P ISSN 2301.9093 | E ISSN 2540.8259

JMDK Jurnal Manajemen dan Kewirausahaan

https://jurnal.unmer.ac.id/index.php/jmdk/index

Vol. 13, No. 1, 2025: 51-67

Digital Empowerment of MSMEs: Implications of Digital Loans on Business Sustainability Through Selective Credit Schemes

Ira Murwenie[1]*, Erik Kartiko[2], Alam Avrianto[3]

[1,3]Management Study Program, Faculty of Economic, University of Garut Indonesia,
Jl. Raya Samarang No.52A Garut, Indonesia
[2]Accounting Study Program, Faculty of Economic, University of Garut Indonesia,
Jl. Raya Samarang No.52A Garut, Indonesia
*Corresponding Author(s) Email: iramurwenie@uniga.ac.id

Abstract

Digitalization in the financial sector has significantly transformed the way financial services are delivered to Micro, Small, and Medium Enterprises (MSMEs). One key innovation is the emergence of digital loan models designed to improve access to capital and support sustainable business growth. This study explores how the selective growth credit distribution program mediates the relationship between digital loan development and MSME business sustainability, focusing on MSMEs using the Flexi Application provided by Bank X in Garut Regency. The findings reveal that MSMEs with greater resilience in digital loans, stronger credit performance, and higher competencies in server-based product development are more likely to achieve long-term sustainable business outcomes. These results highlight the critical importance of enhancing MSMEs' digital capabilities and developing targeted, adaptive credit distribution strategies to foster sustainable growth. The study offers valuable implications for financial institutions and policymakers in shaping inclusive and flexible digital financing models that can better address the evolving needs of MSMEs. Ultimately, this approach supports broader economic development by promoting access to finance and sustainability among small and medium-sized enterprises.

Keywords: Business Sustainability, Digital Loan, Resilience, Selective Growth Credit Distribution

Article History:
Received: 2025-02-28
Revised: 2025-04-15
Accepted: 2025-05-27
Publish: 2025-06-02

DOI:
10.26905/jmdk.v13i1.15691

How to cite: Murwenie, I., Kartiko, E., Avrianto, A. (2025). Digital Empowerment of MSMEs: Implications of Digital Loans on Business Sustainability Through Selective Credit Schemes. *Jurnal Manajemen dan Kewirausahaan, 13*(1), 51-67. https://doi.org/10.26905/jmdk.v13i1.15691

INTRODUCTION

The number of digital lending platforms in Indonesia has increased at an exponential rate over the last several years. The accessibility, rapid distribution, and comparatively straightforward needs of internet platforms have drawn several individuals to employ them over traditional loans. Data from the Financial Services Authority (OJK) and different financial technologies (fintech) indicate a notable trend of rising volume and value in digital loan transactions (Rahayu et al., 2023; Kurniawati et al., 2021).

However, digital finance may improve financial inclusion for Indonesian MSMEs, especially those who have had trouble getting funding from conventional banks. This does not exclude MSMEs entrepreneurs (Muliadi et al., 2020; Ozili, 2020). The use of financial technology on the entrepreneur financing platform has had positive and negative effects on MSMEs' long-term sustainability. A faster approval procedure may encourage MSMEs with poor financial health or financial illiteracy to apply for loans without proper appraisal and rationale. MSMEs' long-term bad debt risk may increase due to this condition (Jofanka et al., 2023; Hasan et al., 2021)

Despite the innovative use of alternative data on digital loan platforms (such as digital transaction history and social media), the credit assessment process may not be completely accurate in predicting the ability of MSMEs to pay, particularly those with complex or new business models. Alternative data credit evaluation may cause moral hazard, forcing MSMEs to take on more debt than they can afford. Access to more digital lending platforms might induce MSMEs to borrow from various sources, increasing the risk of debt accumulation and repayment issues (Rosadi et al., 2025; Suroso & Wahjudi, 2021; Saptia et al., 2021)

Empirical study shows that not all MSMEs understand digital lending products, including interest rates, hidden fees, and default consequences. Digital financial illiteracy may lead to bad loan choices (Affandi et al., 2024). The capacity to access MSMEs in remote areas or those without a formal credit history, the provision of opportunities for business development, and the long-term upgrading of their financial capabilities are among the benefits of digital loans. This platform may improve company operations and owners' finances when used properly. Digital loans would help balance MSME credit distribution in distant locations by reducing loan administration expenses and improving credit assessment efficiency, saving time (Kartawinata et al., 2023; Martini et al., 2023; Saptia et al., 2021).

The digital loan platform positively influences conventional financial institutions that provide business credit to MSME entrepreneurs. Financial institutions will have enhanced capabilities to swiftly access information regarding business developments and track the performance of MSME businesses that are receiving credit in real time. This will enable more effective evaluation and adjustment of credit distribution programs to meet sustainability objectives (Chen & Wang, 2023; Karlan & Morduch, 2010).

The Bank X m-banking application's Flexi loan application provides access to Bank X's digital financing infrastructure. Bank X Flexi is an online lending tool specifically for Bank X company owners who have been authorized to use it. To avoid data breaches and maintain transaction security, Bank X restricts and monitors the Flexi Application functionality. The Flexi Application uses algorithmically controlled digital programming to analyze debtor customer credit distribution using the selected growth credit distribution program. The Flexi selected growth credit distribution program will allow credit analysts to collect and analyze additional digital transaction footprint data on MSME firm operations, including social media footprints and payment trends. The chosen growth loan distribution scheme may better identify MSMEs with high development potential and low default risk, enabling tailored credit allocation.

POJK Number 77/POJK.01/2016 from the Financial Services Authority protects clients and ensures industry smoothness in digital financing. The regulation encompasses openness, consumer data security, interest rate limits, minimum capital, and licensing. Digital loans are handy yet risky for MSMEs as borrowers and financiers. MSMEs encounter high interest rates, hidden fees, unethical collection (particularly for illegal loans), and data exploitation. Default is a financial risk. The first empirical phenomena from digital finance are OJK data on problematic loans from 2021-2024, which indicates an increasing trend even while the banking ratio declines (Figure 1).

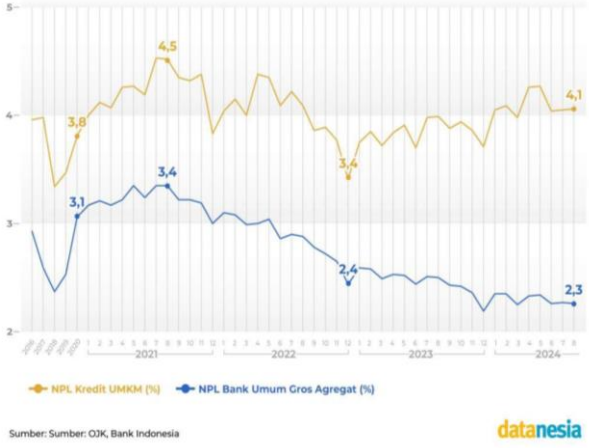

Figure 1. Non-Performing Loans of MSMEs in Commercial Banks, 2024
Sumber: https://datanesia.id/lampu-kuning-kredit-macet-umkm/

As can be seen in Figure 1, the percentage of MSMEs loans that are considered non-performing (NPL) in commercial banks has declined from 2.3% at the end of 2022 to 2.2% in August of 2024. During the same time period, the percentage of MSMEs loans that were considered non-performing actually climbed from 3.4% to 4.1%. This indicates that the value of non-performing loans to MSMEs has reached IDR59.8 trillion on a nationwide scale as of August 2024. This situation is something that should be of concern to all stakeholders, particularly regulatory authorities for the distribution of credit to MSMEs.

The next gap truth is the lack of digitally enabled MSMEs. The Ministry of Communication and Informatics (Kemenkominfo) predicts 64 million Indonesian MSMEs in 2022. From this large number, just 29%, or 19 million MSMEs, have digitalized or gone online. Katadata reports that five main issues are causing Indonesian MSMEs' digital transformation challenges: lacking funding, digital training, policy support, business mentors, and infrastructure (Figure 2).

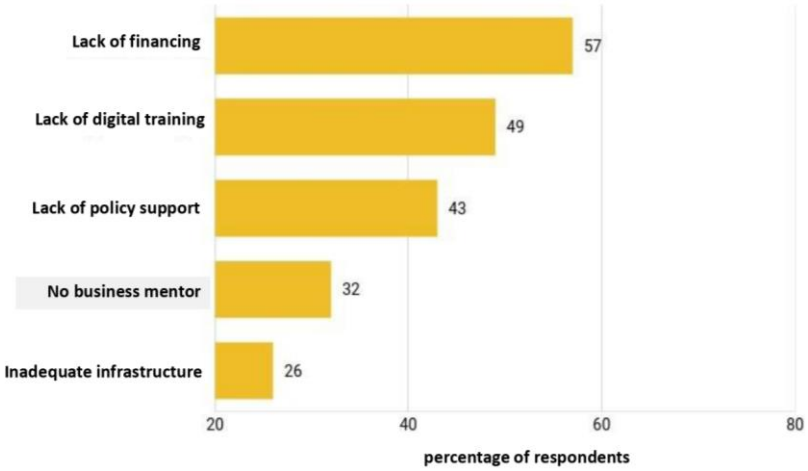

Figure 2. The Reason why it is Difficult for MSMEs to Carry Out Digital Transformation
Sumber: https://ukmindonesia.id/

The MSMEs digital lending ecosystem must improve MSMEs' digital financial literacy, monitor illegal loans, and balance innovation and consumer protection. MSME funding distributed via digital platforms has hurdles and is expected to contribute little to total MSME financing. Digital financing for MSMEs in Indonesia has great potential to boost the MSME sector and digital economy. MSMEs must be cautious, understand the dangers, and use an OJK-registered and regulated lending platform.

Research gaps show that while existing studies have found a correlation between digital loans and MSMEs performance, there is a lack of comprehensive research on how digital loans affect sustainability factors like innovation, adaptability, technology adoption, and environmental factors. This difference is very wide in Indonesia (Affandi et al., 2024; Martini et al., 2023). There is a lack of research on how digital loan characteristics (e.g., interest rates, tenure, ease of access) and credit distribution program design affect MSMEs' business sustainability, as well as their scale, sector, and digital literacy. More empirical study is needed to determine moderating and mediating effects (Rosadi et al., 2025; Kartawinata et al., 2023). The approach might be cross-sectional. Furthermore, long-term research on the effects of digital loan use and credit distribution schemes on MSME sustainability and their evolution are missing. However, comparing digital loans via chosen programs to other financing options (e.g., grants, venture investment) to promote MSMEs' sustainability may provide new insights (Akpan & Nnjeni, 2019; Saptia et al., 2021; Nair & Njolomole, 2020).

The research findings will be more precise in addressing the continuing voids as a result of the numerous inquiries that will be posed in this study. Does digital lending encourage MSMEs to innovate and utilize technology? How well does the selected growth credit distribution scheme using digital lending platforms support sustainable MSMEs? What factors affect the relationship between digital loans and MSMEs viability? How does digital financial literacy affect MSMEs' ability to use digital loans for company sustainability?

This study aims to address empirical gaps and research questions by developing a model of MSME business sustainability, which will be mediated by selective growth credit distribution, digital loan resilience, MSME credit performance, and server-based product development competency as endogenous variables. In the meantime, the capability of MSMEs to absorb technology will serve as an exogenous variable to be evaluated within the model.

This study aims to address empirical gaps and research questions by developing a model of MSME business sustainability, which will be mediated by selective growth credit distribution, digital loan resilience,

MSME credit performance, and server-based product development competency as endogenous variables. In the meantime, the capability of MSMEs to absorb technology will serve as an exogenous variable to be evaluated within the model.

The utilization of the server-based product development competency concept in the MSMEs business sustainability model is a novel component of this study. This endogenous variable has not yet been conceptualized in quantitative research. The absence of literature that elucidates the dimensions and indicators that have not been explicitly identified is the primary constraint to the application of this concept. This study investigates the advancement of digital financial theory and practice, business sustainability, and selective growth credit distribution intermediation in MSMEs by analyzing Flexi Application customers at Bank X in Garut Regency.

LITERATURE REVIEW

To enhance the competitiveness of MSMEs following the COVID-19 pandemic, the Indonesian Government, in 2022, initiated the "MSMEs Digitalization" program through Bank Indonesia. This initiative seeks to promote the rapid advancement of MSMEs in Indonesia through three foundational pillars of the MSMEs Development Program: (1) Enhancing production capacity, (2) Optimizing cost efficiency, and (3) The broadening market reach (Rahayu et al., 2023; Prayitno et al., 2022). Another initiative that helps MSMEs grow in Indonesia is the Selective Growth Distribution initiative, which is a priority sector loan distribution program. According to Bank Indonesia (BI) rules, the government has given loans to support economic growth in specified sectors deemed as having substantial potential or importance in development efforts. Distribution has numerous levels and needs more depth than typical credit (Purboadji et al., 2021; Tanti et al., 2018).

E-Farming, which uses digital technology to boost productivity and efficiency, is part of the MSMEs Digitalization Program. E-Commerce improves digital marketing and promotes MSMEs globally. Digital applications for MSMEs' e-financing (SI APIK). MSMEs transactions are supported by digital payment systems (QRIS). BI was the driving force behind these two programs, which marked the beginning of the fast expansion of MSMEs in Indonesia. MSMEs reached 64 million by early 2024. Before the COVID-19 epidemic, 9 million of 64 million MSMEs used digital solutions. Post-pandemic MSMEs using digital solutions increased by 12 million to 21 million. However, only 32.81% of MSMEs are represented by this figure. (Affandi et al., 2024; Putra et al., 2022). However, Nastiti et al. (2021) observed that the broader external environment has failed to stimulate marketing initiatives regarding the adoption of the QRIS digital payment system by MSMEs in West Java, Indonesia, nor has it succeeded in enhancing the performance of these enterprises. This remains intertwined with the economic and political dimensions that continue to exhibit suboptimal performance.

The phenomenon of an expanding number of MSMEs in Indonesia as a result of the development of financial digitalization has also occurred in diverse regions of the globe, particularly following the COVID-19 pandemic. Based to the findings of the study Chen and Guo (2021), fintech has a greater impact on MSMEs under 5 years elderly, increasing its R&D and innovation participation by 46%. Companies with less assets and workers are 40.8% more likely to engage in R&D and innovation due to fintech. Furthermore, Khusna Mustafa et al. (2018) pointed out that neglecting innovation and technology adoption could negatively impact MSMEs' performance. Innovation is essential to survival and success in a competitive business environment. Additionally, the adoption of technology can significantly enhance MSMEs companies' access to broader commercial market platforms, ultimately leading to increased sales turnover and profits (S. Chen & Guo, 2021; Khusna Mustafa et al., 2018).

In the publication, Lertwongsatien and Wongpinunwatana (2003) and Idris et al. (2017) he predominant theoretical models concerning the adoption of e-commerce by MSMEs in developing countries and assesses their relevance. The research revealed that the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and the Theory of Planned Behaviour (TPB) are deterministic frameworks, as they concentrate solely on users while neglecting the influence of additional factors that contribute to e-commerce adoption. The numerous characteristics of MSMEs in developing nations are frequently disregarded by the DOI and Registered Behaviour Technician (RBT). This study found that single theories cannot explain MSMEs' e-commerce uptake in emerging countries. The Electronic Review Management Program (PERM) and Target of Evaluation (TOE) offer a framework for MSMEs in developing countries to use e-commerce (Lertwongsatien & Wongpinunwatana, 2003; Idris et al., 2017).

Kingu & Gomera (2022) and Bhattacharjee et al. (2023) explored the benefits of digitization in MSMEs' microcredit services. This study supports loan connections, financial intermediation, and activity theory. stressed that microfinance providers must educate MSMEs about digital microcredit. Digital technology reduces the potential of unintended effects in banking operations, but it also presents obstacles such a lack of experienced technicians, immature technology, insufficient infrastructure, and restricted capacity for digital banking services. Activity theory argues that technology empowers social action, and microfinance institutions raise customers' digital technology knowledge. Online microcredit services include microloans, micro savings,

microinsurance, money transfers, and loan monitoring for formal and informal organizations (Bhattacharjee et al., 2023; Kingu & Gomera, 2022; Kumari, 2020).

Darmawan (2018) said that the distribution of credit lending to MSMEs in Indonesian commercial banks is significantly and positively influenced by the Third-Party Fund. The findings of this research demonstrate that fluctuations in Third Party Funds over the study period influence credit lending distribution and, therefore, impact the development of bank credit. The Third-Party Fund derives its greatest contributions from various funding sources, hence influencing a bank's capacity to provide credit lending based on the amount of Third-Party Fund gathered. He refrained from addressing issues beyond credit assessment, focusing solely on indicators of credit performance success from a financial analysis viewpoint.

The research of Kumari (2020) found that MSMEs benefit from digital microcredit services however need more information about digital banking. Microfinance institutions and banks must emphasize helping customers utilize digital technology for microcredit services and promoting MSMEs' digital readiness. In the line with the published result of Nair and Njolomole (2020) and Ashraf et al. (2022) advises that governments and microfinance firms should collaborate to improve credit availability and extend payment systems to unbanked communities. It implies that some microfinance techniques, such as the village banking model, may get elevated productivity and efficiency ratios, leading to minimal expenses per borrower. Policymakers should stress responsible and ethical finance, consumer protection, and financial literacy (Bhattacharjee et al., 2023; Kingu & Gomera, 2022; Kumari, 2020).

Kartawinata et al. (2023) emphasizes the significance of financial literacy in the promotion of financial inclusion in rural areas. The research underscores the necessity of additional financial education and training to motivate rural consumers to interact with financial services and select suitable products and services. Kartawinata et al. (2023) suggests that future research should focus on financial innovation training and fintech access for all population groups, with a particular emphasis on underdeveloped and developing countries. Criticism has been directed at the economic foundations of the microfinance movement, which are viewed as contentious, as the extent to which microlenders can enhance conditions in developing countries remains uncertain. Elahi & Danopoulos, (2004) emphasizes the concept of microfinance theory, which is contentious and rife with debate due to its psychological and economic foundations.

In the interim, the article by Wellalage and Locke (2016) delves deeper into the elements that affect the formal and informal status of MSMEs in their pursuit of financial resources. A World Bank study examined the interplay between informality and credit constraints, revealing that informality exacerbates credit constraints for MSMEs. The process of business registration serves to delineate the entity from its proprietor, thereby enhancing transparency while simultaneously imposing further obligations for reporting. The absence of clear and comprehensive information for MSMEs constitutes a significant obstacle to securing financial resources (Wellalage & Locke, 2016).

Based on the study of financial inclusion and microfinance theory, it can be underlined that MSMEs require not just working capital, but also financial support for expansion, product innovation, or enhanced production capacity to attain greater growth. On the contrary, financial institutions or digital loan platforms aiming to foster this growth encounter increasingly intricate challenges in evaluating the growth potential and long-term risks associated with MSMEs. Asymmetric Information Theory once more takes on a pivotal role, delving into a more profound dimension.

According to Ahmad (2023); Ika (2023), in the realm of growth credit, information asymmetry encompasses not only present financial conditions but also future growth prospects, management's capacity for expansion, the potential of the target market, and the risks linked to innovation or new investments. Lenders encounter a challenge in not only distinguishing financially healthy MSMEs from those that are not, but also in predicting which MSMEs have the potential for genuine growth and the ability to effectively utilize credit funds for expansion. MSMEs exhibiting inadequate growth strategies or execution capabilities may appear appealing initially; however, they pose significant long-term risks (Ahmad, 2023). Establishing interest rates according to average risk may marginalize MSMEs with significant growth potential that exhibit effective risk management practices (Ahmad, 2023; Ika, 2023).

Nevertheless, Singh (2024) research found that MSMEs are able to make more strategic decisions that may impact the success of their expansion efforts as a result of obtaining growth credit. MSMEs' innovation, marketing strategy, and operational management will be difficult for lenders to oversee. MSMEs may take excessive risks to develop quickly, compromising their loan repayment capabilities, increasing moral hazard. Concerns exist about loan monies being used for unproductive or growth-plan-incompatible uses. Digital loan programs that aim to foster selective growth credit have the potential to navigate the complexities of asymmetric information by incorporating advanced features and capabilities to address these challenges (Ismanto et al., 2023; Apriliani, 2024).

Ismanto et al. (2023) observations reveal that the stability of banking and fintech sectors has a significant impact on the credit performance of MSMEs and their ability to access credit. This finding reinforces the theory of competition-fragility. The stability of the banking sector plays a crucial role in minimizing non-performing

loans and enhancing access to credit for micro, small, and medium enterprises. This indicates that stable banks promote improved credit performance among MSMEs, thereby constraining their lending to these entities. The emergence of fintech has demonstrated a positive impact on the non-performing loans of MSMEs and their ability to access credit. The emergence of digital loans via fintech platforms, which simplify access to credit, has led to a deterioration in the credit performance of MSMEs within banks. This situation subsequently allows MSMEs to secure funding without justifiable reasons.

Akpan and Nnjeni, (2019) has conducted an examination of the role played by Microfinance Banks (MFBs) in the development and efficacy of MSMEs in Nigeria, revealing that the growth trajectory and overall performance of MSMEs are significantly influenced by the operations of MSMEs within the region. The factors of loan size, loan duration, networking meetings, and cross-collateralization exert a beneficial influence on MSMEs. The findings of the study indicate that MFBs play a crucial role in enhancing the entrepreneurial landscape by fostering a more favourable business environment and bridging the resource gap for small enterprises (Akpan & Nnjeni, 2019).

In their studies, Akpan and Nnjeni, (2019) has conducted an examination of the role played by Microfinance Banks (MFBs) in the development and efficacy of MSMEs in Nigeria, revealing that the growth trajectory and overall performance of MSMEs are significantly influenced by the operations of MSMEs within the region. The factors of loan size, loan duration, networking meetings, and cross-collateralization exert a beneficial influence on MSMEs. The findings of the study indicate that MFBs play a crucial role in enhancing the entrepreneurial landscape by fostering a more favourable business environment and bridging the resource gap for small enterprises.

On the contrary, George et al. (2017) findings indicate that access to finance is essential for fostering an economic environment conducive to the growth and success of MSMEs. Enhancing access to finance can positively impact economic conditions in developing countries by fostering innovation, strengthening macroeconomic resilience, and promoting GDP growth. Financial literacy skills equip MSMEs owners to assess financial products and make informed decisions.

Chen and Wang (2023) and Xing (2022) determined that the transition to digital, intelligent, and ecological paradigms can generate value by way of pre-training with small samples, minimizing default status indicators, accelerating response times, improving market competitiveness, expanding market horizons, and achieving value synergy through intelligent information and information sharing systems. Real estate collateral, a single funding source, self-generated money, and risk management are common in microfinance. The small loan service industry should use advanced technologies like big data, cloud computing, and IT systems to improve information search, processing, and storage, implement appropriate training models for small and micro enterprises, leverage their information intermediary positions and advantages, attract and develop digital talents, and improve service awareness and quality (Chen & Wang, 2023; Xing, 2022).

According to Bai et al. (2021) digital innovation in the supply chain, MSMEs' cultural and socio-economic barriers to technology adoption, traditional technology acceptance theory frameworks, multi-stakeholder environmental regulatory policies, MSME capacity and environmental regulation, and the impact of digitalization on MSMEs. Nonetheless, based on Sallati et al. (2019), in MSMEs, server-based product development competencies comprise the knowledge and skills required to develop products that utilize server technology, including web applications and cloud services. System understanding, programming, interface design, database administration, and security are all part of it. With this expertise, a server-based product developer may build and manage online apps, cloud services, and server-based software efficiently and securely.

Freeman et al. (2021) and Jayashree et al. (2021) suggests that business finance banks understand their target customer better and are more committed to providing excellent service to their clients. Banks will be more quick, precise, and reliable with the Resource-Based View (RBV) dimension, improving their service promise to debtor clients. This results in higher profits and enhanced productivity, securing a lasting competitive edge. Freeman et al. (2021) compared RBV aspects to banking Service Quality Assurance (SCA). The results showed that RBV mediates lending organizations' VRIN (Valuable, Rare, Inimitable, and Non-substitutable) resources, improving performance and achieving sustained competitive advantage. The research findings presented by had indicates that the concepts of business sustainability and economic performance within MSMEs are interrelated and significantly influence various aspects such as human capital, innovation processes, leadership, and governance policies (Freeman et al., 2021; Jayashree et al., 2021),

Hypotheses Development

In the context of selective growth credit, asymmetric information theory presents more complex challenges related to predicting future potential and mitigating strategic risks (Ahmad, 2023; Ika, 2023). Digital loan programs have great potential to address these challenges through sophisticated prospective data collection and analysis, more intensive monitoring and mentoring mechanisms, and more flexible and scalable credit schemes. By leveraging technology intelligently, digital loans can be an important catalyst for sustainable MSME growth and contribute to more inclusive economic development (Apriliani, 2024).

Credit performance, reflected in the ability of MSMEs to repay loans according to terms, is at the heart of the sustainability of the financing ecosystem (Singh, 2024; Muliadi et al., 2020). Asymmetric Information Theory highlights the existence of information imbalances between lenders and borrowers, in this case MSMEs, where this imbalance has a direct and significant impact on the credit performance of MSMEs that obtain loans through digital loan platforms. Asymmetric Information Theory is an important lens for understanding the challenges in maintaining healthy credit performance in MSMEs (Singh, 2024; Apriliani, 2024; Ahmad, 2023; Ika, 2023; Muliadi et al., 2020).

Digital loans might strengthen MSME credit performance and create a more stable and sustainable financing ecosystem by reducing information asymmetry through better screening, tighter post-disbursement monitoring, and greater transparency and access. Good credit performance boosts lender confidence, capital, and MSMEs' growth in increase their business sustainability. Therefore, we hypothesize;

H_1: The technology absorption capacity of MSMEs will have an impact on increasing the distribution of selective growth credit.

H_2: Increasing the distribution of selective growth credit for MSMEs will be able to influence the resilience of MSMEs digital loans.

H_3: Increasing the distribution of selective growth credit will be able to encourage increased MSMEs credit performance

H_4: Increasing digital loan resilience will have a significant impact on the level of MSMEs credit performance.

H_5: Digital loan resilience will affect the potential for increasing the sustainability of MSME businesses

H_6: Improving MSMEs credit performance will have an impact on increasing the sustainability of MSMEs businesses

H_7: Server-based product development competencies affect business sustainability in MSMEs

Based on the results of the development of the research hypothesis, the architecture of the MSME business sustainability model moderated by 1 (one) exogenous variable and 4 (four) endogenous variables can be seen in Figure 3.

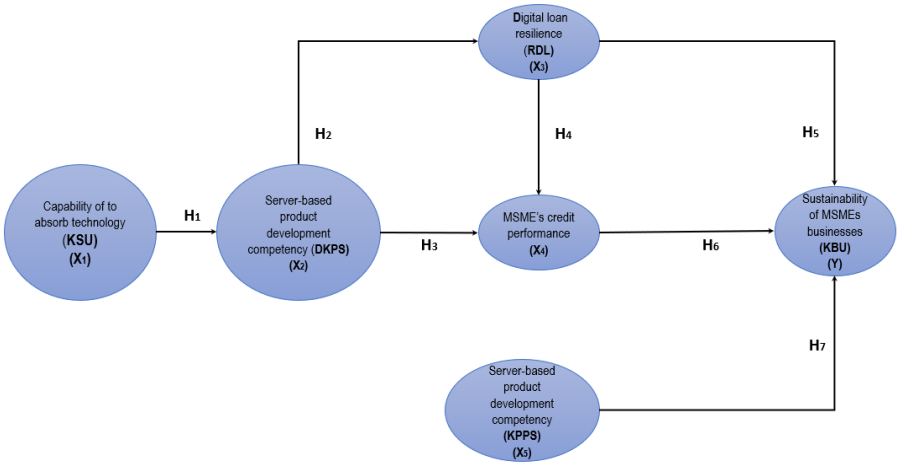

Figure 3. Research Model

METHOD

This research is survey-based field research conducted on debtor customers who use the digital loan application on Bank X m-banking registered at Bank X, Garut Regency, spread across 1 (one) Main Branch Office (Kantor Cabang Utama/KCU) of Bank X, Garut Regency, and 6 (six) Assistant Branch Offices (Kantor Cabang Pembantu/KCP), namely; Bank X KCP Diledug (Garut City District), Bank X KCP Cikajang District, Bank X KCP Kadungora District, Limbangan District, Bank X KCP Pameungpeuk District, and Bank X KCP Cibatu District.

The survey was executed employing three distinct methodologies: the distribution of a research questionnaire internally within the bank, conducting interviews with both bank personnel and selected debtor clients, and undertaking field observations with a carefully chosen group of responden. The research population consisted of 568 Bank X debtor clients in Garut Regency who made use of the Bank X digital loan application. Additionally, 328 customers were sampled, which accounted for 57.74% of the total research population. The purposive sampling technique was employed to acquire primary and secondary data from selected respondents, with the selection of characteristics that aligned with the research object. Data was collected over the course of the last six months of 2024.

The quantity of research samples is deemed sufficient for the processing of quantitative research data utilizing Structural Equation Modelling (SEM), as determined by the Slovin formula (Creswell. J.W., 1999) with a standard error of 5%, as outlined below.

$$n = \frac{N}{1 + (Ne^2)}$$

$$n = \frac{568}{1 + (568\ x\ 5\%^2)}$$

n = 235

Where:
n : sample size
N : population size
e : standard error (5%)

The minimum number of samples that satisfy the criteria for descriptive quantitative analysis research is 235 respondents, as indicated by Slovin's calculations. This implies that the quantity of samples in this study has been deemed to satisfy the standards established to guarantee the reliability and validity of research data (Creswell, 1999).

The next step of the investigation is to process the research data using the LISREL-based Structural Equation Modeling (SEM) technique. This technique is applicable to both manifest or observed variables and latent variables, which are measured through their indicators. LISREL presents a steeper learning curve in comparison to other SEM software that is more oriented towards a Graphical User Interface (GUI). Nonetheless, structural equation modelling based on LISREL demonstrates enhanced accuracy in the construction and evaluation of intricate models. This model is comprised of two primary components (Molenaar, 2019):

1. Measurement Model: Defines the relationship between the latent variable and its manifest variables. This entails confirmatory factor analysis (CFA), in which the researcher explicitly delineates the factor structure, indicating the latent variables that influence specific indicators.
2. Structural Model: Establishes causal links among latent variables, and sometimes among manifest variables. These connections are shown as routes with coefficients indicating the magnitude and direction of effect.

Thus, the selection of SEM utilizing LISREL software for this study is based on the following reasons: 1) it facilitates the analysis of latent constructs, including digital empowerment and business sustainability; 2) enables the testing of the structural model and causal pathways related to the implications of digital loans; and 3) aligns with the multivariate and complex nature of the relationships among the variables under investigation.

RESULT

Descriptive Analysis of Respondents

Descriptive analysis techniques serve to interpret data and information gathered from respondents through the processes of collecting, compiling, and classifying the data. The study employed a questionnaire in which each research question was paired with five potential responses for the participants to select from (Cooper & Schindler, 2014).

Measurement Model Testing

This study employs a one-level testing methodology, specifically utilizing the one-level (first order) confirmatory factor analysis (CFA) approach for measurement model testing. The initial level (first order) illustrates the correlation between indicators and their corresponding variables. The outcomes of the CFA test are detailed as follows:

Table 1. Results of SEM Measurement Model

Latent Variables	Dimensions	λ	λ^2	e	VE	CR
MSME Technology Absorption Competence (KSU) (Var. X1)	External support (X1.1)	0.879	0.773	0.130	0.720	0.911
	Digital skills and knowledge (X1.2)	0.884	0.781	0.180		
	Infrastructure and technology accessibility (X1.3)	0.844	0.712	0.410		
	Adoption and use of technology in business operations (X1.4)	0.843	0.711	0.440		
Selective Growth Credit Distribution (DKPS) (Var.X2)	Policy effectiveness and impact (X2.1)	0.835	0.697	0.130	0.756	0.903
	Priority sectoral credit growth (X2.2)	0.880	0.774	0.180		
	Credit Quality (X2.3)	0.868	0.753	0.410		

Latent Variables	Dimensions	λ	λ^2	e	VE	CR
Digital Loan Resilience (RDL) (Var. X3)	Adaptability and flexibility (X3.1)	0.864	0.746	0.130	0.759	0.904
	Financial and management capabilities (X3.2)	0.876	0.767	0.180		
	Digital ecosystem support (X3.3)	0.870	0.757	0.410		
SMEs Credit Performance (Var. X4)	Economic and social impacts (X4.1)	0.795	0.632	0.130	0.743	0.897
	Credit efficiency and profitability (X4.2)	0.846	0.716	0.180		
	Pertumbuhan dan ekspansi kredit (X4.3)	0.858	0.736	0.410		
Server Based Market Development Competence (KPPS) (Var. X5)	Business and marketing competencies (X5.1)	0.884	0.781	0.130	0.767	0.908
	Managerial and organizational competencies (X5.2)	0.876	0.767	0.180		
	Technical Competence (X5.3)	0.904	0.817	0.410		
Sustainability of SME Business (KBU) (Var. Y)	Economic and social aspects (Y1)	0.933	0.870	0.130	0.777	0.912
	Environmental aspects (Y2)	0.895	0.801	0.180		
	Governance aspects (Y3)	0.912	0.832	0.410		

The data presented in Table 1 indicates that all standardized factor loading (λ) values are equal to or greater than 0.50, suggesting that all indicators possess good validity. The reliability of the measurement model is demonstrated by a CR value of ≥ 0.70 and a VE of ≥ 0.50, indicating a good assessment.

Structural Model Testing SEM with LISREL

This study will test five sub-structural models based on the research paradigm. The statistical testing results of the measurement of the structural model in this study yielded the value of the endogenous latent variable as follows:

DKPS (X2) = 0.846*KSU, Errorvar.= 0.249 ,R^2 = 0.715
RDL (X3) = 0.855*DKPS, Errorvar.= 0.349 ,R^2 = 0.731
Kinerja (X4) = 0.478*DKPS + 0.430*RDL, Errorvar.= 0.236 ,R^2 = 0,764
KPPS (X5)= 0.959*KBU, Errorvar.= 0.081 ,R^2 = 0.919
KBU (Y) = 0.625*RDL + 0.350*Kinerja, Errorvar.= 0.122 ,R^2 = 0.878

Prior to conducting the structural model test, the goodness of fit index approach was implemented to evaluate the model's fit level. The objective was to determine whether the theoretically constructed model is well-suited to the empirical data obtained from the field questionnaire instrument. The results of the test are indicated in Table 2 below:

Table 2. Results of the Research Model Suitability Test

GOF	Acceptable Match Level	Model Index	Explanation
P-value	P ≥ 0.05	0.001	Bad Fit
GFI	GFI ≥ 0.9 (good fit), 0.8 ≤ GFI ≤ 0.9 (marginal fit)	0.907	Good Fit
RMR	RMR ≤ 0.5	0.191	Good Fit
RMSEA	0.05 < RMSEA ≤ 0.08 (good fit), 0.08 < RMSEA ≤1 (marginal fit)	0.066	Good Fit
NNFI	NNFI ≥ 0.9 (good fit), 0.8 ≤ NNFI≤0.9 (marginal fit)	0.903	Good Fit
NFI	NFI ≥ 0.9 (good fit), 0.8 ≤ NFI ≤ 0.9 (marginal fit)	0.911	Good Fit
AGFI	AGF I≥ 0.9 (good fit), 0.8 ≤ AGFI ≤ 0.9 (marginal fit)	0,892	Marginal Fit
RFI	RFI ≥ 0.9 (good fit), 0.8 ≥ RFI ≤ 0.9 (marginal fit)	0.908	Good Fit
CFI	CFI ≥ 0.9 (good fit), 0.8 ≤ CFI ≤0.9 (marginal fit)	0.99\15	Good Fit

Table 2 shows that out of ten study indicators, nine have been categorized as Goodness of fit, while one has been categorized as Bad Fit. In contrast, the remaining indicators are categorized into marginal fit and good

fit classifications. Consequently, the research framework progresses with the examination of the research hypothesis. Figure.4 illustrates the outcomes derived from the examination of the research hypothesis.

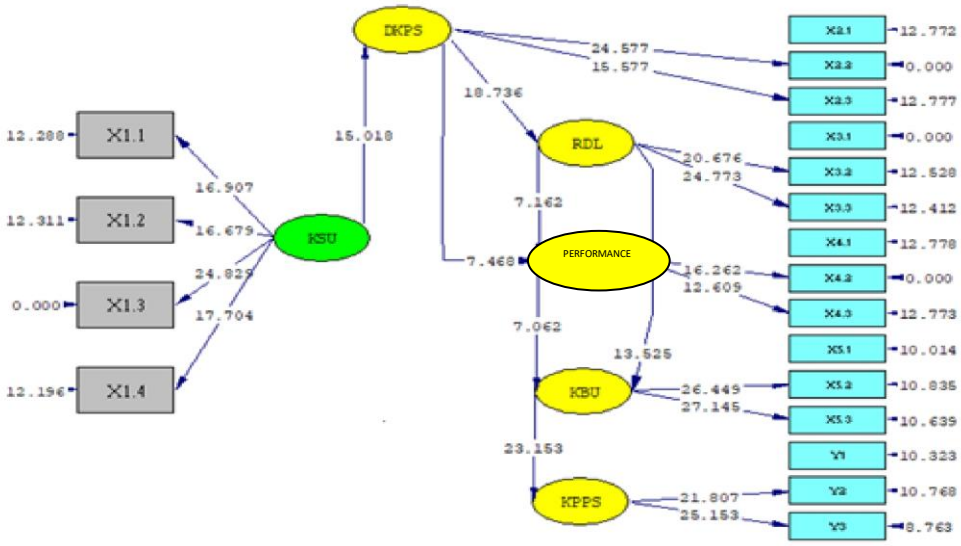

Figure 4. Structural Model of T-Value Research

The extent of influence among the generated latent variables can be determined by examining the value of the path coefficient established. Figure 5 illustrates the path coefficient value determined by this study**.**

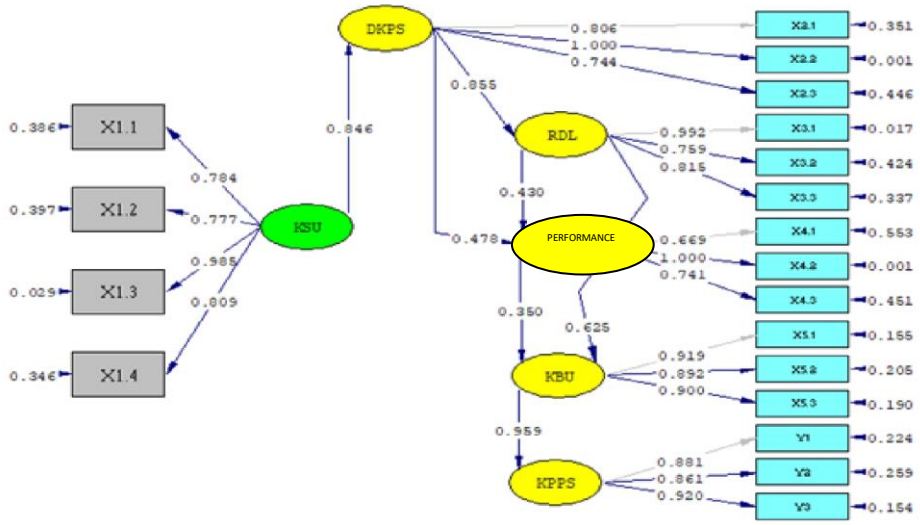

Figure 5. Structural Model of Standard Solutions with LISREL

DISCUSSION

The following is a summary of the results of the hypothesis test based on the LISREL ver 8.72 calculations.

Table 3. Results of Research Hypothesis Testing

Hypothesis	Variables	Path Coefficient	t-count > 1.96	Conclusion
H1	KSU → DKPS	0.846	15.018	Accepted
H2	DKPS → RDL	0.855	18.726	Accepted
H3	DKPS → Performance	0.478	7.468	Accepted
H4	RDL → Performance	0.430	7.162	Accepted
H5	RDL → KBU	0.625	13.525	Accepted
H6	Kinerja → KBU	0.350	7.062	Accepted
H7	KPPS → KBU	0.959	23.153	Accepted

The Technology Absorption Capacity of Msmes Will Have an Impact on Increasing The Distribution of Selective Growth Credit

The hypothesis testing findings indicate that in hypothesis 1 (Table.9), the t-value for the variable of MSMEs Technology Absorption Competence (KSU) concerning Selective Growth Credit Distribution (DKPS) is 15.018, above the critical t-value of 1.96. Since the t-value exceeds the critical t-value, it is determined to accept H1 and reject H0 at a 5% significance level. It may be argued that the social competence of SMEs positively and significantly influences selective growth credit distribution. The link KSU and DKPS is positively correlated; a rise in KSU corresponds to an increase in DKPS, and inversely. Thus, hypothesis 1 is corroborated.

Increased KSU in MSMEs might increase their DKPS. Strong technological absorption MSMEs are more active and successful at using digital platforms like digital lending platforms. They are better at creating attractive company profiles, submitting documentation, and using internet systems. Financial institutions and digital lending platforms may identify and engage growth-potential MSMEs with improved digital visibility and accessibility. MSMEs with strong KSU will have a better structured data management system and be more transparent in their digital financial and operational reporting. Digital financial reports, internet transaction data, and other lender-required credit evaluation data may be easily created. Improved information quality and openness reduce asymmetric information risk for lenders, boosting their confidence in selecting growth financing.

MSMEs that actively use digital technology to expand their online market, improve operational efficiency, or develop digital products or services often have a higher growth potential. Lenders prefer targeted growth financing because growth potential is more measurable and visible. This research shows that MSMEs with greater KSU are more likely to get Selective Growth Credit. This association is positive, showing that DKPS rises with KSU. This implies that strengthening digital competencies and innovation capabilities can directly enhance MSMEs' access to growth-oriented financing. Therefore, policymakers and financial institutions should prioritize digital readiness when evaluating MSMEs for selective credit schemes.

The R-squared value of 0.715, or 71.5%, signifies that 71.5% of the variability in selective growth credit disbursement (DKPS) to MSME customers utilizing the Flexi Application can be statistically elucidated by the variation in the KSU of the MSME. The capacity of MSMEs to adapt and use digital technologies significantly influences the amount of selected growth loan obtained via the Flexi Application. Technology absorption skill is not just an operational facet of MSME enterprises in the digital age, but also a critical criterion evaluated by the Flexi Application (or the financial institutions associated with it) in the allocation of selected growth financing. The more the capacity of MSMEs to use technology, the better the likelihood of obtaining substantial loans to facilitate their company expansion.

Nastiti et al. (2021) research contradicts these findings, which assert that the external environment of MSMEs is still unable to promote the adoption of digital technology from the payment system, but it does not inherently enhance product quality. On the other hand, these results are capable of substantiating the theory of asymmetric information by removing bank apprehensions regarding the utilization of loan funds for unproductive purposes or in violation of development plans. The strong competency of MSMEs in absorbing digital financial technology can address this challenge. Digital loan programs designed to promote selective growth credit hold considerable potential to manage the complexities of asymmetric information by integrating the characteristics and capabilities of MSMEs in effectively utilizing technology (Ismanto et al., 2023; Apriliani, 2024).This finding is in line with research presented by Rahayu et al. (2023), Saptia et al., (2021), Purboadji et al. (2021) dan Muliadi et al., (2020) which states that the ability to assimilate MSME technology has a significant impact on the amount of credit disbursed to the development of MSMEs owners' businesses.

Increasing The Distribution of Selective Growth Credit for Msmes Will Be Able to Influence The Resilience of Msmes Digital Loans

Further, in hypothesis 2, the DKPS against RDL t-count value is 18.726, greater than the t-crisis value of 1.96. At 5% significance, H2 is accepted and H0 is rejected because the t-count exceeds the t-critical threshold. The DKPS positively affects the RDL. Positive correlation between the DKPS Variable and the RDL Variable shows that Selective Growth Credit Distribution increases Digital Loan Resilience and vice versa. Thus, hypothesis 2 is supported.

It indicates for MSMEs using the Flexi Application, Selective DKPS increases RDL. This investigation shows that MSMEs using the Flexi Application with more selected DKPS are more digital loan resilient. This shows that judiciously provided and well used growth credit promotes sustained firm development, helping MSMEs meet their digital loan commitments. Selective growth finance helps MSMEs innovate and adapt to market and technology developments. The efficacy of this innovation and adaptation may boost competitiveness, stability, and revenue. Stable and increasing revenue could help MSMEs repay digital loans, which boosts RDL.

Nonetheless, the outcomes of this study opposed with the findings of George et al. (2017) which emphasize the significance of financial access for MSMEs in fostering an economic environment conducive to their growth and success. This indicates that financial access, in both traditional and digital forms, should be made available transparently to foster innovation and enhance macroeconomic resilience. This can be achieved by equipping MSME owners with financial literacy to evaluate financial products and make informed decisions.

The digital loan resilience of MSMEs in Garut Regency is significantly impacted by the selective growth credit distribution scheme, as per the study model. Results are supported by 0.731 R2. Its favourable effect on Flexi application usage enhances its debtor customers' digital loan resilience, explaining 73.1% of the variation in chosen growth credit for MSMEs. The growth credit distribution plan determines how well Garut Regency MSMEs pay digital loans. This means growth-oriented financing using digital loans considerably affects MSMEs' financial stability. The strong R-squared value indicates that Garut Regency's growth credit distribution scheme supports MSMEs expand and manage digital loans. Results reveal MSMEs' expansion loan plans prioritize sustainable development. These programs grow MSMEs and enhance digital finance.

These research support studies from Chen and Guo (2021), Kingu & Gomera (2022), dan Khusna Mustafa et al. (2018) which explains the close relationship between fintech innovation and the quantity of credit distribution to MSMEs. They are provided with additional capital to make strategic investments, such as increasing production capacity, product/service innovation, market expansion, or employing more sophisticated technology, through selective growth credit distribution. If effective, these investments will enhance the business foundations of MSMEs, hence augmenting their revenue, profitability, and cash flow. This enhancement in financial performance immediately augments MSMEs' capacity to comply with their digital loan repayment obligations, hence bolstering overall loan resilience.

Increasing The Distribution of Selective Growth Credit Will Be Able to Encourage Increased Msmes Credit Performance

At 5% significance, hypothesis 3 testing revealed a t-count value of 7.468, above the t-critical value of 1.96. This provides strong statistical evidence for H3 and against H0. Finally, Selective Growth Credit Distribution (DKPS) improves MSME Loan Credit (X4) performance significantly. The findings clearly imply that selective growth credit (DKPS) distribution improves MSMEs' MSME Loan Credit Performance (X4). This beneficial connection suggests that providing enough capital for company development helps MSMEs expand and improves their credit performance and responsibility as borrowers. This shows how selected growth credit helps MSMEs build a strong and sustainable financial environment.

The results, which reveal an R^2 value of 0.764 or 76.4%, demonstrate that fluctuations in the selective growth credit distribution variable possess a noteworthy and considerable capacity to elucidate variations or alterations in the performance of MSME credit within Garut Regency. The elevated R-squared value indicates that the policy and execution of the selective growth credit distribution program in Garut Regency are poised to be notably effective in fulfilling their objectives, which encompass not only the promotion of MSMEs growth but also a substantial enhancement in their loan repayment compliance.

The findings of this study relate to the results of a study that was previously published by Bhattacharjee et al. (2023), Kingu & Gomera (2022), Nair & Njolomole (2020) and Kumari (2020) which states that the role of supervision and control of microfinance institutions and banking credit will determine the quality of credit disbursed to MSME businesses. MSME credit performance will be an important assessment standard for borrowers to control its distribution.

The other side, this study's findings are inconsistent with those of Akpan & Nnjeni (2019), who emphasized the role of Microfinance Banks (MFBs) in the development and sustainability of MSME businesses. Akpan & Nnjeni (2019) indicated that the growth and overall performance of MSMEs were significantly affected by loan amounts, loan duration, network meetings, and cross-collateral; however, the study did not identify the impact of distribution of selective growth credit on MSME business development. In line with the publication of Darmawan (2018) research which emphasizes the significant role of credit interest rates, non-performing loans (NPL), Third Party Funds (TPF) and Inflation rates on the distribution of MSME business credit at general banks in Indonesia, where Third Party Funds have the greatest influence in this study while loan interest rates, NPL, and inflation rates have no effect on the distribution of MSMEs credit.

Increasing Digital Loan Resilience Will Have A Significant Impact on The Level of Msmes Credit Performance

The outcomes of the experiment that tested hypothesis 4 indicate that the t-count value is 7.162, which is a number that is considerably greater than the t-critical value of 1.96 when the significance threshold is set at 5%. This presents robust statistical evidence to support the acceptance of the alternative hypothesis (H4) while rejecting the null hypothesis (H0). In conclusion, Digital Loan Resilience (RDL) exerts a positive and significant impact on MSME Credit Performance (X4). Data shows that MSMEs with good digital loan resiliency are less likely to default. Effectively managing and repaying digital debts shows good credit. MSMEs'

credit performance improves with lower default risk. This investigation found that MSMEs with higher Digital Loan Resilience (RDL) had better credit performance (X4). The connection shows that MSMEs' ability to manage and maintain digital loan payment performance improves their credit performance.

According to the R-squared value of 0.430 of the variances in the credit performance of MSME at Bank X Garut Regency may be explained by the Flexi Application's digital loan resiliency. These findings show that the Flexi Application, which increases digital loan resilience, has a modest but substantial effect on the credit performance of MSMEs in Garut Regency.

The discoveries of this study are in direct opposition to the findings of Ismanto et al. (2023) research, which is based on the competition-fragility theory. The findings indicate that the stability of banking and fintech sectors has a significant impact on the performance of MSMEs credit and their access to financing. The emergence of fintech solutions that offer accessible credit has led to a decrease in the performance of MSME credit within the banking sector.

Furthermore, this study supports the theory of asymmetric information previously examined by Singh (2024), Apriliani (2024), Ahmad (2023), Ika (2023), and Muliadi et al.(2020), which emphasizing the challenges related to the availability of profile data and the performance of MSMEs through effective and efficient access to digital loans.

Digital Loan Resilience Will Affect The Potential for Increasing The Sustainability of Msmes Businesses

At a significance level of 5%, the t-count value of 13.535 is substantially greater than the t-critical value of 1.96, as indicated by the results of testing hypothesis 5. This gives substantial statistical evidence to reject H0 and embrace H5. Therefore, Digital Loan Resilience (RDL) improves MSME Business Sustainability (KBU). MSMEs with digital loan resiliency have higher financial institution and digital lending platform confidence. Trust offers access to better funding, which is crucial for firm development and sustainability. MSMEs may take advantage of market possibilities and solve difficulties with simpler finance. Research shows that MSMEs with higher RDL are more sustainable. The correlation shows that MSMEs' long-term survival and growth depend on digital loan payment performance. This illustrates that MSME viability relies on efficient financial management, notably digital finance.

Digital loan resilience fluctuations explain 62.5% of MSMEs firm sustainability variability, according to this study model's R-squared value of 0.625. This report stresses MSMEs' debt management needs, particularly with digital loans rising. Effective digital loan management is a short-term financial responsibility and company survival strategy. Digital loan resiliency is important, but other variables account for 37.5% of MSME sustainability. Product innovation, managerial quality, competition, market circumstances, and government legislation are factors. Future study may explore how digital loan resilience impacts MSME sustainability and other parameters.

The results of this study strengthen the previous theory presented by Martini et al. (2023); Adam et al. (2022); Mushi (2020); Khusna Mustafa et al. (2018) who believe that the resilience of using fintech technology for loan applications will have an impact on the sustainability of MSMEs owners' businesses in the long term. However, this is different from the findings of Freeman et al. (2021) and Jayashree et al.(2021) who carried the RBV theory where business financing banks must prioritize the best service to their debtor customers through the VIRN dimensions or benchmarks and compare the RBV aspects with Service Quality Assurance (SCA) and do not include digital lending elements in influencing the sustainability of MSME businesses.

Improving Msmes Credit Performance Will Have an Impact on Increasing The Sustainability of Msmes Businesses

The t-value for hypothesis 6 is 7.062, above the required t-value of 1.96 at 5% significance. This provides strong statistical support for H6 and rejects H0. Thus, MSME Credit Performance (X4) positively affects MSME business sustainability (Y). It indicates that great credit performance may improve MSMEs' image among government, investors, and the public. This good attitude may help secure regulatory support, investment, or consumer loyalty, which are essential to company success. Everything in this research points to improving MSME Credit Performance increases the chance of MSMEs achieving business sustainability. MSMEs' ability to manage loan obligations and maintain a good credit history improves financial stability, resource access, and stakeholder trust, which are essential for long-term business sustainability.

Also from testing hypothesis 6, the R-squared value of 0.878, or 87.8%, shows that MSME credit performance variations explain 87.8% of MSME sustainability variability. The survival, stability, and growth potential of MSME firms are greatly affected by loan performance. High R-squared values imply that credit performance is a key indicator of MSME financial health and firm survival. The ability of MSMEs to manage and maintain a good credit history affects their long-term success.

The results of this study provide a different perspective from what was presented in previous T. Chen & Wang (2023) and Xing (2022), where in order to achieve business sustainability, MSMEs must prioritize market

competitiveness through maximum utilization of digital technology and implementing the right IT training model to increase MSMEs digitalization.

However, the results of this study are able to strengthen the theory put forward by Bai et al. (2021), where digital innovation in the supply chain, technology adoption, and multi-stakeholder environmental regulatory policies can help build the capacity of MSMEs in improving the sustainability of their businesses. This finding is also in line with the results of a study from Saptia et al. (2021), Nair & Njolomole, (2020), dan Korth et al. (2012) this underscores the need for thorough credit evaluation and adherence to credit qualifying criteria aligned with government-prioritized business sectors, to be executed by microfinance institutions and banks in ensuring the efficacy of MSME lending

Server-Based Product Development Competencies Affect Business Sustainability in MSMEs

Using hypothesis 7 testing, the t-count result of 7.062 surpasses the t-critical value of 1.96 at 5% significance. This provides strong empirical proof for H7 and against H0. Server-Based Product Development Competence (KPPS) greatly improves MSME Business Sustainability. Studies show that MSMEs that build server-based goods may create unique, valuable products and services. Innovation and difference help MSMEs stand out from competition, attract new consumers, and retain existing customers, which are vital for company survival. This study shows that MSMEs with better Server-Based Product Development Competence (KPPS) are more likely to achieve business sustainability. By developing unique and relevant server-based goods for the digital market, MSMEs gain a competitive edge, boost efficiency, extend market reach, and improve flexibility, which are crucial for long-term company survival and success.

Variations in the server-based product development capabilities possessed by MSMEs may statistically explain 54.6% of the variance in the degree of sustainability of MSME enterprises, according to the R-squared value of 0.546 obtained from testing hypothesis 7. KPPS is a novel variable in the MSMEs company sustainability model assessed using a descriptive quantitative technique, however this research shows that it has a considerable impact. This illuminates the variables that help MSMEs survive and develop in the digital age. The capacity to use server technology in product or service development looks to be crucial for corporate longevity. The acceptance of this hypothesis provides initial validation of the importance of server-based product development competency as a relevant factor in the MSMEs business sustainability model. Although this study is quantitative descriptive, these results provide a strong basis for further research that is more exploratory or causal.

This finding successfully supports the publication Affandi et al. (2024), Omrani et al. (2024), (Xing, 2022), and Pradhan et al. (2021) which states that server-based product development can expand market reach through the implementation of e-commerce platforms, web applications, or cloud-based customer management systems, which enable MSMEs to attract more clients from various geographic areas so that the opportunity to increase business competitiveness will be higher which will ultimately support the sustainability of MSMEs businesses.

CONCLUSION

Particularly when considering digital loans, this research offers a substantial theoretical contribution to deepening our knowledge of MSME firm sustainability in the digital age. This study examines the mediation model of selective growth credit distribution programs in relation to digital loans and business sustainability, thereby contributing to the literature on the adoption of financial technology (fintech) within the MSMEs sector and its effects on business survival. The article introduces and examines the mediating role of selective growth credit distribution programs, which may have been insufficiently explored in this context. The results obtained regarding the moderating effects of variables such as digital loan resilience, MSMEs credit performance, and server-based product development competency enhance the comprehension of the conditions that either strengthen or weaken the relationship between digital financing and MSMEs business sustainability. The examination of server-based product development competency as a significant factor affecting MSMEs business sustainability represents a novel theoretical contribution and establishes a foundation for further research into the role of specific digital capabilities in the context of MSME sustainability. This study offers significant implications for stakeholders (Bank X, BI, OJK, and other financial institutions) in the design and implementation of more effective and selective digital credit distribution programs for MSMEs. Analyzing the mediating and moderating roles of the examined variables enables banks to identify MSMEs with significant potential for sustainable growth via digital loans, while also optimizing risk assessment and credit distribution strategies. The research enhances the theory of digital financing for MSMEs by incorporating variables of selective growth credit distribution variables, digital loan resilience, credit performance, and server-based product development competency in model of MSMEs business sustainability.

REFERENCES

Adam, A., Wan Abdullah, W. R., Maruhun, E. N. S., Anwar, I. S. K., & Salin, A. S. A. P. (2022). The Resource-Based View Theory and Women Microbusiness Entrepreneurs: A Contribution to Business

Sustainability. *International Journal of Academic Research in Business and Social Sciences*, *12*(10), 2915–2932. https://doi.org/10.6007/ijarbss/v12-i10/15103

Affandi, Y., Ridhwan, M. H. A., Mega, C., Santosa, P., Affandi, Y., Ridhwan, M. H. A., Mega, C., & Santosa, P. (2024). *A Study of National Digital Adoption Index for Indonesian UMSEs (Expansion)*.

Ahmad, W. (2023). *Asymmetric Information and Market Failure in Bank-Nbfc Co-Lending Model* (Issue August).

Akpan, E., & Nnjeni, I. (2019). Contribution of Microfinance Banks to the Development of Small and Medium Scale Enterprises in Nigeria. *Research Journal of Finance and Accounting*, *7*(11), 1–15.

Apriliani, R. (2024). *Analysis of The Relationship Between Economic Growth , Micro Credit Absorption by MSMEs , Government Capital Regulations and Financial Digital Literacy*. *4*, 10197–10204.

Ashraf, D., Rizwan, M. S., & L'Huillier, B. (2022). Environmental, Social, And Governance Integration: The Case of Microfinance Institutions. *Accounting and Finance*, *62*(1), 837–891. https://doi.org/10.1111/acfi.12812

Bai, C., Quayson, M., & Sarkis, J. (2021). COVID-19 Pandemic Digitization Lessons for Sustainable Development of Micro-and Small- Enterprises. *Sustainable Production and Consumption*, *27*, 1989–2001. https://doi.org/10.1016/j.spc.2021.04.035

Bhattacharjee, M., Chakraborty, A., & Ghosh, D. (2023). Credit Allocation, Sustained Growth of MSMEs and Unorganized Sector: A General Equilibrium Study with Reference to the Less Developed Economies. In R. C. Das (Ed.), *Inclusive Developments Through Socio-economic Indicators: New Theoretical and Empirical Insights* (pp. 97–113). Emerald Publishing Limited. https://doi.org/10.1108/978-1-80455-554-520231008

Chen, S., & Guo, Q. (2021). Fintech and MSEs Innovation: an Empirical Analysis. *Conference on Fintech, Innovation and Development (CFID)*, 1–24.

Chen, T., & Wang, S. (2023). Incomplete Information Model of Credit Default of Micro and Small Enterprises. *International Journal of Finance and Economics*, *28*(3), 2956–2974. https://doi.org/10.1002/ijfe.2577

Cooper, D. R., & Schindler, P. S. (2014). Business Research Methods. In *Business Research Methods*.

Creswell. J.W. (1999). Mixed-Method Research: Introduction and Application. *Handbook of Educational Policy*, 455–472.

Darmawan, A. (2018). Influence of Loan Interest Rate , Non-Performing Loan , Third Party Fund and Inflation Rate towards Micro , Small and Medium Enterprises (MSME) Credit Lending Distribution at Commercial Banks in Indonesia. *Advance in Social Science, Education and Humanities Research*, *231*(Amca), 308–311.

Elahi, K. Q., & Danopoulos, C. P. (2004). Microfinance and Third World Development: A Critical Analysis. *Journal of Political and Military Sociology*, *32*(1), 61–77.

Freeman, R. E., Dmytriyev, S. D., & Phillips, R. A. (2021). Stakeholder Theory and The Resource-Based View of The Firm. *Journal of Management*, *47*(7), 1757–1770. https://doi.org/10.1177/0149206321993576

George, C. B. O., Joseph, M. N., John, C. M., & Charles, A. M. (2017). The Relationship Between Access to Finance and Growth of SMEs in Developing Economies: Financial Literacy as A Moderator. *Review of International Business and Strategy*, *27*(04).

Hasan, M., Le, T., & Hoque, A. (2021). How Does Financial Literacy Impact on Inclusive Finance? *Financial Innovation*, *7*(1), 7–40. https://doi.org/10.1186/s40854-021-00259-9

Idris, A., Edwards, H., & McDonald, S. (2017). E--Commerce Adoption in Developing Countries SMEs: What Do the Prevailing Theoretical Models Offer Us? *International Conference on E-Commerce*, 1–8.

Ika, S. (2023). A Systematic Literature Review on Financing Micro, Small and Medium Enterprises (Msmes) : Concept and Interest Subsidy Guarantee Scheme. *Journal of Social Political Sciences JSPS*, *4*(4), 387–409.

Ismanto, H., Wibowo, P. A., & Shofwatin, T. D. (2023). Bank stability and fintech impact on MSMEs' credit performance and credit accessibility. *Banks and Bank Systems*, *18*(4), 105–115. https://doi.org/10.21511/bbs.18(4).2023.10

Jayashree, S., Nurul, M., Reza, H., Agamudai, C., Malarvizhi, N., & Mohiuddin, M. (2021). Heliyon Industry 4 . 0 Implementation and Triple Bottom Line Sustainability : An Empirical Study on Small And Medium Manufacturing Firms. *Heliyon*, *7*(August), e07753. https://doi.org/10.1016/j.heliyon.2021.e07753

Jofanka, A. D., Sa, S., Estianingtyas, F., & Ekonomi, F. (2023). Pengaruh Kecerdasan dan Literasi Keuangan Terhadap Ketahanan Keuangan UMKM di Sentra Wisata Kuliner Jambangan Surabaya. *Jurnal Penelitian Manajemen Dan Inovasi Riset*, *1*(4), 1–13.

Karlan, D., & Morduch, J. (2010). Access to finance. In *Handbook of Development Economics* (1st ed., Vol. 5, Issue C, pp. 4703–4784). Elsevier BV. https://doi.org/10.1016/B978-0-444-52944-2.00009-4

Kartawinata, B. R., Mirda, L. A., Akbar, A., & Maharani, D. (2023). The effects of financial technology, financial literacy, and income on online loans in Indonesia's millennial generation. *Proc.SPIE*, *12936*, 1293616. https://doi.org/10.1117/12.3011826

Khusna Mustafa, H., Yaakub, S., Malaysia, U., & Yeop Abdullah, O. (2018). Innovation and Technology Adoption Challenges: Impact on SMEs' Company Performance. *International Journal of Accounting, Finance and Business*, *3*(15), 57–65.

Kingu, A., & Gomera, W. C. (2022). An Assessment of The Impact of Digitalization of Microcredit Services on Micro and Small Enterprises. *African Journal of Applied Research*, *8*(1), 121–137. https://doi.org/10.26437/ajar.03.2022.9

Korth, M., Stewart, R., Van Rooyen, C., & De Wet, T. (2012). Microfinance: Development Intervention or Just Another Bank? *Journal of Agrarian Change*, *12*(4), 575–586. https://doi.org/10.1111/j.1471-0366.2012.00375.x

Kumari, P. (2020). Theoretical Analysis of Microfinance on Poverty Alleviation. In *Journal of Economic Info* (Vol. 7, Issue 3, pp. 221–236). https://doi.org/10.31580/jei.v7i3.1709

Kurniawati, E., Handayati, P., & Osman, S. (2021). Digital Transformation of MSMEs In Indonesia During The Pandemic. *Enterpreneurship And Sustainability Issues*, *9*(2), 316–331.

Lertwongsatien, C., & Wongpinunwatana, N. (2003). E-commerce Adoption In Thailand: An Empirical Study of Small and Medium Enterprises (SMEs). *Journal of Global Information Technology Management*, *6*(3), 67–83. https://doi.org/10.1080/1097198X.2003.10856356

Martini, M., Setiawan, D., Suryandari, R. T., Brahmana, R. K., & Asrihapsari, A. (2023). Determinants of Digital Innovation in Micro and Small Industries. *Economies*, *11*(6), 1–17. https://doi.org/10.3390/economies11060172

Molenaar, P. C. M. (2019). Review of Multivariate Analysis with LISREL. *Structural Equation Modeling: A Multidisciplinary Journal*, *26*(2), 324–327. https://doi.org/10.1080/10705511.2019.1566002

Muliadi, M., Darma, D. C., & Kasuma, J. (2020). Finance & Banking Studies MSMEs as Mediation in The Effects of Investment Credit , Interest Rates , and Labor on Economic Growth : Evidence from Indonesia. *Finance & Banking Studies*, *9*(2).

Mushi, R. M. (2020). *Assessment of the needs of ICT Skills on Employability in SMEs : A VFT approach Assessment of the Needs of ICT Skills on Employability in SMEs : A VFT Approach*. *29*(1).

Nair, M., & Njolomole, M. (2020). Microfinance, Entrepreneurship and Institutional Quality. *Journal of Entrepreneurship and Public Policy*, *9*(1), 137–148. https://doi.org/10.1108/JEPP-07-2019-0061

Nastiti, D. I., Nur, S., Fadhlurrahmah, A., & Hermina, N. (2021). The Impacts of Macro Environment And Customer Behavior on Performance Improvement Through Marketing Program (Case Study on The Use Digital Payment System QRIS By SMES in West Java, Indonesia). In *Turkish Journal of Physiotherapy and Rehabilitation* (Vol. 32, Issue 3).

Omrani, N., Rejeb, N., Maalaoui, A., Dabic, M., & Kraus, S. (2024). Drivers of Digital Transformation in SMEs. *IEEE Transactions on Engineering Management*, *71*, 5030–5043. https://doi.org/10.1109/TEM.2022.3215727

Ozili, P. K. (2020). Theories of Financial Inclusion. In *Uncertainty and Challenges in Contemporary Economic Behaviour* (pp. 89–115). https://doi.org/10.1108/978-1-80043-095-220201008

Pradhan, R. P., Arvin, M. B., Nair, M. S., Hall, J. H., & Bennett, S. E. (2021). Sustainable Economic Development in India: The Dynamics Between Financial Inclusion, ICT Development, and Economic Growth. *Technological Forecasting and Social Change*, *169*(January), 120758. https://doi.org/10.1016/j.techfore.2021.120758

Prayitno, E., Tarigan, N., Sukmawaty, W., & Mauidzoh, U. (2022). Kebangkitan UMKM Pasca Pandemi Covid-19. *Jurnal Pengabdian Kepada Mayarakat (J-Abdi)*, *2*(4), 4787–4794.

Purboadji, A., Hakim, D. B., Siregar, H., Sembel, R., Barat, J., Barat, J., Barat, J., & Author, C. (2021). Strategies for Increasing MSME Credit Growth in Regional Development Banks in Emerging Countries: Analytical Hirarchy Process Approach. *International Journal of Management (IJM)*, *12*(7), 88–98. https://doi.org/10.34218/IJM.12.7.2021.009

Putra, F. I. F. S., Subagyo, H., Budiantoro, R. A., & Haziroh, A. L. (2022). Digital-Based Economic Recovery Program for Micro-enterprises in Indonesia. *Jurnal Organisasi Dan Manajemen*, *18*(December 2019), 13–30. https://doi.org/10.33830/jom.v18i1.1763.2022

Rahayu, S. K., Budiarti, I., Firdaus, D. W., & Onegina, V. (2023). Digitalization and Informal MSMEs: Digital Financial Inclution For MSMEs Development in The Formal Economy. *Journal Of Eastern European And Central Asian Research*, *10*(1).

Rosadi, R., Info, A., & Loans, O. (2025). Online Loans : A Solution or a Problem ? Perspectives on Education and Society. *International Journal of Public Administration and Policy*, *1*(1), 31–38.

Sallati, C., Andrade, J. De, & Schützer, K. (2019). Professional Skills in The Product Development Process : the Contribution of Learning Environments to Professional Skills in the Industry 4 . 0 Scenario. *Procedia CIRP*, *84*(March), 203–208. https://doi.org/10.1016/j.procir.2019.03.214

Saptia, Y., Nugroho, A. E., Sorkarni, M., Ermawati, T., Syamsulbahri, D., Astuty, E. D., Suardi, I., & Yuliana, R. R. D. (2021). Determinants of Accessibility to Fintech Lending: A Case Study of Micro and Small

Enterprises (MSEs) in Indonesia*. *Journal of Asian Finance, Economics and Business*, *8*(10), 0129–0138. https://doi.org/10.13106/jafeb.2021.vol8.no10.0129

Singh, A. (2024). Information Asymmetry and High Transaction Costs: Challenges Form MSMEs In Securing Financial Support. *GNLU Journal Of Law & Economic*, *7*(2), 1–18.

Suroso, J. S., & Wahjudi, Y. (2021). Analysis of Factors Affecting Satisfaction and Loyalty of Digital Loan Customer at PT. Bank XYZ. *Journal of Theoritical and Apllied Information Technology*, *99*(11).

Tanti, K., Ayu, I. G., Omika, A., Das, G., Ayu, I. G., & Utari, D. (2018). MSMEs Credit Distribution and Non-Performing Loan towards Banking Companies Profit in Indonesia. *International Journal of Social Science and Humanities*, *2*(1), 10–23. https://doi.org/10.29332/ijssh.v2n1.72

Wellalage, N. H., & Locke, S. (2016). Informality and Credit Constraints: Evidence from Sub-Saharan African MSEs. *Applied Economics*, *48*(29), 2756–2770. https://doi.org/10.1080/00036846.2015.1128081

Xing, Y. (2022). Economic Analysis of Digital Transformation and Upgrading of The Small Loan Service Industry. In *Genena Finance Research Institute*. University of Geneva.