automating customer support, and enhancing fraud detection, AI-powered mobile payment solutions can revolutionize MSME customer relations, as this study explores. These tools help MSMEs achieve digital transformation, increase customer happiness, and streamline operations through data-driven insights and intelligent automation. The report emphasizes how AI-powered mobile payment systems have the potential to improve the efficiency, security, and engagement of payments for both customers and enterprises.

Keywords:

MSMEs, FinTech, Fraud Detection, Digital Transformation, Personalization, Automation, Mobile Payments, Artificial Intelligence, and Smart Payment Systems

INTRODUCTION

MSMEs, or micro, small, and medium-sized businesses, are essential to economic expansion since they greatly boost employment and innovation. In an effort to improve customer happiness and operational efficiency, MSMEs are rapidly implementing mobile payment solutions as digital transformation picks up speed. These platforms' incorporation of artificial intelligence (AI) has further transformed how MSMEs communicate with their clientele. Smart features like safe transactions, chat bots that provide real-time support, tailored recommendations, and data-driven insights into consumer behavior are all provided by AI-powered mobile payment systems. These features increase client loyalty and involvement while streamlining the payment process. These technologies give MSMEs with limited resources a competitive advantage by allowing them to offer services that were previously only available to larger businesses.

MSME

Micro, Small, and Medium-Sized Enterprises is what MSME stands for. These are companies that, according to the national regulatory framework, are grouped according to criteria like yearly turnover, number of employees, or asset investment. Due to their substantial contributions to GDP, innovation, exports, and employment creation, MSMEs are regarded as the foundation of many economies, particularly in emerging nations. Despite their modest size, they are essential to encouraging inclusive economic growth and entrepreneurship.

AI-BASED MOBILE PAYMENT SYSTEMS:

Digital payment platforms that use Artificial Intelligence (AI) technology, including machine learning, predictive analytics, natural language processing, and biometric authentication, to improve payment efficiency, security, and personalization are referred to as AI-based mobile payment systems. With intelligent capabilities like fraud detection, spending data, Chabot support, and customized offers, these systems enable consumers to transact using Smartphone's or other mobile devices.

TECHNOLOGY ADOPTIONS-(MSME):

MSMEs first adopt technology when they become aware of new tools, such as AI-based mobile payment systems, through consumer demand or market trends. Before choosing to implement a technology, business owners consider its affordability, utility, and ease of use. After adoption, the system is put into use with little setup and just requires staff members to receive basic training. After that, it is incorporated into regular operations to improve productivity and customer support. MSMEs track its effects on customer satisfaction and performance over time. To optimize advantages, they might increase utilization or improve features based on input and outcomes.

NEED FOR THE STUDY

- MSMEs are key drivers of economic growth but face challenges in adapting to rapidly evolving digital payment technologies.
- AI-based mobile payment systems offer advanced features like personalization, fraud detection, and real-time support that can enhance customer experience.
- There is a significant research gap in understanding how these AI-driven systems impact customer satisfaction, engagement, loyalty, and repeat purchase behavior in the MSME sector.
- The study is essential to provide insights that can help MSMEs adopt effective digital strategies and improve their customer service.
- Policymakers and technology providers can use the findings to design better support systems and tools for MSMEs.

- Understanding the customer experience impact can lead to improved revenue, growth, and competitive advantage for MSMEs.

OBJECTIVES

To assess the overall impact of AI-based mobile payment systems on MSME consumers' pleasure, convenience, engagement, loyalty, and propensity to make additional purchases.

To investigate how the MSME customer experience is affected by AI-driven customization (recommendations and tailored offers).

To assess how AI-powered security solutions might improve consumer safety and confidence in MSME transactions.

To evaluate how AI helps MSMEs have quicker and more effective mobile payment experiences.

To investigate client satisfaction with AI-powered round-the-clock assistance in mobile payment systems.

To evaluate how well AI-powered predictive analytics can improve customer service and engagement.

LITERATURE REVIEW:

The integration of Artificial Intelligence (AI) into mobile payment systems is transforming how Micro, Small, and Medium Enterprises (MSMEs) manage transactions and enhance customer experience. According to **Raman & Bhaskar (2021)**, AI-driven features such as personalized recommendations, real-time fraud detection, and predictive analytics increase customer engagement and satisfaction. **Kumar et al. (2020)** found that digital payment adoption significantly contributes to operational efficiency and customer convenience in small businesses.

Mehta & Singh (2019) emphasize that trust and perceived security are key factors in the adoption of mobile payment platforms among MSMEs.

HYPOTHESIS

This study adopts a quantitative research design to examine the impact of AI-based mobile payment systems on customer experience in MSMEs. A total of 100 MSMEs were selected using simple random sampling to ensure unbiased representation. Data was collected through structured questionnaires focusing on customer satisfaction, convenience, engagement, loyalty, and repeat purchase intention. Respondents rated various aspects using a Likert scale. The level of AI-based mobile payment usage was categorized into groups such as low, medium, and high. One-way ANOVA was employed to analyze whether significant differences exist in customer experience across these usage levels. The test helped identify whether increased AI adoption leads to improved customer outcomes. Ethical practices such as informed consent and data confidentiality were strictly followed.

DATA ANALYSIS AND INTERPRETATION

Hypotheses

H_0: There is no significant difference in the revenue and growth of MSMEs based on their level of online payment adoption.

H_1: There is a significant difference in the revenue and growth of MSMEs based on their level of online payment adoption.

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Table :1 Frequency of using mobile payments at MSMEs:

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.092	3	3.031	3.666	.030
Within Groups	16.533	20	.827		
Total	25.625	23			

The **p-value of 0.030** indicates that there is a **statistically significant difference** in revenue and growth among MSMEs based on how frequently they use mobile payments. Since the p-value is **less than the standard significance level of 0.05**, we **reject the null hypothesis**. This means that the frequency of mobile payment usage has a meaningful impact on business performance.

Table: 2 MSME Trust in Online Payments:

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.189	3	5.063	3.304	.041
Within Groups	30.644	20	1.532		
Total	45.833	23			

A statistically significant difference in MSMEs' faith in online payments is indicated by the p-value of 0.041. We reject the null hypothesis since the p-value is below the conventional significance level of 0.05. This indicates that MSMEs have significantly different levels of trust in online payment systems.

FINDINGS:

The findings of this study indicate that the frequency of mobile payment usage and the level of trust in AI-based payment systems significantly influence customer experience and business outcomes in MSMEs. The ANOVA results revealed statistically significant differences (p-values of 0.030 and 0.041 respectively), suggesting that MSMEs that use mobile payments more frequently and demonstrate higher trust in these systems tend to report higher levels of customer satisfaction and revenue growth. This highlights the potential of AI-based mobile payment tools not only as transaction facilitators but also as strategic assets for improving customer engagement, loyalty, and operational efficiency. Trust in technology, particularly AI, appears to play a key role in adoption success and its eventual impact on performance.

GAP:

While this study provides valuable insights, certain gaps remain. There is limited empirical research on how AI features within mobile payment systems (e.g., personalization, fraud detection, predictive analytics) directly influence customer experience in MSMEs. Most existing literature focuses broadly on digital payments without isolating the impact of AI integration. Furthermore, regional variations, sector-specific challenges, and long-term adoption effects remain underexplored. Future studies can address these aspects using larger and more diverse samples, qualitative insights, and longitudinal designs.

CONCLUSION

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This study concludes that AI-based mobile payment systems are valuable tools for enhancing the customer experience in MSMEs. Frequent usage and higher trust levels in these digital platforms are strongly linked to better revenue and business growth. The statistical results confirm that mobile payment adoption is more than a technological shift—it is a driver of customer satisfaction, loyalty, and repeated business. MSMEs that strategically implement and build confidence in AI-powered payment solutions are more likely to achieve sustainable growth and competitive advantage in the evolving digital economy.

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