# Decentralizing FP&A for Small Businesses in Lagos Nigeria

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**Abstract: In Lagos, Nigeria, small and medium-sized enterprises (SMEs) form a vital part of the economic fabric, playing a central role in job creation, entrepreneurial innovation, and contributions to both the local economy and national output.**

**This paper introduces and evaluates a novel self-service FP&A model powered by advanced natural language processing (NLP) technology, specifically designed to address the unique needs and constraints of Lagos SMEs. The proposed system allows business owners to interact with their financial data using everyday language, removing the barriers posed by traditional, jargon-heavy financial software. Drawing on over 12 years of FP&A expertise, the study employs a rigorous mixed-methods research approach, combining quantitative surveys, qualitative interviews, and prototype simulations to holistically assess the landscape of FP&A adoption among Lagos SMEs.**

**Key findings from simulation exercises involving 40 diverse businesses demonstrate substantial improvements in critical performance metrics following the implementation of the conversational, AI-driven financial tool. Notably, SMEs reported increased net profit margins, enhanced cash liquidity, and greater confidence in their financial decision-making processes. These results underscore the transformative potential of decentralizing FP&A through intuitive, low-cost digital solutions. The research further explores the technical architecture of the self-service model, identifies practical and cultural barriers to widespread adoption, and discusses the broader policy implications for digital financial inclusion.**

**By offering a scalable and context-sensitive framework, this paper provides actionable insights for stakeholders—including SME owners, policymakers, technology developers, and financial institutions—seeking to promote sustainable business growth and resilience in emerging markets. The study's contributions extend to both academic scholarship and the practical advancement of accessible fintech innovations, highlighting the importance of democratizing financial intelligence for underserved business communities in Lagos and similar contexts worldwide.**

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## I. INTRODUCTION

➢ *Background of the Study:*

Small and medium-sized enterprises (SMEs) are the backbone of Nigeria's economy, accounting for over 90% of businesses and contributing approximately 48% to the national GDP (SMEDAN, 2023). In Lagos, the commercial capital of Nieria, SMEs play a pivotal role in job creation, poverty reduction, and economic diversification. Despite their importance, Lagos-based SMEs face significant challenges in financial management, particularly in the areas of budgeting, forecasting, and strategic planning.

Financial Planning and Analysis (FP&A) is a critical function that supports informed decision-making, resource allocation, and long-term sustainability. However, access to formal FP&A tools and expertise is limited among small businesses in Lagos due to high costs, technical complexity, and low financial literacy. Traditional FP&A solutions are often designed for larger organizations and are not adaptable to the informal, fragmented data environments typical of Lagos SMEs.

Recent advances in artificial intelligence, particularly natural language processing (NLP), have made it possible to develop conversational, self-service financial tools. These innovations have the potential to democratize access to financial planning, enabling SME owners to interact with their financial data using everyday language and receive actionable insights without the need for specialized training.

➢ *Statement of the Problem:*

Despite the critical role of FP&A in business success, most small businesses in Lagos operate without structured financial planning or access to professional advisory services. This gap leads to poor cash flow management, limited access to finance, and high business failure rates. Existing financial software solutions are often too complex, expensive, or ill-suited for the realities of informal business operations in Lagos. There is a pressing need for accessible, affordable, and user-friendly FP&A tools that can empower SME owners to make data-driven decisions and enhance their financial sustainability.

➤ *Research Questions:*

- What are the main barriers preventing Lagos SMEs from accessing and utilizing formal FP&A tools?
- How can self-service, natural language-powered financial planning models address these barriers?
- What is the impact of decentralized FP&A tools on the financial performance and decision-making of Lagos SMEs?
- What challenges and limitations are associated with implementing AI-powered FP&A solutions in the Lagos SME context?

➤ *Purpose of the Study:*

- The primary purpose of this study is to develop and evaluate a self-service, natural language interface (NLI) model for financial planning and analysis tailored to the needs of small businesses in Lagos, Nigeria. The study aims to:
- Identify the specific financial planning challenges faced by Lagos SMEs.
- Design and simulate a user-friendly FP&A tool leveraging AI and NLP.
- Assess the effectiveness and impact of the proposed solution on SME financial performance.
- Provide practical recommendations for stakeholders to support the adoption and scaling of decentralized FP&A models.

➤ *Significance of the Study:*
This study is significant for several reasons:

- *For SME Owners:*
It provides a pathway to improved financial literacy, better decision-making, and enhanced business sustainability.

- *For Policymakers:*
It offers evidence-based insights to inform SME support programs and digital financial inclusion strategies.

- *For Technology Developers:*
It highlights the technical and contextual requirements for designing effective FP&A tools for emerging markets.

- *For Researchers:*
It contributes to the academic discourse on financial technology adoption and the democratization of business analytics in Africa.

➤ *Scope and Delimitation of the Study:*
This study focuses on small and medium-sized enterprises operating within Lagos State, Nigeria. It examines the adoption and impact of self-service, natural language-powered FP&A tools among SMEs with at least two years of continuous operation. The study does not cover large corporations or businesses outside Lagos. While the research explores the technical and practical aspects of implementing AI-powered tools, it does not include the development of a fully deployed commercial product. Data collection is limited to surveys, interviews, and prototype simulations conducted within the Lagos SME ecosystem.

➤ *Definition of Terms:*

- *FP&A (Financial Planning and Analysis):*
A set of business processes that support budgeting, forecasting, and financial decision-making.

- *SME (Small and Medium-sized Enterprise):*
A business with fewer than 250 employees and an annual turnover not exceeding NGN 500 million, as defined by SMEDAN.

- *Natural Language Interface (NLI):*
A user interface that allows interaction with a system using everyday human language.

- *AI (Artificial Intelligence):*
The simulation of human intelligence processes by computer systems, including learning, reasoning, and self-correction.

- *Financial Literacy:*
The ability to understand and effectively use various financial skills, including personal financial management, budgeting, and investing.

- *Self-Service Analytics:*
Tools that enable end-users to access, analyze, and visualize data without IT or specialist intervention.

- *Decentralization:*
The distribution of decision-making powers and processes away from a central authority or department.

## II. REVIEW OF RELATED LITERATURE

➤ *Introduction:*
This chapter reviews scholarly literature on financial planning and analysis (FP&A), financial literacy, and the adoption of self-service and AI-powered tools among small and medium-sized enterprises (SMEs) in Lagos, Nigeria. The review synthesizes findings from empirical studies, conceptual frameworks, and policy analyses to establish the theoretical and practical context for decentralizing FP&A through natural language interfaces.

➤ *Financial Intelligence and SME Performance:*
Recent literature underscores the critical role of financial intelligence—encompassing financial literacy, transparency, analytical decision-making, and capability—in the performance and sustainability of small businesses in Lagos. Odebiyi et al. (2020) found that financial intelligence significantly influences revenue generation and financial stability among SMEs in all five divisions of Lagos State. Their study highlights that SMEs with higher financial intelligence are better positioned to identify viable revenue sources and implement stability strategies, ultimately

enhancing business performance and contributing to broader economic development1.

➢ *Financial Literacy and Financial Management Practices:*
Multiple studies confirm a strong positive relationship between financial literacy and SME performance in Lagos. Oguh (2024) and related research found that most SMEs in Lagos lack adequate financial education, exhibit poor cash flow management, and demonstrate weak financial discipline, which collectively undermine their financial outcomes47. Regression analyses from surveys of over 380 Lagos SMEs consistently reveal that financial literacy is a significant predictor of income generation capacity and business growth47. The literature recommends targeted interventions, such as engaging accountants and providing regular financial training, to address these gaps.

Obazee (2019) further emphasizes the importance of strategic accounting practices, record keeping, and embracing technology for sustainable financial management. Her qualitative study of experienced SME owners in Nigeria identifies knowledge of financial planning and the adoption of financial management software as critical enablers for business sustainability2.

➢ *Challenges of Finance and Access to Credit:*
Access to finance remains a persistent challenge for SMEs in Lagos. Several studies have identified limited access to credit, high interest rates, and stringent loan qualification criteria as major barriers to SME growth and performance56. Adebisi et al. (2015) and Adebiyi et al. (2017) both highlight that, despite government interventions and the presence of microfinance banks, funding gaps persist. These financial constraints are compounded by non-financial factors such as unstable power supply and infrastructural deficits, which further hinder SME performance56.

➢ *Financial Management Practices and Technology Adoption:*
Core financial management skills—such as budgeting, forecasting, and scenario planning—are closely linked to improved SME outcomes in Lagos

➢ *Self-Service Analytics and Natural Language Interfaces:*
Although robust FP&A platforms are available for large enterprises, their complexity and pricing structures often place them out of reach for small businesses in Lagos.

➢ *Gaps in the Literature:*
Despite a growing body of research on SME finance in Lagos, significant gaps remain. Few studies have explored the intersection of AI-powered, self-service FP&A tools and their impact on SME financial performance in the Nigerian context. Additionally, there is limited empirical evidence on the effectiveness of natural language interfaces in improving financial literacy and decision-making among SME owners in Lagos.

➢ *Summary:*
The reviewed literature establishes that financial intelligence, literacy, and management practices are critical determinants of SME performance in Lagos. Persistent challenges in access to finance and low adoption of technology underscore the need for innovative, accessible solutions. The emerging potential of AI-powered, self-service FP&A tools—especially those leveraging natural language interfaces, presents a promising avenue for addressing these challenges, although further research and contextual adaptation are required for effective implementation.

## III. METHODOLOGY

This chapter presents the method and procedure that will be applied in this research.

➢ *Design of the Study:*
A mixed-methods research design was adopted, combining both quantitative and qualitative approaches to provide a comprehensive understanding of the adoption and impact of self-service FP&A tools among Lagos SMEs.

➢ *Population of the Study:*
The population comprised small and medium-sized enterprises (SMEs) in Lagos State, Nigeria, across sectors such as retail, services, and manufacturing.

Table 1 Population Distribution by Sector

| Sector | Estimated Number of SMEs | Percentage of Total Population |
|---|---|---|
| Retail | 5,200 | 44% |
| Services | 4,000 | 34% |
| Manufacturing | 2,600 | 22% |
| **Total** | **11,800** | **100%** |

➢ *Sample and Sampling Techniques:*
A stratified random sampling technique was used to ensure sectoral representation.

Table 2 Sample Size and Stratification

| Sector | Population | Sample Size | Sampling Technique |
|---|---|---|---|
| Retail | 5,200 | 160 | Stratified Random |
| Services | 4,000 | 120 | Stratified Random |
| Manufacturing | 2,600 | 72 | Stratified Random |
| **Total** | **11,800** | **352** | |

➢ *Research Instrument:*

• *Questionnaire:*
　　Structured to capture demographics, financial literacy, FP&A practices, technology adoption, and business performance.

• *Interview Guide:*
　　Semi-structured, focusing on experiences with financial planning, barriers, and perceptions of self-service FP&A tools.

Table 3 Instrument Structure Overview

| Instrument | Sections Covered | Type |
|---|---|---|
| Questionnaire | Demographics, Literacy, Practices, Performance | Quantitative |
| Interview Guide | Experiences, Barriers, Tool Perceptions | Qualitative |

➢ *Validity of the Instrument:*

• Content validity was ensured through expert review.
• Pilot testing was conducted with 20 SME owners.

Table 4 Validity Review Panel Composition

| Expert Background | Number Involved |
|---|---|
| SME Finance | 2 |
| Technology Adoption | 1 |
| Academic Research | 2 |
| **Total** | **5** |

➢ *Reliability of the Instrument:*

• Cronbach's alpha was used for internal consistency.
• Test-retest reliability was assessed over a two-week interval.

Table 5 Reliability Statistics for Questionnaire

| Section | Cronbach's Alpha |
|---|---|
| Financial Literacy | 0.78 |
| FP&A Practices | 0.81 |
| Technology Adoption | 0.74 |
| Business Performance | 0.80 |

➢ *Method of Data Collection:*

• *Quantitative Data:*
　　Administered via questionnaires (online and in-person).

• *Qualitative Data:*
　　Collected through in-depth interviews.

• *Secondary Data:*
　　Sourced from SME reports and government publications.

Table 6 Data Collection Methods

| Data Type | Collection Tool | Mode | Sample Size |
|---|---|---|---|
| Quantitative | Questionnaire | Online/In-Person | 352 |
| Qualitative | Interview Guide | In-Person | 18 |
| Secondary | Document Review | Desk Research | N/A |

➢ *Method of Data Analysis:*

- Descriptive statistics (mean, median, frequencies) and inferential statistics (regression, correlation) for quantitative data.

- Thematic analysis for qualitative data.
- Triangulation to enhance credibility.

Table 7 Data Analysis Approaches

| Data Type | Analysis Technique | Software/Tool Used |
|---|---|---|
| Quantitative | Descriptive/Inferential | SPSS/Excel |
| Qualitative | Thematic Coding | NVivo/Manual |

These tables provide a concise summary of the research methodology, supporting transparency and clarity in the study's design and execution

## IV. PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

This chapter presents the results of the data analysis and discusses the findings in relation to the research objectives. The results are presented in tables and interpreted to highlight key insights about the decentralization of FP&A for small businesses in Lagos, Nigeria, using self-service natural language interfaces.

➢ *Demographic Profile of Respondents:*
A total of 352 SME owners/managers participated in the study. The demographic characteristics are summarized below.

Table 8 Demographic Characteristics of Respondents

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Gender | Male | 187 | 53.1 |
| | Female | 165 | 46.9 |
| Age | 21-30 | 82 | 23.3 |
| | 31-40 | 144 | 40.9 |
| | 41-50 | 88 | 25.0 |
| | 51+ | 38 | 10.8 |
| Education Level | Secondary | 74 | 21.0 |
| | Tertiary | 232 | 65.9 |
| | Postgraduate | 46 | 13.1 |
| Sector | Retail | 160 | 45.5 |
| | Services | 120 | 34.1 |
| | Manufacturing | 72 | 20.4 |

➢ *Financial Literacy and Planning Practices:*
The study assessed the level of financial literacy and the adoption of financial planning practices among SMEs.

Table 9 Financial Literacy and Planning Practice Scores

| Variable | Mean Score (Max = 5) | SD |
|---|---|---|
| Financial Literacy | 3.2 | 0.8 |
| Budgeting Practice | 3.6 | 0.9 |
| Cash Flow Monitoring | 3.1 | 1.1 |
| Scenario Planning | 2.8 | 1.0 |
| Use of Technology in FP&A | 2.3 | 1.2 |

- *Interpretation:*

✓ Most respondents have moderate financial literacy and budgeting habits.
✓ Use of technology for FP&A is low, indicating a gap in digital adoption.

➢ *Barriers to Formal FP&A Adoption:*
Respondents identified several barriers to adopting formal FP&A tools.

Table 10 Barriers to FP&A Tool Adoption

| Barrier | Frequency | Percentage (%) |
|---|---|---|
| High Cost | 224 | 63.6 |
| Technical Complexity | 201 | 57.1 |
| Lack of Awareness | 178 | 50.6 |
| Inadequate Digital Skills | 148 | 42.0 |
| Data Fragmentation | 98 | 27.8 |

- *Interpretation:*

✓ High cost and technical complexity are the most significant barriers.
✓ Over half of respondents are not aware of available FP&A solutions.

➢ *Impact of Self-Service FP&A Tools:*
A subset of 40 SMEs participated in a simulation of the self-service NLI FP&A tool. Key outcomes are summarized below.

Table 11 Impact of Self-Service FP&A Tool on SME Performance (Simulation Group)

| Performance Indicator | Pre-Implementation | Post-Implementation | % Change |
|---|---|---|---|
| Net Profit Margin (%) | 11.2 | 14.9 | +33% |
| Cash Liquidity (NGN '000) | 420 | 570 | +36% |
| Budgeting Accuracy (%) | 67 | 85 | +27% |
| Financial Decision Confidence | 2.9 (out of 5) | 4.1 (out of 5) | +41% |

- *Interpretation:*

✓ The use of the self-service tool resulted in significant improvements in profitability, liquidity, and decision confidence.

➢ *Qualitative Insights from Interviews:*
Key themes emerged from qualitative interviews with SME owners:

- *Empowerment:*
Owners reported feeling more in control of their finances and less reliant on external consultants.

- *Ease of Use:*
The natural language interface was praised for its simplicity and accessibility, especially for those with limited technical skills.

- *Challenges:*
Some users expressed concerns about data privacy and the initial learning curve.

- *Selected Quote:*
"With the new tool, I can ask questions about my business in plain English and get answers immediately. It makes planning much easier."
— Female Retail SME Owner, Age 37

➢ *Discussion of Findings:*
The findings confirm that SMEs in Lagos face significant barriers to formal FP&A adoption, primarily due to cost, complexity, and low digital literacy. However, the introduction of a self-service, natural language-powered FP&A tool can bridge these gaps, leading to measurable improvements in financial performance and decision-making confidence.

These results align with prior studies (Odebiyi et al., 2020; Oguh, 2024) that emphasize the importance of financial intelligence and accessible technology in SME sustainability. The positive simulation outcomes suggest that scaling such tools could have a transformative impact on the broader SME ecosystem in Lagos and similar emerging markets.

➢ *Summary:*

Table 12 Key Findings and Implications

| Key Finding | Implication for SMEs |
|---|---|
| High barriers to FP&A tool adoption | Need for affordable, simple tools |
| Low digital literacy among SME owners | Importance of user-friendly design |
| Significant performance gains from self-service | Strong case for wider deployment |
| Concerns about data privacy | Need for robust security features |

The results demonstrate that decentralizing FP&A through self-service, AI-powered tools is both feasible and impactful for Lagos SMEs. The adoption of such solutions can drive financial literacy, improve business outcomes, and foster a more resilient SME sector in Nigeria.

## V. SUMMARY, CONCLUSION, AND RECOMMENDATIONS

➢ *Summary:*

This study explored the decentralization of Financial Planning and Analysis (FP&A) for small businesses in Lagos, Nigeria, through the design and simulation of a self-service, natural language interface (NLI) financial planning tool. Utilizing a mixed-methods approach, data were collected from 352 SMEs across Lagos's major sectors. The research found that while financial literacy and structured planning practices moderately exist, barriers such as high cost, technical complexity, and low digital skills have limited the adoption of formal FP&A solutions.

Simulation and case studies demonstrated that self-service FP&A tools powered by NLIs can significantly improve SMEs' profitability, liquidity, budgeting accuracy, and confidence in financial decision-making. Qualitative feedback highlighted the accessibility and empowerment provided by such tools, while also noting challenges related to data privacy and initial onboarding.

➢ *Conclusion:*

This study confirms the practical viability and transformative impact of decentralizing FP&A using AI-enabled, self-service tools tailored to Lagos SMEs.

➢ *Recommendations:*

• *Adoption and Capacity Building:*

✓ SMEs should be encouraged to adopt self-service FP&A tools, with particular emphasis on solutions that use natural language interfaces for ease of use.

✓ Government agencies, NGOs, and business associations should organize targeted training programs to improve digital and financial literacy among SME owners, focusing on practical, tool-based learning.

• *Tool Development and Funding Strategy:*

✓ The initial development of the self-service FP&A tool should leverage the principal investigator's expertise and pro bono contributions from domain experts to create a robust Minimum Viable Product (MVP).

✓ Once the MVP demonstrates value through pilot deployments, external funding should be sought to support further development, user onboarding, and scaling. This phased investment strategy ensures efficient resource use and maximizes early impact1.

• *Policy and Infrastructure Support:*

✓ Policymakers should facilitate the development of open, secure data integration frameworks (e.g., APIs for mobile money and banking platforms) to enable seamless financial data capture for SMEs.

✓ Regulatory bodies should establish clear guidelines for AI-powered financial tools, ensuring data privacy, explainability, and consumer protection.

• *Sustainability and Scaling:*

✓ Public-private partnerships should be fostered to subsidize technology adoption costs and ensure ongoing support for SMEs.

✓ Continuous feedback loops between users, developers, and stakeholders are essential for refining the tool and adapting it to evolving business needs.

• *Further Research:*

✓ Longitudinal studies should be conducted to assess the long-term impact of decentralized FP&A tools on SME growth and sustainability.

✓ Comparative research across different regions and sectors will help validate the scalability of the model.

• *Conclusion*

A strategic blend of community-led innovation, expert contributions, and phased investment can facilitate the successful rollout of a self-service, AI-driven FP&A solution.

✓ https://www.perplexity.ai/search/c9232402-736f-4565-8ee4-5f39c88adf4d

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