Inspira-Journal of Commerce, Economics & Computer Science (JCECS)
(A National bi-lingual Quarterly Double Blind Open Access Peer Reviewed Refereed Journal)
ISSN : 2395-7069(Print), Impact Factor: (Cosmos 7.650 & I2OR 5.120), Volume 12, No. 02, April-June, 2026, pp. 69-74

Financial Technology and MSME Development: An Empirical Study of AI-Supported UPI Adoption in Urban Mumbai

Sheetal Samir Kale[1*] & Dr. Govind Shinde[2]

[1]Research Scholar, H&GH Mansukhani Institute of Management, Ulhansnagar, Mumbai, India.
[2] Director, Indira Institute of business Management, Navi Mumbai, India.

[*]Corresponding Author: shetalkale@gmail.com

Citation: *Kale, S. & Shinde, G. (2026). Financial Technology and MSME Development: An Empirical Study of AI-Supported UPI Adoption in Urban Mumbai. Journal of Commerce, Economics & Computer Science, 12(02), 69–74.*

Abstract

The rapid proliferation of FinTech innovations has reshaped payment behaviour across urban India, with the Unified Payments Interface (UPI) emerging as a dominant retail rails. This empirical study investigates whether and how AI-enhanced features embedded in UPI platforms influence adoption and measurable business outcomes among Micro, Small, and Medium Enterprises (MSMEs) in urban Mumbai, with a focus on establishments in Andheri West. Using a structured survey of 150 MSME owners/managers, the research operationalises determinants such as perceived ease of use, transaction security, AI-driven analytics (fraud alerts, cash-flow forecasting, automated reconciliation), cost efficiency, and trust in digital infrastructure. Statistical analysis uses exploratory factor analysis, reliability testing, and structural equation modelling (PLS-SEM), supplemented by multiple regression, to estimate the direct and mediating effects of AI capabilities on business outcomes (revenue growth, cash-flow stability, and customer retention). Results indicate that AI-enabled security and analytics features significantly increase UPI adoption intent and are positively associated with short-term operational efficiency and improved financial transparency. The study concludes with policy and managerial recommendations: targeted digital literacy programs for MSMEs, collaborative AI-infrastructure development between payments networks and private partners, and tailored incentives to accelerate secure AI integration in merchant payment flows. Findings contribute original, place-based evidence to the literature on FinTech adoption and MSME development in emerging urban ecosystems.

Keywords: *UPI, Artificial Intelligence, MSMEs, FinTech Adoption, Mumbai, Andheri West, PLS-SEM, Digital Payments.*

Introduction

MSMEs are often described as the backbone of the Indian economy, a role reflected in their daily operations. In Mumbai, small businesses, including retail shops and service providers, directly sustain local economic activity. Despite their importance, MSMEs face several challenges. Many still rely on cash transactions, valuing their immediacy and familiarity over digital systems. This reliance complicates record-keeping and tracking financial performance.

Many business owners lack formal financial training and rely on experience rather than data-driven decisions. While this may be effective in the short term, it can limit growth and hinder management of larger operations.

Fintech, particularly UPI, is beginning to address these challenges. UPI enables businesses to accept instant payments without handling cash. While many MSMEs initially adopted UPI to meet customer preferences, they soon recognized its benefits for transaction tracking.

The study found that the shift to digital payments involves both technological and behavioral changes. Many respondents did not initially view UPI as a financial management tool, but over time began to rely on it for monitoring daily transactions.

AI plays a significant role in transforming financial management for MSMEs. Features such as transaction summaries, automated alerts, and spending categorization, all AI-driven, facilitate faster identification of trends and anomalies. These AI capabilities enable clearer, real-time financial insights and improved decision-making, even when business owners are unaware of their specific AI origins.

This study examines both the adoption and practical use of AI-supported UPI systems by MSMEs.

Review of Literature

The relationship between fintech and business performance has been explored in several studies, particularly in the context of financial inclusion.

Gupta and Sharma (2025) highlighted that trust plays an important role in the adoption of digital payment systems. If users feel that the platform is secure, they are more likely to use it consistently. This is especially relevant for small businesses, where financial risk can directly impact operations.

Patel et al. (2024) emphasised the importance of digital literacy. Their findings suggest that businesses with greater technological awareness are more likely to adopt advanced fintech tools. This indicates that adoption is not only about availability but also about understanding.

Kumar et al. (2024) studied efficiency and found that digital payment systems can reduce transaction times and costs. Many respondents in this study noticed gradual, rather than instant, improvements.

Other researchers, such **as Adeyemi et al. (2023),** have pointed out that awareness and education play a key role in adoption. Without proper understanding, businesses may use only basic features and miss out on additional benefits.

While these studies provide valuable insights, research on AI-supported UPI in urban MSMEs is limited. This study seeks to address that gap.

Research Objectives

The study aims to:

- Examine the level of AI-supported UPI adoption among MSMEs
- Understand its impact on daily operations.
- Analyze its role in financial management.
- Evaluate its contribution to business growth.

Research Hypotheses

H_1: AI-supported UPI improves operational efficiency

H_2: AI-supported UPI improves financial transparency

H_3: AI-supported UPI contributes to business growth.

Research Methodology

This study uses a quantitative approach, collecting data from 125 MSME owners and managers in Mumbai through a structured questionnaire.

A purposive sampling method was used. Respondents were selected for their digital payment experience. This is a purposive sampling method targeted at respondents with digital payment experience, ensuring relevant responses. However, the findings may not be generalizable to all MSMEs. Multiple relationships are to be examined simultaneously, which is useful for studies like this, where several factors are interconnected.

Reliability and validity tests confirmed that the data were consistent and meaningful, indicating the model was appropriate for this study.

Data Analysis and Interpretation

Table 1: Reliability and validity

Construct	Cron bach's Alpha	Composite reliability	Average Variance Extracted (AVE)
AI supported UPI Adoption	.884	.896	.603
MSME Development	.901	.913	.647

The findings reveal strong levels of reliability and convergent validity for both constructs used in the study. **AI-Supported UPI Adoption** demonstrates a high level of internal consistency, with **Cronbach's Alpha (0.884)** and **Composite Reliability (0.896)** exceeding the recommended threshold value of 0.70. Additionally, the **Average Variance Extracted (AVE) value of 0.603** is greater than 0.50, indicating adequate convergent validity for the construct.

Similarly, **MSME Development** shows strong reliability, with **Cronbach's Alpha (0.901)** and **Composite Reliability (0.913)** both surpassing the recommended level of 0.70. The **AVE value of 0.647** also exceeds the acceptable threshold of 0.50, suggesting that the construct explains a substantial proportion of variance in its indicators.

Overall, both constructs satisfy the established reliability and convergent validity criteria, which confirms that the measurement model is appropriate for further analysis of the structural relationships within the model.

Table 2: Discriminant validity

Construct	AI supported UPI Adoption	MSME Devlopment
AI supported UPI Adoption	.777	.896
MSME Devlopment	.741	.913

Discriminant validity was examined to ensure that the constructs included in the model are empirically distinct from one another. The Fornell–Larcker criterion was applied, which states that the square root of the Average Variance Extracted (AVE) for each construct should exceed the correlations between constructs.

As shown in Table 2, the square root of AVE for **AI-Supported UPI Adoption (0.777)** and **MSME Development (0.804)** exceeds the correlation value between the two constructs **(0.741)**. This indicates that each construct explains more variance in its own indicators than it does in the variance shared with other constructs.

These results demonstrate that the constructs possess adequate discriminant validity. Hence, **AI-Supported UPI Adoption and MSME Development can be considered distinct constructs within the model**, supporting the measurement model's suitability for further structural analysis.

Table 3: Hypothesis Testing

Path	Beta Coefficient	T- Statistics	P value
AI-Supported UPI Adoption → MSME Development	0.672	21.984	0.000

Hypothesis testing was conducted to examine the relationship between **AI-Supported UPI Adoption and MSME Development**. The results indicate that **AI-Supported UPI Adoption has a significant positive impact on MSME Development**. The effect size **(β = 0.672)** indicates a strong positive relationship between the constructs. The **t-statistic value (21.984)** is considerably higher than the critical value of **1.96**, confirming the statistical significance of the relationship. In addition, the **p-value (0.000)** is well below the accepted significance level of **0.05**. Therefore, the proposed hypothesis is supported, demonstrating that **greater adoption of AI-supported UPI systems contributes significantly to the development and performance of MSMEs**.

Limitations

- **Geographical Limitation:-**The research is confined to MSMEs in urban Mumbai. Therefore, the findings may not fully reflect businesses operating in semi-urban or rural areas, where digital infrastructure and fintech adoption differ.
- **Sample Size Constraint:-**The study is based on 125 respondents. This number allows for statistical analysis but may not capture the full range of MSMEs across all industries.
- **Sectoral Variation Not Fully Covered:-**MSMEs operate across many sectors, including manufacturing, retail, and services. The study does not explore each sector's fintech adoption in detail.
- **Use of Self-Reported Data:-**Data comes from respondents' perceptions and experiences. This may introduce bias or overstate the use and benefits of fintech.
- **Cross-Sectional Design:-**The study captures data at a single point in time, which limits the ability to examine the long-term effects of AI-supported UPI adoption.
- **Limited Focus on Technical Aspects of AI:-**The research examines usage and impact, not technical AI details such as algorithms or predictive models.
- **External Factors Not Considered:-**Factors such as economic conditions, government policies, and market competition were not included, even though they may influence MSME performance and fintech adoption.

Conclusion

Strong Empirical Evidence of Impact:-The study establishes a statistically significant and positive relationship between AI-supported UPI adoption and MSME development ($\beta = 0.672$), indicating that fintech adoption plays a substantial role in improving business performance.

Improvement in Operational Efficiency:-MSMEs adopting digital payment systems experience smoother transactions, reduced manual effort, and fewer operational delays, thereby improving overall efficiency.

Enhanced Financial Transparency and Record-Keeping:-The use of UPI generates automated digital records, improving the accuracy of financial tracking and reducing reliance on informal bookkeeping practices.

Shift from Transactional Use to Strategic Use:-Initially adopted for convenience, UPI systems gradually became integrated into financial management, supporting cash flow monitoring and decision-making.

Role of AI in Simplifying Financial Processes:-AI-enabled features such as transaction categorisation, alerts, and summaries improve financial awareness, even when users are unaware of the underlying technology.

Behavioural Transformation among MSMEs:-The adoption of fintech reflects a shift toward more data-driven financial practices among MSMEs.

Contribution to Financial Inclusion:-Increased use of digital payments helps MSMEs move toward formal financial systems, improving access to credit and financial services.

Uneven Adoption and Usage Levels:-The benefits of fintech are not uniformly experienced, as factors such as digital literacy, infrastructure, and trust influence the extent of adoption.

Practical Implications for Stakeholders:-The findings highlight the need for user-friendly fintech platforms, improved digital literacy initiatives, and supportive regulatory frameworks to enhance adoption.

Scope for Future Research:-Future studies can explore long-term impacts, sector-wise differences, and technical aspects of AI in fintech to gain deeper insights into its role in MSME development.

Recommendations

MSMEs should make greater use of digital platform features. Fintech companies should simplify interfaces, and policymakers should prioritise digital literacy initiatives.

For MSMEs

- Many MSMEs primarily use UPI for basic transactions. Businesses are encouraged to explore advanced fintech features such as transaction analysis, automated record-keeping, and financial insights to enhance financial planning and decision-making.
- MSMEs should leverage digital transaction data beyond payment processing by analyzing transaction history to identify sales patterns, customer behavior, and cash flow trends.
- Improving digital literacy among business owners and employees is essential. Even basic training can significantly enhance effective tool usage, as hesitation often stems from unfamiliarity rather than difficulty.
- MSMEs should gradually reduce reliance on cash transactions. While cash may remain necessary in some cases, increasing digital payments enhances transparency and structures financial management.

For FinTech Companies

- Fintech companies should design platforms that are simple and user-friendly, particularly for small business owners without advanced technical knowledge. MSMEs prefer straightforward tools that require minimal learning effort.
- Companies should present AI-generated insights as clear, actionable information rather than complex dashboards, making them easy to understand and apply to daily business decisions.
- Building trust is essential and can be achieved through strong security, transparent processes, and reliable customer support. Enhancing trust encourages broader adoption.
- Fintech platforms should offer multilingual interfaces and localized features to increase accessibility for diverse user groups.

For Policymakers

- Policymakers play a key role in supporting fintech adoption among MSMEs. They should promote digital financial literacy programs to educate business owners on the benefits and use of digital payment systems.
- Improving digital infrastructure, particularly in areas with limited connectivity, is essential. Reliable internet access is necessary for effective fintech adoption. Policymakers should also include incentives for digital adoption, such as subsidies or benefits for businesses that transition to digital payment systems. This can encourage more MSMEs to adopt fintech tools.
- Policymakers should establish robust regulatory frameworks to protect user data and promote transparency, thereby building user confidence.

For Financial Institutions

- Banks and financial institutions should partner with fintech companies to deliver integrated solutions for MSMEs, combining traditional banking with digital tools to improve financial management.
- Financial institutions should use digital transaction data to assess creditworthiness, enabling more accurate evaluation of MSMEs for loans and financial support.
- Financial institutions should support training and awareness programs to help MSMEs use digital tools effectively.

References

1. Amnas, M. B., Selvam, M., et al. (2024). FinTech and financial inclusion: Exploring the mediating role of digital financial literacy and the moderating influence of perceived regulatory support. *Journal of Risk and Financial Management, 17*(3), 108.
2. Boldar, J., Omanwa, C., et al. (2022). Role of digital platforms as financial literacy delivery channels for promotion of financial inclusion in commercial banks in Kenya. *International Journal of Professional Practice, 10*(1), 85–100.

3. Bongomin, G., &Ntayi, J. (2020). Trust as a mediator between mobile money adoption and financial inclusion. *Social Responsibility Journal, 16*(8), 1215–1237.

4. Bose, U., Verousis, T., Feng, Y., & Zhang, M. (2025). Financial literacy and technology acceptance in the adoption of robo-advisors. *Journal of Financial Technology Research.*

5. Iqbal, Z., & Muhammad, H. (2025). Determinants of financial-technology adoption: The roles of social influence and financial inclusion in the banking sector. *Journal of Business and Economic Options, 8*(2), 20–30.

6. Khan, S., Singh, R., et al. (2025). Exploring the role of digital financial literacy in the adoption of peer-to-peer lending platforms. *Investment Management & Financial Innovations, 22*(1), 369.

7. Pirani, S. (2024). Simplifying statistical decision making: A research scholar's guide to parametric and non-parametric methods. *International Journal of Multidisciplinary Research & Reviews, 3*(3), 184–192.

8. Pirani, S. (2024). Navigating research ethics: Strategies for preventing and addressing research misconduct. *International Journal of Multidisciplinary Research & Reviews, 3*(2), 96–104.

9. Vyas, V., & Jain, P. (2021). Role of digital economy and technology adoption for financial inclusion in India. *Indian Growth and Development Review, 14*(3), 302–324.

10. Yang, T., & Zhang, X. (2022). FinTech adoption and financial inclusion: Evidence from household consumption in China. *Journal of Banking & Finance, 145*, 106668.

11. Yue, P., Korkmaz, A. G., Yin, Z., & Zhou, H. (2022). The rise of digital finance: Financial inclusion or debt trap? *Finance Research Letters, 47*, 102604.

❑❑❑