

Cost-Benefit Analysis of Mobile Point-of-Sale Systems Among Selected Local Coffee Shops in San Pablo City

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Abstract

This study investigates the cost-benefit analysis of Mobile Point-of-Sale (mPOS) systems among selected local coffee shops in San Pablo City. It specifically examined the major cost components associated with adopting mPOS technology, including hardware, software, subscription fees, maintenance, and regulatory compliance. The study also explored how these costs influence operational decisions and overall financial considerations for small coffee shop businesses. The study addressed the lack of localized studies examining how mPOS affects small coffee shops in developing urban areas such as San Pablo City. Furthermore, most prior research centers on technology acceptance and user satisfaction rather than evaluating the actual financial costs and benefits, leaving a gap in understanding whether mPOS systems truly provide measurable value to small businesses. This study aimed to address these gaps by assessing both the cost components and operational advantages of mPOS usage.

Data were collected from 37 respondents, including coffee shop owners and staff, through a structured survey measuring cost factors, perceived operational benefits, and overall business impact. Results indicated that respondents observed notable improvements in transaction efficiency, financial tracking accuracy, and sales monitoring after using mPOS systems. However, several financial considerations were highlighted, particularly recurring subscription fees and maintenance requirements, which some respondents viewed as significant operational burdens.

A descriptive research design was employed, utilizing a structured survey distributed to coffee shop owners and staff. The data were analyzed using weighted means and standard deviations to determine the perceived impact of both the costs and the benefits of mPOS systems. The research further evaluates the extent of benefits in terms of sales and revenue improvement, transaction efficiency, financial tracking accuracy, financial statement preparation, and return on investment (ROI). The study concludes that mPOS technology is a worthwhile investment for local coffee shops in San Pablo City, offering long-term advantages that strengthen business sustainability and competitiveness.

Keywords: Mobile Point-of-Sale System; Cost-Benefit Analysis; Coffee Shops, Cost Factors; Operational Benefit

1. Introduction

The advancement of financial technology has transformed the way businesses conduct transactions, particularly with the increasing adoption of mobile point-of-sale (mPOS) systems. A study by De Vera (2022) shows that mobile-based POS solutions can improve business operations for small food and drink stalls by reducing costs and incorporating features like online backups and user authentication, demonstrating how mPOS applications are tailored to meet the needs of resource-limited enterprises. Businesses worldwide, including in the Philippines, have embraced this technology to improve operational efficiency and enhance customer experience.

Traditionally, businesses have relied on fixed POS systems, which include hardware such as cash registers, barcode scanners, and receipt printers to facilitate sales transactions. Ramirez (2024) stated that unlike traditional fixed POS terminals, mPOS utilizes mobile devices such as smartphones and tablets to execute payment transactions, thereby offering greater flexibility, mobility, and operational efficiency for firms of varying sizes. The shift towards digital payments and cashless transactions has further accelerated the adoption of mPOS systems, as businesses seek seamless and integrated payment solutions.

In the Philippines, the adoption of digital payment technologies has been encouraged by financial institutions and regulatory bodies. The Bangko Sentral ng Pilipinas (BSP) has implemented policies aimed at increasing cashless transactions and promoting financial technology solutions among businesses. According to a report by Bandhari, R. (2023), the Philippines Retail Point-of-Sale Market is projected to experience significant growth in the coming years, driven by increased demand for efficient and cost-effective payment systems. Additionally, local mPOS providers, such as Peddlr, have developed mobile applications specifically designed to assist small businesses, including coffee shops, in managing transactions and business operations effectively (Peddlr, 2023).

Despite its benefits, the adoption of mPOS systems presents certain challenges, particularly in terms of transaction costs, cybersecurity risks, and system reliability. A study by Bland et al. (2024) found that various dimensions of perceived risk, particularly performance risk, significantly and negatively influence attitudes toward mobile payment adoption, highlighting concerns related to system reliability and user confidence that are likewise applicable to the implementation of mobile point-of-sale (mPOS) systems. Furthermore, while mPOS systems enhance transaction speed and data accessibility, concerns related to data security and system downtimes remain critical factors that require further examination (VaultProducts, 2023).

Existing research has primarily focused on the general advantages of mPOS adoption in the retail and food service industries, but limited studies have explored the cost-benefit implications specifically for coffee shops. Given the growing reliance on technology-driven financial solutions, there is a need to assess the financial viability and operational impact of mPOS adoption among small coffee shop businesses.

It is in this regard that a study entitled *Cost-Benefit Analysis of Mobile Point-of-Sale Systems among Selected Local Coffee Shops in San Pablo City* is undertaken.

1.1. *Research Problems*

This study aims to determine the cost-benefit analysis of mPOS systems in selected local coffee shops in San Pablo City.

Specifically, it seeks to answer the following questions:

1. How do the following cost associated with the mPOS systems in selected local coffee shops in San Pablo City affect its operations:

- 1.1 hardware
- 1.2 software
- 1.3 subscription
- 1.4 maintenance
- 1.5 regulatory compliance

2. To what extent does the business performance of selected local coffee shops in San Pablo City benefit from using mPOS systems in terms of:

- 2.1 sales and revenue
- 2.2 transaction efficiency
- 2.3 financial tracking and reporting
- 2.4 financial statement preparation
- 2.5 return on investment

3. What flow chart can be designed to maximize the cost-effectiveness and efficiency of mPOS adoption for local coffee shop owners in San Pablo City?

4. What action plan can be proposed based on the findings of the study to enhance the cost-effectiveness and operational efficiency of mPOS system adoption among selected local coffee shops in San Pablo City?

2. **Literature Review**

Previous studies have shown that cost-benefit analysis plays an important role in helping small businesses evaluate investments and make informed decisions. Cost-Benefit Analysis (CBA) allows businesses to compare the expected costs and benefits of a project to determine whether it is financially sustainable. According to Ginés de Rus (2021), adaptable CBA methods help small businesses assess the financial viability of investments and allocate resources more effectively. Similarly, Zhang et al. (2022) found that although digital transformation requires high initial investment, it provides long-term benefits such as improved efficiency, stronger market position, and increased business value. In the Philippine context, Barroga et al. (2021) revealed that many MSMEs remain hesitant to adopt smart technologies because of financial limitations and lack of understanding of their benefits. Ghobakhloo et al. (2022) further emphasized

that cost-benefit analysis plays a major role in helping SMEs adopt Industry 4.0 technologies in a sustainable and strategic way.

The adoption of Mobile Point-of-Sale (mPOS) systems has become increasingly common because of their ability to improve business operations and transaction efficiency. According to Kotha (2023), traditional POS systems relied on fixed cash registers and manual inventory management, while mPOS systems use cloud computing, wireless communication, and mobile applications to provide greater flexibility. Similarly, Gunawan (2023) explained that mPOS applications can handle customer transactions, inventory management, receipt printing, and transaction history with high usability and reliability. These findings suggest that mPOS systems improve customer experience, streamline operations, and help businesses remain competitive.

Despite these benefits, the adoption of mPOS systems also involves significant hardware and software costs. Lin, Ha, and Lin (2020) explained that businesses must spend on hardware selection, software integration, and system customization during implementation. Kaur et al. (2022) noted that high upfront hardware costs can discourage small businesses from adopting mPOS systems. However, Leuterio and Siago (2021) emphasized that these costs are often justified by long-term benefits such as faster transactions, increased sales, and improved customer satisfaction. Likewise, Renesas and Panthronics (2021) highlighted that technological innovations can reduce manufacturing costs by integrating secure payment functions into a single microcontroller unit.

Software costs are another important consideration in mPOS adoption. According to Lin, Ha, and Lin (2020), mPOS systems are more affordable than traditional POS systems because they involve lower software licensing fees, minimal monthly charges, and automatic updates. Gonzalez and Smith (2021) also explained that while mPOS software may require high initial expenses, businesses eventually benefit from improved inventory management, better customer service, and increased profitability. Similarly, Rahman et al. (2020) found that software costs related to installation and customization are offset by reduced labor costs, improved financial accuracy, and faster transaction processing.

Maintenance costs are also a major factor in mPOS implementation. According to Sheykin (2024), businesses must allocate part of their budget for hardware maintenance, upgrades, and replacement. Software maintenance, security updates, employee training, and technical support also add to operating costs. Agilysys (2024) further explained that businesses incur payment processing fees and compliance-related expenses, while Filmer (2022) noted that data backup and cybersecurity measures are necessary to prevent data loss and cyber threats. These findings indicate that businesses must plan carefully for maintenance expenses to maximize the long-term benefits of mPOS systems.

Compliance costs also affect the financial sustainability of mPOS systems. According to Respicio and Co. (2025), businesses in the Philippines must obtain permits such as the Permit to Use (PTU) from the Bureau of Internal Revenue for each outlet. Ramirez (2024) added that VAT-registered businesses must pay registration fees for each device and ensure that their systems comply with BIR requirements. In addition, businesses must comply with PCI DSS standards to secure cardholder data. Ruparelia (2024) explained that compliance costs can range from hundreds to thousands of dollars annually, while non-compliance may result in heavy fines and losses caused by fraud or data breaches.

The use of mPOS systems also provides significant benefits in terms of sales, revenue, and transaction efficiency. According to Alexandria Point of Sale (2022), businesses that adopted mPOS systems experienced increased monthly revenue because of faster transaction speeds and improved inventory accuracy. The Guardian (2024) further noted that advanced mPOS systems provide real-time financial insights that help businesses improve operations, reduce fraud, and maintain cash flow. Similarly, Multidev Technologies (2023) explained that mPOS systems reduce costs associated with traditional POS hardware while improving customer satisfaction and sales performance.

Transaction efficiency is one of the most important advantages of mPOS systems. Cuevas-Vargas et al. (2022) found that technology adoption improves operational efficiency and market competitiveness among SMEs. Likewise, Azhari and Sutarman (2024) emphasized that mPOS systems support faster payments, lower operational costs, and real-time tracking. On the other hand, Maghni (2024) explained that traditional transaction methods are time-consuming and prone to errors, while Barraza (2023) highlighted the security risks associated with cash-based transactions and paper-based records. These studies show that mPOS systems improve transaction management, transparency, and business sustainability.

Financial tracking and reporting also improve through the use of mPOS systems. Brown and Johnson (2021) and Kier (2024) explained that mPOS systems automate transaction recording, reduce human errors, and provide real-time monitoring of sales and expenses. Alkhawaiter (2020) added that integrating mPOS systems with cloud-based accounting platforms improves financial management and reduces manual bookkeeping. In addition, PRC (2022) emphasized the importance of ensuring that financial statements comply with Philippine Financial Reporting Standards. According to Bichari (2025), mPOS systems support compliance by generating accurate and timely financial reports.

Return on investment (ROI) is another important consideration for businesses adopting mPOS systems. Pagaddut (2021) found that technology adoption improves financial performance among Philippine MSMEs. Kansoft (2024) also explained that businesses can save money by using existing mobile devices instead of expensive traditional POS equipment. However, Rej (2023) noted that recurring subscription fees and payment processing charges may reduce profitability over time. Vault (2024) and Richter and Sinha (2020) further explained that employee resistance to new technology can delay implementation and reduce ROI. Nevertheless, businesses that successfully adopt mPOS systems can improve efficiency, reduce costs, and increase long-term profitability.

Cost-effectiveness and efficiency remain the main reasons businesses adopt mPOS systems. According to PayCEC (2022), mPOS systems are less expensive than traditional POS systems because they require less hardware and lower maintenance costs. HitPay (2024) added that subscription-based models help businesses avoid large upfront expenses. First Circle (2024) found that mPOS systems reduce customer wait times and improve inventory management through automation. ConnectPOS (2024) also emphasized that mPOS systems improve checkout speed, reduce errors, and allow businesses to scale operations more easily. However, Transparency Market Research (2021) pointed out that recurring costs, security compliance, and network disruptions may reduce some of the expected financial benefits.

Overall, the reviewed literature suggests that mPOS systems provide many benefits for small businesses, including improved transaction efficiency, better financial tracking, increased sales, and higher profitability. However, businesses must also consider costs related to hardware, software, maintenance, compliance, and employee training. Therefore, conducting a comprehensive cost-benefit analysis is important to determine whether adopting mPOS systems is financially sustainable and beneficial in the long term.

3. Methodology

3.1 Research Design

This study utilized a quantitative descriptive research design to examine the financial and operational impacts of Mobile Point-of-Sale (mPOS) systems among selected coffee shops in San Pablo City. This research design was considered appropriate because it allows the researchers to systematically describe and analyze existing conditions without manipulating variables or attempting to establish cause-and-effect relationships between variables.

The descriptive method is particularly useful in studies that aim to gather factual, numerical, and measurable data. In this study, it was used to assess the perceived cost factors and benefits of mPOS systems as experienced by coffee shop owners, managers, and staff. Through the use of structured questionnaires, the researchers were able to collect quantifiable data that represent the actual perceptions and experiences of respondents in relation to mPOS usage.

Furthermore, this design enabled the researchers to summarize responses using statistical tools such as mean and standard deviation. These tools helped in interpreting the overall level of agreement among respondents and identifying patterns in their responses regarding the financial and operational implications of mPOS systems.

Overall, the use of a quantitative descriptive approach ensured that the study remained objective, systematic, and data-driven, aligning with its primary goal of evaluating how mPOS systems influence business operations in selected coffee shops in San Pablo City.

3.2 Research Locale

The study was conducted in San Pablo City, Laguna, Philippines, a first-class component city located in the CALABARZON region (Region IV-A). San Pablo City is widely recognized for its continuous economic development and increasing number of small and medium enterprises, particularly in the food and beverage industry, where coffee shops are becoming increasingly popular.

The city was selected as the research locale due to the growing adoption of digital technologies, especially Mobile Point-of-Sale (mPOS) systems, among local coffee shop businesses. Many establishments have begun integrating these systems to improve transaction efficiency, enhance sales monitoring, and provide better customer service. This increasing trend makes San Pablo City an ideal setting for examining the real-world

application of mPOS technology.

In addition, the city represents a dynamic business environment where both traditional and modern business practices coexist. Independent coffee shops operate alongside franchised establishments, providing a diverse range of business models. This diversity allows for a more comprehensive understanding of how mPOS systems are implemented and utilized in different operational contexts.

Moreover, the accessibility of business owners and their willingness to participate in research further supported the selection of this locale. The combination of technological adoption and active local entrepreneurship makes San Pablo City a suitable and relevant environment for conducting the study.

3.3 Population and Sampling

The population of this study consisted of coffee shop owners, managers, and financial staff in San Pablo City who are currently using Mobile Point-of-Sale (mPOS) systems in their business operations. These individuals were selected because they have direct knowledge and hands-on experience in managing and operating mPOS systems within their respective establishments.

Based on preliminary data, San Pablo City has approximately 122 coffee shops operating within its jurisdiction. Out of this total number, 56 coffee shops were identified as users of mPOS systems, making them the target population of the study. From these 56 establishments, a total of 37 coffee shops participated in the actual survey. The study employed a convenience sampling technique, wherein respondents were selected based on their availability, willingness to participate, and direct involvement in mPOS operations. This method was chosen due to time constraints and the difficulty in accessing all coffee shop owners in the city.

Although convenience sampling limits the generalizability of the results, it is considered appropriate for descriptive studies such as this, where the primary goal is to gather relevant and experience-based data from actual users. The selected respondents provided reliable and meaningful insights due to their firsthand exposure to the use of mPOS systems in real business operations.

3.4 Research Instrument

The primary research instrument used in this study was a structured questionnaire developed by the researchers and administered through both Google Forms and printed copies for selected respondents. The questionnaire was specifically designed to gather quantitative data on the cost factors and benefits of Mobile Point-of-Sale (mPOS) systems among coffee shop businesses in San Pablo City.

The instrument was carefully constructed based on related literature and studies focusing on digital payment systems, financial technology adoption, and mPOS implementation in small and medium enterprises (SMEs). This ensured that all items included in the questionnaire were relevant, research-based, and aligned with the objectives of the study.

The questionnaire consisted of two main sections:

Section A – Cost Factors Affecting mPOS Operations

This section focused on evaluating the different cost-related dimensions of mPOS systems, including hardware, software, subscription fees, maintenance expenses, and regulatory compliance costs. It measured the respondents' level of agreement using a 4-point Likert scale, ranging from 1 (Disagree) to 4 (Strongly Agree). This allowed the researchers to determine how respondents perceived the financial burden and sustainability of mPOS systems.

Section B – Benefits of Using mPOS Systems

This section assessed the perceived advantages of mPOS systems in terms of sales and revenue growth, transaction efficiency, financial tracking and reporting, financial statement preparation, and return on investment (ROI). Responses were measured using a structured rating scale that captured the degree of improvement experienced by respondents.

Overall, the research instrument was designed to ensure clarity, consistency, and reliability in collecting data that accurately reflects the perceptions of coffee shop stakeholders regarding mPOS systems.

3.5 Validation of the Instrument

To ensure the validity of the research instrument, the questionnaire underwent content validation conducted by the thesis adviser and selected experts in the fields of Business Administration, Accounting, Information Systems, and Research Methodology. These experts carefully evaluated each item in the questionnaire based on clarity, relevance, and alignment with the specific objectives of the study.

The validation process also involved assessing whether the language used in the questionnaire was appropriate and easily understandable for the intended respondents, particularly coffee shop owners, managers, and staff who actively use mPOS systems in their operations. Based on the feedback provided by the validators, several revisions were made. These included improving sentence structure, removing ambiguous statements, and refining certain items to ensure consistency and better measurement of the intended variables.

This process strengthened the content validity of the instrument, ensuring that it accurately measures the cost and benefit perceptions of mPOS systems. As a result, the final version of the questionnaire was deemed appropriate for actual data collection.

3.6 Reliability of the Instrument

To determine the reliability of the research instrument, a pilot test was conducted involving respondents who were not part of the main study. The internal consistency of the questionnaire was measured using Cronbach's Alpha coefficient.

The results of the reliability test are as follows:

- Cost Factors: $\alpha = 0.97$
- Benefit Factors: $\alpha = 0.92$

According to established research standards, Cronbach's Alpha values above 0.90 indicate excellent reliability. This means that the items in both sections of the questionnaire have very high internal consistency and consistently measure the same underlying constructs.

The high reliability coefficients confirm that the instrument is stable, consistent, and dependable for use in the actual data gathering process. Therefore, the questionnaire is considered highly suitable for measuring respondents' perceptions regarding mPOS cost factors and benefits.

Table 1.

Likert Scale Measurement for Section One – Cost Factors

Scale	Range	Description Equivalent
4	3.00 – 4.00	Strongly Agree
3	2.00 – 2.99	Agree
2	1.00 – 1.99	Moderately Disagree
1	0.99 – 1.00	Disagree

Table 2.

Likert Scale Measurement for Section Two – Benefit Factors

Scale	Range	Description Equivalent
4	3.00 – 4.00	Increased by more than 20%
3	2.00 – 2.99	Increased by 10–20%
2	1.00 – 1.99	Dropped by 10–20%
1	0.99 – 1.00	Dropped by more than 20%

3.7 Data Gathering Procedure

The data gathering procedure was conducted in a systematic and organized manner to ensure accuracy, reliability, and ethical compliance throughout the research process.

Initially, the researchers sought permission from selected coffee shop establishments in San Pablo City to conduct the study. Upon approval, the researchers distributed the questionnaire through Google Forms and

also conducted face-to-face visits to selected establishments to assist respondents and improve response rates.

Before answering the questionnaire, respondents were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without any consequences. Informed consent was obtained from all participants prior to data collection.

After the collection process, all responses were carefully checked for completeness and consistency. The data were then encoded, organized, and prepared for statistical analysis. This ensured that all responses were properly categorized for accurate interpretation of results.

3.8 Statistical Treatment of Data

The data collected from respondents were analyzed using appropriate statistical tools to ensure accurate interpretation aligned with the objectives of the study.

The primary statistical tool used was the mean, which was used to determine the average level of responses for each indicator. The mean served as a measure of central tendency, representing the overall perception of respondents regarding the cost factors and benefits of mPOS systems.

Mean Formula:

$$\bar{x} = \Sigma x / n$$

Legends:

$\bar{x}$ = mean

Σx = sum of all responses

n = number of respondents

The mean values were used to summarize and interpret the overall responses of the participants, providing a clear representation of their collective perceptions.

3.8 Ethical Considerations

The study strictly adhered to ethical research principles throughout the entire research process. Respondents were fully informed about the objectives of the study and their role as participants before data collection began. Participation was completely voluntary, and respondents were given the freedom to refuse or withdraw at any stage without any form of penalty or consequence.

Informed consent was obtained from all participants prior to their involvement in the study. The confidentiality and anonymity of respondents were strictly maintained in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173). All data collected were anonymized and presented in aggregated form to ensure that no individual or establishment could be identified. The information gathered was used solely for

academic purposes and was securely stored to prevent unauthorized access. Only the researchers and the thesis adviser had access to the raw data. The study was conducted with honesty, integrity, and transparency, ensuring that no data fabrication, falsification, or manipulation occurred at any stage of the research process.

4. Result and Discussion

The survey results were assessed and analyzed to determine the extent of cost - benefits of using Mobile Point-of-Sale (mPOS) systems on the business performance of selected local coffee shops in San Pablo City.

Table 1 Cost Factors Affecting mPOS Operation of Coffee Shops in San Pablo City

Factors	Mean	SD	Verbal Interpretation
Hardware	3.52	0.54	Strongly Agree
Software	3.56	0.52	Strongly Agree
Subscription	3.42	0.62	Strongly Agree
Maintenance	3.47	0.56	Strongly Agree
Regulatory Compliance	3.59	0.53	Strongly Agree
Overall Mean	3.51	0.56	Strongly Agree

**3.26-4.00 Very Great Effect, 2.51-3.25 Great Effect, 1.76-2.50 Small Effect, 1.00-1.75 Very Small Effect*

Table 3 shows the summary of cost factors affecting Mobile Point-of-Sale (mPOS) operations in selected local coffee shops in San Pablo City, with an overall mean of 3.51 interpreted as Strongly Agree. This indicates that mPOS-related costs have a significant influence on business operations. All indicators, including hardware, software, subscription, maintenance, and regulatory compliance, were rated within the same category, demonstrating that cost factors consistently affect multiple aspects of mPOS implementation. Among these, regulatory compliance ($M = 3.59$) obtained the highest mean, highlighting that coffee shop owners place strong importance on complying with government regulations to avoid penalties, legal issues, and potential disruptions in business operations.

Hardware, software, and maintenance costs were also rated highly, suggesting that these are widely recognized as necessary investments to ensure system efficiency, transaction accuracy, and overall operational reliability. These components directly support the functionality of the mPOS system, making them essential for smooth daily business activities. On the other hand, subscription costs ($M = 3.42$), although still interpreted as strongly agreed, received relatively lower emphasis compared to other factors. This suggests that coffee shop owners are more cautious about recurring expenses, as these affect monthly cash flow and require continuous financial commitment over time.

Overall, the findings indicate that cost factors have a substantial and multifaceted effect on mPOS operations, influencing not only the adoption but also the long-term sustainability of the system. Coffee shop owners appear to recognize these costs as necessary and unavoidable, rather than optional, in maintaining efficient and compliant business operations. These results are consistent with the study of Ginés de Rus (2021), which emphasized the importance of cost-benefit analysis in ensuring effective investment decisions, and Barroga et al. (2021), who noted that financial limitations often influence the adoption of digital technologies among small businesses. This implies that while mPOS systems offer significant operational benefits, proper cost management remains a key factor in ensuring their successful and sustainable implementation.

Table 2. Extent of Benefit of Coffee Shop Business Performance using mPOS Systems

mPOS Cost Components	Mean	SD	Verbal Interpretation
Sales and Revenue	3.22	0.43	Increased by 10-20%
Transaction Efficiency	3.35	0.51	Increased by more than 20%
Financial Tracking and Reporting	3.44	0.51	Increased by more than 20%
Financial Statement Preparation	3.41	0.59	Increased by more than 20%
Return of Investment	3.31	0.48	Increased by more than 20%
Overall Mean	3.34	0.50	Very High
<i>*3.26-4.00 Increased by more than 20%, 2.51-3.25 Increased by 10-20%, 1.76-2.50 Dropped by 10-20%, 1.00-1.75 Dropped by more than 20%</i>			

Table 2 presents the results showing the extent of benefits of using Mobile Point-of-Sale (mPOS) systems on the business performance of selected local coffee shops in San Pablo City. The findings indicate a generally very high level of perceived benefits, with an overall mean of 3.34. Most indicators fall within the “Increased by more than 20%” category, suggesting that mPOS systems significantly enhance various aspects of business operations.

Among the indicators, financial tracking and reporting ($M = 3.44$, $SD = 0.51$) obtained the highest mean, followed closely by financial statement preparation ($M = 3.41$, $SD = 0.59$), both interpreted as having increased by more than 20%. These results imply that mPOS systems greatly improve the accuracy, organization, and accessibility of financial data. By automating the recording of transactions, the system minimizes errors associated with manual processes and enables business owners to monitor financial

performance more effectively. This contributes to better decision-making, improved cash flow management, and stronger financial control within the business.

Transaction efficiency ($M = 3.35$, $SD = 0.51$) and return on investment ($M = 3.31$, $SD = 0.48$) also yielded high mean values, indicating that mPOS systems enhance the speed of transactions and provide favorable financial returns over time. Faster transaction processing improves customer service and reduces waiting time, which may contribute to customer satisfaction and repeat patronage. Meanwhile, the positive perception of return on investment suggests that despite initial costs, business owners recognize the long-term financial advantages of adopting mPOS systems.

On the other hand, sales and revenue ($M = 3.22$, $SD = 0.43$) obtained the lowest mean among the indicators, although still interpreted as increased by 10–20%. This suggests that while mPOS systems support business operations, increases in sales are also influenced by external factors such as customer demand, pricing strategies, and market competition. Thus, the system serves more as a support tool rather than a direct driver of revenue growth.

Overall, the findings indicate that mPOS systems provide substantial benefits, particularly in improving internal financial processes and operational efficiency. These results support existing studies which emphasize that digital technologies contribute to better financial management and business performance. As noted in previous research, the adoption of digital systems enables small and medium enterprises to enhance efficiency, improve record-keeping, and achieve sustainable growth. Therefore, the implementation of mPOS systems can be considered a valuable investment for coffee shop businesses seeking to improve their overall performance and competitiveness.

These findings are consistent with Pfister and Lehmann (2023), who noted that digital transformation investments among SMEs generate positive ROI through improved efficiency and cost reduction. Similarly, Sinaga, Irene, and Christanti (2023) found that digital adoption in the food and beverage sector enhances financial performance and accelerates payback periods. In addition, Azhari and Sutarman (2024) emphasized that real-time mobile POS integration improves transaction accuracy and resource utilization, contributing to higher ROI and long-term business sustainability.

5. Summary, Conclusions, and Recommendations

5.1. Summary of Findings

The study examined the cost implications and operational benefits of using Mobile Point-of-Sale (mPOS) systems among selected local coffee shops in San Pablo City. The findings revealed that respondents generally agreed that mPOS implementation is cost-efficient, particularly regarding hardware expenses, which obtained the highest mean among the cost indicators. This suggests that the devices required for mPOS operation were perceived as affordable, accessible, and reasonable for small business owners. Respondents also expressed satisfaction with software expenses, reflecting a positive perception of the system's features relative to their price. Subscription fees received an overall favorable assessment, though these recurring costs were identified as the component that required more long-term consideration.

In terms of benefits, respondents strongly agreed that mPOS systems significantly improved financial statement preparation, citing increased accuracy, automated recording, reduced human error, and easier tracking of daily transactions. The results also showed strong agreement that mPOS usage contributed to an improved return on investment (ROI). Users reported enhanced operational efficiency, faster transaction handling, improved sales monitoring, and better financial management—findings that were also emphasized in the earlier assessment of mPOS benefits.

The overall findings indicate that mPOS systems offer considerable cost advantages and operational benefits to small coffee shops, supporting more organized workflows, improved accuracy, and enhanced financial performance. For the cost variable, the overall mean of 3.51 (SD = 0.56) indicated a Very Great Effect, showing that hardware, software, subscription, maintenance, and regulatory compliance costs are meaningful factors that influence their operations. Despite these cost considerations, respondents agreed that such expenses remain reasonable and justified.

For the benefits variable, the results showed notable improvements across all dimensions: sales and revenue (M = 3.22, SD = 0.43), transaction efficiency (M = 3.35, SD = 0.51), financial tracking and reporting (M = 3.44, SD = 0.51), financial statement preparation (M = 3.41, SD = 0.59), and return on investment (M = 3.31, SD = 0.48). These values demonstrate that mPOS systems contribute to increased productivity, accuracy, and financial gains among small coffee shops.

5.2. Conclusions

Based on the results of the study, it is concluded that the Mobile Point-of-Sale (mPOS) system provides a positive and meaningful contribution to the operations of local coffee shops in San Pablo City. The cost components required for adopting and maintaining the system were perceived as reasonable and manageable, and the overall cost mean signifies that while these factors influence business operations, they do so in a way that supports efficiency and long-term sustainability rather than hindering performance.

The study also concludes that the operational and financial benefits derived from using the mPOS system outweigh the costs associated with it. Improvements in sales processes, transaction efficiency, financial monitoring, and overall business management show that the system enhances productivity and supports better decision-making for small coffee shops.

Overall, adopting an mPOS system is a strategic and advantageous choice for coffee shops. The findings indicate that the technology strengthens accuracy, streamlines business operations, and contributes to improved financial performance, making it a valuable tool for long-term business sustainability.

5.3. Recommendations

A. For Business Owners Without mPOS Systems

1. Consider Gradual Adoption of mPOS Technology.

Business owners should invest in continuous training to ensure employees fully understand how to operate the mPOS system, thereby reducing errors and increasing service efficiency.

2. Begin with Simple and User-Friendly mPOS Solutions.

Business owners are encouraged to start with mPOS systems that are easy to use, reliable, and designed for small businesses.

3. Assess Practical Benefits Based on Daily Operations.

Before fully adopting an mPOS system, business owners may observe how the technology can improve their daily operations, such as faster transactions, better sales recording, and reduced manual errors. .

4. Seek Guidance from mPOS Providers or Business Support Institutions.

Owners are encouraged to consult mPOS service providers, fellow entrepreneurs, or local business support agencies to gain a clearer understanding of system features, costs, and implementation requirements before adoption.

5. Prepare for Future Business Growth and Digital Transition.

Business owners should consider mPOS adoption as a long-term investment that supports business expansion, improves financial organization, and aligns with the increasing use of digital payment methods in the market.

B. For Business Owners With mPOS Systems

1. Enhance Staff Training.

Business owners should invest in continuous training to ensure employees fully understand how to operate the mPOS system, thereby reducing errors and increasing service efficiency.

2. Choose Reliable and Cost-Efficient Providers.

Selecting an mPOS system that offers both affordability and robust features can help maximize operational benefits while keeping expenses manageable.

3. Maintain Stable Connectivity.

Ensuring a consistent and reliable internet connection—or preparing backup connectivity options—will minimize system downtime and prevent disruptions in daily transactions.

4. Regularly Review Operating Costs.

Owners should periodically examine subscription fees, processing charges, and maintenance expenses to ensure that their chosen mPOS remains cost-effective over time.

5. Integrate Additional Business Tools.

Connecting the mPOS system with inventory management, accounting software, or digital sales records can further improve efficiency and reduce manual workload.

6. Promote Digital Payment Options.

Encouraging customers to use cashless payments can enhance convenience, reduce queues, and improve customer satisfaction.

7. Strengthen Data Security Practices.

Owners should perform regular software updates and security checks to protect sensitive customer and business information.

C. For Future Researchers

1. Expand the Scope of Participants.

Future studies may include a wider range of businesses, such as restaurants, retail shops, and other small enterprises, to broaden generalizability.

2. Use Mixed-Method Approaches.

Incorporating interviews, case studies, or focus group discussions can provide deeper insights into user experiences and challenges.

3. Conduct Longitudinal Studies.

Examining mPOS usage over an extended period can reveal long-term effects on financial performance and operational efficiency.

4. Explore External and Internal Factors.

Variables such as digital literacy, internet stability, economic conditions, staff readiness, and availability of technical support may influence mPOS effectiveness and should be considered in future research.

5. Assess Technological Adaptation Challenges.

Understanding barriers to adoption—such as cost concerns, resistance to change, or lack of training—can help improve implementation strategies for small enterprises.

Proposed Action Plan on the Conduct of an MPOS System

Proposed Action Plan for the Conduct of an mPOS Seminar						
Area of Concern	Objective	Person Involved	Time Frame	Resources Needed	Monitoring and Evaluation	Budget Allocation
Limited Awareness of mPOS cost components	Increase understanding of mPOS-related costs (hardware, software, subscription, maintenance, compliance)	Researchers ,Technical support personnel, Coffee Shops Owners	September 1	Presentation materials, projector, seminar handouts	Seminar attendance and participant feedback	₱1,000 - 5,000
Inefficient use of mPOS features	Improve operational efficiency through proper system utilization	mPOS systems demonstrator, Coffee Shop Staff	September 2	Demo devices, internet connection	Post-seminar evaluation forms	₱1,000 - 5,000
Concerns about return on investment (ROI)	Help owners maximize mPOS benefits	Small business consultant, Researchers	September 3	Case examples, discussion guides	Feedback and follow-up inquiries	₱1,000 - 5,000
Data security and system reliability issues	Promote safe and reliable mPOS	mPOS providers, IT Consultant	September 4	Security guidelines, manuals	Participant evaluation and recommendations	₱1,000 - 5,000

Table 3. Proposed Action Plan

Proposed Action Plan on the Conduct of an MPOS System

The proposed action plan outlines the conduct of a four-day mPOS seminar aimed at improving the cost-effectiveness and operational efficiency of Mobile Point-of-Sale (mPOS) system adoption among selected local coffee shops in San Pablo City. The plan was developed based on the key issues identified in the study, including limited awareness of mPOS cost components, inefficient utilization of system features, concerns regarding return on investment (ROI), and issues related to data security and system reliability.

Each area of concern is paired with a specific objective to ensure that the identified problems are addressed systematically. The seminar sessions are scheduled from September 1 to September 4, allowing each topic to be discussed in a focused manner without causing significant disruption to daily business operations. The persons involved, such as researchers, mPOS providers, coffee shop owners and staff, business experts, and IT specialists, were selected to ensure that the discussions are guided by individuals with relevant expertise and practical experience.

The resources needed, including presentation materials, projectors, seminar handouts, demo devices, internet connectivity, case examples, discussion guides, and security manuals, are intended to support both theoretical discussions and practical demonstrations. The effectiveness of each seminar session will be assessed through monitoring and evaluation measures, such as attendance tracking, post-seminar evaluation forms, participant feedback, and follow-up inquiries, to determine improvements in participants' knowledge and understanding of mPOS costs, operational use, financial management, ROI optimization, and system security.

The budget allocation, estimated at ₱1,000–₱5,000 per seminar session, reflects the financial feasibility of the proposed action plan. The funds for this allocation will be personally sourced and shouldered by the researchers, ensuring that the implementation of the proposed seminar will not impose additional financial burden on participating coffee shop owners or other stakeholders. This amount is intended to cover essential seminar expenses, including materials, presentation supplies, and other logistical support, while remaining affordable and realistic for implementation. Overall, the proposed action plan serves as a practical recommendation that translates the study's findings into actionable steps, supporting informed decision-making and sustainable business growth through effective mPOS system adoption.

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