(REVIEW ARTICLE)

Promoting financial inclusion for SMEs: Leveraging AI and data analytics in the banking sector

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Abstract

Financial inclusion is crucial for the growth and sustainability of small and medium-sized enterprises (SMEs), which are significant contributors to economic development and job creation. However, traditional banking models often fall short in serving the unique needs of SMEs due to perceived high risks and insufficient credit history. Leveraging artificial intelligence (AI) and data analytics, the banking sector can transform its approach to financial inclusion, offering tailored financial products and services that cater specifically to SMEs. AI and data analytics enable banks to analyze vast amounts of data from diverse sources, including transactional histories, social media activity, and market trends. This holistic view of an SME's financial health and business potential allows for more accurate risk assessment and credit scoring. Machine learning algorithms can identify patterns and predict creditworthiness, enabling banks to extend credit to SMEs that may have been overlooked by traditional models. Additionally, AI-driven insights facilitate the development of customized financial products, such as flexible loan terms and dynamic interest rates, that align with the cash flow cycles and operational realities of SMEs. Automated processes and AI-powered chatbots enhance customer service, providing SMEs with timely support and financial advice, thereby improving their banking experience. Data analytics also play a critical role in fraud detection and prevention, ensuring the security of transactions and building trust among SME clients. By continuously monitoring and analyzing transaction data, banks can quickly identify and mitigate fraudulent activities, protecting SMEs from financial losses. Moreover, AI and data analytics support the creation of financial literacy programs tailored to the specific needs of SMEs, empowering business owners with the knowledge and tools to make informed financial decisions. This educational aspect is vital in fostering a sustainable financial ecosystem for SMEs. In conclusion, the integration of AI and data analytics in the banking sector holds significant promise for promoting financial inclusion among SMEs. By providing more accessible, customized, and secure financial services, banks can support the growth and success of SMEs, ultimately contributing to broader economic development and financial stability.

Keywords: Promoting; Financial Inclusion; SMEs; AI; Data Analytics

1 Introduction

Financial inclusion, especially for Small and Medium Enterprises (SMEs), is crucial for fostering economic growth, reducing poverty, and promoting sustainable development. SMEs play a vital role in driving innovation, creating jobs, and stimulating economic activity (Ikegwu, 2022, Maha, Kolawole & Abdul, 2024). However, many SMEs face significant challenges in accessing financial services, including limited access to credit, high transaction costs, and lack of financial literacy.

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Financial inclusion is essential for SMEs as it enables them to access the financial services they need to grow and thrive. Access to credit, for example, allows SMEs to invest in new equipment, expand their operations, and hire more employees. Moreover, access to financial services can help SMEs manage their cash flow, mitigate financial risks, and improve their overall financial management practices.

By promoting financial inclusion for SMEs, banks and financial institutions can contribute to economic development and poverty reduction (Adelakun, et. al., 2024, Afolabi, 2024). Financially inclusive SMEs are more likely to create jobs, generate income, and contribute to the local economy. Additionally, financial inclusion can empower SMEs, especially those led by women and marginalized groups, by providing them with the resources they need to succeed.

AI and data analytics are revolutionizing the banking sector and have the potential to transform financial inclusion for SMEs. These technologies can help banks and financial institutions better understand the needs of SMEs, assess their creditworthiness, and tailor financial products and services to meet their specific needs (Abdul, et. al., 2024, Anjorin, Raji & Olodo, 2024). For example, AI-powered credit scoring models can analyze a wide range of data points, including transaction history, business performance metrics, and even social media activity, to assess the creditworthiness of SMEs. This enables banks to make more accurate lending decisions and offer credit to SMEs that may have been overlooked by traditional credit scoring models.

Moreover, data analytics can help banks identify trends and patterns in SMEs' financial behavior, enabling them to develop targeted financial products and services that meet the unique needs of SMEs. For example, banks can use data analytics to design loan products with flexible repayment terms or develop digital banking solutions that cater to the specific needs of SMEs (Adegbola, et. al., 2024, McKinsey & Company, 2020). In conclusion, promoting financial inclusion for SMEs is essential for driving economic growth and reducing poverty. AI and data analytics have the potential to revolutionize banking for SMEs by enabling banks and financial institutions to better understand their needs, assess their creditworthiness, and offer tailored financial products and services. By leveraging these technologies, banks can empower SMEs, stimulate economic activity, and contribute to sustainable development.

2   Understanding Financial Inclusion for SMEs

Small and Medium Enterprises (SMEs) are the backbone of many economies around the world, contributing significantly to employment generation, innovation, and economic growth (Abdul, et. al., 2024, Edu, et. al., 2022, Udeh, et. al., 2024). However, SMEs often face challenges in accessing financial services, which can hinder their growth and sustainability. Understanding the concept of financial inclusion for SMEs is crucial for addressing these challenges and unlocking the potential of SMEs to drive economic development.

One of the primary challenges faced by SMEs in accessing financial services is limited access to credit. Many SMEs lack the collateral or credit history required to qualify for traditional bank loans, making it difficult for them to secure financing for their business operations. Additionally, SMEs often face high interest rates and stringent repayment terms, further limiting their ability to access credit.

Another challenge is the lack of financial literacy among SMEs. Many SME owners lack the knowledge and skills needed to effectively manage their finances, understand financial products and services, and make informed decisions about their business operations (Calvin, et. al., 2024, Joel & Oguanobi, 2024). This lack of financial literacy can hinder SMEs' ability to access and use financial services effectively. Moreover, SMEs often face challenges in accessing other financial services, such as insurance, savings, and payment services. Limited access to these services can expose SMEs to financial risks, reduce their ability to manage cash flow effectively, and hinder their overall financial stability.

Financial inclusion for SMEs can bring about a wide range of benefits for both the SMEs themselves and the economy as a whole. One of the key benefits is improved access to credit, which can enable SMEs to invest in new equipment, expand their operations, and create jobs (Joel & Oguanobi, 2024, Maha, Kolawole & Abdul, 2024). Access to credit can also help SMEs manage their cash flow, mitigate financial risks, and improve their overall financial management practices. Moreover, financial inclusion can enhance SMEs' ability to access other financial services, such as insurance, savings, and payment services. These services can help SMEs protect themselves against financial shocks, save for future investments, and improve their overall financial well-being.

Financial inclusion for SMEs can also have broader macroeconomic benefits. By enabling SMEs to grow and expand, financial inclusion can stimulate economic growth, create employment opportunities, and reduce poverty (Anjorin, Raji & Olodo, 2024, Mustapha, Ojeleye & Afolabi, 2024). Moreover, SMEs are often more innovative and agile than larger corporations, making them important drivers of innovation and economic diversification. In conclusion, financial

inclusion for SMEs is essential for unlocking their potential to drive economic development and create sustainable growth. By addressing the challenges faced by SMEs in accessing financial services and promoting financial literacy among SME owners, policymakers, and financial institutions can help SMEs thrive and contribute to the overall prosperity of the economy.

Financial inclusion for Small and Medium Enterprises (SMEs) is a crucial aspect of economic development, as it enables these businesses to access the financial services they need to grow and succeed. However, many SMEs face significant challenges in accessing financial services, which can hinder their ability to thrive (Adegbola, et. al., 2024, Nature, 2023, Uzougbo, Ikegwu & Adewusi, 2024). Understanding the concept of financial inclusion for SMEs and the challenges they face is essential for developing strategies to promote their financial inclusion and unlock their potential for driving economic growth. One of the main challenges faced by SMEs in accessing financial services is the lack of collateral. Many SMEs, especially those in the early stages of development, do not have the assets to provide as collateral for loans. This makes it difficult for them to secure financing from traditional lenders, who often require collateral to mitigate the risk of default.

Another challenge is the lack of access to financial institutions. In many rural and underserved areas, SMEs may not have easy access to banks or other financial institutions, making it challenging for them to access the financial services they need (Elufioye, et. al., 2024, Nembe, 2022). This lack of access can limit their ability to grow and expand their businesses. Additionally, SMEs often face high transaction costs and interest rates when accessing financial services. This can make it cost-prohibitive for SMEs to borrow money or engage in other financial transactions, limiting their ability to invest in their businesses and expand their operations.

Financial inclusion for SMEs can bring about a wide range of benefits for both the SMEs themselves and the economy as a whole. One of the key benefits is improved access to credit, which can enable SMEs to invest in new equipment, expand their operations, and create jobs (Abdul, et. al., 2024, Nnaji, et. al., 2024). Access to credit can also help SMEs manage their cash flow, mitigate financial risks, and improve their overall financial management practices. Moreover, financial inclusion can enhance SMEs' ability to access other financial services, such as insurance, savings, and payment services. These services can help SMEs protect themselves against financial shocks, save for future investments, and improve their overall financial well-being.

Financial inclusion for SMEs can also have broader macroeconomic benefits. By enabling SMEs to grow and expand, financial inclusion can stimulate economic growth, create employment opportunities, and reduce poverty (Maha, Kolawole & Abdul, 2024, Uzougbo, Ikegwu & Adewusi, 2024). Moreover, SMEs are often more innovative and agile than larger corporations, making them important drivers of innovation and economic diversification. In conclusion, financial inclusion for SMEs is essential for unlocking their potential to drive economic development and create sustainable growth. By addressing the challenges faced by SMEs in accessing financial services and promoting financial literacy among SME owners, policymakers, and financial institutions can help SMEs thrive and contribute to the overall prosperity of the economy.

3   Leveraging AI for Improved Risk Assessment and Credit Scoring

In the financial sector, risk assessment and credit scoring are critical processes that help lenders evaluate the creditworthiness of individuals and businesses. Traditionally, these processes have relied on manual analysis and standardized criteria, which can be time-consuming and may not always capture the full picture of an applicant's creditworthiness (Adelakun, 2023, Asuzu, 2024, WebHorse Marketing, 2024). However, with the advent of artificial intelligence (AI) and machine learning (ML), financial institutions can now leverage advanced analytics to improve risk assessment and credit scoring processes. This article explores how AI can be used to analyze diverse data sources for accurate risk assessment and apply machine learning algorithms for predictive credit scoring.

One of the key advantages of AI in risk assessment is its ability to analyze diverse data sources to provide a more holistic view of an applicant's creditworthiness. Traditional credit scoring models typically rely on limited data, such as credit history and income levels (Joel & Oguanobi, 2024, Nembe, et. al., 2024). However, AI can analyze a wide range of data sources, including transaction history, social media activity, and even biometric data, to assess an applicant's credit risk. For example, AI can analyze a business's transaction history to identify patterns and trends that may indicate financial stability or instability. By analyzing these data points, AI can provide lenders with a more accurate assessment of the business's creditworthiness, enabling them to make more informed lending decisions.

Moreover, AI can analyze non-traditional data sources, such as social media activity and online reviews, to assess an applicant's reputation and reliability. This can be particularly useful for lenders evaluating small businesses or

individuals with limited credit history, as it provides additional insights into their financial behavior and credibility (Anjorin, Raji & Olodo, 2024, Uzougbo, Ikegwu & Adewusi, 2024). Machine learning algorithms play a crucial role in predictive credit scoring, as they can analyze large datasets to identify patterns and trends that may not be apparent to human analysts. These algorithms can learn from past data to predict future creditworthiness, enabling lenders to assess risk more accurately.

One of the key advantages of machine learning algorithms is their ability to adapt to changing circumstances and new data. Unlike traditional credit scoring models, which are based on static criteria, machine learning algorithms can continuously learn and improve their predictions over time (Adegbola, et. al., 2024, Udeh, et. al., 2024). This allows lenders to incorporate new data and insights into their credit scoring models, leading to more accurate and reliable assessments. Moreover, machine learning algorithms can identify complex relationships and interactions within the data, which may not be captured by traditional scoring models. This can help lenders identify high-risk applicants who may have been overlooked by traditional methods, enabling them to mitigate their risk exposure and make more informed lending decisions.

Leveraging AI for improved risk assessment and credit scoring offers significant benefits for lenders and borrowers alike. By analyzing diverse data sources and applying machine learning algorithms, financial institutions can assess credit risk more accurately, leading to better lending decisions and improved access to credit for individuals and businesses (Atadoga, et. al., 2024, Nnaji, et. al., 2024). In recent years, the financial industry has witnessed a significant shift towards leveraging artificial intelligence (AI) and machine learning (ML) for risk assessment and credit scoring. These technologies offer more accurate and efficient ways to evaluate creditworthiness, enabling lenders to make better-informed decisions and reduce the risk of default. Here, we delve deeper into how AI is transforming risk assessment and credit scoring processes.

AI algorithms can analyze a wide range of data sources to assess an applicant's credit risk. This includes traditional data such as credit history and income, as well as non-traditional data like social media activity, online shopping behavior, and even smartphone usage patterns (Abdul, et. al., 2024, Joel & Oguanobi, 2024). By analyzing these diverse data sources, AI can create a more comprehensive profile of an applicant, providing a more accurate assessment of their creditworthiness. For example, AI can analyze an applicant's social media activity to identify signs of financial stability or instability. It can also analyze transaction data to detect patterns that indicate creditworthiness, such as regular bill payments and responsible spending habits. By analyzing these data sources, AI can provide lenders with a more nuanced understanding of an applicant's financial situation, enabling them to make more informed lending decisions.

Machine learning algorithms play a crucial role in predictive credit scoring, as they can analyze large datasets to identify patterns and trends that may not be apparent to human analysts. These algorithms can learn from past data to predict future creditworthiness, enabling lenders to assess risk more accurately (Anjorin, et. al., 2024, Olaboye, et. al., 2024). One of the key advantages of machine learning algorithms is their ability to adapt to changing circumstances and new data. Unlike traditional credit scoring models, which are based on static criteria, machine learning algorithms can continuously learn and improve their predictions over time. This allows lenders to incorporate new data and insights into their credit scoring models, leading to more accurate and reliable assessments.

Moreover, machine learning algorithms can identify complex relationships and interactions within the data, which may not be captured by traditional scoring models. This can help lenders identify high-risk applicants who may have been overlooked by traditional methods, enabling them to mitigate their risk exposure and make more informed lending decisions (Adegbola, et. al., 2024, Uzougbo, Ikegwu & Adewusi, 2024). The use of AI in risk assessment and credit scoring offers several benefits for both lenders and borrowers. For lenders, AI can help improve decision-making accuracy, reduce the risk of defaults, and streamline the lending process. By using AI, lenders can also reduce the time and resources required for manual underwriting, leading to cost savings and increased efficiency.

For borrowers, AI can help improve access to credit, especially for those with limited credit histories or unconventional financial profiles. By analyzing a broader range of data sources, AI can provide a more inclusive assessment of creditworthiness, enabling more individuals and businesses to qualify for loans (Onyekwelu, et. al., 2024, Scott, Amajuoyi & Adeusi, 2024). In conclusion, AI is revolutionizing risk assessment and credit scoring in the financial industry. By analyzing diverse data sources and applying machine learning algorithms, lenders can assess credit risk more accurately and efficiently, leading to better lending decisions and improved access to credit for individuals and businesses.

4   Customized Financial Products and Services

Small and Medium Enterprises (SMEs) are the backbone of many economies, driving innovation, creating jobs, and contributing to economic growth. However, SMEs often face challenges in accessing financial products and services that meet their unique needs (Joel & Oguanobi, 2024, Enahoro, et. al., 2024, Nnaji, et. al., 2024). Customized financial products and services tailored to SMEs can help address these challenges and support their growth and development. This article explores how financial institutions can customize their offerings for SMEs, including tailoring loan terms and interest rates and developing AI-driven financial products.

One way financial institutions can customize their offerings for SMEs is by tailoring loan terms and interest rates to match their specific needs. Unlike larger corporations, SMEs often have fluctuating cash flows and may require more flexible repayment terms (Abdul, et. al., 2024, Maha, Kolawole & Abdul, 2024). By offering loans with flexible repayment schedules, financial institutions can help SMEs manage their cash flow more effectively and reduce the risk of default. Additionally, financial institutions can customize interest rates based on the risk profile of the SME. For example, financial institutions can offer lower interest rates to SMEs with a strong credit history or a track record of successful business operations. This not only makes financing more affordable for SMEs but also incentivizes them to maintain good financial management practices.

Another way financial institutions can customize their offerings for SMEs is by developing AI-driven financial products. AI can help financial institutions analyze data more effectively and identify patterns and trends that may not be apparent to human analysts (Anjorin, et. al., 2024, Nembe, et. al., 2024). This can enable financial institutions to develop more tailored financial products and services for SMEs. For example, financial institutions can use AI to develop predictive models that assess the creditworthiness of SMEs based on a wide range of data sources, including transaction history, social media activity, and industry trends. This can help financial institutions make more accurate lending decisions and offer loans with more competitive terms and interest rates.

Moreover, AI can help financial institutions develop personalized financial management tools for SMEs. For example, AI-powered budgeting tools can help SMEs track their expenses, manage their cash flow, and identify areas for cost savings (Ewim, 2023, Joel & Oguanobi, 2024). This can help SMEs improve their financial management practices and achieve their business goals more effectively. Customized financial products and services offer several benefits for SMEs. By tailoring loan terms and interest rates to match their needs, financial institutions can help SMEs manage their cash flow more effectively and reduce the risk of default. This can enable SMEs to invest in their growth and expansion, create jobs, and contribute to economic development.

Moreover, AI-driven financial products can help SMEs access financing more easily and affordably. By analyzing a wide range of data sources, AI can provide financial institutions with a more comprehensive understanding of an SME's creditworthiness, enabling them to make more informed lending decisions (Adewumi, et. al., 2024, Udeh, et. al., 2024). This can help SMEs access the financing they need to thrive and grow their businesses. In conclusion, customized financial products and services tailored to SMEs can help address their unique needs and support their growth and development. By tailoring loan terms and interest rates and developing AI-driven financial products, financial institutions can help SMEs access the financing and support they need to succeed.

Small and Medium Enterprises (SMEs) are an essential driver of economic growth and job creation globally. However, SMEs often face challenges in accessing financial products and services that meet their specific needs (Adelakun, 2023, Joel & Oguanobi, 2024). To address these challenges, financial institutions are increasingly offering customized financial products and services tailored to the unique requirements of SMEs. This article explores the importance of customized financial products and services for SMEs and how financial institutions can develop and deliver these offerings effectively.

Customized financial products and services are crucial for SMEs as they enable these businesses to access the financing they need to grow and thrive. Unlike larger corporations, SMEs often have limited access to capital and may require more flexible financing options to support their business operations (Atadoga, et. al., 2024, Okoduwa, et. al., 2024). Customized financial products and services can help SMEs address these challenges by providing tailored solutions that meet their specific needs. Moreover, customized financial products and services can help SMEs manage their cash flow more effectively. By offering flexible repayment terms and lower interest rates, financial institutions can help SMEs avoid cash flow crunches and reduce the risk of default. This can enable SMEs to invest in their growth and expansion, create jobs, and contribute to economic development. To develop customized financial products and services for SMEs, financial institutions need to understand the unique challenges and opportunities facing these businesses. This requires a deep understanding of the SME market, including the specific needs of different industries and business sizes.

Financial institutions can leverage data analytics and AI technologies to develop customized financial products and services for SMEs. By analyzing data on SMEs' financial performance, industry trends, and market conditions, financial institutions can identify opportunities to tailor their offerings to meet the specific needs of SMEs (Ayinla, et. al., 2024, Nnaji, et. al., 2024). For example, financial institutions can develop specialized loan products for SMEs in high-growth industries, such as technology or healthcare. These products can offer competitive interest rates and flexible repayment terms to help SMEs finance their growth and expansion.

Customized financial products and services offer several benefits for SMEs. By providing tailored solutions that meet their specific needs, financial institutions can help SMEs access the financing they need to grow and thrive. This can enable SMEs to invest in new equipment, expand their operations, and create jobs, driving economic growth and development (Maha, Kolawole & Abdul, 2024, Udeh, et. al., 2024). Moreover, customized financial products and services can help SMEs manage their cash flow more effectively. By offering flexible repayment terms and lower interest rates, financial institutions can help SMEs avoid cash flow crunches and reduce the risk of default. This can enable SMEs to navigate economic downturns and other challenges more effectively, ensuring their long-term success and sustainability. In conclusion, customized financial products and services are essential for supporting the growth and development of SMEs. By developing tailored solutions that meet the specific needs of SMEs, financial institutions can help these businesses access the financing they need to succeed.

5   Enhancing Customer Service and Support

In the financial industry, providing excellent customer service and support is crucial for building trust and loyalty with clients. As technology continues to advance, financial institutions are leveraging automation and artificial intelligence (AI) to enhance their customer service and support capabilities (Joel & Oguanobi, 2024, Nembe, et. al., 2024). This article explores how automated processes and AI-powered chatbots are being used to improve customer service in the financial sector.

Automation is revolutionizing customer service in the financial industry by streamlining processes and improving efficiency. Automated processes can help financial institutions handle a large volume of customer inquiries quickly and accurately, reducing wait times and improving overall customer satisfaction. One example of automated processes in customer service is the use of automated phone systems and chatbots (Finkler, Calabrese & Smith, 2022, Ikegwu, 2018). These systems can handle basic customer inquiries, such as account balances, transaction history, and payment processing, without the need for human intervention. This allows customer service representatives to focus on more complex issues, improving the overall efficiency of the customer service department.

Moreover, automation can also be used to personalize the customer experience. For example, automated systems can use customer data to offer personalized product recommendations or promotions, enhancing the overall customer experience and increasing customer loyalty (Barghouthi, Khalili & Qassas, 2018, Harvard Business Review, 2020). AI-powered chatbots are another innovative technology that is transforming customer service in the financial industry. These chatbots use natural language processing (NLP) and machine learning algorithms to understand and respond to customer inquiries in real-time.

One of the key advantages of AI-powered chatbots is their ability to provide personalized financial advice. By analyzing customer data, including transaction history, spending patterns, and financial goals, chatbots can offer tailored recommendations and advice that meet the specific needs of each customer (Benjamin, Amajuoyi & Adeusi, 2024, Uzougbo, Ikegwu & Adewusi, 2024). For example, a chatbot could analyze a customer's spending habits and recommend a budgeting plan to help them save more effectively. It could also provide investment advice based on the customer's financial goals and risk tolerance, helping them make informed decisions about their finances.

Enhancing customer service and support with automation and AI-powered chatbots offers several benefits for financial institutions and their customers. For financial institutions, these technologies can help reduce costs, improve efficiency, and increase customer satisfaction (Ikegwu, 2017, Jeff Bullas, 2024). By automating routine tasks and offering personalized service, financial institutions can build stronger relationships with their customers and differentiate themselves from competitors. For customers, enhanced customer service and support can provide a more convenient and personalized experience. Automated processes and AI-powered chatbots can provide quick and accurate responses to inquiries, reducing wait times and improving overall satisfaction. Additionally, personalized financial advice can help customers make better financial decisions and achieve their financial goals more effectively.

Enhancing customer service and support with automation and AI-powered chatbots is essential for financial institutions looking to improve efficiency, reduce costs, and increase customer satisfaction (Nembe, 2014, Oguanobi & Joel, 2024).

By leveraging these technologies, financial institutions can provide a more personalized and efficient customer experience, leading to increased loyalty and long-term success. In today's competitive business environment, providing exceptional customer service and support is paramount for financial institutions looking to differentiate themselves and retain customers. With the rapid advancement of technology, financial institutions are increasingly turning to innovative solutions to enhance their customer service and support capabilities. This article explores additional strategies and technologies that financial institutions can leverage to further enhance their customer service and support.

One of the key ways financial institutions can enhance customer service is by leveraging data analytics to personalize the customer experience. By analyzing customer data, such as transaction history, spending patterns, and communication preferences, financial institutions can gain valuable insights into individual customer needs and preferences (Nnaji, et. al., 2024, Udeh, et. al., 2024). This allows them to tailor their services and communications to better meet the needs of each customer. For example, financial institutions can use data analytics to identify customers who may be interested in a particular product or service and proactively offer them relevant information or promotions. They can also use data analytics to track customer interactions across different channels, such as email, phone, and chat, to provide a seamless and personalized experience.

Another strategy for enhancing customer service is to offer omni-channel support, allowing customers to interact with the institution through their preferred channels. This means providing support through multiple channels, such as phone, email, chat, and social media, and ensuring that the customer experience is consistent across all channels (Oguanobi & Joel, 2024, Scott, Amajuoyi & Adeusi, 2024). Omni-channel support can help financial institutions provide more efficient and convenient customer service, as customers can choose the channel that best suits their needs. For example, a customer may prefer to communicate through chat for quick inquiries but may prefer to speak with a representative over the phone for more complex issues. By offering multiple channels, financial institutions can cater to these preferences and provide a more personalized customer experience.

Financial institutions can also enhance customer service by proactively engaging with customers to offer assistance or information. For example, financial institutions can use automated systems to send personalized messages to customers based on their transaction history or account activity (Olaboye, et. al., 2024, Prügl & True, 2014, Studies, 2020). These messages can include information about new products or services, tips for managing finances, or reminders about upcoming payments. Proactive customer engagement can help financial institutions build stronger relationships with customers and increase customer loyalty. By anticipating customer needs and providing relevant information or assistance, financial institutions can demonstrate their commitment to customer service and support.

Enhancing customer service and support offers several benefits for financial institutions, including increased customer satisfaction, improved customer loyalty, and higher retention rates (Akpuokwe, Chikwe & Eneh, 2024, Andriamahery & Qamruzzaman, 2022). By providing personalized service, offering omni-channel support, and proactively engaging with customers, financial institutions can differentiate themselves from competitors and build stronger relationships with customers. For customers, enhanced customer service and support can provide a more convenient and personalized experience. Customers can interact with the institution through their preferred channels, receive personalized assistance, and have their needs anticipated and addressed proactively. This can lead to increased satisfaction and loyalty, as customers feel valued and supported by the institution. In conclusion, enhancing customer service and support is essential for financial institutions looking to maintain a competitive edge in today's market. By leveraging technology and innovative strategies, financial institutions can provide a more personalized and efficient customer experience, leading to increased satisfaction, loyalty, and retention.

6   Fraud Detection and Prevention

Fraud is a significant concern for businesses of all sizes, especially for Small and Medium Enterprises (SMEs) that may lack the resources to recover from financial losses. To combat fraud, SMEs are increasingly turning to advanced technologies such as data analytics and secure transaction systems (Nnaji, et. al., 2024, Udeh, et. al., 2024). This article explores how SMEs can leverage these technologies to enhance fraud detection and prevention. Data analytics plays a crucial role in fraud detection by enabling businesses to analyze vast amounts of data to identify patterns and anomalies that may indicate fraudulent activity. For SMEs, data analytics can help detect fraud in real-time, allowing them to take immediate action to prevent financial losses.

One way SMEs can use data analytics for fraud detection is by monitoring transaction data for unusual patterns. For example, data analytics can flag transactions that are significantly different from a customer's typical spending behavior, such as large transactions or transactions in unusual locations (Barghouthi, Khalili & Qassas, 2018, Harvard Business

Review, 2020). Moreover, data analytics can also be used to detect fraudulent applications for credit or loans. By analyzing applicant data against known fraud patterns, SMEs can identify and reject fraudulent applications before they result in financial losses.

Another important aspect of fraud prevention for SMEs is ensuring the security of transactions. This includes implementing secure payment systems, such as tokenization and encryption, to protect sensitive customer information from unauthorized access (Akpuokwe, Chikwe & Eneh, 2024, Andriamahery & Qamruzzaman, 2022). Tokenization replaces sensitive payment information, such as credit card numbers, with a unique token that is meaningless outside of the specific transaction context. This helps prevent fraudsters from accessing and using sensitive information even if they gain unauthorized access to a payment system. Encryption is another critical security measure that SMEs can use to protect transaction data. Encryption scrambles data so that it can only be read by authorized parties with the decryption key, making it virtually impossible for fraudsters to intercept and misuse transaction data.

Enhancing fraud detection and prevention offers several benefits for SMEs, including protecting against financial losses, maintaining customer trust, and avoiding regulatory penalties. By leveraging data analytics and secure transaction systems, SMEs can detect and prevent fraud in real-time, reducing the risk of financial losses and reputational damage (Graña-Alvarez, et. al., 2024, Tuffour, Amoako & Amartey, 2022). Moreover, implementing robust fraud detection and prevention measures can help SMEs build trust with customers. Customers are more likely to do business with companies that demonstrate a commitment to protecting their sensitive information and preventing fraud. In conclusion, fraud detection and prevention are critical for SMEs looking to protect their businesses from financial losses and maintain customer trust. By leveraging technologies such as data analytics and secure transaction systems, SMEs can enhance their fraud detection and prevention capabilities, reducing the risk of fraud and ensuring the security of transactions.

7   Financial Literacy and Education Programs

Financial literacy is essential for the success of Small and Medium Enterprises (SMEs), as it enables them to make informed financial decisions and manage their finances effectively (Hussain, Salia & Karim, 2018, Yakob, et. al., 2021). To improve financial literacy among SMEs, organizations and governments are implementing programs that empower SMEs with knowledge and tools for financial decision-making. This article explores how such programs are designed and their impact on SMEs. Effective financial literacy programs for SMEs are designed to be accessible, relevant, and practical. These programs often focus on key financial concepts such as budgeting, cash flow management, financial planning, and access to financing.

One approach to designing financial literacy programs for SMEs is to tailor the content to the specific needs and challenges faced by SMEs in different industries and stages of growth. For example, a program for early-stage startups may focus on basic financial concepts and access to seed funding, while a program for established SMEs may focus on financial planning and growth strategies (Nembe, 2014, Oguanobi & Joel, 2024). Moreover, financial literacy programs for SMEs should be delivered through diverse and engaging formats, such as workshops, webinars, online courses, and mentoring sessions. This ensures that SMEs can access the information in a way that suits their learning preferences and schedules.

Financial literacy programs for SMEs aim to empower entrepreneurs with the knowledge and tools they need to make informed financial decisions (Akpuokwe, Chikwe & Eneh, 2024, Andriamahery & Qamruzzaman, 2022). These programs often provide practical guidance on managing finances, accessing financing, and planning for growth. One key aspect of empowering SMEs with financial knowledge is helping them understand the importance of financial planning and budgeting. By teaching SMEs how to create and manage budgets, financial literacy programs can help them control costs, manage cash flow, and make strategic financial decisions.

Moreover, financial literacy programs can also provide SMEs with information on how to access financing options such as loans, grants, and venture capital. By understanding the various financing options available to them, SMEs can make informed decisions about how to fund their growth and expansion (Barghouthi, Khalili & Qassas, 2018, Harvard Business Review, 2020). Financial literacy and education programs offer several benefits for SMEs, including improved financial management, increased access to financing, and enhanced business growth. By empowering SMEs with financial knowledge and tools, these programs can help them make informed decisions that drive business success.

Moreover, financial literacy programs can also help SMEs build confidence in their financial abilities, leading to better relationships with lenders, investors, and other stakeholders. This can ultimately help SMEs attract the financing and support they need to grow and succeed (Graña-Alvarez, et. al., 2024, Tuffour, Amoako & Amartey, 2022). In conclusion,

financial literacy and education programs play a crucial role in improving the financial management capabilities of SMEs. By designing programs that are accessible and relevant to SMEs' needs, and by empowering them with knowledge and tools for financial decision-making, these programs can help SMEs achieve their financial goals and drive business growth.

8   Conclusion

In conclusion, promoting financial inclusion for Small and Medium Enterprises (SMEs) through the use of AI and data analytics in the banking sector is essential for driving economic growth and development. AI and data analytics play a crucial role in providing SMEs with access to financial services and empowering them with the tools and knowledge they need to succeed.

AI and data analytics enable financial institutions to offer personalized financial products and services tailored to the unique needs of SMEs. By analyzing vast amounts of data, AI algorithms can identify patterns and trends that help financial institutions better understand the financial behavior and needs of SMEs. This allows financial institutions to develop innovative solutions that address the specific challenges faced by SMEs, such as access to credit and financial management. Moreover, AI and data analytics can also help financial institutions improve their risk assessment and credit scoring processes, making it easier for SMEs to access financing. By using AI-driven models to assess creditworthiness, financial institutions can make more accurate lending decisions, increasing the likelihood that SMEs will be approved for loans.

The future of AI-driven financial services for SMEs looks promising, with continued advancements in technology expected to further enhance financial inclusion. As AI and data analytics technologies continue to evolve, financial institutions will be able to offer even more personalized and efficient financial products and services to SMEs. One area of future growth is the use of AI-powered chatbots and virtual assistants to provide SMEs with real-time financial advice and support. These AI-driven solutions can help SMEs manage their finances more effectively, providing them with personalized insights and recommendations that help them make informed decisions.

Moreover, AI and data analytics will also play a crucial role in improving access to financing for SMEs in underserved markets. By analyzing data from non-traditional sources, such as mobile phone usage and social media activity, financial institutions can gain a better understanding of the creditworthiness of SMEs in these markets, making it easier for them to access financing. In conclusion, AI and data analytics are powerful tools for promoting financial inclusion for SMEs. By leveraging these technologies, financial institutions can provide SMEs with access to the financial services they need to grow and succeed, driving economic growth and development in the process.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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