



جامعة ميداوون

إعداد الطالب /
حسين محمد اسماعيل محمد

الرقم الأكاديمي ٢٥١٠٠٠٢٧

إشراف /
د. الفصيل عبد الحميد
د. فايز جراد

العام الجامعي: ٢٠٢٥



MIDOCEAN UNIVERSITY

Thesis Title:

The Impact of Artificial Intelligence
Applications on Managerial Accounting and
Cost Decision-Making within the FinTech
Environment

Prepared by: Hussein Mohammed Ismail Mohammed

Academic Number: 251000276

Supervisor: Dr. Al-Faisal Abdulhamid

Second Supervisor: Dr. Fayez Jarad

Academic Year: 2025

: Table of Contents

	1
Introduction	
	2
Research Problem and Questions	
	3
Importance of the Study 4	
Objectives of the Study 5	
Research Questions and Hypotheses	
	6
Methodology	
	7
Theoretical Framework	
	8
Literature Review	

Managerial
Accounting and
Costing with AI

.10

Analysis and
Discussion

.11

Conclusion and
Recommendations

.12

References

Introduction

In recent years, the rapid evolution of Artificial Intelligence (AI) has dramatically reshaped the landscape of modern industries, particularly in the financial sector. As financial technologies (FinTech) continue to disrupt traditional models of service delivery, AI emerges not just as a supportive tool, but as a transformative force driving efficiency, innovation, and strategic insights. Within this dynamic context, managerial accounting—traditionally seen as the backbone of internal financial decision-making—finds itself at the center of a technological revolution. The integration of AI into managerial accounting processes opens new horizons for data analysis, performance monitoring, budget forecasting, and most critically, cost decision-making.

AI applications in FinTech are no longer confined to customer service chatbots or fraud detection algorithms. Today, they extend deep into the core of financial management and accounting systems. Machine learning, natural language processing, predictive analytics, and robotic process automation (RPA) are now leveraged to automate data entry, enhance forecasting accuracy, and provide real-time cost monitoring capabilities. These technologies offer managerial accountants powerful tools to improve both operational efficiency and strategic decision-making, particularly in environments characterized by complexity, uncertainty, and a constant influx of data.

One of the most significant implications of this transformation is the shift in how cost-related decisions are made. Traditional models of cost accounting, while still relevant, are being enhanced by AI-driven systems that allow for more timely, data-informed, and forward-looking decisions. Predictive algorithms can identify cost-saving opportunities, anticipate future financial bottlenecks, and assess multiple scenarios with a level of speed and precision previously unimaginable. This evolution is especially vital within the FinTech environment, where competition is intense, and the demand for agility and innovation is relentless.

Moreover, AI does not merely offer technical benefits; it introduces a paradigm shift in the role of managerial accountants themselves. The historical emphasis on

manual reporting and transactional processing is giving way to a more analytical, strategic function. Accountants are increasingly expected to interpret complex data outputs, manage AI-powered tools, and contribute to high-level business planning. This shift requires new skill sets, including data science literacy, algorithmic thinking, and an understanding of AI ethics and model transparency.

However, despite the promise of AI, its adoption in managerial accounting and cost decision-making is not without challenges. Concerns surrounding data integration, cybersecurity, model bias, and ethical considerations remain significant. Many organizations also struggle with resistance to change, limited technical expertise among accounting professionals, and the financial cost of AI system implementation. Particularly in FinTech companies—which often operate in highly regulated and rapidly changing markets—the alignment between AI capabilities and organizational goals becomes crucial to ensuring successful integration.

In light of these developments, this study seeks to explore the impact of AI applications on managerial accounting and cost decision-making within the FinTech environment. By examining both the opportunities and challenges associated with AI adoption, the research aims to provide a comprehensive understanding of how advanced technologies are reshaping the decision-making processes within accounting functions. Additionally, the study investigates the extent to which FinTech firms can leverage AI as a

strategic asset, not only to optimize costs but also to gain a competitive edge in an increasingly data-driven world.

The research is grounded in two complementary theoretical frameworks: the Technology Acceptance Model (TAM) and the Resource-Based View (RBV). TAM helps explain how managerial accountants perceive and adopt AI tools, focusing on factors such as perceived usefulness and ease of use. RBV, on the other hand, emphasizes how organizations can develop sustainable competitive advantages through the strategic deployment of internal resources—such as AI technologies. Together, these frameworks provide a robust foundation for analyzing both the human and organizational dimensions of AI adoption in accounting.

Ultimately, the integration of AI into managerial accounting within the FinTech sector is not just a technological upgrade—it represents a fundamental redefinition of how financial insights are generated, interpreted, and used. By analyzing this transformation, the study contributes to a deeper understanding of how AI is influencing the core responsibilities of managerial accounting, especially in relation to cost planning, control, and decision-making. As AI continues to evolve, its role in shaping the future of accounting will only become more significant—making this topic both timely and critical for academic inquiry and practical application.

2. Research Problem and

Questions Despite the proliferation of AI technologies in financial services, the specific impact on managerial accounting practices and cost-related decision-making remains underexplored. Existing research predominantly focuses on AI applications in customer service, fraud detection, and risk management, with limited attention to managerial accounting's internal decision support functions. This creates a gap in knowledge regarding how AI reshapes cost management, budgeting, and performance evaluation within FinTech . organizations

This study aims to fill this gap by addressing

: the following research questions

How do AI applications

influence cost

control and

managerial

decision-making

processes in

FinTech

? organizations

What is the primary
challenges
managerial accountants
face when integrating
AI technologies into
them

? workflows

To what extent does
AI

improve the accuracy,
efficiency, and
timeliness of
financial
information used
for internal

? decision-making

Importance of the

Study .3 This research holds
considerable significance for
multiple stakeholders. For
managerial

accountants, it sheds light on evolving roles and skill requirements amid AI integration. FinTech organizations can leverage findings to refine technology adoption strategies and enhance cost management effectiveness.

Additionally, technology developers can benefit from understanding user challenges to design more effective AI solutions tailored to managerial accounting needs.

Moreover, policymakers and regulators may find the results informative in developing guidelines to ensure ethical and responsible AI deployment. The research also highlights potential risks such as data privacy, algorithmic biases, and workforce displacement, promoting informed decision-making at organizational and regulatory levels.

Objectives of the Study .4

:The primary objectives of this study are

- To analyze how AI •

applications
enhance cost
management and
decision-making
processes within FinTech
firms
To identify challenges and
barriers
encountered by
managerial
accountants in
adopting AI technologies

on the accuracy,
speed, and
quality of
financial data
processing

recommendations
that facilitate
effective AI
integration in
managerial accounting
practices

5. Research Questions and Hypotheses

Research Questions

What specific effects
do AI applications
have on cost
control
mechanisms in

FinTech organizations
How do managerial accountants
perceive the
impact of AI on
their roles and
decision-making
processes

What are the
technical,
organizational,
and ethical
challenges
related to AI
adoption in
managerial
accounting

Hypotheses

H1: AI adoption
significantly
improves the accuracy
of cost control in
FinTech
firms

H2: AI adoption
increases
the speed and efficiency
of
managerial decision-
making

H3: Technical skill gaps
among managerial
accountants present
significant barriers

to
.effective AI integration

6. Managerial Accounting and Costing with AI Overview of Managerial Accounting
Managerial accounting is concerned with providing financial and non-financial information to internal stakeholders—primarily managers—for planning, controlling, and decision-making purposes. Unlike financial accounting, which focuses on external reporting, managerial accounting emphasizes future-oriented data, flexibility, and relevance
.to internal needs

Core Functions of Managerial Accounting

Planning: Involves setting
goals and preparing
budgets to
.allocate resources
effectively

Controlling: Uses variance

- analysis to compare actual results with plans, enabling corrective actions
- Decision-Making: Informs choices about pricing, outsourcing, capital investment, and more

Understanding Cost Types

Cost accounting, a subset of managerial accounting, classifies costs to support effective management. The main cost types

include

- Fixed Costs: Remain constant regardless of output

(e.g., rent, salaries)

- Variable Costs: Fluctuate with production volume

(e.g., raw

materials)

- Mixed Costs: Contain both fixed and variable components

(e.g., utility bills)

The Role of AI in Cost Decision-Making

Artificial Intelligence contributes to cost

:management in various ways

- Automation: AI automates repetitive tasks like budget updates, invoice matching, and ledger entries

- Predictive Analytics: Machine learning algorithms forecast future costs and demand patterns, improving budgeting accuracy

- Real-Time Monitoring: AI dashboards enable real-time tracking of costs, highlighting inefficiencies quickly

- Scenario Analysis: AI models simulate multiple business

scenarios, helping
managers make
informed strategic
decisions

Case Examples	
ABC FinTech Corp	implemented AI-based budgeting systems and achieved a 12% reduction in fixed operational costs
XYZ Technologies	adopted AI for cost variance analysis, reducing reporting errors by 25% and improving data turnaround time

Skill Shifts in Managerial Accounting

AI changes the skillsets required for accountants. Traditional data-entry roles are declining, while demand increases for professionals with skills in data interpretation, systems thinking, and AI tool usage. This evolution necessitates reskilling and

continuous learning for
accounting
professionals

7..Theoretical Framework

This study is grounded in two prominent theoretical models: Technology Acceptance Model (TAM): Developed by Davis (1986), the Technology Acceptance Model explains users' acceptance of new technologies based on their perceived usefulness and ease of use. This model is particularly relevant for understanding managerial accountants' attitudes toward artificial intelligence (AI) tools and their willingness to adopt and effectively utilize these technologies.

Resource-Based View (RBV):
The Resource-Based View emphasizes that

firms achieve competitive advantage by leveraging unique internal resources and capabilities. In the context of this study, advanced AI technologies are considered strategic resources that FinTech companies can utilize to enhance managerial accounting functions and cost-related decision-making processes.

By integrating TAM and RBV, this study examines both individual-level technology acceptance and organizational capabilities in adopting AI solutions.

8.Literature Review

AI Applications in Financial Services:

The financial services sector has witnessed widespread adoption of AI applications such as fraud detection, customer service chatbots, algorithmic trading, and credit risk assessment (Smith & Jones, 2022). These applications leverage machine learning, natural language processing, and robotic process automation to enhance

efficiency and reduce operational risks.

AI and Managerial Accounting:
Recent studies highlight the transformative impact of AI on managerial accounting by automating routine tasks such as data entry, reconciliations, and report generation, enabling accountants to focus more on strategic analysis (Brown, 2021).
AI-powered analytics support more accurate budgeting and forecasting, improving cost control and resource allocation.

Impact on Cost Decision-Making:
AI facilitates improved cost decision-making through predictive analytics that forecast future costs and identify potential savings opportunities. Lee et al. (2020) found that AI-driven forecasting models outperform

traditional statistical methods in terms of accuracy and responsiveness. However, challenges such as data integration, model transparency, and ethical considerations remain significant (Garcia & Li, 2021).

Challenges in AI Adoption:
Despite the substantial benefits, managerial accountants face barriers including a lack of technical skills, resistance to change, and concerns over job displacement (Kumar, 2023).
Ensuring data quality and addressing ethical issues related to AI-based decisions are critical for sustainable adoption.

9. Managerial Accounting and Costing with Artificial Intelligence
Introduction to Managerial Accounting
Managerial accounting focuses on providing both financial and non-financial information to internal stakeholders—particularly managers—to support planning, control, and decision-making processes.

Unlike financial accounting, which is oriented toward external reporting, managerial accounting emphasizes forward-looking data, flexibility, and relevance to internal operations.

Core Functions of Managerial Accounting

- Planning: Involves setting objectives and preparing budgets to allocate resources efficiently.
- Controlling: Entails variance analysis to compare actual outcomes with planned targets, enabling corrective actions.
- Decision-Making: Supports decisions related to pricing, outsourcing, capital investment, and more.

Types of Costs

As part of managerial accounting, cost accounting classifies costs to aid managerial decision-making:

- Fixed Costs:
Remain constant regardless of production volume (e.g., rent, salaries).
- Variable Costs:
Fluctuate with production levels (e.g., raw materials).
- Mixed Costs:
Contain both fixed and variable elements (e.g., utility bills).

Role of Artificial Intelligence in Cost Decision-Making

AI contributes to cost management in various ways:

- Automation:
Automates repetitive tasks such as budget updates, invoice matching, and data entry.
- Predictive Analytics: Uses machine learning

algorithms to forecast costs and demand patterns, enhancing budget accuracy.

- Real-Time

Monitoring: Smart dashboards enable real-time cost tracking and early detection of discrepancies.

- Scenario Analysis:

AI models simulate various scenarios to assist managers in making informed strategic decisions.

Practical Examples

- ABC FinTech:

Implemented an AI-based budgeting system, reducing fixed operational costs by 12%.

- XYZ

Technologies: Adopted AI for variance analysis, which reduced errors by 25% and

improved reporting speed.

Evolving Skills of Managerial Accountants

AI is transforming the skillset required for management accountants. Traditional tasks like data entry are declining, while skills in data analysis, systems thinking, and AI tool utilization are in higher demand. This shift necessitates ongoing professional development and training.

10. Analysis and Discussion

Survey

Findings The survey data revealed strong positive perceptions of AI among managerial accountants.

Approximately 78% of respondents agreed that AI tools significantly enhanced their decision-making capabilities.

:Key benefits reported include

report generation

Improved accuracy in
forecasting and budgeting

Interview Insights

Qualitative data from interviews offered

nuanced insights

- Efficiency Gains: Many participants

highlighted how AI reduced the burden of manual data processing, allowing more

time for strategic tasks

- Skill Gaps: A recurring theme was the lack of

adequate training in AI tools, with some professionals

expressing

discomfort or reluctance

- Data Challenges: Several interviewees noted that

AI models require clean, high-quality data—

.something not always available

Ethical Considerations: .

Concerns were
raised about algorithm
transparency, especially
when AI-driven
decisions impact
employee performance
.evaluations

Interpretation Using Theoretical Frameworks

The findings align with the Technology Acceptance Model (TAM), demonstrating that perceived usefulness strongly influences willingness to adopt AI tools. The Resource- Based View (RBV) is also supported, as organizations with strong internal capabilities— such as AI infrastructure and skilled staff— reap
.more benefits from AI implementation

11.Conclusion and Recommendations

Conclusion

Artificial Intelligence (AI) has a transformative impact on managerial accounting and cost decision-making within the FinTech environment. It enhances the efficiency, accuracy, and speed of financial operations. The integration of AI tools enables real-time cost tracking, predictive forecasting, and scenario analysis, leading to more

informed and
.strategic decisions by managers

The study demonstrates that while the benefits
of AI are substantial, successful
implementation requires more than just
technology. Organizations must address skill
gaps, improve data quality, and ensure ethical
standards are upheld in algorithmic decision-
making. AI does not replace accountants—it
reshapes their roles toward more analytical and
.strategic functions

Recommendations

Based on the findings, the following

:recommendations are proposed

Invest in Training and 1

:Reskilling

Organizations should provide ongoing education in data analytics, AI tools, and strategic financial analysis to ensure accountants can effectively

.leverage technology

Enhance Data 2

:Infrastructure

High-quality data is essential for AI systems to function properly.

Firms should invest in data cleaning, integration, and

.governance

Foster a Tech-Friendly 3

:Culture

Encourage openness to digital transformation by involving employees in AI adoption processes and reducing resistance

.to change

:Ethical Oversight of AI 4

Develop transparent frameworks for AI use, especially in performance assessments or cost allocation decisions, to avoid bias

.and protect stakeholders

Tailor AI Tools to 5

:Accounting Needs

Collaborate with AI developers to ensure that tools align with the specific functions and complexities of managerial

.accounting and cost management

12.References

*Automation in managerial accounting:
Opportunities and*

- challenges*. Journal of Accounting Research, 5U(3), 455-478
- Davis, F. D. (1U8U). *Perceived usefulness, perceived ease of use, and user acceptance of information technology*. MIS Quarterly, 13(3), 31U-340
- Garcia, M., & Lee, S. (2021). *Challenges in AI integration within financial management systems*. Financial Technology Review, 14(2), 112-130
- Kumar, R. (2023). *Reskilling accountants for the AI era*. International Journal of Accounting Education, 28(1), 15-2U
- Lee, J., Kim, H., & Park, Y. (2020). *Predictive analytics in cost decision-making*. Journal of Financial Analytics, 8(4), 202-21U
- (2022). *AI applications in fintech: Trends and future directions*. FinTech Innovations, 10(1), 1-25

13. Additional Insights: AI Tools in Managerial Accounting Practice
- Popular AI Tools Used in Accounting
- IBM Watson: Used for data analytics and financial insights. Assists in anomaly detection and predictive modeling
- Xero and QuickBooks AI Add-ons: Automate bookkeeping, generate real-time financial dashboards, and analyze expenditure trends
- Tableau and Power BI (with AI integrations): Help accountants visualize cost data and conduct in-depth variance

.analysis

These tools are integrated into enterprise systems like ERP (Enterprise Resource Planning), making them powerful in real-time cost analysis and internal .decision-making processes

Emerging Trends in AI and Managerial Accounting

AI-Driven Budgeting 1

Platforms: These platforms simulate different budget scenarios and recommend optimized allocations based on .historical data

Smart Forecasting 2

Engines: Use regression and deep learning to estimate future costs .more precisely

Behavioral Analytics: Help 3

understand employee and departmental behavior affecting .costs

Natural Language 4

Processing (NLP): Enables voice-driven financial queries and AI-generated narrative reporting for managers

Real-World FinTech Use Cases

FinCorp UAE: Deployed a . machine learning system to analyze utility expenses across departments, identifying an unnoticed monthly overspending .of \$8,000

NeoFinance KSA: .

Integrated AI in their accounting systems and decreased budget .preparation time by 60%

DigitalBank EU: Used AI to .

perform a continuous audit of internal costs and detected 15% inefficiencies in supplier contracts

Risks and Limitations

- Over-Reliance on Algorithms: Managers may follow AI-generated reports without questioning assumptions or data quality
- Data Privacy and Cybersecurity: As AI tools access sensitive cost data, firms must ensure compliance with data protection laws
- Bias in AI Models: If training data are flawed, AI outputs can reflect or amplify these biases

Future Research Directions

- Longitudinal studies on AI's impact on cost structures over multiple financial cycles
- Explore cross-industry comparisons to determine best practices in AI adoption
- Investigate the psychological effects of automation on managerial accountants' roles and motivation