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Artificial Intelligence in SME financial decision-making: Tools for enhancing efficiency and profitability

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Abstract

Small and medium-sized enterprises (SMEs) face significant challenges in financial decision-making due to resource constraints, limited access to capital, and unpredictable cash flow. To overcome these challenges, many SMEs are turning to artificial intelligence (AI) to improve efficiency and profitability. AI, through tools like machine learning and predictive analytics, has transformed how SMEs manage their finances, offering solutions that enhance accuracy, speed, and data-driven decision-making. AI-driven accounting tools are revolutionizing routine tasks such as bookkeeping, invoicing, and expense tracking. By automating these functions, SMEs can reduce human error, save time, and allocate resources more effectively. AI's ability to integrate real-time data ensures that financial records remain up to date, enabling more accurate cash flow forecasting. For example, AI can predict liquidity needs based on historical data, seasonal trends, and market conditions, helping SMEs maintain healthy cash flow and avoid financial shortfalls. In addition to improving efficiency, AI plays a crucial role in optimizing revenue and profitability. AI-based pricing models allow SMEs to adjust prices dynamically, responding to market demand and competitor behavior in real-time. This data-driven approach ensures that businesses maximize revenue without compromising customer satisfaction. Moreover, AI helps SMEs identify high-value customers by analyzing purchasing patterns, preferences, and behaviors. By focusing on customer segmentation and tailored marketing strategies, SMEs can boost sales and customer retention. Despite the clear benefits, AI adoption in SMEs is not without challenges. High implementation costs, limited technical expertise, and concerns over data privacy can hinder the integration of AI tools. However, scalable, cost-effective AI solutions are becoming increasingly available, making it easier for SMEs to incorporate AI into their financial processes. As AI continues to evolve, it will play an even more significant role in helping SMEs navigate financial complexities, improve decision-making, and enhance long-term profitability.

Keywords: Artificial Intelligence; SMEs; Profitability; Review

1. Introduction

Small and medium-sized enterprises (SMEs) play a pivotal role in the global economy, contributing significantly to employment, innovation, and economic growth (Nwankwo *et al.*, 2024). In both developed and developing countries, SMEs account for a substantial portion of business activity, often serving as engines for job creation and local development. Despite their importance, SMEs face unique financial challenges that can hinder their growth and sustainability (Agupugo and Tochukwu, 2024). From limited access to capital to inefficient financial management processes, SMEs often struggle with decisions that larger enterprises may be better equipped to handle. One of the most common financial challenges for SMEs is effective financial decision-making (Okatta *et al.*, 2024). Unlike larger firms, SMEs typically have fewer resources, including financial experts and sophisticated management systems. This limitation often leads to difficulty in budgeting, forecasting, and managing cash flows. Moreover, SMEs are more vulnerable to external shocks, such as market volatility and sudden changes in consumer demand, which further complicates financial

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planning (Ajiga *et al*., 2024; Ezeafulukwe *et al*., 2024). Balancing day-to-day operational costs with long-term investment strategies becomes an ongoing struggle for many small business owners.

Artificial intelligence (AI) is increasingly transforming financial processes across various sectors, and SMEs are no exception (Nwaimo *et al*., 2024). Traditionally, financial management tasks such as accounting, forecasting, and risk assessment were manual and time-consuming. However, AI-powered tools and software have revolutionized these processes by automating routine tasks, improving accuracy, and providing advanced insights into financial health. For SMEs, AI offers the potential to bridge gaps in financial expertise and enhance decision-making efficiency. AI's ability to analyze large volumes of data quickly and accurately allows SMEs to gain real-time insights into their financial performance. For instance, AI-driven predictive analytics can help SMEs forecast sales, manage cash flows, and anticipate market trends, enabling them to make informed strategic decisions (Nwaimo *et al*., 2024). Additionally, AI can enhance risk management by identifying potential financial risks and suggesting corrective actions before issues escalate. This technology not only improves operational efficiency but also reduces costs by minimizing errors and optimizing resource allocation. In the realm of financial decision-making, AI-powered tools can provide SMEs with the kind of sophisticated financial analysis that was once only accessible to larger corporations. From intelligent budgeting systems that adjust allocations based on performance to advanced customer analytics that drive revenue management strategies (Ajiga *et al*., 2024), AI helps SMEs operate more like their larger counterparts without requiring extensive financial expertise. These benefits are increasingly pushing SMEs to adopt AI tools as a means of staying competitive in fast-paced markets (Okatta *et al*., 2024).

The purpose of this review is to explore how AI tools can enhance efficiency and profitability in the financial decision-making processes of SMEs. By examining the challenges SMEs face in financial management, alongside the opportunities presented by AI, this review aims to highlight practical applications of AI that can help SMEs overcome their financial constraints. Specifically, the review will focus on the role of AI in automating financial tasks, improving forecasting accuracy, and optimizing revenue management. Furthermore, this review will discuss how the integration of AI can reduce human errors in financial operations, provide real-time data-driven insights, and offer SMEs the ability to make more informed strategic decisions. As AI technology continues to advance, its potential to reshape the financial landscape for SMEs grows, providing them with powerful tools to enhance their profitability and long-term sustainability. The evolving role of AI in financial management presents a promising avenue for SMEs to overcome traditional financial challenges. By leveraging AI technologies, SMEs can enhance their financial decision-making capabilities, streamline operations, and improve overall profitability (Nwaimo *et al*., 2024). This review will provide an in-depth exploration of how AI-driven solutions can transform the financial management landscape for SMEs, ensuring that they remain competitive in an increasingly digitalized global economy.

2. Artificial Intelligence in Financial Decision-Making

Artificial intelligence (AI) has become an essential tool in the financial sector, revolutionizing how businesses manage their finances (Bassey, 2023). By automating tasks, improving decision-making accuracy, and providing deeper insights into financial trends, AI offers transformative capabilities for enterprises of all sizes, especially small and medium-sized enterprises (SMEs). In financial decision-making, AI leverages advanced technologies such as machine learning, natural language processing (NLP), and predictive analytics to automate and enhance key processes, offering SMEs the opportunity to overcome traditional challenges in financial management.

Artificial intelligence in finance refers to the use of advanced algorithms and computational models to automate and optimize various financial operations (Ajiga *et al*., 2024). These technologies allow businesses to analyze vast amounts of data, detect patterns, and make predictions with a level of accuracy and efficiency that exceeds human capabilities. Machine learning is a key component of AI used in finance. It enables systems to learn from historical data and improve their predictive capabilities over time. This technology is particularly valuable in financial forecasting, credit risk assessment, and customer behavior analysis. Machine learning models can process large datasets quickly, identifying trends and patterns that are not easily observable by human analysts. Natural language processing (NLP) is another crucial AI technology used in finance. NLP allows computers to understand, interpret, and generate human language (Nwaimo *et al*., 2024). This is especially useful in automating routine tasks such as processing invoices, interpreting financial documents, and assisting in customer service through chatbots. NLP also plays a role in analyzing sentiment from financial news or reports, helping businesses make informed decisions based on external data. Predictive analytics leverages statistical algorithms and machine learning techniques to predict future outcomes based on historical data. In finance, predictive analytics is used to forecast cash flows, anticipate market trends, and manage financial risks. This technology enhances decision-making by providing businesses with real-time insights and actionable data, reducing uncertainty in financial planning (Okatta *et al*., 2024).

AI has broad applications in financial processes, particularly for SMEs looking to improve efficiency and make smarter financial decisions (Daramola *et al.*, 2024). Three key areas where AI is making significant impacts include automating accounting tasks, forecasting cash flows and financial trends, and conducting risk assessments and credit analysis. Automating accounting tasks is one of the most immediate benefits of AI in financial management. AI-powered software can handle routine accounting functions such as bookkeeping, invoicing, and reconciliation with minimal human intervention. Automation reduces the time and effort required for these tasks, allowing SMEs to allocate resources more effectively (Esan, 2023). Moreover, AI can help detect errors or discrepancies in financial records, further enhancing accuracy and reducing the risk of costly mistakes. Forecasting cash flows and financial trends is another critical application of AI in SME financial management. By analyzing historical data and external factors such as market conditions, customer behavior, and macroeconomic trends, AI can predict future cash flows with greater accuracy. This predictive capability enables SMEs to make informed decisions about investments, manage liquidity more effectively, and avoid potential financial pitfalls. Accurate forecasting also allows SMEs to plan for growth, as they can better anticipate when they will need additional financing or when to expand their operations. Risk assessment and credit analysis are also greatly enhanced by AI. Traditional methods of credit analysis rely on limited datasets and often involve time-consuming manual evaluations (Bassey, 2022). AI, on the other hand, can analyze a vast array of data points, including non-traditional sources such as social media activity or customer reviews, to assess the creditworthiness of a business or individual. This enables SMEs to make quicker and more informed decisions regarding loans, investments, or partnerships. AI-driven risk assessment tools can also help SMEs identify potential financial risks, such as market fluctuations or changes in regulatory environments, allowing them to proactively adjust their strategies (Afeku-Amenyo, 2015).

The integration of AI into financial decision-making offers numerous benefits, particularly in terms of increasing accuracy and speed, reducing human error, and improving financial forecasting and strategic planning. Increased accuracy and speed are two major advantages of AI in finance (Agupugo *et al.*, 2024; Bassey *et al.*, 2024). AI algorithms can process vast amounts of data in real-time, allowing businesses to make quick decisions based on up-to-date information. This level of speed and precision is crucial in today's fast-paced financial markets, where small delays or errors can result in significant losses. For SMEs, the ability to analyze financial data swiftly and accurately allows for more agile responses to market conditions and improved financial performance. Reduction in human error is another critical benefit of AI. In manual financial processes, errors such as data entry mistakes or miscalculations can lead to inaccurate financial reports, budgeting errors, and even compliance issues (Esan *et al.*, 2024). AI systems are designed to minimize these errors by automating tasks and cross-referencing large datasets to ensure accuracy. For SMEs with limited staff, the reduction in errors can save both time and money, freeing up resources for strategic initiatives rather than correcting mistakes. Improved financial forecasting and strategic planning is perhaps the most transformative impact of AI on financial decision-making (Ogunleye *et al.*, 2024). By leveraging predictive analytics, SMEs can gain deeper insights into their future financial performance, enabling them to make more informed decisions. For example, AI can help businesses predict changes in consumer demand, allowing them to adjust pricing strategies or marketing efforts accordingly. It can also forecast cash flow fluctuations, helping SMEs maintain liquidity and avoid financial crises. Additionally, AI-driven insights can inform long-term strategies, guiding decisions related to capital investments, market expansion, and risk management (Porlles *et al.*, 2024).

AI is fundamentally transforming the way SMEs manage their financial processes. Through technologies such as machine learning, natural language processing, and predictive analytics, AI offers the ability to automate routine tasks, improve accuracy, and provide actionable insights into future financial performance (Moones *et al.*, 2024). The applications of AI in accounting, forecasting, and risk assessment offer SMEs powerful tools to enhance their decision-making capabilities and optimize their financial management practices. As AI continues to evolve, its role in financial decision-making is set to expand, offering even greater opportunities for SMEs to improve efficiency, reduce costs, and increase profitability. By adopting AI-driven solutions, SMEs can better navigate the complexities of financial management, positioning themselves for sustainable growth in a competitive global economy (Emmanuel *et al.*, 2024).

3. AI Tools for Financial Efficiency in SMEs

Artificial intelligence (AI) is transforming the financial landscape for small and medium-sized enterprises (SMEs), offering advanced tools to automate processes, enhance decision-making, and increase financial efficiency (Nwosu *et al.*, 2024). These AI-powered solutions enable SMEs to optimize bookkeeping, cash flow management, expense tracking, and tax planning while improving profitability through revenue optimization strategies. By integrating AI tools, SMEs can streamline operations, reduce costs, and make data-driven financial decisions. This review explores the role of AI-based accounting software, predictive analytics for cash flow, expense tracking and optimization, and AI tools for tax planning and compliance.

AI-based accounting software has revolutionized traditional bookkeeping and expense management for SMEs. In the past, managing financial records was time-consuming and prone to human error (Ajiga *et al.*, 2024). AI automates routine accounting tasks such as data entry, invoice processing, and categorizing expenses, significantly reducing the need for manual intervention. This automation ensures accuracy in financial reporting and frees up valuable time for SMEs to focus on strategic business activities. AI-based tools like QuickBooks and Xero use machine learning algorithms to continuously learn from historical data, improving their accuracy in categorizing transactions over time. Additionally, these platforms can integrate with other financial tools to provide a seamless financial management experience (Ezeh *et al.*, 2024). For example, AI tools can sync with banking systems, automatically pulling transaction data into accounting platforms and reconciling accounts in real time. This integration ensures that SMEs have access to up-to-date financial information and can make more informed decisions.

Predictive analytics is an essential AI tool that enables SMEs to manage their cash flow more effectively (Iwuanyanwu *et al.*, 2024). Cash flow is the lifeblood of any business, and poor management can lead to liquidity issues or even bankruptcy. AI-powered cash flow management tools use historical data and external factors to predict future cash flow trends, allowing SMEs to anticipate financial challenges and prepare accordingly. AI-driven solutions like Float and Fathom provide real-time financial monitoring, offering insights into how future expenses, revenues, and market conditions could impact cash flow. These tools generate predictive models that help SMEs plan for periods of low liquidity, enabling them to secure financing or adjust spending to maintain financial stability. Real-time monitoring also allows businesses to make quick adjustments to their operations, avoiding financial crises by proactively managing liquidity. AI-powered expense tracking tools offer SMEs significant advantages in identifying cost-saving opportunities. These tools analyze transaction data to detect patterns and identify areas where costs can be reduced (Daramola *et al.*, 2024). For example, AI systems can flag recurring expenses that could be renegotiated or suggest more cost-effective alternatives for suppliers and services. In addition to identifying cost-saving opportunities, AI can automate budget adjustments based on real-time data. Traditional budgeting processes are often static and require manual adjustments, but AI systems can automatically update budgets based on current financial performance. Tools like Expensify and Cleo offer intelligent expense tracking features, allowing SMEs to monitor their financial health continuously. By automating these processes, SMEs can maintain tighter control over their expenses and improve financial efficiency (Ezeafulukwe *et al.*, 2024).

Tax planning and compliance are complex and time-consuming processes that are critical to a business's financial health (Bassey *et al.*, 2024). AI tools simplify these tasks by automating tax calculations, filing reports, and ensuring that SMEs remain compliant with tax regulations. Platforms like Avalara and TurboTax use AI algorithms to process financial data, automatically generating accurate tax reports while minimizing the risk of errors. AI also helps reduce compliance risks by ensuring that businesses adhere to local, state, and federal tax laws. These tools stay updated with tax regulations, alerting SMEs to changes that could affect their tax liabilities. By automating tax-related tasks, AI allows businesses to focus on growth while avoiding costly penalties and legal issues related to non-compliance. AI offers powerful tools for optimizing revenue and improving profitability for SMEs (Ige *et al.*, 2024). By leveraging AI-driven solutions, businesses can make data-driven decisions about pricing, customer segmentation, and market analysis, enhancing their ability to maximize revenues and expand into new markets. Dynamic pricing is one of the most significant advantages of using AI for revenue optimization. AI tools like Pricefx and Competera analyze real-time market conditions, competitor pricing, and customer behavior to adjust prices dynamically, ensuring that SMEs remain competitive while maximizing profit margins. These tools help businesses develop data-driven pricing models that respond to shifts in demand, enabling SMEs to optimize their pricing strategies for different products and services (Osundare and Ige, 2024). AI also enhances customer segmentation by analyzing customer behavior, preferences, and purchasing history. Tools like HubSpot and Salesforce Einstein use machine learning algorithms to identify customer segments and predict how different groups will respond to marketing efforts. This information allows SMEs to tailor their sales and marketing strategies for specific customer segments, driving revenue growth.

Predictive models powered by AI can also forecast future revenue based on past performance and market trends (Bassey, 2023). By providing accurate sales forecasts, AI helps SMEs set realistic targets, allocate resources effectively, and plan for growth. AI-driven insights can help SMEs identify new revenue streams and optimize product offerings for target markets. By analyzing market data, customer preferences, and competitor performance, AI tools like MarketMuse and Crayon can uncover opportunities for expanding into new markets or introducing new products. These insights allow businesses to diversify their revenue streams and reduce dependence on any single source of income. Several SMEs have successfully implemented AI-driven tools to enhance profitability. For example, a small e-commerce company used AI-powered pricing optimization to increase its sales by 20% by adjusting its prices in real time based on customer demand (Ogedengbe *et al.*, 2023). Another SME in the retail sector adopted AI-driven customer segmentation tools to target specific customer groups with personalized marketing campaigns, resulting in a 15% increase in revenue. AI tools for financial efficiency are proving invaluable to SMEs, offering powerful solutions for

automating accounting, improving cash flow management, optimizing expenses, and ensuring compliance. By adopting AI-driven technologies, SMEs can streamline their financial processes, reduce costs, and enhance profitability. As AI continues to evolve, its role in transforming financial decision-making and driving business growth will only become more pronounced, positioning SMEs to thrive in an increasingly competitive global marketplace (Nwosu, 2024).

4. AI in Revenue Optimization and Profitability

Artificial Intelligence (AI) has become a key enabler for businesses looking to optimize revenue and increase profitability (Esan *et al.*, 2024). From dynamic pricing strategies to predictive analytics for customer segmentation and market analysis, AI offers numerous tools to streamline operations, enhance decision-making, and identify new opportunities for growth. This explore the role of AI in revenue optimization and profitability, focusing on pricing strategy optimization, customer segmentation and revenue forecasting, sales channel and market analysis, and real-world case studies of small and medium-sized enterprises (SMEs) using AI for profitability.

One of the most impactful applications of AI in revenue optimization is the development of dynamic pricing strategies (Afeku-Amenyo, 2021). AI tools enable businesses to adjust prices in real-time based on market conditions, competitor behavior, and consumer demand. These tools can analyze vast amounts of data, including historical pricing trends, customer preferences, and external factors like seasonality or economic conditions (Ogunleye, 2024). For example, e-commerce platforms often employ AI-driven algorithms to optimize product pricing dynamically. As a result, businesses can respond swiftly to changes in demand and maximize their revenue. Revenue management systems driven by AI leverage advanced pricing models to identify the most profitable pricing strategies. These models can incorporate various factors such as elasticity of demand, customer lifetime value, and willingness to pay. By continuously learning and adapting, AI-powered pricing solutions ensure businesses are not only competitive but also able to capture maximum revenue across different market segments (Eziamaka *et al.*, 2024). This is particularly valuable in industries like hospitality, travel, and retail, where demand fluctuations are common.

AI's ability to analyze customer behavior and preferences plays a crucial role in optimizing revenue (Daramola *et al.*, 2024). Through machine learning algorithms, businesses can segment customers more effectively based on purchasing behavior, demographics, and other relevant attributes. AI-driven customer segmentation allows companies to tailor marketing and sales efforts to specific groups, improving customer retention and increasing revenue. For instance, retailers can use AI to create personalized offers for high-value customers, thereby enhancing customer satisfaction and encouraging repeat purchases. AI also aids in predictive models for revenue forecasting, providing businesses with valuable insights into future sales trends. Predictive analytics, powered by AI, helps companies anticipate demand, manage inventory, and allocate resources efficiently (Ezeh *et al.*, 2024). By analyzing historical sales data, market conditions, and customer behavior, AI can forecast revenue growth with greater accuracy than traditional methods. This enables businesses to make informed decisions, optimize their sales strategies, and proactively adjust to changing market dynamics.

AI is instrumental in helping businesses identify new revenue streams by offering deeper insights into sales channels and market conditions (Iwuanyanwu *et al.*, 2024). Through advanced data analysis, AI can detect patterns and trends that may not be immediately apparent to human analysts. For example, AI can analyze customer data across multiple sales channels, such as online platforms, brick-and-mortar stores, and mobile applications, to identify the most profitable channels. This enables businesses to allocate resources more effectively and focus on channels that generate the highest revenue. Moreover, AI can help businesses optimize their product offerings by identifying which products are most likely to succeed in specific markets. Through market analysis, AI tools can evaluate competitors, consumer preferences, and emerging trends to help businesses make data-driven decisions about product development and marketing (Ezeafulukwe *et al.*, 2024). This capability is especially valuable for companies seeking to expand into new markets or introduce new products, as it reduces the risk of failure and increases the likelihood of success.

Several SMEs have successfully leveraged AI to enhance profitability (Ige *et al.*, 2024). One notable example is Stitch Fix, an online personal styling service that uses AI to improve its product recommendations. The company employs machine learning algorithms to analyze customer preferences, style choices, and body measurements, enabling it to offer personalized clothing recommendations (Afeku-Amenyo, 2022). By leveraging AI, Stitch Fix has optimized its inventory, reduced return rates, and increased customer satisfaction, all of which have contributed to higher profitability. Another example is Optimove, a marketing platform that uses AI to segment customers and optimize marketing campaigns for SMEs. Through AI-driven customer insights, Optimove helps businesses increase customer retention and lifetime value by personalizing marketing efforts. As a result, SMEs using Optimove have reported significant improvements in marketing efficiency and revenue growth. In the hospitality industry, AI-powered tools like Revinate have enabled smaller hotels to optimize their pricing strategies and increase profitability. Revinate's AI-driven revenue management

system analyzes booking trends, competitor pricing, and demand patterns to recommend the most profitable room rates. This has allowed smaller hotels to compete more effectively with larger chains, resulting in increased occupancy rates and revenue (Nwosu and Ilori, 2024).

AI is revolutionizing the way businesses approach revenue optimization and profitability. From dynamic pricing strategies and customer segmentation to market analysis and sales forecasting, AI-driven tools are helping companies make data-driven decisions and identify new opportunities for growth (Ezeh *et al.*, 2024). SMEs, in particular, are benefiting from AI technologies by enhancing their profitability and staying competitive in rapidly changing markets. As AI continues to evolve, its role in revenue optimization will only become more significant, offering businesses even greater opportunities to maximize their profitability and market share.

5. Challenges of Implementing AI in SME Financial Decision-Making

Artificial Intelligence (AI) has the potential to transform financial decision-making for small and medium-sized enterprises (SMEs), offering advanced tools for forecasting, risk management, and profitability optimization (Agupugo *et al.*, 2022). However, despite these advantages, implementing AI in SME financial decision-making comes with several challenges. These obstacles include barriers to AI adoption, data quality and availability, model interpretability and trust, and ethical considerations. This review will explore these challenges in detail, highlighting the difficulties SMEs face in leveraging AI to improve financial decision-making.

One of the primary barriers to AI adoption among SMEs is the cost and complexity of implementation (Bassey *et al.*, 2024). AI technologies often require significant investment in hardware, software, and infrastructure, which can be prohibitively expensive for smaller companies. Additionally, the integration of AI tools into existing financial systems often requires specialized skills, making the process more complex. SMEs may struggle with the high upfront costs of adopting AI solutions, and they may lack the financial resources to maintain these systems over time. Furthermore, AI systems often require frequent updates and continuous monitoring to remain effective, adding to the overall cost burden (Nwaimo *et al.*, 2024). The lack of technical expertise within SMEs further compounds this challenge. Unlike larger enterprises that have access to dedicated IT departments and data science teams, many SMEs lack the in-house knowledge required to implement and manage AI tools effectively (Bassey and Ibegbulam, 2023). This knowledge gap can lead to poorly implemented AI systems, which may deliver suboptimal results or even create additional risks. SMEs may also struggle to identify the right AI tools for their needs, as the complexity of AI technologies can make it difficult to assess which solutions are best suited for specific financial decision-making tasks.

Data quality and availability are critical to the success of AI-driven financial decision-making (Ige *et al.*, 2024). However, many SMEs face significant challenges in managing and accessing relevant financial data. AI algorithms rely on large datasets to generate accurate predictions and insights, but SMEs may not have the necessary infrastructure to store, process, or analyze these datasets effectively. Poor data management practices, such as incomplete or inconsistent record-keeping, can further hinder the effectiveness of AI tools. Inaccurate or missing data can lead to flawed financial forecasts and poor decision-making outcomes, negating the potential benefits of AI. Moreover, SMEs often have limited access to external financial data, such as market trends or competitor information, which is crucial for training AI models (Ogedengbe *et al.*, 2024). Without access to a wide range of high-quality data, AI systems may struggle to generate reliable insights, reducing their value in the decision-making process. The lack of real-time data integration can also impair AI's ability to respond to changing market conditions, further diminishing its usefulness for financial decision-making in SMEs.

Another key challenge of implementing AI in SME financial decision-making is model interpretability and trust (Oyindamola and Esan, 2023). Many AI algorithms, particularly those based on machine learning, function as "black boxes," meaning that their decision-making processes are difficult to understand. For SMEs, this lack of transparency can be problematic, as it may erode trust in AI-generated insights. Financial decision-making requires a high level of confidence in the accuracy and rationale behind recommendations, and the inability to interpret AI models can make it difficult for SME owners and managers to feel comfortable relying on these systems. The challenge of interpretability also affects the broader organizational trust in AI. Employees and stakeholders may resist AI-driven financial decisions if they do not understand how the models arrive at their conclusions (Daramola *et al.*, 2024). This skepticism can reduce the willingness to adopt AI technologies, even if they offer significant potential benefits. As a result, SMEs may fail to fully capitalize on the advantages of AI in financial decision-making due to concerns about model transparency and reliability.

Ethical concerns represent another significant challenge in the implementation of AI for financial decision-making in SMEs (Eziamaka *et al.*, 2024). One of the foremost ethical issues is data privacy. AI systems often require access to

sensitive financial and customer data, which raises concerns about how this data is stored, processed, and protected. SMEs may lack the robust data security measures necessary to ensure compliance with privacy regulations, such as the General Data Protection Regulation (GDPR) in the European Union. Inadequate data protection practices can lead to breaches, resulting in financial losses, reputational damage, and legal penalties. Ensuring fairness and transparency in AI-driven financial decisions is also a major ethical concern. AI algorithms can inadvertently introduce biases into decision-making processes if they are trained on biased or unrepresentative data (Ogunleye, 2024). For SMEs, this can result in unfair or discriminatory financial practices, such as biased loan approval decisions or inequitable pricing strategies. Addressing these biases requires careful oversight and regular auditing of AI models to ensure that they produce fair and ethical outcomes.

While AI offers tremendous potential for enhancing financial decision-making in SMEs, several challenges must be addressed to ensure successful implementation. Barriers to AI adoption, such as costs and technical expertise, limit the ability of SMEs to deploy these tools effectively (Agupugo et al., 2024). Issues related to data quality and availability further complicate AI's integration into financial systems. Additionally, the complexity of AI models raises concerns about interpretability and trust, while ethical considerations, including data privacy and fairness, must be carefully managed. Addressing these challenges will require a combination of investment in technology, upskilling of SME employees, and the development of transparent, fair, and accountable AI systems tailored to the needs of smaller businesses.

6. Best Practices for AI Integration in SME Financial Management

The integration of Artificial Intelligence (AI) into financial management can significantly enhance decision-making, streamline operations, and drive profitability for small and medium-sized enterprises (SMEs) (Afeku-Amenyo, 2024). However, for SMEs with limited resources and technical expertise, implementing AI requires careful planning and a strategic approach. This outlines best practices for AI integration in SME financial management, focusing on scalable solutions, fostering a data-driven culture, building partnerships with AI vendors, and ongoing evaluation and adjustment.

For SMEs looking to adopt AI in their financial management processes, starting small with scalable AI solutions is essential (Okeleke et al., 2024). Rather than investing in complex, costly systems from the outset, SMEs can begin with low-cost, easy-to-implement AI tools that deliver immediate value. Cloud-based AI solutions, for instance, offer a flexible and affordable way for SMEs to adopt AI without the need for significant upfront investment in infrastructure. These solutions provide access to AI-driven tools for tasks such as financial forecasting, cash flow management, and expense tracking, enabling SMEs to start small and scale up as they grow. AI-driven accounting software, such as Xero or QuickBooks, is an example of a low-cost solution that can automate routine tasks like invoice processing, expense categorization, and financial reporting (Nwosu and Ilori, 2024). By integrating these scalable tools into their financial workflows, SMEs can free up time and resources, allowing managers to focus on strategic decision-making. Moreover, because these solutions are cloud-based, they offer the flexibility to grow alongside the business, enabling SMEs to add new functionalities as their financial management needs become more complex (Bassey, 2022).

A successful AI integration requires more than just implementing the right tools; it also demands a data-driven culture within the organization (Ezeh et al., 2024). Encouraging data literacy across the SME helps employees understand and make use of AI-generated insights, leading to more informed decision-making and better financial outcomes. By fostering a data-driven culture, SMEs can ensure that all employees, from the finance department to management, are equipped to interpret and act on AI-powered financial analysis. Building data literacy within an SME involves training employees on the importance of data, how it can be used effectively, and how to interpret AI-driven insights. Managers should lead by example, demonstrating how data informs their financial decisions and encouraging the use of data in everyday operations. Additionally, SMEs can invest in educational programs or workshops focused on data analysis, ensuring that all employees are comfortable working with the data generated by AI systems. This cultural shift towards data-driven decision-making can enhance the overall effectiveness of AI integration and help maximize the value of AI tools (Iwuanyanwu et al., 2022).

Collaborating with AI solution providers is another best practice that SMEs should adopt when integrating AI into financial management (Odonkor et al., 2024). Building partnerships with AI vendors allows SMEs to access tailored financial tools designed to meet their specific needs. AI vendors often have specialized knowledge and expertise that SMEs may lack, and by working together, SMEs can implement AI solutions more effectively. Moreover, many AI solution providers offer consultation and support services that can help SMEs select the right tools, implement them successfully, and maintain them over time. Partnerships with AI vendors also enable SMEs to benefit from ongoing improvements and updates to AI technology. As AI systems evolve, vendors often introduce new features and functionalities that can

enhance financial management capabilities (Ige *et al.*, 2024). By maintaining strong relationships with AI solution providers, SMEs can stay up-to-date with the latest innovations in AI, ensuring that their financial management systems remain efficient and competitive. When building these partnerships, SMEs should focus on finding vendors that understand the specific challenges of smaller businesses. Vendors that offer scalable, user-friendly tools with comprehensive support can provide significant value, particularly for SMEs that lack in-house AI expertise.

The integration of AI into financial management is not a one-time effort; it requires ongoing evaluation and adjustment to ensure that AI systems continue to deliver value (Osundare and Ige, 2024). Regular reviews of AI performance, alongside the assessment of its impact on financial efficiency and profitability, are essential to achieving long-term success. SMEs should develop processes for monitoring key performance indicators (KPIs) related to AI implementation, such as improvements in cash flow management, accuracy of financial forecasting, and overall cost savings. One key aspect of ongoing evaluation is ensuring that AI systems are continuously aligned with the SME's evolving business goals. As the company grows or market conditions change, the financial strategies that worked initially may need to be adjusted. AI models should be recalibrated to reflect new business realities and data, ensuring that they remain effective in optimizing financial decision-making (Ogunleye, 2024; Nwaimo *et al.*, 2024). Additionally, feedback from employees who interact with AI systems should be solicited regularly, as their insights can help identify areas for improvement and opportunities for further AI integration. Moreover, SMEs must assess the financial return on investment (ROI) of AI tools to determine whether the benefits outweigh the costs. If certain AI solutions are not delivering the expected results, adjustments may be necessary, such as refining algorithms, changing data inputs, or switching to a different vendor. Regular assessment and proactive adaptation are key to ensuring that AI remains a valuable asset for financial management (Ekemezie *et al.*, 2024).

Integrating AI into SME financial management offers numerous benefits, including improved decision-making, cost savings, and enhanced financial forecasting (Bassey, 2023). However, successful AI adoption requires a strategic approach. SMEs should start with scalable AI solutions that are easy to implement and cost-effective. Encouraging a data-driven culture helps employees make better use of AI-generated insights, while building partnerships with AI vendors ensures access to tailored tools and ongoing support. Finally, regular evaluation and adjustment of AI systems are critical to maintaining their effectiveness and ensuring long-term profitability. By following these best practices, SMEs can successfully integrate AI into their financial management processes, driving growth and operational efficiency (Adepoju and Esan, 2023)

7. Future Trends in AI for SME Financial Decision-Making

The rise of Artificial Intelligence (AI) is reshaping financial decision-making for small and medium-sized enterprises (SMEs). AI technologies offer SMEs advanced capabilities to manage financial operations, optimize decision-making processes, and increase profitability. As AI continues to evolve, several trends are emerging that will shape the future of AI-driven financial management for SMEs (Nwankwo *et al.*, 2024). These trends include AI-driven financial advisory services, real-time decision-making, integration of AI with blockchain and FinTech solutions, and leveraging AI for sustainable financial management.

One of the most promising future trends in AI for SME financial decision-making is the rise of AI-driven financial advisory services. AI tools are increasingly being developed to provide personalized financial advice tailored to the unique needs and constraints of SMEs. These AI-driven advisory systems use machine learning algorithms to analyze large amounts of financial data and provide insights into cash flow management, investment opportunities, and risk assessment. AI-powered platforms, such as robo-advisors, can offer SMEs personalized recommendations on cost optimization, financial forecasting, and growth strategies without requiring a human advisor (Agupugo and Tochukwu, 2022). This is particularly beneficial for SMEs that may not have the resources to hire financial consultants. These tools can deliver actionable insights based on real-time market data, helping SMEs make informed decisions and improve financial performance. As AI technology advances, we can expect more sophisticated advisory services that cater specifically to the financial needs of smaller businesses, including tools that can model various financial scenarios and provide automated strategic advice.

Another key trend is the integration of AI into real-time decision-making processes. AI is increasingly being used to support real-time financial decision-making, providing SMEs with instant insights based on current financial data, market conditions, and business activities. These real-time decision support systems use AI to process and analyze data as it is generated, allowing SMEs to make quick and informed decisions (Okatta *et al.*, 2024). For example, AI-driven tools can automatically analyze spending patterns, predict cash flow shortages, or flag potential risks in real time, enabling SMEs to address financial issues before they escalate. AI systems can also provide SMEs with alerts and recommendations for cost-cutting measures or investment opportunities based on real-time market trends. The ability

to make immediate, data-driven decisions can give SMEs a competitive edge, allowing them to respond swiftly to market changes and financial challenges.

The integration of AI with blockchain and FinTech solutions is an emerging trend with immense potential for SMEs. Blockchain technology provides a secure, transparent, and immutable record of financial transactions, while AI can enhance the analysis and interpretation of these transactions for more informed decision-making. When combined, AI and blockchain can offer SMEs secure financial management systems that enhance trust and transparency (Ajiga *et al.*, 2024). AI can automate various financial processes, such as verifying transactions, monitoring regulatory compliance, and detecting fraud within a blockchain-based system. This combination ensures that financial operations are not only efficient but also secure and auditable. Moreover, the integration of AI with other FinTech solutions, such as digital payment platforms, can streamline operations, reduce errors, and enable SMEs to access new financial services. As blockchain and AI continue to mature, SMEs can benefit from more robust financial ecosystems that enhance security, transparency, and efficiency in their financial decision-making processes.

In the future, AI will play a critical role in promoting sustainability and socially responsible financial management. Many SMEs are increasingly prioritizing sustainable practices and ethical investments as part of their corporate social responsibility initiatives (Ezeafulukwe *et al.*, 2024). AI can support these efforts by providing tools to assess the environmental and social impacts of financial decisions. AI algorithms can analyze investment portfolios to determine their alignment with sustainability goals, such as reducing carbon footprints or supporting socially responsible enterprises. For example, AI-powered platforms can help SMEs identify sustainable suppliers, track their energy consumption, or evaluate the environmental impact of their operations. Additionally, AI can guide SMEs in selecting investments that align with environmental, social, and governance (ESG) criteria, helping them make decisions that are not only financially beneficial but also socially responsible. As more businesses prioritize sustainability, AI-driven financial tools will become essential for integrating sustainability into financial management.

The future of AI in SME financial decision-making is marked by significant advancements and opportunities. AI-driven financial advisory services will provide SMEs with personalized insights tailored to their needs, enabling them to make informed financial decisions (Nwaimo *et al.*, 2024). Real-time decision-making tools will offer instant analysis and recommendations, allowing SMEs to respond quickly to market changes. The integration of AI with blockchain and FinTech solutions will further enhance security and transparency in financial operations. Finally, AI will play a vital role in sustainable financial management, helping SMEs make socially responsible investment decisions. By adopting these emerging AI trends, SMEs can improve their financial performance, streamline decision-making, and contribute to long-term sustainability.

8. Conclusion

The integration of Artificial Intelligence (AI) into small and medium-sized enterprises (SMEs) has the potential to revolutionize financial decision-making, driving efficiency and profitability. AI enhances efficiency by automating routine tasks such as financial forecasting, expense tracking, and cash flow management, allowing managers to focus on more strategic initiatives. Additionally, AI-powered tools offer SMEs sophisticated insights through real-time data analysis and predictive modeling, leading to improved financial decisions, risk management, and cost optimization. By leveraging AI, SMEs can better anticipate market trends, respond swiftly to financial challenges, and improve long-term profitability.

For SMEs to fully benefit from AI, it is crucial to embrace these technologies within their financial processes. Starting with scalable AI solutions that are low-cost and easy to implement can provide immediate returns without overwhelming the business. Fostering a data-driven culture and building partnerships with AI vendors can ensure that SMEs extract maximum value from AI tools. Regular evaluation and adjustment of AI systems are also critical to maintaining their relevance and effectiveness.

Looking ahead, AI will continue to play a growing role in shaping the financial stability and success of SMEs. As AI technologies evolve, they will become even more accessible and sophisticated, offering personalized financial advice, real-time decision-making capabilities, and integration with emerging technologies like blockchain. SMEs that adopt AI early and strategically will position themselves for greater financial success and resilience in an increasingly data-driven economy.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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