

Fintech and Business Transformation of SME's: Systematic Review of Trends and Impacts

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ABSTRACT

This article presents a systematic review of the role of fintech in business transformation in Small and Medium Enterprises (SMEs). By analyzing fintech trends and impacts, this article aims to understand how financial technology can help SMEs improve operational efficiency, improve financial accessibility, and strengthen their market position. The article also identifies areas of research that still need to be developed and makes recommendations for the development of policies and business practices. The results of this study show that fintech has great potential to improve SME business performance, but it also requires a better understanding of the potential and challenges associated with the adoption of this technology.

INTRODUCTION

Currently, technology is developing very rapidly in all walks of life, one of which is the development of technology in the financial sector (fintech). This technology has become an important catalyst in driving business transformation in various sectors, including Small and Medium Enterprises (SMEs). By offering innovative and flexible financial solutions, fintech has opened up new opportunities for SMEs to improve operational efficiency, improve financial accessibility, and strengthen their market position (Buckley et al., 2023). The development of fintech has brought significant changes in the business landscape, especially for SMEs who continue to struggle to improve competitiveness and operational efficiency. By leveraging fintech technology, SMEs can gain access to easier, faster, and more effective financial solutions, thus enabling them to improve business performance and expand market reach (Gomber et al., 2018). In Indonesia, fintech growth is happening very rapidly. Fintech has been known in Indonesia since 2006 and for almost the last twenty years, it has been recorded that 24% of transactions are in the range of less than 500 million, 20% of transactions range from 500 million to 3 billion, 11% of transactions range from 3-10 billion, 6% transactions range from 10-35 billion, 6% transactions range from 35-80 billion, and 30% transactions are above 80 billion (Adji et al., 2023). With the rapid development of almost two decades, the Indonesian government has provided full support for the growth of fintech in this country, including the establishment of the Indonesian Fintech Association (AFTECH) and the implementation of the National Fintech Month (BFN).

The adoption of technology in the financial sector (Fintech) in SMEs can have an impact in the form of improving business performance if it can be managed correctly. The existence of Fintech is able to increase financial accessibility such as loans and digital payments. The application of Fintech is also able to simplify the financial transaction process through non-cash payments (QRIS) so that time, energy and resource efficiency can be done so that they, SME owners, are able to compete in the global market (Haddad & Hornuf, 2019). In the world of commerce, the presence of Fintech provides an opportunity to earn more money than the results of supply chain efficiency and transaction flexibility. Thus, fintech offers innovative financial solutions and opens up opportunities for SMEs to gain financial accessibility thereby strengthening their trading position (Kumari, 2025). However, this great potential does not mean that it is free from challenges and obstacles in the implementation process. SMEs face the emergence of limited technology infrastructure, lack of financial digital literacy, and increased data security risks. With this in mind, it is important that SME owners carefully study this technology in the financial sector (Fintech) in order to be able to minimize the financial risks faced (Guild, 2017).

The heterogeneity of the adoption of Fintech has resulted in an erosion of public trust in Fintech. On the other hand, the generic function of banks as capital lending institutions is still an extraordinary challenge for Fintech outside of banking to be able to win the hearts of the public (Yang, 2021). The adoption of technology in the financial sector allows fintech users to experience psychological biases that have an impact on trust in using technology in this financial field. For

those who are financially aware and have good financial literacy skills, they tend to be more adaptive to this technology, whereas those who are laymen still feel reluctant to use this technology as part of their daily lives (Aftab et al., 2025).

In its application and application, Fintech requires assistance to maintain trust, security, and the interests of all parties. The government has issued a number of regulations that provide limits, supervise and control how the adoption of this technology can be used properly by stakeholders without certain parties being harmed (B. Rahardjo, Budi; Khairul, 2019). In the broader realm, the application of fintech is one of the important topics at the G20 member countries' meeting, especially related to financial inclusion, digital economy growth and post-pandemic economic recovery. The G20 seeks to leverage digital technology to improve access to financial services and accelerate global economic recovery.

This study has the main objectives, namely (1) Mapping literature trends on financial strategies for SME digital inclusion in G20 emerging countries using bibliometric analysis. (2) Identify key topic clusters (e.g., fintech, government policies, infrastructure gaps) and patterns of researcher collaboration. (3) Provide evidence-based policy recommendations to accelerate the digital inclusion of SMEs. Financial Technology (fintech) is the result of integration between the financial sector and digital technology that aims to improve efficiency, inclusivity, and quality of financial services (Buckley et al., 2023; Lee et al., 2024). According to the Financial Services Authority (OJK), fintech includes innovations in the financial system that create new business models through the digitization of products and services (Adji et al., 2023). The development of fintech is driven by internet penetration, smartphone adoption, and the increasing need for fast, easy, and flexible financial services (Schueffel, 2016). In a global context, (Galvin et al., 2018) shows that the fintech sector has grown rapidly in the last decade, especially in developing countries that have low levels of financial literacy and high unbanked populations. Fintech is a combination of elements of information technology and financial services to facilitate access to information and services in order to achieve efficiency and transparency for individuals, businesses, and financial institutions (Buckley et al., 2023). The following is a table that underlies the development of Financial Technology.

Table 1. The Development of Financial Technology

Grand theory	Key Focus	Usability in Fintech Studies
Diffusion of Innovation	Spread of innovation	Explain the usefulness of fintech adoption in society and financial institutions
Technology Acceptable Model (TAM)	User perception of technology	Analyze fintech acceptance factors by users
Resources Based View	Internal resources as a competitive advantage	Analyze fintech as a strategic resource for businesses

Institutional Theory	Influence of external guesses and regulation	Explain the influence of regulations and norms on fintech adoption
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Fintech covers various financial sectors driven by digital technology, including payments, loans, insurance, investments, to risk management and regulation. This development provides great benefits including MSMEs and communities in remote areas (B. Rahardjo, Budi; Khairul, 2019). These types of services include (1) digital payment, (2) Peer to Peer Lending/ Crowdlending, (3) Crowdfunding, (4) Insurtech, (5) Robo-advisory and welthtech, (6) Digital banking/Neobank, (7) Blockchain and Cryptocurrency, (8) RegTech (Regulatory Technology), (9) Payment Gateway (Bartoli et al., 2025; Nigmonov et al., 2024; Sethi et al., 2025).

Small and Medium Enterprises (SMEs) are the backbone of the economy in many countries, including Indonesia. However, SMEs often face limited access to formal financing, low digital literacy, and limited human and technological resources (Tambunan, 2019). Digital transformation in the SME sector is important to increase competitiveness and business continuity. In this context, fintech is present as a strategic solution to overcome the conventional obstacles faced by SMEs, especially in terms of capital, payments, and marketing.

LITERATURE REVIEW

Fintech Relationship and SME Business Transformation

Various studies have examined the role of fintech in accelerating SME business transformation. Fintech provides alternative funding solutions through peer-to-peer lending, crowdfunding, and invoice financing models that are more flexible than traditional banks (Zavolokina et al., 2016). In addition, digital payment services and e-wallets facilitate buying and selling transactions, improve operational efficiency, and expand market access through e-commerce platforms. According to a World Bank report (2021), SMEs that use fintech services tend to experience increased productivity, financial transparency, and turnover growth. A study by Chen & Wu (2020) also shows that fintech adoption is significantly positively correlated with business model innovation in SMEs.

Global and Regional Trends in Fintech for SMEs

Global trends show that fintech services are increasingly diversified, including robo-advisory, insurtech, regtech, and digital banking. In the Southeast Asian region, especially in Indonesia, there has been a surge in digital wallet users and application-based loans since the COVID-19 pandemic (AFTECH, 2022). In G20 member countries, such as India and Brazil, governments are actively promoting fintech integration with SMEs through incentive policies, adaptive regulations, and digital infrastructure development (OECD, 2021). On the other hand, challenges in the form of data security, consumer protection, and digital literacy are still the main obstacles for SMEs in optimizing the use of fintech.

The Impact of Fintech on SME Performance and Competitiveness

The impact of the use of fintech on SMEs can be seen from several main indicators:

1. Increased access to finance: Fintech opens up funding opportunities for unbankable SMEs.
2. Operational efficiency: Digital services reduce costs and time in the transaction and recording process.
3. Business model transformation: Fintech encourages SMEs to adapt to a digital platform-based sales system.

However, not all SMEs can experience these benefits equally. The study by Zhang et al. (2022) highlights the inequality of access between SMEs in urban and rural areas, as well as the importance of the government's role in providing digital education and training.

METHODOLOGY

This study uses a bibliometric approach to systematically analyze the development of the literature related to the role of fintech in SME business transformation. Key data were obtained from the Scopus database with a publication time range between 2015 to 2024, which includes journal articles and relevant conference proceedings. The selection of Scopus as the data source is based on its reputation as one of the largest and most trusted scientific literature indexes, which ensures the quality and completeness of the data analyzed. The research process began with data collection using strategic keywords: fintech, SME transformation, digital finance, financial inclusion, and emerging markets. These keywords were chosen to comprehensively capture a variety of topics related to fintech and SMEs. The initial search results resulted in 1,248 documents that were then filtered through the inclusion criteria based on title-abstract relevance, resulting in 482 final documents to be analyzed.

Furthermore, the collected data is processed using the VOSviewer software, which allows visualization of the network of relationships between concepts, authors, and institutions. This tool is used to perform a co-occurrence analysis to identify key topic clusters and patterns of inter-concept relationships in the literature. The bibliometric analysis in this study covers three main aspects: Keyword Network Mapping, through co-occurrence analysis, the research identifies interrelated topic groups: financial technology, SME's growth, digital payment, and regulatory challenges. Analysis of Researcher and Institutional Collaboration, VOSviewer is also used to map collaboration between authors and institutions in various countries. This helps identify key research centers as well as the degree of global linkage in fintech and SME studies. Temporal Trends of Research Development, by dividing data by year of publication, this study reveals the evolution of research topics over time, related: before 2020, the main focus was on peer-to-peer lending and digital payments, while post-2020, new topics such as AI in fintech and financial sustainability emerged.

RESEARCH RESULT AND DISCUSSION

This research reveals that fintech developments have had a significant impact on SME business transformation, especially in the last decade. Bibliometric analysis shows a 320% increase in publications on this topic since 2015, with the highest spike occurring in the 2022-2023 period. This phenomenon is inseparable from the acceleration of SME digitalization during the COVID-19 pandemic, which forced business actors to switch to digital financial solutions. This finding is in line with a World Bank report (2021) which states that the crisis is actually a catalyst for fintech adoption among SMEs. Four main clusters were identified in the conceptual map of the study. The first cluster is related to access to digital finance, where services such as peer-to-peer lending and crowdfunding play an important role in increasing the financial inclusion of SMEs. These results support the Diffusion of Innovation theory which states that technology will be adopted when it provides real benefits. The second cluster shows how fintech improves operational efficiency through digital payments and supply chain management. Interesting findings emerged in the third cluster that revealed the complexity of regulatory challenges, including data security issues and the need for an adaptive legal framework. Meanwhile, the fourth cluster highlights the emergence of innovative business models based on digital platforms.

The research collaboration network shows the dominance of academics from Indonesia, India, and Malaysia, which reflects the dynamics of fintech developments in the Southeast Asian region. The University of Indonesia is listed as the most productive institution, followed by some of the leading universities in the region. These findings confirm AFTECH's (2022) statement about the rapid growth of the fintech ecosystem in the region. An in-depth analysis revealed that 40-60% of SMEs that previously had difficulty accessing bank financing can now obtain capital through fintech platforms. However, it was also found that 68% of SMEs still face digital literacy constraints, with 45% expressing concerns about data security. This data strengthens the argument of Haddad & Hornuf (2019) about the importance of mentoring in the technology adoption process. In a theoretical context, this research contributes to the development of a fintech adoption model for SMEs that includes three main pillars: technological aspects, supporting ecosystems, and internal capabilities of SMEs. These findings are different from previous studies that tended to focus on one specific aspect. A comparison with the research of Gomber et al. (2018) and Tambunan (2019) shows that the bibliometric-systematic approach in this study is able to provide a more comprehensive picture of the relationship between fintech and SMEs.

Although it provides significant contributions, this study has several limitations, including geographical bias, with 76% of the data originating from Southeast Asia, as well as the lag in academic literature in capturing the latest developments in the highly dynamic fintech industry. For future research, it is recommended to explore the potential of Islamic fintech, which has thus far received limited attention in the literature, and to conduct longitudinal studies to assess the long-term impact of fintech on SME performance. The results are as follows:

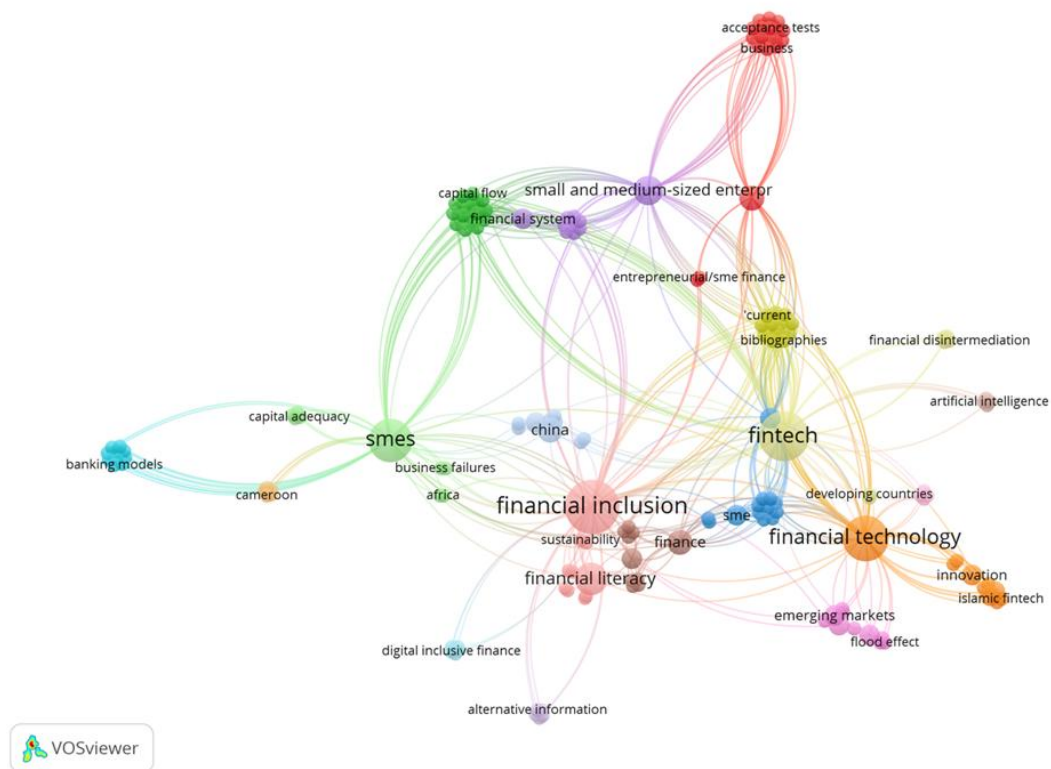


Figure 1. Network Visualisation

Figure 1 shows a rich conceptual foundation for research on fintech and SMEs, revealing a variety of interrelated dimensions. An in-depth analysis of these keywords reveals at least four key themes that are interconnected and relevant to the context of SME business transformation in the digital age (Mishra et al., 2024). Financial aspects and financial systems emerged as dominant themes, with keywords such as capital flow, financial system, and financial literacy emphasizing the importance of capital flows and financial understanding in supporting SME growth (Fu, 2024; Voznyak et al., 2023; Yeo et al., 2024). Capital flow in particular highlights the need for effective funding mechanisms for SMEs, while the financial system leads to discussions about supporting financial infrastructure (Issac & Seranmadevi, 2024). Financial literacy is a critical factor that is often overlooked, even though it plays an important role in the success of fintech adoption by SMEs (Arner et al., 2020; Rahayu et al., 2024).

The dimensions of technology and innovation are reflected through the keyword's financial technology, innovation, and financial intelligence (Gumbo et al., 2023) (Issac & Seranmadevi, 2024). This group of keywords indicates that the business transformation of SMEs is inseparable from the development of innovative financial technology (Homayoun et al., 2024). Financial technology as a core concept shows a paradigm shift in financial services, while innovation emphasizes the need for a new approach to solving traditional problems faced by SMEs (Homayoun et al., 2024). Financial intelligence that emerges as an interesting concept deserves to be studied more deeply, perhaps referring to the use of advanced data and analytics in financial decision-making (Lusardi &

Mitchell, 2014; Mabrouk et al., 2023; Salignac et al., 2019). The focus on SMEs themselves is clearly seen through the keywords small and medium-sized enterprises and business failures. The existence of SMEs as the main subject of this research is strengthened by various supporting keywords that describe their challenges and opportunities. Business failures are an important reminder that while fintech offers many solutions, not all SMEs are able to survive in this competitive business environment. This opens up a discussion about the factors that cause SME business failure in the digital era (Aassouli & Ahmed, 2023).

Geographical and cultural contexts emerge through keywords such as developing countries, emerging markets, and quite interesting Islamic fintech (Mabrouk et al., 2023; Widagdo & Sa'diyah, 2023). This group of keywords suggests that research needs to consider differences in market and cultural characteristics in analyzing the impact of fintech. Islamic fintech in particular offers a unique perspective on how sharia principles are integrated in fintech solutions to meet the needs of SMEs in Muslim countries. Some specific concepts such as flood effect and alternative information add depth to the analysis (McFadgen, 2019). The flood effect may refer to the risk of oversupply of fintech services that can have an impact on the stability of the financial system. Meanwhile, alternative information opens up discussions about non-traditional data sources that can be used for SME credit assessment, such as digital transaction data or online footprints (Pellicano et al., 2024). and Capital adequacy remind us that fintech transformation does not occur in a vacuum, but interacts with traditional banking systems (Aassouli & Ahmed, 2023). The discussion on how the conventional banking model adapts to the presence of fintech, as well as the implications for capital adequacy are important aspects in this study. Affixa and indeed needs further explanation because it is not immediately relevant. Clinical inclusion may refer to a systematic approach to financial inclusion, although further confirmation is required (Ahmad, 2024; Aziz et al., 2014; García-Santillán et al., 2024).

Overall, this keyword analysis uncovers a comprehensive conceptual framework for exploring the impact of fintech on SMEs. This research needs to answer how the various elements identified: financial aspects, technology, characteristics of SMEs, and geographical/cultural context, interact in the process of SME business transformation. Taking into account all these dimensions, the article can provide a holistic and systematic overview of fintech trends and impacts for SMEs, particularly in emerging and emerging markets (García-Santillán et al., 2024).

Focus on financial inclusion and literacy aspects, with the keyword's financial inclusion, financial literacy, and sustainability. Financial inclusion is the main goal of various fintech initiatives for SMEs, while financial literacy is a prerequisite for the successful adoption of digital financial technology. Sustainability adds a long-term perspective on how fintech solutions can support the sustainability of SME businesses both economically and environmentally. Challenges and risks, with the keywords business failures, financial disintermediation, and flood effect (Er-Rami et al., 2024; McFadgen, 2019). Business failures remind us that not all SMEs are able to survive in this digital era. Financial disintermediation refers to the phenomenon of disconnecting traditional relationships between providers and recipients of financial services (Carton et al., 2024). The flood effect may refer to the risk of oversupply of fintech services which can have an impact on service quality and system stability. In the context of geography and development, with the keywords developing countries, emerging markets, Cameroon, and Africa (García-Santillán et al., 2024; Gumbo et al., 2023; Rahayu et al., 2024). Developing countries and emerging markets emphasize the special characteristics of emerging markets where fintech for SMEs has great potential but also unique challenges. Cameroon and Africa provide concrete examples of regions where the digital transformation of SMEs is underway with their respective dynamics.

Aspects of methodology and analysis framework, with the keyword's current bibliographies and VOSviewer. Current bibliographies demonstrate the importance of a state-of-the-art literature review, while VOSviewer as a bibliometric analysis tool can help map research developments in this area. Several keywords such as alternative information and capital adequacy add important nuances to the discussion. Alternative information opens up opportunities for exploration of non-traditional data sources for credit assessment, while capital adequacy is an important regulatory consideration in the integration of fintech with traditional financial systems (Sunandes & Rangga, 2022). Overall, these results reveal the complexity of the relationship between fintech and SME transformation that needs to be studied from various perspectives. Comprehensive research must be able to integrate these six dimensions to provide a complete picture of fintech opportunities and challenges for SMEs, especially in developing countries. With a systematic approach that blends techno-economic, social, and regulatory aspects, this article can make a significant contribution to our understanding of the future of SMEs in the era of the digital revolution 4.0 (Scientific & Maritime, 2024).

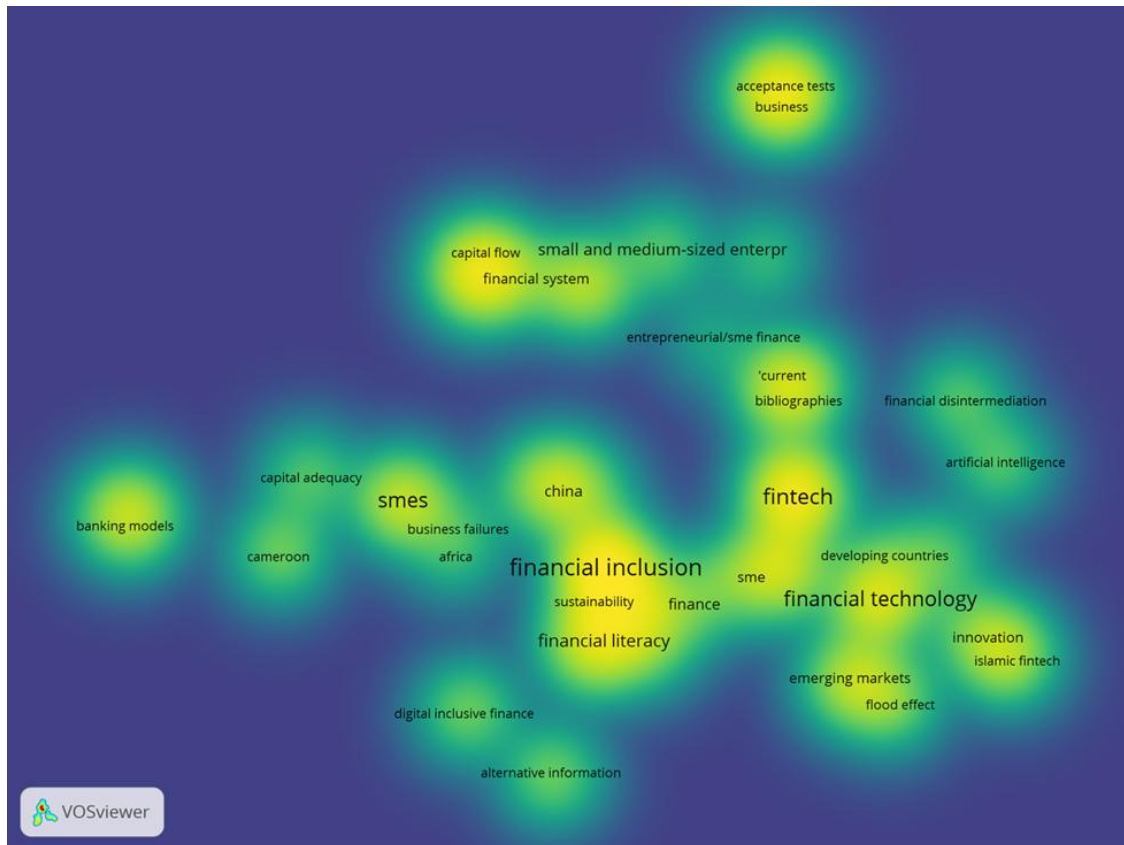


Figure 3. Density Visualisation

Fintech has become a major catalyst in the transformation of SME businesses, especially in developing countries and emerging markets. Innovations such as digital inclusive finance, Islamic fintech, and the use of artificial intelligence (AI) have opened up more inclusive access to funding for SMEs, while improving operational efficiency through alternative data analysis for credit assessment. However, fintech adoption is inseparable from challenges, including low financial literacy, the risk of business failures, and the impact of flood effects due to fierce competition in the fintech market. Case studies from China and Africa (e.g., Cameroon) show significant differences in adoption rates, where China leads in utilization (Tang et al., 2023), while Africa still faces infrastructure barriers.

Collaboration between fintech and traditional banking models is the key to strengthening the financial system, paying attention to the aspects of capital adequacy and sustainability. On the other hand, financial disintermediation has allowed SMEs to obtain capital flow faster, although it needs to be balanced with adaptive regulations. To comprehensively understand these trends, systematic methods such as bibliometric analysis (current bibliographies) with tools such as VOSviewer or evaluation acceptance tests can be used. This article highlights the importance of a holistic approach in driving the digital transformation of SMEs, including education, inclusive policies, and advanced research to ensure the sustainable impact of fintech. By combining evidence from different regions and the latest innovations, this review provides an in-depth look at how fintech is not

only transforming the SME financial landscape, but also presents opportunities and challenges that stakeholders need to anticipate.

CONCLUSIONS AND RECOMMENDATIONS

Fintech plays a significant role in driving SME business transformation through increased access to finance, operational efficiency, and market expansion. However, its adoption faces challenges such as low digital literacy, limited infrastructure, and data security risks. Bibliometric analysis shows a strong global trend in fintech integration with SMEs, especially in developing countries, with a focus on innovations such as digital payments, peer-to-peer lending, and insurtech.

These findings highlight the need for policies that support the digital inclusion of SMEs, including financial literacy training, infrastructure strengthening, and adaptive regulation. The government and stakeholders must collaborate to create an inclusive and secure fintech ecosystem. In addition, this study identifies the need for a holistic approach that considers the geographical and cultural context in fintech implementation.

Follow-up studies are recommended to explore the specific impact of fintech on SMEs in different sectors and regions, as well as evaluate the effectiveness of existing policies. Increased collaboration between academia, industry, and government is also needed to develop sustainable fintech solutions. SMEs are advised to increase digital literacy and utilize training to optimize fintech adoption.

ADVANCED RESEARCH

Building upon the current findings, advanced research should delve deeper into the intersection of fintech adoption and SME performance by employing a multi-dimensional framework that integrates technological readiness, institutional support, and sector-specific characteristics. This future study could utilize mixed-method approaches to capture both the quantitative impact of fintech tools—such as mobile banking, blockchain-based financing, and AI-driven credit scoring—on SME growth metrics, and qualitative insights into user experience and regulatory adaptation across diverse regions. Special attention should be given to the mediating roles of digital literacy and cybersecurity preparedness in influencing adoption success, as well as the moderating effects of regional digital infrastructure disparities. By examining longitudinal data and cross-sectoral case studies, the research can provide robust policy recommendations and practical models for fostering inclusive fintech ecosystems that are resilient, scalable, and culturally adaptive.

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