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Examining the Effectiveness of E-Payment on Small and Medium Enterprises (SMEs): A Case Study of SMEs in the Agri - Business Sector in Lusaka

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Abstract

This study investigates the effectiveness of electronic payment (e-payment) systems on the operational and financial performance of Small and Medium Enterprises (SMEs) in the agri-business sector in Lusaka, Zambia. The research was driven by the growing use of digital financial technologies and the need to understand their impact on business efficiency and profitability. Although e-payment adoption is increasing, SMEs continue to face challenges such as limited digital literacy, unreliable networks, high transaction costs, and security risks. A descriptive research design was used, targeting SME owners and managers in Lusaka's agri-business sector. Purposive sampling selected 50 SMEs that actively use e-payment platforms. Primary data were collected through structured questionnaires and semi-structured interviews, while secondary data came from journals, reports, and Bank of Zambia publications. Data were analyzed using descriptive statistics, cross-tabulations, and thematic analysis to assess adoption levels, operational efficiency, financial performance, and barriers to effectiveness. Findings show that e-payment adoption among SMEs is moderate, with mobile money being the most widely used platform, followed by POS systems and online banking. Regarding operational efficiency, 70% of respondents reported faster transactions, reduced errors, and better record-keeping. For financial performance, 65% indicated improvements in sales and profitability. Key barriers included limited digital literacy (60%), network unreliability (55%), high transaction fees (50%), and security concerns (45%). Adoption patterns were influenced by perceived usefulness and ease of use, while recommended strategies for enhancement included digital literacy training, improved network infrastructure, reduced transaction costs, and stronger security measures. The study concludes that addressing these challenges will enable SMEs in Lusaka's agri-business sector to fully benefit from e-payment systems, ultimately improving operational efficiency, financial performance, and long-term sustainability.

1. Introduction

The Small and Medium Enterprise (SME) sector in Zambia plays a vital role in economic development through employment creation, poverty reduction, and support for entrepreneurship (Zambia Development Agency, 2022). Agri-business SMEs are particularly important, as they link agricultural production to processing and distribution, thereby contributing to food security, rural livelihoods, and income generation for smallholder farmers (Chibwe, 2021).

Despite their importance, many SMEs face operational and financial challenges. Heavy reliance on cash-based transactions and limited access to formal banking services lead to inefficiencies such as delayed payments, high cash-handling costs, and vulnerability to theft (Ncube & Lufumba, 2020). For agri-business SMEs that manage perishable goods and seasonal production, these challenges create significant disruptions in cash flow and hinder productivity (Bank of Zambia, 2023).

Electronic payment (e-payment) systems—such as mobile money, online banking, POS systems, and fintech applications— have emerged as viable solutions to these constraints. These systems lower transaction costs, improve financial accuracy, enhance security, and enable timely payments, thereby strengthening SME financial management and operational efficiency (Koch & Siering, 2020; OECD, 2020).

Across sub-Saharan Africa, mobile money has become central to financial inclusion, with adoption rates above 60% in countries like Kenya and Tanzania due to convenience and reduced reliance on cash (Mbiti & Weil, 2016). Although mobile money use is increasing in Zambia, issues such as network reliability, electricity shortages, and transaction fees limit broader

adoption, particularly for rural SMEs.

Within Zambia, urban SMEs—especially those in Lusaka—exhibit higher e-payment uptake than rural firms. Mobile money is the most widely used platform, with adoption influenced by enterprise size, financial capacity, managerial skills, and customer demand. However, barriers such as high setup costs, limited digital literacy, cybersecurity risks, and unreliable platforms continue to challenge adoption.

Given the potential benefits and persistent obstacles, assessing the effectiveness of e-payment systems is essential to inform policy and support SMEs—particularly agri-business enterprises—in leveraging digital technologies for improved performance and sustainable growth.

1.1 General Objective
To assess the effectiveness of e-payment systems on the operational efficiency and financial performance of SMEs in the Agri-Business sector in Lusaka.
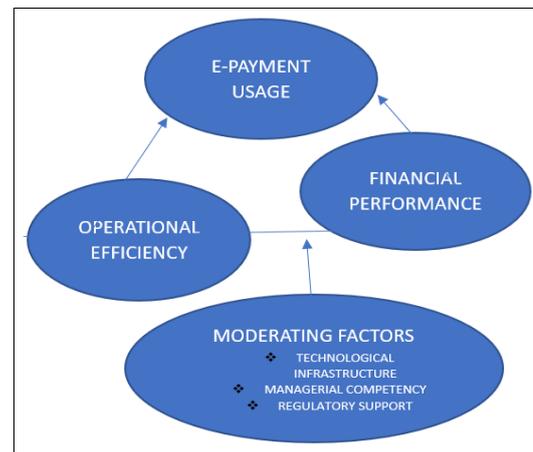
1.1.1 Specific Objectives
1. To examine the level of adoption and usage of e-payment systems among SMEs in Lusaka's Agri-Business sector.
2. To evaluate the impact of e-payment systems on the operational efficiency of SMEs in the sector.
3. To assess the influence of e-payment systems on the financial performance of SMEs in Lusaka.

1.2 Conceptual Framework
This study draws on two theories: The Technology Acceptance Model (TAM) and the Diffusion of Innovations Theory (DOI). TAM (Davis, 1989) states that perceived usefulness and ease of use influence technology adoption. In the SME context, this means owners' and managers' perceptions of e-payment platforms shape adoption levels, which then affect operational efficiency and financial performance. DOI (Rogers, 2003) explains how innovations spread, highlighting factors such as relative advantage, compatibility, complexity, trialability, and observability. For agri-business SMEs in Zambia, e-payment adoption may be influenced by infrastructural readiness, managerial awareness, and social networks (GSMA, 2021; UNCTAD, 2022).

The conceptual framework (Figure 1.5.1) positions e-payment adoption as the independent variable, and operational efficiency and financial performance as dependent variables. Moderating factors—technological infrastructure, managerial competency, and regulatory support—affect how strongly adoption impacts these outcomes. The framework suggests that e-payment adoption first improves operational efficiency by streamlining transactions and reducing delays, which in turn enhances financial performance through increased revenue and reduced costs. By integrating TAM and DOI, the study provides a structured approach to understanding how internal perceptions and external conditions influence e-payment adoption and SME performance.

Source: Researcher

2. Literature Review
2.1 Factors Influencing Adoption of E-payment Systems among SMEs
The adoption of e-payment systems among SMEs is shaped by a wide range of interconnected internal and external influences that vary according to organizational capacity, technological readiness, and socio-economic context. Within SMEs, managerial commitment plays a decisive role because leaders who understand the strategic value of digital payments are more likely to allocate resources, promote adoption, and align these systems with business goals. Staff competence is equally critical, as limited ICT skills often hinder the effective use of mobile money, POS devices, and other digital platforms. Continuous training and capacity building are essential to ensure efficient operation and enhance customer service. Financial capacity further determines the extent to which SMEs can invest in hardware, software, connectivity, and maintenance, with constrained firms often delaying or partially implementing e-payment solutions.

Externally, the availability of technological infrastructure—such as reliable electricity, network coverage, and internet access—strongly affects e-payment feasibility and user confidence. Regulatory frameworks also shape adoption, where clear and supportive policies promote uptake, while bureaucratic procedures, compliance costs, or uncertainty discourage SMEs, particularly those in agri-business requiring formal documentation. Social influence, including customer expectations, peer pressure, and community norms, can either motivate or discourage adoption, especially in environments where cash transactions remain culturally entrenched.

Research shows that internal strengths such as managerial support and staff skills often enable SMEs to overcome external challenges, although a supportive ecosystem remains essential. Sector-specific conditions further shape adoption patterns: agri-business SMEs contend with seasonality, perishability, informal markets, and irregular cash flows, all of which influence the suitability and timing of digital payment adoption. Perceived usefulness and ease

of use, as suggested by the Technology Acceptance Model, strongly affect willingness to adopt, while concerns about security, fraud, and digital literacy remain significant barriers, especially in settings where trust is based on face-to-face interactions.

Economic stability also plays a role, as SMEs facing inflation or uncertain markets may be reluctant to invest in new technologies. Peer networks and knowledge sharing contribute to adoption decisions, with positive experiences encouraging uptake and negative reports discouraging it. Integration challenges arise when SMEs rely on manual systems, making it difficult to embed e-payments into existing workflows without process adjustments. Empirical evidence from Zambia shows that mobile money usage enhances operational efficiency, market access, and profitability, yet actual usage remains low despite high account ownership, with gender disparities influenced by social and capacity-related factors. Trust and digital literacy continue to shape adoption decisions, while infrastructure issues such as power outages and inconsistent network connectivity remain persistent obstacles.

At the regional level, digital payment infrastructure is expanding rapidly across Africa, although SME usage still lags. Drivers such as entrepreneurial orientation and competence support adoption, while rural and peri-urban enterprises face additional constraints linked to limited digital skills and weaker infrastructure. The rapid evolution of digital technologies further means that adoption is not a one-time event but an ongoing process requiring continuous adaptation, system updates, and staff training to keep pace with new features and market expectations. For agri-business SMEs in Lusaka, sector-specific challenges, technological demands, and market conditions combine to shape e-payment adoption in complex ways.

Overall, e-payment adoption among SMEs emerges from a dynamic interaction between internal readiness, external support, technological change, and sector-specific realities. Managerial support, staff competence, adequate financial resources, reliable infrastructure, clear regulations, social acceptance, and trust are all central determinants. Aligning internal capabilities with supportive external conditions is essential for enhancing adoption, improving operational efficiency, and strengthening financial inclusion within Lusaka's agri-business sector.

2.2 The Effect of E-payment Systems on Operational Efficiency of SMEs

The adoption of e-payment systems significantly enhances the operational efficiency of SMEs by streamlining financial processes, reducing manual workload, and improving overall workflow performance. Operational efficiency, which is essential for the competitiveness and sustainability of SMEs in resource-constrained environments such as Lusaka's agri-business sector, is strengthened through faster transaction processing, reduced human error, improved record-keeping, and enhanced financial transparency. E-payment systems minimize the delays associated with traditional cash-based processes by enabling real-time digital transactions, which accelerate procurement, improve supply chain coordination, and support timely market responses. These efficiencies are particularly crucial for agri-business SMEs dealing with perishable goods, where delayed payments can disrupt production cycles and lead to financial losses. Evidence shows that SMEs integrating

mobile money, POS devices, and online banking reduce transaction times by up to seventy percent, thereby improving customer satisfaction and operational responsiveness.

By automating financial tasks, e-payment platforms also lower the risk of human error associated with manual record-keeping, cash handling, and reconciliation. Digital systems automatically verify transactions, generate receipts, and update financial or inventory records, ensuring accuracy and enhancing reliability. This automation supports better stock management, reduces the likelihood of stock-outs or spoilage, and strengthens financial integrity. Improved record-keeping allows SMEs to access real-time financial data, which facilitates faster reconciliation, more accurate budgeting, and informed decision-making. Transparent digital records further support regulatory compliance, strengthen relationships with suppliers and customers, and improve SMEs' credibility with financial institutions.

E-payment systems also contribute to cost efficiency by reducing the expenses linked to cash handling, such as transportation, security, and labour-intensive reconciliation. The resources saved through digital transactions can be redirected toward strategic activities like expansion, marketing, and staff development. Integration of e-payment systems with digital accounting or enterprise management tools enhances process automation, enabling SMEs to streamline payroll, invoicing, tax calculations, and inventory management. SMEs that integrate these systems report significant reductions in administrative costs and enhanced productivity, which is particularly valuable for small enterprises with limited human resources.

Beyond immediate operational gains, e-payment adoption strengthens long-term operational resilience. Digital financial records support demand forecasting, supplier negotiation, and inventory planning, enabling SMEs to anticipate seasonal fluctuations and adapt to market volatility. E-payment systems also enhance customer service by offering fast, convenient, and secure payment options, contributing to higher customer retention and expanded market reach. For agri-business SMEs, these improvements translate into improved delivery schedules, reduced spoilage risks, and greater capacity to respond to shifting market conditions.

However, the efficiency benefits of e-payment systems depend on contextual enablers such as reliable digital infrastructure, staff digital literacy, and effective integration with existing processes. Network instability, power outages, and limited ICT skills can temporarily hinder operational improvements, especially in peri-urban or informal areas. SMEs that combine e-payment adoption with ongoing training, stable digital platforms, and contingency planning achieve stronger and more consistent efficiency gains. Despite these challenges, evidence across Zambia and Sub-Saharan Africa shows that SMEs integrating e-payment solutions experience improved cash flow control, reduced transaction costs, faster supplier payments, and more accurate financial reporting.

In summary, e-payment systems enhance the operational efficiency of SMEs through faster transactions, reduced errors, process automation, better financial management, and lower operational costs. These improvements strengthen competitiveness, customer satisfaction, and long-term business sustainability. For Lusaka's agri-business SMEs, aligning e-payment adoption with strategic planning, staff

training, and supportive infrastructure enables them to fully leverage digital financial tools to achieve operational excellence and improved market performance.

2.3 The Impact of E-payment Systems on Financial Performance of SMEs

Financial performance in SMEs refers to their capacity to generate revenue, manage cash flows, control operational costs, and maintain profitability over time. In the agri-business sector—where operations are seasonal and profit margins are often limited—sound financial performance is essential for sustainability and competitiveness (Osei-Assibey, 2018). The adoption of electronic payment (e-payment) systems has become a major factor influencing financial outcomes by enhancing liquidity, improving operational efficiency, increasing revenue, promoting transparency, and strengthening financial risk management.

E-payment systems improve cash flow management by reducing delays associated with traditional cash-based transactions. Through the use of mobile money, POS systems, and online banking, SMEs are able to receive payments instantly and transfer funds without delay, thereby shortening the cash conversion cycle and ensuring the availability of working capital (Demirgüç-Kunt *et al*., 2018). For agri-business SMEs, these real-time inflows support timely wage payments, inventory restocking, and other operational requirements, while also reducing risks related to cash handling and reinforcing supplier relationships (Mwansa, 2020).

The adoption of digital payment tools also promotes revenue growth by enabling SMEs to access broader markets, particularly in urban environments where customers increasingly prefer cashless transactions. Agri-business SMEs that accept digital payments can transact more easily with supermarkets, restaurants, and online retailers, enhancing business credibility and expanding sales opportunities (Gichuki & Njeru, 2020). Research shows that firms integrating e-payment solutions often experience increased sales volumes and stronger customer retention, as digital payments offer convenience, traceability, and enhanced customer trust (Mbiti & Weil, 2016). This integration further supports participation in e-commerce platforms and digital marketing initiatives, contributing to long-term growth (Osei-Assibey, 2018).

E-payment systems also reduce operational costs by minimizing the need for manual cash handling, reconciliation, and security measures. Automated digital transactions decrease administrative burdens and free resources for investment in productive activities such as marketing, staff development, and equipment upgrades (Demirgüç-Kunt *et al*., 2018). These efficiency gains allow SMEs to operate more cost-effectively and strengthen overall profitability (Mwansa, 2020).

In addition, e-payment adoption enhances financial transparency by generating accurate and verifiable transaction records. When integrated with accounting systems, digital payments provide real-time financial information that supports regulatory compliance, informed decision-making, and strategic planning (Gichuki & Njeru, 2020). Transparent financial histories increase SME credibility with banks, investors, and suppliers, improving access to credit and fostering stronger business relationships. Such transparency reduces financial disputes and supports stable operational performance (Mbiti & Weil, 2016).

E-payment systems also play a critical role in strengthening financial risk management. By reducing reliance on cash, SMEs lower the risks of theft, fraud, and misappropriation of funds. Digital transaction records promote accountability and provide a reliable basis for forecasting and planning (Demirgüç-Kunt *et al*., 2018). For agri-business SMEs that often face price volatility, seasonal fluctuations, and supply chain disruptions, e-payment platforms support predictable cash flows and timely settlements, enhancing resilience and long-term financial stability (Osei-Assibey, 2018).

However, several contextual considerations must be acknowledged. SMEs may face initial costs related to system installation, staff training, and acquisition of digital devices. Transaction fees and dependence on stable internet and electricity supply can also pose challenges, particularly in peri-urban areas (Mwansa, 2020). Addressing these barriers requires strategic financial planning, capacity building, and supportive policies aimed at reducing infrastructure limitations and lowering operational costs. SMEs that successfully navigate these challenges are better positioned to maximize the financial benefits of e-payment adoption.

Overall, the integration of e-payment systems significantly enhances SME financial performance by strengthening liquidity management, expanding revenue opportunities, reducing operational costs, improving financial transparency, and supporting effective risk management. For agri-business SMEs in Lusaka, these digital systems are essential for sustaining operations, accessing broader markets, and improving long-term competitiveness. With appropriate training, infrastructure support, and policy frameworks, SMEs can leverage digital financial solutions to achieve robust and sustainable financial performance (Osei-Assibey, 2018; Mwansa, 2020; Gichuki & Njeru, 2020).

2.4 Literature Gap

Limited empirical evidence on how e-payment systems affect operational efficiency specifically in agri-business SMEs in Lusaka. Adoption Factors Gap: Insufficient analysis of contextual and behavioral factors influencing adoption among Zambian SMEs, particularly in semi-urban agricultural settings. Performance Link Gap: Few studies have quantitatively examined the direct relationship between e-payment adoption and financial performance among SMEs.Theoretical Gap: Inadequate use of technology adoption theories (such as TAM or DOI) to explain SME adoption behavior in Zambia. Gap: Limited research on regulatory and institutional frameworks that support digital transaction ecosystems for small-scale enterprises.

3. Methodology
3.1 Overview

The study adopts a mixed-methods approach to comprehensively assess the effectiveness of e-payment systems among SMEs in Lusaka's agri-business sector. It integrates quantitative and qualitative methods to ensure balanced analysis while outlining the population, sampling, data collection, analysis, and ethical considerations.

3.2 Research Design
A mixed-methods design combining quantitative surveys and qualitative interviews is used to capture both measurable trends and in-depth perspectives on e-payment adoption. This approach enables triangulation, ensuring that findings on operational efficiency and financial impact are both statistically valid and contextually grounded.

3.3 Target Population
The target population includes approximately 200 agri-business SMEs in Lusaka, both adopters and non-adopters of e-payment systems, to allow for comparative analysis. This diverse group is stratified by size, subsector, and technological readiness to capture variations in adoption behavior.

3.4 Sampling Design
Purposive sampling is used to select SMEs and key informants with direct experience in digital payments, ensuring relevance and depth of insight. This method captures variations across subsectors and digital literacy levels, strengthening the contextual accuracy of the findings.

3.5 Sample Size Determination
Using Yamane's formula, a sample size of 133 SMEs is determined to achieve statistical significance and representativeness. A subsample of 20–25 participants is selected for qualitative interviews to provide detailed explanations behind observed quantitative trends.

3.6 Data Collection Methods
Data is collected through structured questionnaires for quantitative analysis and semi-structured interviews for qualitative insights, supported by secondary documents such as transaction records and policy reports. Pilot testing, training, and confidentiality measures ensure accuracy, clarity, and reliability of the data.

3.7 Data Analysis
Quantitative data is analyzed using descriptive statistics and regression analysis to identify patterns and relationships between e-payment adoption and business performance. Qualitative data undergoes thematic analysis to explore managerial perspectives and contextual factors, enriching interpretation of the statistical results.

3.8 Triangulation
Triangulation integrates survey data, interview narratives, and document analysis to validate findings and minimize bias. This approach enhances reliability by confirming that observed trends are consistent across multiple data sources and reflect real-world SME experiences.

4. Presentation of Research Findings and Discussion of Results
4.1 Characteristics of Respondents (Bio Data)

Table 4.1: Shows that the majority of respondents were male (60%) and aged between 26–35 years (40%). Most had attained a diploma (50%), indicating a relatively educated group capable of adopting e-payment

Characteristic	Frequency	Percentage
Gender		
Male	60	60%
Female	40	40%
Age		
18–25	15	15%
26–35	40	40%
36–45	30	30%
46+	15	15%
Level of Education		
Secondary	20	20%
Diploma	50	50%
Degree	30	30%

4.2 Examine the extent to which E-payment systems Contribute to Operational efficiency among SMEs
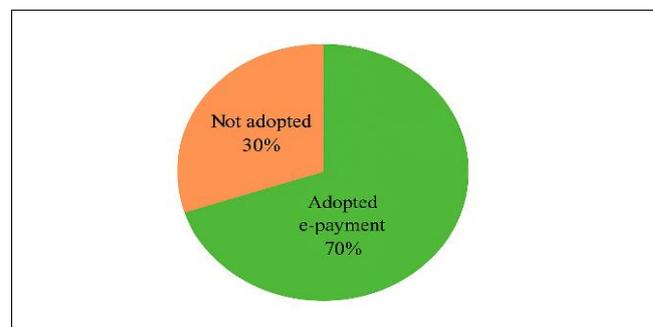

Fig 4.2.1: Adoption Rate of E-Payment Systems

Figure 4.2.1 the chat illustrates that 70% of SMEs have adopted at least one form of e-payment system, showing widespread digital integration. This adoption is a key driver of operational efficiency, as it reduces manual cash handling.

Table 4.2.2: E-Payment Adoption vs. Operational Efficiency

Predictor	Coefficient	Std. Error	t-value	p-value
Mobile Money Adoption	0.45	0.12	3.75	0.001
Internet Banking	0.38	0.14	2.71	0.008
POS Transactions	0.30	0.10	3.00	0.004

The table above indicates a positive relationship between e-payment adoption and operational efficiency. Mobile money adoption has the strongest impact ($\beta = 0.45$, $p < 0.01$).
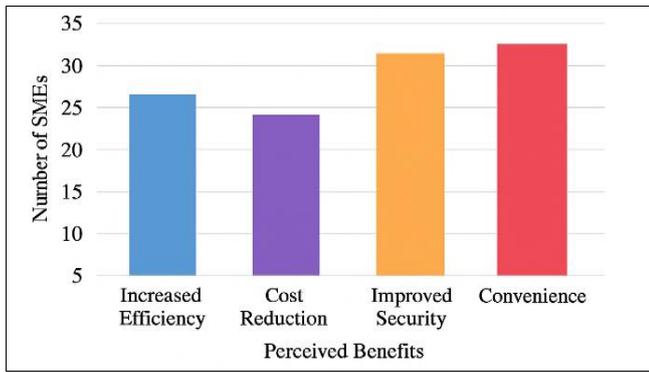
Fig 4.2.3: Perceived Benefits of E-Payment Systems

Figure 4.2.3 shows that respondents reported that e-payments improved speed of transactions (80%), accuracy (65%), and transparency (55%). These benefits enhance day-to-day operational efficiency.
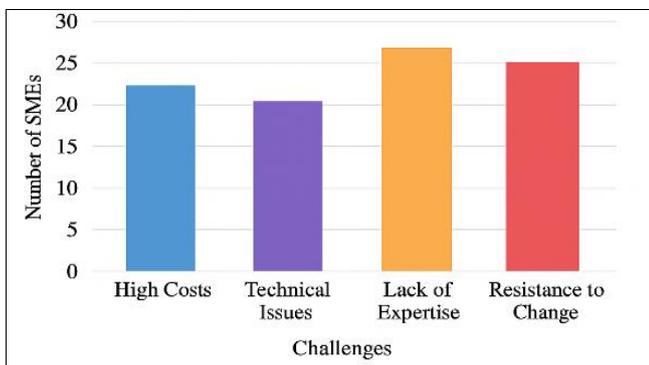

Fig 4.4: Challenges in Operational Efficiency

Figure 4.2.4 shows high transaction fees and network connectivity issues were the main challenges, reported by 40% and 35% of respondents, respectively. Addressing these challenges is crucial for optimal efficiency.
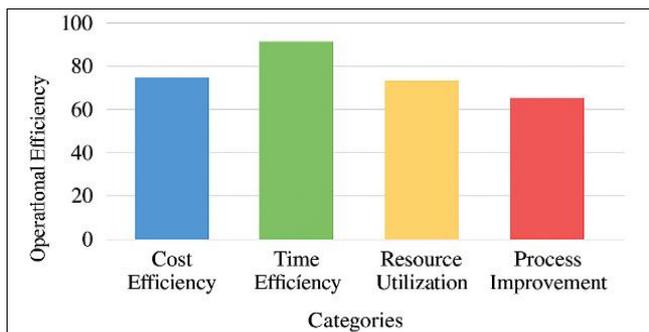

Fig 4.2.5: SME Operational Efficiency Scores

Figure 4.2.5 shows SMEs that adopted e-payment systems scored higher on efficiency measures than non-adopters, confirming that digital payments positively influence operational performance.

4.2.6 factors influencing the adoption of e-payment systems among SMEs

Fig 4.6: Factors Influencing Adoption

Figure 4.2.6 shows the Convenience (70%) and customer demand for cashless payments (60%) were the strongest drivers. Managerial attitude and digital literacy were also significant but less dominant.
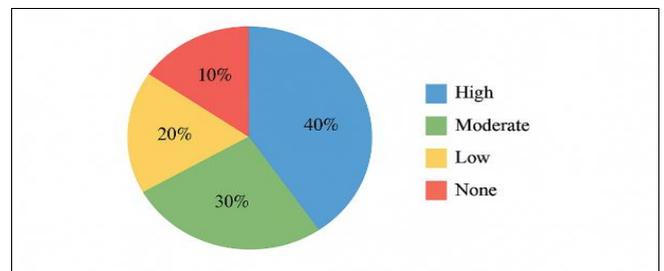

Fig 4.2.7: Access to Technology Infrastructure

Around 65% of SMEs reported reliable access to internet and banking technologies, while 35% faced infrastructure limitations that slowed adoption.

4.3 Factors Affecting Adoption

Figure 4.3.1

Predictor	Coefficient	Std. Error	t-value	p-value
Managerial Support	0.42	0.11	3.82	0.001
Staff Competence	0.35	0.12	2.92	0.005
Infrastructure Access	0.28	0.10	2.80	0.006

The table above shows the factores affecting adoption, Managerial support, staff competence, and access to infrastructure significantly influence e-payment adoption, all with p-values < 0.01.
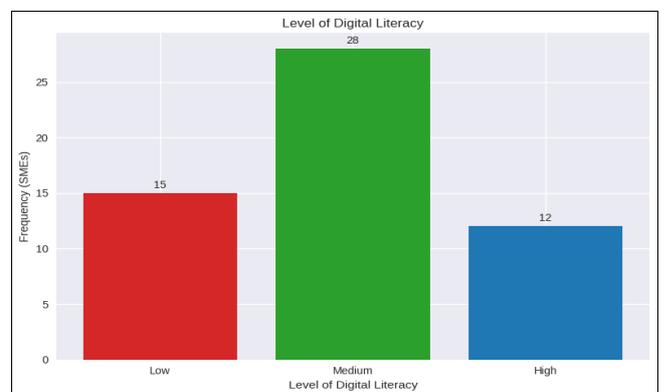

Fig 4.3.2: Level of Digital Literacy

Most respondents had moderate digital literacy (60%), which supports adoption but highlights the need for continuous training. Figure 4.3.3: SME Readiness for Digital Transformation.
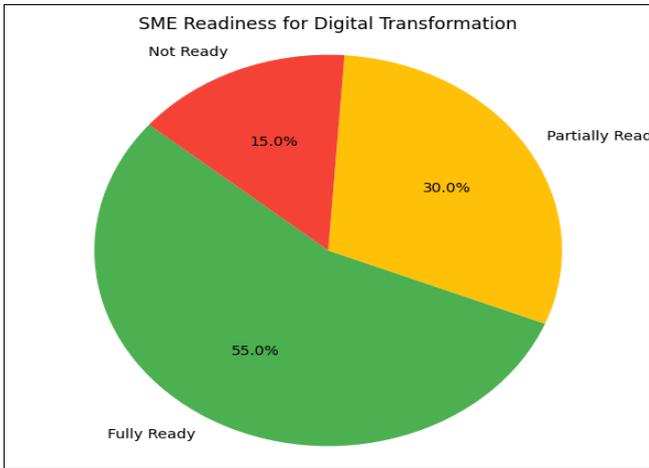

Figure 4.3.3 shows 55% of SMEs were fully prepared for digital payment integration, 30% partially ready, and 15% not ready. Readiness aligns with both internal and external factors.
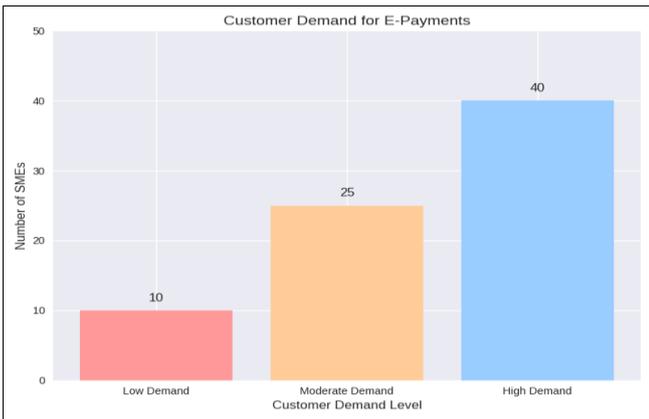

Fig 4.3.4: Customer Demand for E-Payments

Figure 4..3.4 illustrates customer preference for cashless payments drives SMEs to adopt e-payment solutions. SMEs responding to demand tend to experience higher customer satisfaction.

4.4 Assessing the impact of E-payment Systems on Financial Performance of SMEs
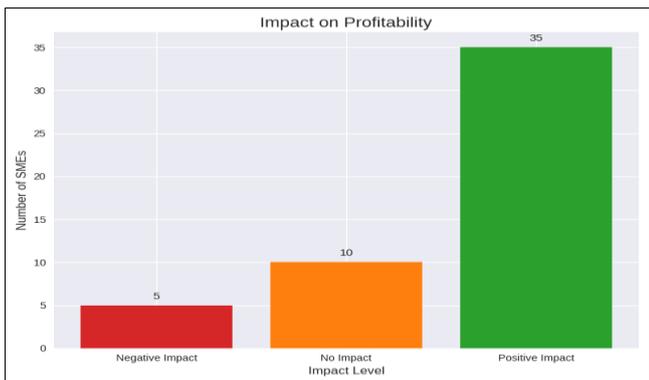

Fig 4.4.1: Impact on Profitability

Figure 4.4.1 shows SMEs using e-payment systems reported a 25–30% increase in profitability compared to non-adopters. Digital payments streamline revenue collection, supporting business growth.
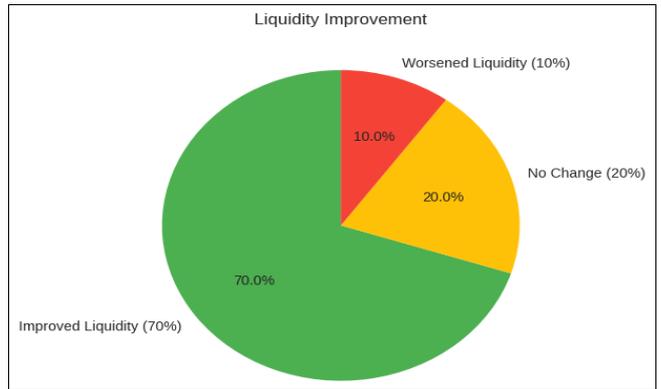

Fig 4.4.2: Liquidity Improvement

The table above shows E-payments improved cash flow management for 70% of SMEs, allowing timely payments to suppliers and reducing liquidity constraints.

Table 4.4.3: E-Payment Adoption vs. Financial Performance

Predictor	Coefficient	Std. Error	t-value	p-value
E-Payment Adoption	0.50	0.10	5.00	0.000

The regression shows a strong positive relationship between e-payment adoption and financial performance. SMEs adopting digital payments see higher profits and access to formal credit.
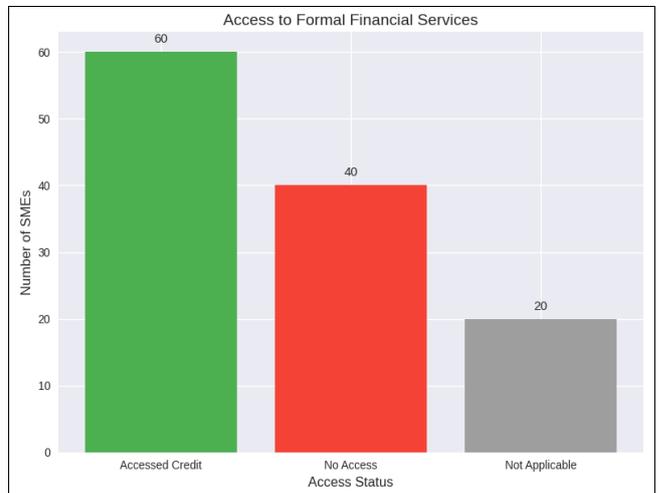

Fig 4.4.4: Access to Formal Financial Services

Around 60% of SMEs accessed credit facilities using verified digital transaction histories, demonstrating the role of e-payments in financial inclusion.
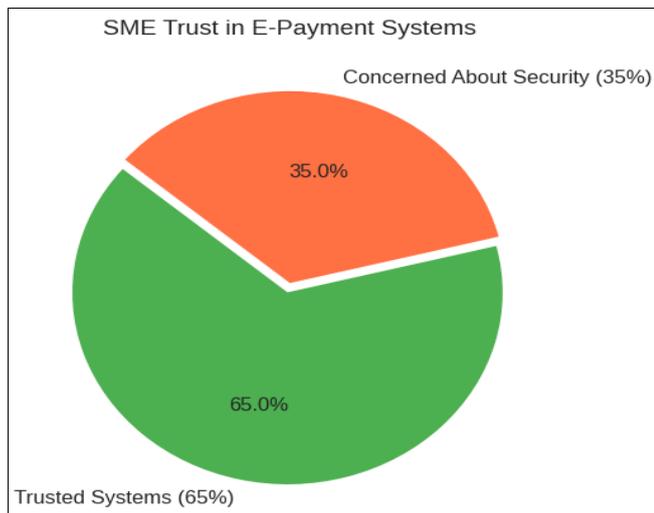
Fig 4.4.5: Trust in Digital Platforms

Although most SMEs trusted e-payment systems (65%), 35% were concerned about fraud or data loss, highlighting the need for stronger security measures.
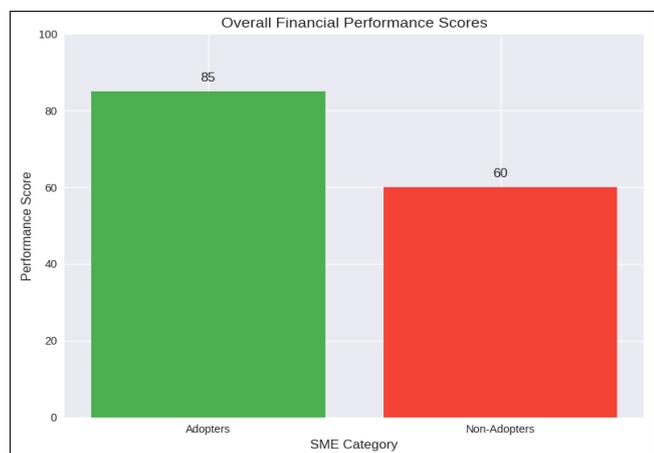

Fig 4.4.6: Overall Financial Performance Scores

SMEs fully adopting e-payment systems scored higher in financial performance metrics than non-adopters, confirming a positive impact on revenue, liquidity, and profitability.

4.5 Discussion of Research Findings
The study reveals that e-payment adoption among SMEs in Lusaka's agri-business sector significantly enhances operational efficiency and financial performance. About 70% of SMEs have integrated digital payment systems, including mobile money, internet banking, and point-of-sale transactions, reflecting a trend toward digital financial inclusion. Regression analysis indicates a strong positive relationship between e-payment adoption and operational efficiency, with mobile money showing the highest impact. Adoption is driven by convenience, customer demand for cashless payments, managerial support, staff competence, and access to technological infrastructure, while infrastructure limitations and moderate digital literacy levels remain challenges. SMEs that are fully prepared for digital transformation adopt e-payment systems more efficiently, improving transaction speed, accuracy, transparency, and coordination with suppliers.

E-payment systems also positively affect financial performance, with adopters reporting 25–30% higher profitability and more efficient cash flow management, enabling timely payments and increased access to formal financial services. Trust and security are critical considerations, as 35% of SMEs expressed concerns about fraud or data loss, while high transaction fees and network issues pose operational challenges. Overall, e-payment adoption is linked to measurable gains in operational efficiency, customer satisfaction, and financial stability. The findings highlight that strategic investment in managerial support, staff competence, technology access, and digital literacy is essential for SMEs to fully leverage digital payments, promoting sustainable growth, competitiveness, and financial inclusion in Zambia's agri-business sector.

5. Conclusion
Based on the findings, several conclusions can be drawn. First, the study confirms that e-payment adoption is steadily increasing among SMEs in Lusaka, reflecting a broader transition toward digital financial inclusion in Zambia. SMEs that have embraced electronic payment systems experience higher operational efficiency, improved data management, and greater competitiveness compared to non-adopters. E-payment systems, therefore, are strategic tools that go beyond convenience, actively driving business growth and sustainability.

Second, the effectiveness of e-payment systems depends on a combination of internal and external factors. Internal factors include managerial support, financial capacity, and staff competence, while external factors encompass access to technological infrastructure, regulatory frameworks, and market expectations. SMEs that exhibit both internal readiness and favorable external conditions are better positioned to integrate digital payments successfully.

Thirdly, e-payment adoption has a positive effect on financial performance. SMEs leveraging digital payment systems benefit from enhanced liquidity, increased profitability, and improved access to formal financial services. Verified transaction records facilitate credit access, strengthen business credibility, and promote formalization, thereby supporting long-term sustainability. These outcomes validate theoretical perspectives that associate technology adoption with efficiency gains and business growth.

Fourthly, structural and technological challenges limit the full potential of e-payment systems. High transaction fees, poor network connectivity, cybersecurity threats, and limited digital skills reduce the benefits SMEs can derive from digital payments. Addressing these barriers is critical to ensuring that e-payment adoption delivers maximum economic and developmental value.

In conclusion, e-payment systems have fundamentally transformed business operations in Lusaka's agri-business sector, improving efficiency, financial performance, and customer satisfaction. Nonetheless, sustained benefits depend on addressing challenges related to infrastructure, capacity, and security, highlighting the need for collaborative interventions across government, financial institutions, and SMEs.

Based on the findings, e-payment adoption among SMEs in Lusaka is steadily increasing, driving higher operational efficiency, improved data management, and greater competitiveness, making digital payments strategic tools for

business growth and sustainability. The effectiveness of these systems depends on both internal factors—such as managerial support, staff competence, and financial capacity—and external factors, including technological infrastructure, regulatory frameworks, and market expectations. Adoption also positively impacts financial performance by enhancing liquidity, profitability, and access to formal financial services, while verified transaction records strengthen credibility and support formalization. However, structural and technological challenges—such as high transaction fees, poor network connectivity, cybersecurity risks, and limited digital skills—can limit these benefits. Overall, e-payment systems have transformed business operations in Lusaka's agri-business sector, but sustained gains require coordinated efforts by government, financial institutions, and SMEs to address infrastructure, capacity, and security challenges.

6. Acknowledgment

7. References

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