A STUDY ON TECHNOLOGY ADVANCEMENT IN DIGITAL PAYMENT SYSTEM AND THEIR ROLES AND CHALLENGES AMONG STREET VENDORS IN THOOTHUKUDI DISTRICT

Esther Rani. M* and O.Sony

Department of Commerce, St. Mary's College (Autonomous), Thoothukudi

Affiliated to Manonmaniam Sundaranar University, Thirunelveli, Tamil Nadu, India

ABSTRACT

The rapid advancement of technology has revolutionized digital payment systems, significantly impacting street vendors by enhancing transaction efficiency, expanding customer reach, and promoting business growth. Mobile wallets, point-of-sale (POS) systems, QR code payments, and contactless payment technologies have provided street vendors with convenient, secure, and fast transaction methods. Despite these benefits, street vendors face several challenges in adopting digital payments, including limited access to smartphones, unstable internet connections, and a lack of digital literacy. This study explores the role of digital payment systems in transforming street vending businesses, identifies barriers to adoption, and examines the impact of digital transactions on vendors revenue and customer interactions. The research methodology includes a structured survey conducted among 124 street vendors in busy street of Thoothukudi district, with the statistical tools such as percentage analysis, garrett's ranking method, chi-square test, ANOVA, independent t-test, one-sample t-test, and the likert scale for data interpretation. Findings from the study highlight the need for improved financial literacy, better technological infrastructure, and government support to facilitate seamless digital payment integration for street vendors.

KEY WORDS

Risk assessment, revenue level, security, literacy, street vendors, technology

INTRODUCTION

The rapid advancement of technology has revolutionized the way businesses operate, and street vendors are no exception. With the proliferation of smartphones, mobile payment platforms, and digital wallets, street vendors can now accept digital payments, expanding their customer base and increasing sales. This transformation has not only improved the efficiency of transactions but also enhanced the overall customer experience. Digital payment systems have played a pivotal role in this transformation. Mobile wallets, such as PayPal, Venmo, and Google Pay, have enabled street vendors to accept payments from customers who prefer to use their smartphones rather than cash. Point-of-sale systems, such as Square and Clover, have provided street vendors with a convenient and secure way to process transactions and manage sales. QR code payments and contactless payments have also become increasingly popular, allowing customers to make payments with a simple scan or tap of their card or device. The adoption of digital payment systems has numerous benefits for street vendors. It reduces the risk of cash loss, theft, or damage, and minimizes the time spent on transactions and accounting. Digital payment systems also provide street vendors with valuable insights into their sales and customer behavior, enabling them to make informed decisions about their business. Furthermore, digital payment systems enhance the customer experience by providing a convenient, fast, and secure way to make payments. In addition, digital payment systems have also enabled street vendors to stay competitive in the market. With the rise of e-commerce and online shopping, street vendors need to adapt to changing consumer behavior and preferences. By embracing digital payment systems, street vendors can reach a wider customer base, increase sales, and stay ahead of the competition.

STATEMENT OF THE PROBLEM

The growth of digital payment system has transformed the way business operate but street vendors face significant challenges in adopting these system. The ease and efficiency that digital payment provides many sellers lack access to the essential infrastructure such as smartphones, stable internet connections and digital literacy. Many street sellers clients shill prefer cash transaction due to their simplicity and lack of dependency on technology. This poses a significant problem, as small business like street shops, vendors etc... are the backbone of Indian economy, and their inability to adapt to technology advancement in payment system may hinder their growth and sustainability. The lack of standardized payment solution often force vendors to manage multiple platform, adding to financial burden and solving these issue is essential for the seamless integration of street vendors into the digital payment system.

OBJECTIVES

- To explore the current payment systems used by street vendors and identify their challenges.
- To investigate the potential of technology advancement in payment systems.

- To analyze the effects of digital payment adoption on the revenue level of street vendors.

REVIEW OF LITERATURE

1) **Vidhi Jangid [2025]** This research addresses the difficult lives of street vendors with the aim of informing policy development, guiding, empowering the community, and increasing economic opportunity. The life of street vendors was never easy, they faced many problems throughout their lives. Since street vendors have a huge impact on the economy by providing employment opportunities, they still don't get attention and are judged by the people. So, to know all the challenges, we talked to them and read various literature and research papers. They faced problems like inadequate water and electricity, per day income, family dependency, storage, COVID-19, and legal challenges. This research helps to show life from street vendors and create awareness about them among the people.
2) **Zeleke Girma, et.al., [2025]** The study aimed to assess food handling practices among street food vendors and their associated factors in the town administration of the Gamo Zone. A cross-sectional study design was conducted from October to December 2021. A simple random sampling technique by the lottery method was used to select 421 participants. The data were collected through interviews and observations, entered into EpiData version 7, and transported to STATA version 13 for analysis by logistic regression. The findings reveal that improving the monthly income and educational status of the food handlers, counseling, and periodic inspections may improve their good food handling practices.
3) **Bharathi S. Gopal [2025]** This chapter highlights the essence of digital transformation in India among the street vendors who comprise a significant percentage of the informal sector. This chapter gives a brief outlines of street vendors, vendor organizations and the laws that provide a legal status to the street vendors. It also emphasizes the adoption of digital transformation technologies especially UPI. The chapter concludes by highlighting the problems of street vendors and climate change, and the role of technology in empowering and making the street vendors an inclusive part of India's growth journey.

SAMPLING DESIGN

The data collected was original in nature. A non probability convenient sample of 24 respondents residing in various parts of busy street in Thoothukudi was selected.

INDEPENDENT T-TEST

THE TABLE SHOWS THE POTENTIAL OF TECHNOLOGY

VARIABLE	QUALIFICATION	MEAN	STANDARD DEVIATION	F	SIG
Increase the efficiency of my business operation	Literate Illiterate	4.7188 4.7857	.55636 .49868	1.205	.275
Reduce the risk of cash handling errors.	Literate Illiterate	4.2083 4.3571	.69459 .48795	2.566	.112
Increase customer satisfaction and loyalty	Literate Illiterate	4.3021 3.9286	.68241 .89974	7.411	.007
Reduce transaction cost	Literate Illiterate	4.3021 3.5714	.79630 1.03382	4.977	.028
Improve the security and integrity and integrates of transaction	Literate Illiterate	4.0208 3.9643	.82052 1.17006	4.227	.042
Increase sales revenue for the business	Literate Illiterate	4.0938 4.1111	.82178 .93370	.738	.392
Simplify financial record keeping	Literate Illiterate	4.2396 4.2143	.84286 .78680	.181	.671
Real time transaction data and analytics	Literate Illiterate	4.5104 4.0714	.69577 .76636	.004	.949

Source: Primary data

INFERENCE

The above table shows that significant values .275, .112, .007, .392, .671, .949 for the statement increase the efficiency of my business operation, reduce the risk of cash handling errors, increase customer satisfaction and loyalty, increase sales revenue for the business, simplify financial record keeping, real time transaction data and analytics is greater than 0.05, hence I accept null hypothesis and conclude by accepting that there is no significant difference in potential technology in advancement in payment system with qualification. In contrast, the table shows significant value as .028, .042 for the statement reduce transaction cost, improve the security and integrity is less than 0.05, hence I reject null hypothesis and conclude that there is a significant difference in potential technology in advancement in payment system with qualification.

LIKERT SCALE

THE TABLE SHOWING THE SALES AND REVENUE LEVEL

Satisfaction level	**LIKERT SCALE**					**No. of Respond**	**Weighed score**	**Average score**	**Rank**
	Strongly Agree (5)	Agree (4)	Neutral (3)	Dis Agree (2)	Strongly Disagree (1)				
The adoption of digital payment systems has increased my sales revenue.	102 510	15 60	7 21	0 0	0 0	124	591	4.766	I
Technology advancement in payment systems has	38 190	76 304	10 30	0 0	0 0	124	514	4.145	V

improved my ability to process transactions efficiently									
The use of technology-based payment solutions has improved my ability to track sales and revenue	44 220	51 204	29 87	0 0	0 0	124	511	4.120	VI
Technology advancement in payment has enabled to promotions and discounts, increasing sales.	41 205	59 236	20 60	4 8	0 0	124	509	4.104	VII
Digital payment systems have increased the speed of transactions, allowing me to serve more customers	52 260	40 160	28 84	4 4	0 0	124	508	4.096	VIII
The adoption of mobile payment	69	33	17	5	0	124	538	4.338	III

systems has reduced the risk of cash handling errors, resulting in increased revenue.	345	132	51	10	0				
Technology advancement in payment systems has improved my ability to manage inventory.	55 275	48 192	19 57	2 4	0 0	124	528	4.258	IV
Digital payment systems have increased my competitiveness in the market, leading to higher sales and revenue.	66 330	33 132	17 51	5 10	0 0	124	545	4.395	II

Source: Primary data

INFERENCE

From the above table likert five point scale majority 4.76 average score belongs to the adoption of digital payment systems has increased my sales revenue has been ranked as first, followed by 4.39 average score denotes digital payment systems have increased my competitiveness in the market, leading to higher sales and revenue has been ranked as second, 4.34 average score lies on the adoption of mobile payment systems has reduced the risk of cash handling errors, resulting in increased revenue has been ranked as third, 4.26 average score denotes technology advancement in payment systems has improved my ability to manage inventory has been ranked as fourth, 4.15 average score belongs to technology advancement in payment systems has improved my ability to process transactions efficiently has been ranked as fifth, 4.12 belongs to the use of technology-based payment solutions has improved my ability to track sales and revenue has been ranked as sixth, 4.10 average score denotes technology advancement in payment has enabled to promotions and discounts, increasing sales has been ranked as seventh, 4.096 depends on digital payment systems have increased the speed of transactions, allowing me to serve more customers has eight rank.

FINDINGS

- Satisfaction with current payment options ranked highest; concerns about digital security and productivity ranked lowest.
- Improved business efficiency ranked highest; enhanced security ranked lowest.
- Digital payment adoption was seen as the most impactful factor for increased revenue.

SUGGESTIONS

- It is necessary to develop user-friendly payment apps and promote security tips.
- It is advisable to encourage vendors to diversify payment method.
- It is necessary to promote offline-capable apps and improve connectivity.
- It is advisable to offer loyalty rewards and keep vendors informed about new features.
- Ensure focus on promoting convenience while improving digital literacy.

CONCLUSION

The study highlights that digital payment adoption has significantly improved business performance among street vendors, enhancing sales, customer convenience, and operational efficiency. The widespread use of QR codes and other digital payment methods has played a key role in streamlining transactions and attracting more customers. However, despite these benefits, certain challenges remain, particularly among older vendors, those in rural areas, and those with limited digital literacy.

Security concerns, technical issues, and the perceived complexity of digital payment systems continue to discourage some vendors. Additionally, the high cost of adopting digital payment tools and limited access to reliable internet connectivity further restricts adoption, particularly for vendors with lower incomes. Addressing these challenges is vital to ensuring the continued growth of digital payment usage.

To overcome these barriers, targeted initiatives are necessary. Digital literacy programs tailored to older and less-educated vendors can improve their understanding and confidence in using digital payment platforms. Offering affordable or subsidized payment tools, along with improved technical support, can further encourage adoption among low-income vendors.

Improving internet infrastructure in rural areas is equally important to ensure vendors in underserved regions can access reliable digital payment services. Moreover, promoting secure transaction practices, educating vendors on fraud prevention, and raising awareness about safe platforms like UPI will help build greater trust in digital transactions.

By implementing these strategies, vendors can fully harness the benefits of digital payments, resulting in increased sales, improved customer relationships, and stronger business growth. Sustained efforts to address vendor concerns, combined with ongoing innovation in digital payment solutions, will ensure their successful integration into the evolving digital economy.

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