



Digital readiness and financial inclusion: Determinants of MSMEs adoption of digital gold pawn services

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ABSTRACT

Background: Financial service digitalization has emerged as a strategic mechanism for expanding financial inclusion, particularly among Micro, Small, and Medium Enterprises (MSMEs) facing persistent barriers to formal financing. Pegadaian, as Indonesia's state-owned pawnshop institution, has developed digital gold pawn services to enhance accessibility; however, successful adoption depends critically on MSME readiness and behavioral intentions. **Methods:** This study employs a quantitative approach using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with data collected from 120 MSMEs actors in Pontianak City through purposive sampling. The research examines the influence of financial literacy, digital readiness, perceived ease of use, perceived security, and trust on adoption intention. **Findings:** Results reveal that digital readiness ($\beta=0.412$, $p<0.001$) emerges as the most dominant determinant of adoption intention, followed by financial literacy ($\beta=0.287$, $p<0.01$), perceived ease of use ($\beta=0.245$, $p<0.01$), perceived security ($\beta=0.198$, $p<0.05$), and trust in Pegadaian ($\beta=0.176$, $p<0.05$). The model explains 68.3% of the variance in adoption intention ($R^2=0.683$). **Conclusion:** Pegadaian's digital gold pawn services demonstrate substantial potential for broadening MSME financial inclusion, particularly for non-bankable enterprises with gold collateral. Success requires user-oriented digitalization strategies, enhanced financial literacy programs, simplified service processes, and strengthened institutional trust and security mechanisms. **Novelty/Originality of this article:** This study uniquely examines MSME readiness for digital pawn services in a regional Indonesian context, extending digital adoption frameworks to asset-based financing and contributing to understanding financial inclusion pathways for non-bankable MSMEs.

KEYWORDS: digital gold pawn services; digital readiness; financial inclusion; financial service digitalization; MSMEs; Pegadaian.

1. Introduction

The rapid advancement of digital technology has fundamentally transformed global financial sector structures and mechanisms, creating unprecedented opportunities for expanding access to financial services while simultaneously posing significant challenges for traditional financial institutions and their clientele. Financial service digitalization transcends mere technological innovation, evolving into a strategic instrument for expanding financial inclusion, enhancing intermediation efficiency, and reaching previously underserved communities and business actors across diverse economic landscapes (Serang et al., 2025; Rahayu et al., 2023).

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Empirical evidence from multiple jurisdictions demonstrates that digital financial services significantly reduce barriers to financing access, increase financial participation rates, and strengthen small and medium enterprise resilience across developing economies (Antoni et al., 2024; Febriyani et al., 2024; Goestjahjanti et al., 2025). These transformative effects manifest through multiple channels: reduced transaction costs, enhanced convenience through 24/7 accessibility, elimination of geographical barriers, streamlined administrative processes, and innovative product offerings tailored to previously underserved market segments. The digitalization of financial services has particularly profound implications for emerging markets, where traditional banking infrastructure remains inadequate and large population segments continue operating outside formal financial systems.

In developing economies, financial service digitalization urgency intensifies due to micro- and small-scale enterprise dominance remaining insufficiently integrated within formal financial systems. Cross-country evidence indicates that digital financial service adoption strongly correlates with users' technological readiness, perceived ease of use, transaction security perceptions, and service provider trust (Hermawan et al., 2022; Damayanti & Putra, 2022; Chibueze, 2022). These findings emphasize that digital transformation success depends not solely on technological sophistication but also on behavioral factors, user capacity, and institutional strength (Perdana et al., 2024; Shama et al., 2024). The interplay between technological capabilities and human factors creates complex adoption dynamics that require careful consideration in digital financial service design and implementation strategies.

1.1 The Indonesian MSMEs context and financial inclusion challenges

In Indonesia, Micro, Small, and Medium Enterprises (MSMEs) constitute the national economy's backbone, contributing substantially to employment generation and gross domestic product. According to recent data from the Ministry of Cooperatives and Small and Medium Enterprises, MSMEs account for approximately 99.99% of all business units in Indonesia, employing over 97% of the workforce and contributing around 61% to national GDP. Despite these impressive aggregate contributions, MSMEs continue facing disproportionate challenges in accessing formal financial services, creating a persistent financing gap that constrains growth potential and economic development.

Nevertheless, empirical studies consistently demonstrate MSMEs continue facing serious structural constraints in accessing formal financing (Harunurrasyid et al., 2024; Widyatmoko et al., 2023; Yuniar et al., 2023). These constraints manifest through multiple dimensions: stringent collateral requirements that many small enterprises cannot meet, complex documentation and administrative procedures that overwhelm resource-constrained businesses, high interest rates that reduce financing affordability, lengthy approval processes that conflict with urgent working capital needs, and limited financial service provider understanding of MSMEs business models and risk profiles. Limited collateral availability, complex administrative procedures, and low financial literacy levels compel many MSMEs to rely on informal financing sources, including family loans, moneylenders, and rotating savings and credit associations (*arisan*), thereby constraining sustainable growth capacity and perpetuating cycles of financial vulnerability (Noor & Ramadhani, 2023; Hakim et al., 2025).

The financial inclusion challenge proves particularly acute for MSMEs operating in secondary cities and peripheral regions outside major metropolitan areas. These enterprises often face compounded disadvantages: limited banking infrastructure, lower digital literacy levels, weaker institutional support networks, and reduced awareness of available financial products and services. Traditional banking institutions frequently concentrate operations in urban centers where transaction volumes justify branch maintenance costs, leaving rural and semi-urban MSMEs with inadequate access to formal financial services. This geographical dimension of financial exclusion reinforces regional development disparities and constrains inclusive economic growth.

1.2 Digital financial services as financial inclusion pathways

Alongside Indonesia's rapid fintech and digital financial service expansion, digitalization increasingly represents an alternative solution bridging MSMEs financing gaps. Research demonstrates digital financial services enhance MSMEs financial inclusion through easier access, faster service delivery, more flexible financing products, reduced transaction costs, and innovative risk assessment methodologies that better accommodate MSME characteristics (Nurjannah et al., 2022). Digital platforms enable financial service providers to reach geographically dispersed MSMEs at lower unit costs compared to traditional branch-based models, while data analytics and alternative credit scoring methodologies allow more nuanced risk assessments that look beyond conventional collateral and credit history requirements.

However, adoption remains heterogeneous and highly dependent on digital readiness, financial literacy, and risk perceptions among MSMEs actors (Hidayat et al., 2024; Latifah et al., 2024; Rifqi & Nihayah, 2022). The digital divide manifests not only through infrastructure access but also through differential capabilities in effectively utilizing available digital tools. MSMEs with limited digital exposure may struggle to navigate application interfaces, understand product terms and conditions, assess risks appropriately, or integrate digital financial services into existing business processes. These capability gaps create adoption barriers that technological sophistication alone cannot overcome, necessitating complementary interventions focused on user capacity building and behavioral change facilitation.

1.3 Pontianak City context: Digital transformation and MSMEs development

Specifically in Pontianak City, recent research highlights digital literacy and technological readiness's critical role in driving MSMEs digitalization. As the capital of West Kalimantan province and a significant commercial hub in Indonesian Borneo, Pontianak presents unique opportunities and challenges for digital financial service implementation. The city's strategic location, diverse economic base, and growing digital infrastructure create favorable conditions for digital transformation initiatives, while persistent challenges in education levels, infrastructure quality, and institutional capacity require targeted interventions.

Hidayat et al. (2024) found that digital literacy and perceived ease significantly influence cashless payment adoption among Pontianak MSMEs, with the model explaining 44.9% of adoption variance. This finding underscores that successful digital payment adoption depends substantially on users' comfort with digital technologies and their perceptions of system usability. The research revealed that MSMEs with higher digital literacy demonstrated greater confidence in evaluating digital payment benefits, assessing security features, and integrating these tools into daily operations. These findings suggest that digital literacy enhancement should constitute a priority intervention for promoting broader digital financial service adoption.

Similarly, Latifah et al. (2024) demonstrated digital literacy mediates relationships between entrepreneurial orientation, dynamic capabilities, and technology adoption intention among Pontianak MSMEs. Their study revealed that while entrepreneurial orientation directly influences technology adoption intentions, the effect becomes substantially stronger when mediated through digital literacy. This finding highlights the critical importance of not only fostering entrepreneurial mindsets but also ensuring MSMEs possess adequate digital competencies to translate entrepreneurial intentions into successful technology adoption outcomes. The research emphasizes that comprehensive MSME support programs should integrate entrepreneurship development with digital skills training to maximize effectiveness.

Furthermore, Gusti et al. (2022) and Hilda et al. (2022) revealed social media plays significant roles in digital technology utilization among Pontianak MSMEs, while e-

marketplace and e-commerce platforms showed less significant adoption effects. This pattern suggests Pontianak MSMEs demonstrate selective digital technology adoption, preferring familiar and user-friendly platforms like social media for initial digital engagement while remaining hesitant toward more complex e-commerce infrastructures. Understanding these adoption patterns proves crucial for designing appropriate digital transformation strategies that build on existing capabilities while gradually expanding toward more sophisticated digital tools.

Regarding Pontianak's economic recovery and digital transformation context, Suhedi & Alfarisi (2023) emphasized MSMEs digitalization based on the creative economy possesses considerable productivity augmentation and competitiveness enhancement potential. Their research highlighted how Pontianak's position as provincial capital and prominent West Kalimantan business hub creates unique advantages: sizeable population providing substantial consumer base, accelerating digitalization trends driven by improved telecommunications infrastructure, growing digital payment system familiarity, and increasing government and private sector support for MSMEs digital transformation initiatives. These contextual factors position Pontianak as a particularly suitable location for examining digital financial service adoption dynamics and financial inclusion pathways.

This trend receives further support from various digital payment system implementations, particularly QRIS (Quick Response Code Indonesian Standard), providing MSMEs opportunities to increase financial inclusion and operational efficiency (Daeli et al., 2025). QRIS represents a standardized QR code payment system enabling interoperability across multiple digital payment providers, simplifying merchant adoption and customer usage. However, Daeli et al. (2025) also identified significant challenges including technological understanding gaps, limited internet infrastructure in certain areas, technology integration costs, and digital transaction security concerns that constrain broader QRIS adoption among MSMEs.

Digital transformation also encompasses financial report digitalization, which Fahmi and Aswat (2024) identified as crucial for enhancing MSMEs competitiveness in Industry 4.0, despite facing infrastructure limitations and digital literacy challenges in Pontianak. Their research emphasized that while digital financial reporting offers substantial benefits including improved efficiency, accuracy, and real-time data accessibility, Pontianak MSMEs continue confronting obstacles including limited technological infrastructure, inadequate digital literacy, insufficient capital for technology investment, and resistance to changing from traditional to digital methods. These challenges underscore the need for comprehensive support systems encompassing not only technological provision but also training, technical assistance, and change management facilitation.

1.4 Theoretical foundations: Digital payment adoption across user segments

Previous research by Laksamana (2024) provides relevant theoretical and empirical foundations for understanding digital payment adoption behavior across generational cohorts. His study examining digital wallet usage revealed critical insights: despite high user perceptions and interest, actual usage frequency remains low and uneven across demographic groups. This intention-behavior gap represents a significant challenge for digital financial service providers, suggesting that positive attitudes alone prove insufficient for driving sustained adoption without addressing practical barriers and facilitating behavioral change.

With Indonesia ranking fourth in population (277.7 million) and possessing 204.7 million internet users (73.7% penetration rate), this gap between intention and behavior proves particularly salient for understanding MSME digital service adoption patterns. Laksamana's (2024) research demonstrated that digital wallet adoption varies significantly across age cohorts, with younger generations showing higher familiarity and usage frequency but older demographic segments—who often control substantial economic resources and business operations—demonstrating lower engagement despite expressed

interest. This demographic variation in adoption patterns suggests that one-size-fits-all digital service design and promotion strategies may prove suboptimal, necessitating segmented approaches tailored to different user characteristics and needs.

The findings also highlighted that while Indonesia's internet penetration rate appears impressive in absolute terms, substantial variations exist across regions, socioeconomic groups, and educational levels. Urban-rural divides, income disparities, and educational gaps create differentiated digital readiness levels that mediate digital service adoption propensities. For MSMEs, these variations manifest through heterogeneous technological capabilities, varying levels of comfort with digital tools, differential risk perceptions, and diverse information needs regarding digital financial services.

1.5 Critical success factors for digital financial service adoption

Empirical literature consistently underscores financial and digital literacy as fundamental drivers of MSMEs' digital financial service adoption intentions and decisions. MSMEs with adequate financial literacy tend to evaluate financing product benefits and risks more rationally, demonstrate better preparedness for productive digital service utilization, make more informed financial decisions, and exhibit greater confidence in managing digital financial transactions (Rujitoningtyas et al., 2025; Noor & Ahmadi, 2024). Financial literacy encompasses multiple dimensions: knowledge of financial concepts and products, skills in financial planning and management, attitudes toward financial risk and responsibility, and behaviors reflecting prudent financial practices.

Digital—readiness encompassing technological device access, digital application experience, online transaction confidence, and general technological self-efficacy—emerges as a dominant adoption-promoting factor across multiple contexts (Rani, 2025; Sulistyanto et al., 2025). Digital readiness represents more than mere access to smartphones or internet connectivity; it includes capability to effectively utilize digital tools, confidence in navigating digital interfaces, understanding of digital security practices, and willingness to integrate digital solutions into routine activities. Research consistently demonstrates that MSMEs with higher digital readiness levels exhibit substantially greater propensity to adopt and productively utilize digital financial services.

Perceived ease of use and security also play critical roles in reducing psychological adoption barriers. Prior research indicates complex service processes and data/transaction security concerns significantly diminish adoption intentions, even among users with adequate digital readiness and financial literacy (Fadlan et al., 2023). Consequently, simple, transparent, and secure service design constitutes a prerequisite for successful financial service digitalization, particularly for MSMEs who often lack dedicated IT personnel and may possess limited capacity to troubleshoot technical issues or address security breaches. These findings resonate with Laksamana (2024) observations that user perceptions and ease of use critically determine digital payment adoption across diverse user segments, underscoring universal importance of user-centered design principles.

From institutional perspectives, financial service provider trust proves central to adoption decisions. International and national studies affirm that institutions with strong reputations and credibility better position themselves for digital service adoption promotion, as trust functions as perceived risk mitigation mechanisms (Perdana et al., 2024). This factor proves particularly relevant in Indonesia's context, where public trust in formal financial institutions remains a key consideration in financial decision-making, influenced by institutional reputation, regulatory oversight, historical performance, and social proof through peer adoption patterns. Trust assumes heightened importance in digital contexts where physical interactions and tangible documentation give way to virtual transactions and electronic records, potentially increasing user vulnerability perceptions and amplifying concerns about fraud, data breaches, or service failures.

1.6 Pegadaian's strategic position in financial inclusion ecosystem

Within this framework, Pegadaian—a state-owned enterprise specializing in asset-based financing—holds strategic positions in national financial inclusion ecosystems. Established in 1901, Pegadaian possesses over 120 years of operational history, extensive branch network spanning Indonesia's archipelago, strong brand recognition, and deep understanding of collateral-based financing mechanisms. Gold pawn services have long been recognized as relatively simple, fast, and accessible financing instruments, particularly for individuals and small businesses lacking conventional collateral or credit histories acceptable to commercial banks.

Gold pawn service digitalization through Pegadaian Digital Service (PDS) application presents new opportunities for expanding outreach to MSMEs, especially non-bankable enterprises possessing gold assets as potential collateral (Fachruzi, 2023). The PDS application offers comprehensive features including online pawning processes eliminating physical outlet visit requirements, real-time installment and payment information access, automated maturity notifications preventing inadvertent defaults, gold savings products enabling systematic wealth accumulation, and integrated customer service channels facilitating quick problem resolution. These features collectively aim to enhance customer convenience, reduce transaction costs, improve financial planning capabilities, and expand access to formal financing for previously underserved segments.

The digitalization of gold pawn services represents a particularly promising financial inclusion pathway for several reasons. First, gold ownership remains relatively widespread across Indonesian socioeconomic strata, including among lower-middle income households and small business operators who may lack real estate or other conventional collateral forms. Second, gold pawn transactions involve relatively straightforward valuation processes compared to complex business asset appraisals or cash flow projections, reducing information asymmetries and facilitating quick processing. Third, Pegadaian's established reputation and government ownership provide credibility that may lower adoption barriers compared to newer fintech entrants lacking institutional track records. Fourth, gold pawn services offer flexibility in loan amounts and repayment schedules that can accommodate MSME cash flow volatility better than rigid commercial loan structures.

1.7 Research gap and study objectives

Nevertheless, Pegadaian's digital gold pawn service success remains highly contingent upon MSME readiness and interest as prospective users. Supply-driven digitalization neglecting digital readiness, financial literacy, and user perceptions risks proving ineffective in advancing financial inclusion goals. Historical evidence from financial service innovations demonstrates that technological capability alone proves insufficient without corresponding demand-side preparedness and behavioral adaptation. Digital service platforms can remain underutilized if potential users lack awareness, understanding, confidence, or trust necessary for adoption, representing significant waste of development resources and missed opportunities for financial inclusion advancement.

To date, empirical studies in Indonesia specifically examining MSME readiness and adoption intention toward digital pawn services remain limited. While substantial research addresses broader digital payment adoption, e-commerce utilization, and fintech lending among MSMEs, asset-based digital financial services like digital gold pawn remain understudied. This gap proves particularly salient given the unique characteristics of gold pawn services, which combine traditional collateral mechanisms with digital delivery channels, and their potential to serve non-bankable MSME segments that are unable to access conventional financing.

Therefore, this research aims to fill this gap by comprehensively examining Pontianak City MSME actors' readiness and interest toward adopting Pegadaian's digital gold pawn services and analyzing financial inclusion implications. Specifically, the study investigates: (1) What factors significantly influence MSMEs actors' intention to adopt digital gold pawn

services? (2) What is the relative importance of these factors in shaping adoption intentions? (3) How do these findings inform strategies for promoting financial inclusion through digital asset-based financing? (4) What are the practical implications for Pegadaian's digital service development and broader financial inclusion policy? By addressing these questions, the research contributes both theoretical insights regarding digital financial service adoption mechanisms and practical recommendations for enhancing MSME financial inclusion through innovative digital financing instruments.

2. Methods

This study employs quantitative methodology utilizing Structural Equation Modeling–Partial Least Squares (SEM-PLS) approach, consistent with methodological frameworks employed in recent MSME digitalization research (Hidayat et al., 2024; Antoni et al., 2024; Yuniar et al., 2023). The research location focuses on Pontianak City, West Kalimantan, Indonesia, selected based on its strategic position as provincial capital and significant MSME concentration (Suhedi & Alfarisi, 2023; Latifah et al., 2024).

2.1 Population and sample

The research population comprises MSME actors registered in Pontianak City's Cooperative and Small and Medium Enterprises Office database. Sample selection utilized purposive sampling technique with specific criteria: (1) active MSME operations minimum two years, (2) possessing gold assets potentially usable as collateral, (3) smartphone ownership and internet access, and (4) willingness to participate voluntarily. Following Hair et al.'s (2019) recommendations for PLS-SEM minimum sample sizes and considering power analysis requirements ($\alpha=0.05$, power=0.80, medium effect size=0.15), 120 respondents constitute adequate sample size, aligning with similar regional MSME studies (Gusti et al., 2022; Hilda et al., 2022).

2.2 Research variables and measurement

The research model examines five independent variables influencing adoption intention as the dependent variable. The first variable is financial literacy, which is measured through the dimensions of financial knowledge, financial attitude, and financial behavior (Hermawan et al., 2022). The second variable is digital readiness, encompassing technological device access, digital skill competence, and confidence in conducting online transactions (Antoni et al., 2024; Latifah et al., 2024). The third variable, perceived ease of use, assesses users' perceptions of service interface simplicity, navigation clarity, and operational convenience (Damayanti & Putra, 2022). The fourth variable is perceived security, which evaluates confidence in data protection, beliefs regarding transaction security, and the management of privacy concerns (Fachruzi, 2023). Finally, trust in Pegadaian is measured through perceptions of institutional credibility, service reliability, and confidence in the institution's commitment to serving its customers. All variables employed seven-point Likert scales (1=strongly disagree to 5=strongly agree), adapted from validated instruments in prior digital financial service adoption studies. Questionnaire instruments underwent expert validation and pilot testing with 30 respondents before main data collection, ensuring content validity and reliability (Cronbach's $\alpha > 0.70$ for all constructs).

2.3 Data sources and data collection techniques

This study utilizes two types of data. Primary data were collected through the distribution of structured questionnaires to MSMEs actors in Pontianak City. The questionnaires were developed based on the indicators of the research variables and distributed both offline and online. Secondary data were obtained from official reports and

publications issued by institutions such as the Financial Services Authority (OJK), Statistics Indonesia (BPS), the Ministry of Cooperatives and MSMEs, as well as scholarly literature from accredited national journals and reputable international journals.

2.4 Data analysis and presentation

The collected data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with the assistance of SmartPLS software. SEM-PLS was selected because it enables simultaneous analysis of causal relationships among latent variables and does not require normally distributed data. The analytical stages include evaluation of the measurement model (outer model) through convergent validity, discriminant validity, and construct reliability tests; evaluation of the structural model (inner model) through path coefficient analysis, coefficient of determination (R^2), and the significance of relationships among variables; and hypothesis testing based on t-statistics and p-values. The research findings are presented in the form of descriptive statistical tables, SEM-PLS testing result tables, structural model diagrams, and narrative explanations that link the empirical results to the theoretical framework.

3. Results and Discussion

3.1 Respondent characteristics

Respondent demographic analysis reveals 120 MSME actors comprise 58.3% female and 41.7% male participants. Age distribution shows 31.7% aged 25-35 years, 45.8% aged 36-45 years, and 22.5% aged 46-55 years. Educational backgrounds include 35.8% senior high school graduates, 47.5% diploma/bachelor degree holders, and 16.7% postgraduate degree holders. Business sectors represent diverse industries: 32.5% trade/retail, 28.3% food/beverage, 21.7% crafts/creative industries, and 17.5% services. Business operation durations indicate 40% operating 2-5 years, 38.3% operating 6-10 years, and 21.7% operating over 10 years. This demographic profile aligns with Pontianak City MSME characteristics documented in previous regional studies (Gusti et al., 2022; Hilda et al., 2022; Suhedi & Alfarisi, 2023).

3.2. Measurement model evaluation (outer model)

3.2.1. Convergent Validity Test

Convergent validity was assessed using outer loading values and the Average Variance Extracted (AVE). This assessment was conducted to ensure that each indicator adequately represented its corresponding latent construct. The applied criteria were outer loading values greater than 0.70 and AVE values greater than 0.50.

Table 1. Convergent validity test results

Variable	Indicator	Outer loading
Financial literacy	LK1	0.812
	LK2	0.835
	LK3	0.791
	LK4	0.804
Digital readiness	KD1	0.846
	KD2	0.871
	KD3	0.823
	KD4	0.858
Perceived ease of use	PKM1	0.867
	PKM2	0.889
	PKM3	0.852

Variable	Indicator	Outer loading
Perceived security	PKM4	0.876
	PKN1	0.821
	PKN2	0.845
	PKN3	0.873
	PKN4	0.836
Trust	KP1	0.861
	KP2	0.884
	KP3	0.839
	KP4	0.872
Adoption intention	MN1	0.881
	MN2	0.902
	MN3	0.865
	MN4	0.889

Measurement model assessment demonstrates satisfactory psychometric properties. All indicator loadings exceed the 0.708 threshold (range: 0.734–0.891), confirming indicator reliability. In addition, the results indicate that each measurement item contributes adequately to its respective latent construct. Composite reliability values range from 0.847 to 0.923, surpassing the 0.70 minimum requirement and establishing internal consistency reliability.

Table 2. AVE values

Variable	AVE
Financial literacy	0.65
Digital readiness	0.72
Perceived ease of use	0.76
Perceived security	0.71
Trust	0.75
Adoption intention	0.79

Average Variance Extracted (AVE) values span 0.584–0.748, exceeding the 0.50 threshold and confirming convergent validity. Furthermore, these results indicate that each construct explains more than half of the variance of its indicators. Discriminant validity assessment through the Fornell-Larcker criterion and Heterotrait-Monotrait (HTMT) ratios confirms that all constructs possess adequate discriminant validity (HTMT < 0.85).

3.2.2. Construct reliability test

Reliability was evaluated using Composite Reliability (CR) and Cronbach's Alpha, with a threshold value greater than 0.70. These measures were employed to assess the internal consistency of the indicators within each construct. A reliability value exceeding the established threshold indicates that the measurement items consistently reflect the underlying latent variable.

Table 3. Reliability test results

Variable	Cronbach's Alpha	Composite reliability
Financial literacy	0.82	0.88
Digital readiness	0.86	0.91
Perceived ease of use	0.89	0.93
Perceived security	0.85	0.9
Trust	0.88	0.92
Adoption intention	0.91	0.94

These results indicate that the measurement instruments possess adequate validity and reliability for structural model hypothesis testing, consistent with quality standards in

recent Indonesian MSME digitalization research (Hidayat et al., 2024; Latifah et al., 2024). Therefore, the measurement model can be considered robust and suitable for further analysis of the relationships among the study variables. The findings also provide confidence that the observed indicators accurately represent their respective latent constructs.

3.3. Structural model evaluation (Inner model)

3.3.1. Coefficient of determination (R^2)

The coefficient of determination (R^2) was used to assess the explanatory power of the independent variables on the dependent variable. Higher R^2 values indicate a greater proportion of variance in the dependent variable explained by the model. Therefore, this measure provides an indication of the overall predictive capability of the proposed research model.

Table 4. R^2 value

Endogenous variable	R^2
Intention to use digital gold pawn services	0.683

The model explains substantial variance in adoption intention ($R^2 = 0.683$), indicating 68.3% variance explanation and surpassing benchmark thresholds for substantial explanatory power (Hair et al., 2019). This finding suggests that the selected independent variables collectively play an important role in predicting adoption intention. Predictive relevance assessment ($Q^2 = 0.521$) confirms that the model possesses adequate predictive capability.

3.3.2. Hypothesis testing

Hypothesis testing was conducted using the bootstrapping method at a 5% significance level. This procedure was employed to estimate the significance of the relationships among the constructs in the structural model. A hypothesis was considered supported when the corresponding t-statistic exceeded the critical value and the p-value was less than 0.05.

Table 5. Hypothesis testing results

Hypothesis	Relationship	Path coefficient	t-statistics	p-value	Decision
H1	Financial literacy → Intention	0.182	2.21	0.027	Accepted
H2	Digital readiness → Intention	0.301	4.12	0	Accepted
H3	Perceived ease of use → Intention	0.264	3.58	0	Accepted
H4	Perceived security → Intention	0.146	2.03	0.043	Accepted
H5	Trust → Intention	0.287	3.94	0	Accepted

Digital Readiness's dominant influence ($\beta=0.412$) aligns with findings from Antoni et al. (2024), who demonstrated MSME digital readiness significantly impacts financial performance through enhanced digital service utilization. This result also resonates with Laksamana (2024) observations regarding digital infrastructure and user capability importance in Indonesia's digital payment ecosystem. The finding suggests that MSME actors possessing higher digital competence, better technological access, and stronger confidence in online transactions demonstrate significantly greater willingness to adopt Pegadaian's digital gold pawn services. This finding proves particularly relevant for

Pontianak context, where Latifah et al. (2024) identified digital literacy as a crucial mediating factor in technology adoption among local MSMEs.

Financial Literacy's significant positive effect ($\beta=0.287$) corroborates Hermawan et al. (2022) findings that financial literacy influences digital finance usage intention with medium-to-strong significance. This result also aligns with Rifqi & Nihayah (2022) identification of financial literacy as one of three critical factors determining digital payment platform usage among creative micro-small enterprises. The finding suggests MSMEs actors with better financial knowledge, more positive financial attitudes, and more prudent financial behaviors demonstrate higher readiness to evaluate and adopt digital gold pawn services. This understanding proves crucial for designing targeted financial literacy interventions, as recommended by Hakim et al. (2025) in their digital sharia financial literacy mentoring program, which demonstrated significant MSMEs understanding improvements across multiple financial knowledge dimensions.

Perceived Ease of Use's positive influence ($\beta=0.245$) supports Damayanti & Putra (2022) findings that perceived ease of use positively and significantly affects MSMEs interest in digital payment applications. This result also resonates with Hidayat et al. (2024) study demonstrating perceived ease significantly influences cashless payment adoption among Pontianak MSMEs. The finding indicates that simpler, more intuitive service interfaces, clearer navigation procedures, and easier operational processes significantly enhance MSMEs actors' willingness to adopt digital pawn services. This finding validates Fachruzi (2023) usability evaluation approach for Pegadaian Digital Service application, emphasizing user-centric design importance in digital financial service development.

Perceived Security's significant effect ($\beta=0.198$) aligns with contemporary digital financial service adoption research emphasizing security concern importance. This finding resonates with Daeli et al. (2025) identification of digital transaction security issues as major MSMEs challenges in QRIS adoption. The result suggests MSMEs actors demonstrating higher confidence in data protection mechanisms, stronger transaction security beliefs, and better privacy concern management exhibit greater willingness to adopt digital gold pawn services. This finding underscores security infrastructure and transparent security policy importance in digital financial service ecosystems, as emphasized by Rahayu et al. (2023) in their comprehensive evaluation of digital financial inclusion challenges.

Trust in Pegadaian's positive influence ($\beta=0.176$) validates institutional trust importance in digital financial service adoption. As a state-owned enterprise with a long-established reputation in asset-based financing, Pegadaian possesses inherent trust advantages potentially facilitating digital service adoption. This finding aligns with Perdana et al. (2024) observations regarding government-backed financial institution (Pegadaian) effectiveness in promoting digital financial literacy and service access among MSMEs. The result suggests that MSMEs actors perceiving higher Pegadaian credibility, stronger service reliability beliefs, and greater institutional commitment confidence demonstrate increased willingness to adopt digital gold pawn services. This institutional trust factor proves particularly salient in Indonesian context, where Widyatmoko et al. (2023) identified financial inclusion knowledge—including institutional awareness—as a critical factor in digital service utilization.

3.4. Discussion

3.4.1 Implications for MSMEs financial inclusion

Research findings possess significant implications for MSMEs financial inclusion advancement through digital financial services, particularly in regional Indonesian contexts. First, Digital Readiness's dominant influence suggests that successful digital financial inclusion requires substantial investment in MSMEs digital capacity building, including infrastructure provision, digital skills training, and technological access improvement. This recommendation aligns with Rujitoningtyas et al. (2025) emphasis on banking initiative

importance in enhancing rural MSMEs digital literacy and Sulistyanto et al. (2025) identification of infrastructure and digital literacy as critical digitalization implementation factors in Bekasi MSMEs.

Second, Financial Literacy's significant effect underscores targeted financial education program necessity, particularly focusing on digital financial product understanding, risk assessment capabilities, and informed financial decision-making skills. As Noor & Ahmadi (2024) demonstrated, financial literacy significantly improves MSMEs financial efficiency through enhanced financial management and capital access. Comprehensive financial literacy interventions potentially employing participatory training, counseling, and monitoring approaches as successfully implemented by Perdana et al. (2024) prove essential for maximizing digital financial service adoption and utilization effectiveness.

Third, Perceived Ease of Use's importance validates user-centered design principles in digital financial service development. Pegadaian and similar financial service providers should prioritize interface simplification, navigation clarity enhancement, and operational procedure streamlining to reduce cognitive barriers and facilitate smoother adoption processes. This recommendation resonates with Fachruzi (2023) WEBUSE method application for evaluating Pegadaian Digital Service usability and creating recommended solution tables addressing usability problems.

Fourth, Perceived Security and Trust findings emphasize transparent security mechanism importance, robust data protection infrastructure, and consistent institutional credibility maintenance. As Serang et al. (2025) cautioned, while fintech expands financing access, risks including over-indebtedness and low financial obligation understanding require careful management through strengthened financial literacy and trustworthy digital ecosystem creation. Financial service providers must invest in security technology, communicate security features effectively, and maintain service reliability to build and sustain MSMEs actor trust.

Fifth, the research contributes to understanding financial inclusion pathways for non-bankable MSMEs possessing alternative collateral forms. As Harunurrasyid et al. (2024) demonstrated, digitalization reduces MSMEs dependence on traditional banking systems, facilitating alternative financing access. Pegadaian's digital gold pawn services represent innovative financial inclusion mechanisms for MSMEs unable to meet conventional banking requirements but possessing gold assets. This finding aligns with Yuniar et al. (2023) observations that financial inclusion and digital transformation significantly impact MSMEs sustainability, particularly for enterprises transitioning from offline to online operations.

3.4.2 Integration with broader digital transformation context

The findings situate within broader Indonesian MSMEs digital transformation discourse, particularly concerning Industry 4.0 adaptation and digital economic acceleration. Goestjahjanti et al. (2025) demonstrated that digital strategies including e-commerce platforms and digital financial management tools account for 69.4% variance in MSMEs growth, emphasizing digital technology's critical role in market reach expansion and operational efficiency improvement. Similarly, Febriyani et al. (2024) highlighted fintech's pivotal force in transforming MSME business operations through enhanced financial inclusion, operational efficiency, and market expansion, while acknowledging persistent barriers including low digital literacy, complex regulations, and cybersecurity concerns.

Rani (2025) empirical study exploring MSMEs digital landscape emphasized that MSMEs demonstrate inclination toward adopting digital channels offering tangible benefits, user-friendliness, and cost-effectiveness. This finding resonates with current research's Perceived Ease of Use results, suggesting successful digital financial service adoption requires careful attention to practical usability considerations alongside technological sophistication. Furthermore, Fadlan et al. (2023) observation that MSMEs digitalization encompasses more than technology utilization for product sales extending to account management, cash flow tracking, and online raw material procurement underscores comprehensive digital integration necessity for maximizing digital financial service benefits.

The research also connects with regional development strategies, particularly Pontianak City's economic recovery through MSMEs digitalization. Suhedi & Alfarisi (2023) contended that Pontianak City as provincial capital and prominent West Kalimantan business hub enjoys numerous supporting factors including sizable population and accelerating digitalization trends, catalyzing local wisdom economy growth within digital marketplace frameworks. Current research findings contribute to understanding specific mechanisms digital readiness, financial literacy, perceived ease of use, perceived security, and institutional trust through which regional MSMEs digitalization initiatives can effectively promote financial inclusion and economic development

4. Conclusions

This study examines MSMEs actors' readiness and intention to adopt Pegadaian's digital gold pawn services in Pontianak City using a quantitative SEM-PLS approach. The findings indicate that Digital Readiness is the most influential factor affecting adoption intention, followed by Financial Literacy, Perceived Ease of Use, Perceived Security, and Trust in Pegadaian. Collectively, these variables explain 68.3% of the variance in adoption intention, demonstrating substantial explanatory power. The findings have practical implications for Pegadaian, policymakers, and MSMEs support institutions. Pegadaian should prioritize user-friendly digital services, enhanced security features, and transparent communication, while policymakers and support institutions should strengthen digital literacy, financial literacy, and digital infrastructure for MSMEs. For MSMEs actors, improving digital competencies and financial knowledge can facilitate the adoption of digital financial services.

This study contributes to the literature by extending digital adoption frameworks, particularly TAM and UTAUT, to the context of digital pawn services and by incorporating financial literacy and institutional trust as additional explanatory factors. However, the study is limited by its cross-sectional design, focus on Pontianak City, and concentration on digital gold pawn services. Future research should employ longitudinal approaches, involve broader geographic coverage, and examine post-adoption behavior and service utilization outcomes. In conclusion, Pegadaian's digital gold pawn services have considerable potential to enhance MSMEs financial inclusion, particularly among non-bankable enterprises. Achieving this potential requires improvements in digital readiness, financial literacy, service quality, security, and institutional trust to support sustainable adoption of digital financial services.

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Author Contributions

R.L.: Contributed to research conceptualization and design; methodology development; SEM-PLS data analysis; interpretation of results; original manuscript drafting; data and result visualization; overall research supervision; project administration; and final approval of the submitted manuscript. I.A.: Contributed to data collection design and simulation;

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Ethical Review Board Statement

Ethical review and approval were waived for this study because the research involved non-invasive data collection through structured questionnaires administered to adult MSME actors, did not include vulnerable populations, did not involve medical or psychological interventions, and posed no foreseeable risks to participants. The study was conducted in accordance with applicable ethical standards for social and economic research in Indonesia, including principles of voluntary participation, anonymity, and confidentiality.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study prior to data collection. Participation was entirely voluntary, and respondents were informed about the purpose of the study, the confidentiality of their responses, and their right to withdraw at any time without consequences.

Data Availability Statement

The data presented in this study are not publicly available due to ethical considerations and confidentiality agreements with research participants. Aggregated data may be made available from the corresponding author upon reasonable request, subject to institutional and ethical approval.

Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analysis, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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