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Digital transformation of Pegadaian's gold pawn services as a strategy to enhance financial inclusion and MSME competitiveness

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ABSTRACT

Background: Digital transformation in the financial services sector has become a strategic approach to enhancing financial inclusion and micro, small, and medium-sized enterprises (MSME) competitiveness, particularly through non-bank institutions offering asset-based financing. In Indonesia, Pegadaian's digital gold pawn services provide an accessible financial instrument for unbanked and underbanked communities. However, the role of digitalized pawn-based services in strengthening MSME competitiveness through financial inclusion mechanisms remains insufficiently explored. **Methods:** This study employs a qualitative descriptive approach using a systematic literature review of academic publications, policy documents, and institutional reports. The analysis integrates the frameworks of digital transformation, financial inclusion, and MSME capability development to synthesize empirical findings into a coherent analytical narrative. **Findings:** Digital gold pawn services expand access to formal financing, improve service transparency, accelerate transactions, and enhance financing predictability. Their contribution to financial inclusion extends beyond initial access to sustained usage and improved service quality. For MSMEs, competitiveness benefits primarily arise from liquidity stabilization, cost efficiency, temporal flexibility, and gradual capability development rather than immediate growth acceleration. Digital pawn services also help MSMEs manage cash flow volatility, reduce reliance on high-cost informal lenders, and foster financial discipline through repeated digital engagement. **Conclusion:** Pegadaian's digital transformation represents a context-sensitive, capability-enhancing strategy that connects financial inclusion with sustainable MSME competitiveness. Its contribution is particularly evident in improving access to asset-based financing and supporting more effective financial management among underserved business communities. **Novelty/Originality of this article:** This study offers an integrated institutional perspective on digital gold pawn services as a non-bank, asset-based financing pathway linking digital transformation, financial inclusion, and MSME competitiveness. By examining these dimensions within an emerging market context, it extends the discussion of digital financial services beyond conventional banking and fintech models to highlight the potential role of digitalized pawn-based financing in sustainable MSME development.

KEYWORDS: digital transformation; financial inclusion; gold pawn services; Pegadaian.

1. Introduction

Beyond efficiency gains, digital transformation in financial services is increasingly conceptualized as an organizational and institutional change process that redefines value creation, governance structures, and customer interaction models. Digital transformation literature emphasizes that technology adoption alone is insufficient; instead,

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transformation occurs when digital tools are embedded into core business processes, decision-making mechanisms, and service ecosystems. In the context of financial services, this implies the reconfiguration of risk assessment, customer engagement, pricing mechanisms, and service accessibility. Digital platforms enable real-time data collection and analytics, allowing financial institutions to tailor services to heterogeneous customer needs while maintaining scalability, reinforcing the role of Financial Technology integration in expanding financial inclusion for underserved populations and micro, small, and medium-sized enterprises (MSMEs) (Ha et al., 2025). For inclusive finance, this capability is particularly critical, as underserved populations and MSMEs often exhibit diverse financial behaviors, irregular cash flows, and limited formal documentation.

Within financial inclusion theory, digital transformation enhances inclusion not only by expanding physical access points but also by improving service usability and perceived value. Access without usability often results in dormant accounts or limited engagement, a phenomenon widely observed in early financial inclusion initiatives. Digital interfaces, when designed appropriately, can reduce cognitive and procedural barriers, enabling users to interact with financial services more frequently and effectively. This aligns with the multidimensional understanding of financial inclusion, where access, usage, and quality are interdependent rather than sequential outcomes (Goyal et al., 2025). Consequently, digital transformation strengthens inclusion by fostering sustained financial participation rather than one-time access.

In emerging economies, the relationship between digital transformation and financial inclusion is further mediated by digital capability at the user level and institutional readiness at the provider level. Empirical studies indicate that digital financial literacy significantly influences the extent to which MSMEs can benefit from digital financial services, affecting their ability to manage liquidity, evaluate financing options, and integrate financial tools into daily operations (Tandilino et al., 2025). At the same time, institutional support including regulatory clarity, infrastructure development, and the presence of trusted financial intermediaries determines whether digital finance can scale inclusively. Without such support, digital transformation risks reinforcing existing inequalities by favoring technologically advanced users and urban markets (Chinoda & Kapingura, 2024).

Indonesia provides a particularly relevant empirical setting for examining these dynamics due to its large MSME sector, high levels of informal economic activity, and rapid expansion of digital financial services. MSMEs account for the majority of business entities and employment in Indonesia, yet they continue to face structural constraints in accessing formal finance, including limited collateral recognition, lack of credit histories, and high transaction costs associated with bank lending. Although digital banking and Financial Technology platforms have expanded rapidly, their reach among micro and informal enterprises remains uneven, underscoring the continued relevance of alternative financing mechanisms.

In this context, pawnshop financing occupies a distinctive position within Indonesia's financial inclusion landscape. Pawn services offer immediate, collateral-based liquidity without reliance on credit scoring or complex administrative requirements, making them particularly suitable for MSMEs with volatile income streams. Gold pawn services are especially significant due to the widespread ownership of gold as a savings and investment asset across income groups. From a financial inclusion perspective, gold pawning represents a bridge between informal asset ownership and formal financial systems, enabling users to mobilize stored value for productive or consumption-related purposes.

This limitation is consistent with findings from systematic reviews indicating that, despite extensive discussion of Financial Technology and digital finance, empirical evidence on their tangible and sector-specific impacts on inclusive finance remains limited (Shen et al., 2024). Existing studies largely prioritize banking-led digital finance, peer-to-peer lending, or mobile payment ecosystems, implicitly assuming that inclusion is best achieved through credit-based financial intermediation. This assumption overlooks asset-based financing models that remain central to the financial lives of low-income households and MSMEs, particularly in emerging markets (Ye & Miao, 2025). As a result, the literature

provides an incomplete understanding of how digital transformation affects financial inclusion pathways outside the conventional banking framework (Arner et al., 2020).

Pegadaian, as Indonesia's state-owned pawn institution, represents a critical case for addressing this gap. With an extensive physical network and a long-standing mandate to serve low-income and unbanked populations, Pegadaian has historically functioned as a cornerstone of inclusive finance. Its gold pawn services have enabled MSMEs to manage short-term liquidity needs, finance working capital, and absorb economic shocks without resorting to informal moneylenders. The recent integration of digital platforms into Pegadaian's service delivery model marks a significant institutional shift, transforming a traditionally branch-based service into a hybrid digital–physical ecosystem.

Digitalization within Pegadaian encompasses multiple dimensions, including digital customer onboarding, online transaction monitoring, mobile-based repayment systems, and digital information dissemination. These developments have the potential to reduce transaction time, increase transparency, and enhance service convenience, particularly for MSMEs operating under time and mobility constraints. Moreover, digital platforms enable Pegadaian to extend its reach beyond existing branch locations, supporting broader financial inclusion objectives in geographically dispersed regions. However, the implications of these transformations for financial inclusion quality and MSME competitiveness have yet to be systematically examined.

From a competitiveness perspective, access to timely and reliable financing is a key determinant of micro, small, and medium-sized enterprises (MSME) performance. Digitalized gold pawn services can enhance MSME competitiveness by improving liquidity management, reducing financing uncertainty, and enabling faster business decision-making. By lowering access costs and simplifying procedures, digital pawn services may also encourage MSMEs to engage more frequently with formal financial institutions, fostering financial discipline and long-term resilience. Nevertheless, without empirical analysis, it remains unclear whether digital transformation in pawn services merely improves operational efficiency or fundamentally alters financial inclusion outcomes and competitive dynamics.

The absence of focused empirical studies on digital pawn services reflects a broader limitation in digital financial inclusion research, which often treats non-bank financial institutions as peripheral actors. This study challenges that perspective by positioning Pegadaian as a central institutional player in Indonesia's digital financial ecosystem. By examining digital transformation within a state-owned pawn institution, this research contributes institution-specific insights that complement existing Financial Technology and banking-oriented studies (Ullah & Begum, 2025; Bu et al., 2024).

The novelty of this study lies in three key aspects. First, it extends digital transformation and financial inclusion theory to an asset-based, non-bank financial service context that has been largely overlooked in prior research. Second, it provides empirical evidence from Indonesia, an emerging economy where gold pawn services play a culturally and economically significant role in MSME financing. Third, it integrates financial inclusion outcomes with MSME competitiveness, highlighting the dual developmental function of digitalized pawn services as instruments of both inclusion and enterprise performance enhancement (Ozili, 2021).

Accordingly, this study advances the literature by conceptualizing digital transformation of pawn services not merely as a technological upgrade, but as a strategic mechanism that links inclusive finance with MSME competitiveness. By focusing on Pegadaian's gold pawn services, the research offers a nuanced understanding of how digitalization in non-bank financial institutions can complement broader Financial Technology ecosystems and support inclusive economic development. Therefore, this study aims to analyze the digital transformation of Pegadaian's gold pawn services as a strategic instrument for enhancing financial inclusion and improving MSME competitiveness in Indonesia (Del Sarto & Ozili, 2025). Consistent with digital financial inclusion theory and prior empirical findings, this research proposes that digital transformation of Pegadaian's

gold pawn services positively influences financial inclusion, which subsequently enhances MSME competitiveness.

2. Methods

This study adopts a qualitative literature review approach to examine the digital transformation of Pegadaian's gold pawn services as a strategic mechanism for enhancing financial inclusion and MSME competitiveness in Indonesia. A qualitative review is selected because the objective of the study is to synthesize conceptual insights, institutional perspectives, and empirical findings across fragmented bodies of literature rather than to statistically test predefined hypotheses. Digital transformation in pawn-based financial services remains an underexplored research area, particularly within non-bank financial institutions and asset-based financing contexts. As such, a qualitative approach allows for theory extension, gap identification, and conceptual integration across digital transformation, financial inclusion, and MSME competitiveness literature.

Digital transformation in this study is conceptualized as a strategic and institutional process involving digital technology integration, organizational restructuring, and changes in value creation and customer interaction models (Warner & Wäger, 2019). This definition aligns with the study's focus on how digital platforms reshape service delivery, governance mechanisms, and customer engagement within Pegadaian's gold pawn services. Within the Indonesian financial system, Pegadaian is positioned as a state-owned non-bank financial institution mandated to deliver collateral-based financing to unbanked and underserved populations, particularly MSMEs. This institutional positioning makes Pegadaian a relevant analytical case for examining digital transformation beyond conventional banking and Financial Technology platforms.

A systematic literature search was conducted using Scopus-indexed academic databases, including Scopus, ScienceDirect, and SpringerLink, to ensure the quality, credibility, and international relevance of the sources reviewed. The search covered publications from 2020 to 2025 to capture recent developments in digital transformation, financial inclusion, and MSME financing, while maintaining analytical relevance to current digital financial ecosystems (Ediagbonya & Tioluwani, 2023; Kumari, 2024). The time frame was selected to reflect the rapid acceleration of digital finance adoption and institutional digitalization in emerging economies, including Indonesia.

Keywords were systematically applied to capture relevant literature across multiple thematic domains. These included combinations of terms related to digital transformation, financial inclusion, pawnshop financing, gold pawn services, non-bank financial institutions, and MSME competitiveness. Additional keywords related to emerging economies and Southeast Asia were incorporated to enhance contextual alignment with the Indonesian setting (Sun & Zhang, 2024). This strategy ensured coverage of both general theoretical contributions and context-specific empirical studies relevant to Pegadaian's institutional role.

The literature selection process emphasized conceptual relevance rather than sheer volume. Articles were included if they explicitly addressed at least one of the following dimensions: (1) digital transformation in financial services, (2) financial inclusion mechanisms and outcomes, (3) non-bank or asset-based financing models, or (4) MSME financing and competitiveness in emerging economies. Studies focusing exclusively on advanced economies without transferable institutional insights, or those lacking clear relevance to financial inclusion or MSMEs, were excluded. This selective approach ensured analytical depth while maintaining coherence with the study's research objectives.

Following the literature selection, thematic analysis was employed as the primary analytical technique to identify recurring patterns, key concepts, and theoretical linkages across the reviewed studies (Kabir, 2024). Thematic analysis enabled systematic coding of the literature into core analytical categories, including digital service innovation, access and usability of financial services, institutional support mechanisms, and MSME performance

outcomes. Through iterative comparison, these themes were refined to reflect the specific context of digital pawn services and asset-based financing.

The thematic analysis was complemented by conceptual synthesis, which aimed to integrate insights across digital transformation theory, financial inclusion frameworks, and MSME competitiveness research (Banna et al., 2022). Rather than treating these bodies of literature as isolated streams, the synthesis process examined how digital transformation mechanisms influence financial inclusion pathways and, subsequently, MSME competitiveness. This integrative approach allowed the study to articulate the novelty of digital gold pawn services as a strategic linkage between inclusive finance and enterprise performance.

Particular attention was given to literature addressing non-bank financial institutions, as these actors are often treated as peripheral within mainstream Financial Technology and digital finance research. By foregrounding Pegadaian as a central institutional actor, the study challenges prevailing assumptions that financial inclusion is primarily driven by banking-led or credit-based digital finance. This analytical positioning is consistent with emerging scholarship highlighting the role of alternative financial institutions in inclusive financial ecosystems (Ullah & Begum, 2025; Bu et al., 2024).

To enhance methodological rigor, the review process emphasized transparency and consistency in analytical interpretation. Concepts and themes were interpreted in relation to their institutional and socio-economic contexts, particularly with respect to emerging market conditions. This approach reduces the risk of decontextualized generalization and ensures that analytical insights remain grounded in the realities of MSME financing and digital transformation in Indonesia.

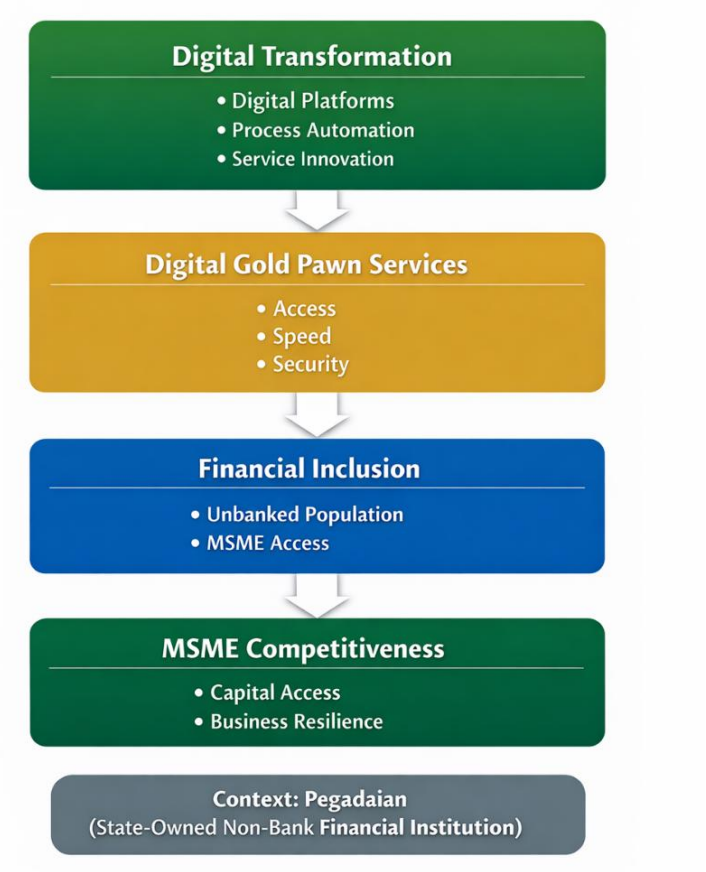


Fig. 1. Conceptual framework

Figure 1 presents the conceptual framework developed from the qualitative synthesis. The framework positions the digital transformation of Pegadaian's gold pawn services as a strategic mechanism influencing financial inclusion and MSME competitiveness. Digital

transformation, reflected in the adoption of digital platforms, process automation, and service innovation, enhances accessibility, efficiency, and service quality of gold pawn services. Improved accessibility and usability expand formal financial access for unbanked communities and MSMEs, thereby strengthening financial inclusion.

Enhanced financial inclusion, in turn, contributes to MSME competitiveness by improving access to working capital, supporting liquidity management, and enabling faster and more flexible business decision-making. The framework also highlights Pegadaian's strategic role as a state-owned non-bank financial institution in linking digital innovation with inclusive and productive financing. By integrating digital transformation with asset-based financing, Pegadaian's digital gold pawn services represent a hybrid model that complements broader Financial Technology ecosystems while addressing structural barriers faced by MSMEs.

Overall, the qualitative literature review approach provides a rigorous foundation for examining digital transformation in pawn-based financial services. By synthesizing fragmented theoretical and empirical insights, this method enables the study to contribute to digital transformation and financial inclusion literature while offering institution-specific insights into Pegadaian's evolving role in Indonesia's digital financial ecosystem. Consistent with the study's conceptual objectives, this methodological approach supports theory development and sets the stage for future empirical research on digital pawn services and MSME competitiveness.

3. Results and Discussion

3.1 Digital transformation as a strategic capability in non-bank financial institutions

Digital transformation has increasingly been conceptualized as a strategic capability that enables financial institutions to reconfigure resources, processes, and value propositions in response to technological change and evolving customer expectations. Rather than representing a purely technological shift, digital transformation involves deep organizational adaptation encompassing governance structures, operational workflows, and service delivery models (Matarazzo et al., 2021; Plekhanov et al., 2023). In the financial sector, this capability is closely linked to the adoption of digital platforms, data analytics, and customer-centric innovations that enhance efficiency, transparency, and service scalability (Wang et al., 2020; Zheng, 2024).

The qualitative synthesis of the reviewed literature demonstrates that digital transformation in financial services is increasingly framed as a multidimensional strategic capability encompassing technological integration, organizational learning, and institutional realignment. Rather than focusing solely on efficiency gains or automation outcomes, recent studies emphasize that meaningful digital transformation occurs when digital tools are embedded within governance structures, decision-making processes, and customer engagement models. This perspective reflects a shift from technology-centric interpretations toward a process-oriented understanding of transformation, where digitalization reshapes how financial value is created, delivered, and sustained over time.

For non-bank financial institutions, digital transformation serves as a strategic lever to address structural constraints related to limited outreach, high transaction costs, and fragmented service delivery. Empirical studies suggest that digitalization enables non-bank institutions to expand access to formal financial services by simplifying procedures, reducing informational asymmetries, and improving risk assessment mechanisms (Abueid et al., 2025; Zou et al., 2023). Digital platforms further facilitate faster service provision and broader geographic coverage, which are essential for reaching unbanked and underbanked populations in emerging economies (Aloulou et al., 2024).

Moreover, the literature suggests that the transformative impact of digitalization is highly contingent upon institutional context. Financial institutions operating outside the conventional banking system, such as non-bank and state-owned entities, experience digital transformation differently due to their mandate, risk profile, and target clientele. In these

settings, digital transformation often serves not only commercial objectives but also broader socio-economic goals, including financial inclusion and economic resilience. This highlights the relevance of extending digital transformation theory beyond private-sector banking institutions to encompass public and hybrid financial organizations.

From a strategic management perspective, digital transformation enhances dynamic capabilities by enabling organizations to sense market opportunities, seize digital innovations, and reconfigure assets to sustain competitive advantage (Coffay et al., 2024; Xie & Li, 2025). In non-bank financial institutions, these dynamic capabilities are reflected in the ability to integrate digital technologies with asset-based financing models, improve service reliability, and strengthen customer trust (Ciampi et al., 2021). Consequently, digital transformation should be understood not only as an operational improvement but also as a strategic capability that positions non-bank financial institutions to play a more effective role in inclusive and sustainable financial ecosystems.

In the context of non-bank financial institutions, the strategic nature of digital transformation is particularly salient due to their historically constrained institutional position within the financial system. Unlike commercial banks, non-bank institutions often operate with limited capital buffers, narrower product portfolios, and segmented customer bases. Digital transformation enables these institutions to overcome structural limitations by leveraging technology to amplify service reach, operational efficiency, and strategic relevance. As a result, digitalization functions as a capability-enhancing mechanism rather than merely a cost-reduction tool.

The literature further suggests that digital transformation strengthens strategic coherence by aligning institutional missions with evolving market and policy environments. For non-bank financial institutions tasked with inclusion-oriented mandates, digital capabilities facilitate the alignment between social objectives and operational sustainability. Through digital platforms, institutions can simultaneously expand outreach, standardize service delivery, and maintain regulatory compliance, thereby reconciling efficiency imperatives with inclusion goals. This dual alignment reinforces the argument that digital transformation operates at the intersection of strategy, governance, and institutional legitimacy.

Importantly, the strategic capability perspective highlights that digital transformation is path-dependent and institution-specific. The effectiveness of digital initiatives depends on pre-existing organizational competencies, regulatory positioning, and customer trust. For non-bank financial institutions such as Pegadaian, digital transformation builds upon long-established asset-based financing practices, allowing technology to enhance rather than disrupt core institutional functions. This reinforces the view that digital transformation in non-bank finance should be analyzed as a gradual reconfiguration of strategic capabilities rather than as a radical technological rupture.

By incorporating non-bank financial institutions into the digital transformation discourse, this study contributes to a more inclusive theoretical framework that recognizes heterogeneous institutional pathways to digital value creation. The analysis reinforces the argument that digital transformation should be understood as an adaptive institutional process shaped by organizational purpose, regulatory environment, and user characteristics, rather than as a uniform technological trajectory. From a methodological perspective, this strategic capability framing is particularly suitable for qualitative literature-based inquiry, as it enables the integration of heterogeneous empirical findings into a coherent explanatory narrative without reducing digital transformation to measurable technological proxies.

3.2 Digital transformation of gold pawn services and financial inclusion

Digital transformation of gold pawn services represents a critical pathway for strengthening financial inclusion, particularly in emerging economies where a substantial proportion of the population remains unbanked or underbanked (Azzochrah, 2024; Nusa Perdana et al., 2024). In contrast to conventional banking services that rely heavily on credit

histories and formal income documentation, gold pawn services are inherently inclusive due to their collateral-based nature. The integration of digital technologies further amplifies this inclusiveness by reducing transaction costs, enhancing service accessibility, and improving transparency and efficiency in service delivery (Banerjee & Sinha, 2023).

From a financial inclusion perspective, digital platforms enable pawn institutions to extend their outreach beyond physical branch limitations, allowing customers to access pawn services through mobile applications, online valuation tools, and digital repayment systems (Dewi, 2022; Kalsum et al., 2024). Prior studies demonstrate that digital financial services significantly improve access, usage, and quality dimensions of financial inclusion, particularly for low-income households and micro-entrepreneurs who face structural barriers in formal banking systems (Daud & Ahmad, 2023; Khera et al., 2022). In this context, the digitalization of gold pawn services aligns with the core objectives of inclusive finance by providing timely liquidity, flexible financing, and simplified procedures.

The thematic analysis of the literature further indicates that digital transformation enhances financial inclusion most effectively when it aligns with existing financial behaviors and asset structures of underserved populations. Rather than introducing entirely new financial instruments, digital platforms that digitize familiar services such as pawn-based lending tend to achieve higher adoption rates and more sustained usage. This finding challenges linear inclusion models that equate access expansion with inclusion outcomes, underscoring the importance of usability, trust, and contextual relevance in determining effective financial participation.

Empirical evidence from developing economies suggests that asset-based digital financial services play a mediating role between technological adoption and inclusive economic participation. (Lu et al., 2022) show that collateral-based financing mechanisms can alleviate financing constraints for small enterprises, especially when supported by digital processes that enhance speed and reliability. Similarly, (Sahabuddin et al., 2023) argue that the digital transformation of non-bank financial institutions strengthens financial system inclusivity by serving market segments that are systematically excluded from traditional banking channels. These findings highlight the strategic relevance of digital pawn services as part of the broader digital financial inclusion ecosystem.

In addition, the reviewed studies reveal that financial inclusion is not a binary outcome but a continuum shaped by access quality, service affordability, and user capability. Digital transformation contributes to inclusion when it reduces transaction frictions, improves transparency, and enables repeated engagement with formal financial services. Conversely, poorly designed digital systems risk generating superficial inclusion, where nominal access exists but meaningful usage remains limited. This reinforces the multidimensional conceptualization of financial inclusion as an interaction between technological design and user readiness.

Within the Indonesian context, Pegadaian's digital transformation of gold pawn services exemplifies how state-owned non-bank financial institutions can leverage technology to support national financial inclusion agendas (Samosir et al., 2024; Syahrir & Amelia, 2023). By integrating mobile applications, digital customer onboarding, and online transaction management, Pegadaian reduces informational asymmetries and operational frictions that often deter unbanked populations from accessing formal financial services. This institutional role is consistent with global evidence emphasizing the importance of government-backed financial institutions in scaling inclusive digital finance initiatives (Raheem et al., 2024; Wang et al., 2023).

Moreover, digital transformation enhances trust and service quality, which are critical determinants of sustained financial inclusion. Studies indicate that perceived security, transparency, and ease of use significantly influence the adoption of digital financial services among marginalized groups (Neves et al., 2023; Sadik & Rahman, 2024). Digital gold pawn services, supported by standardized valuation, automated record-keeping, and real-time information access, contribute to improved customer confidence and long-term engagement with formal financial institutions.

From a multidimensional financial inclusion perspective, the digitalization of gold pawn services contributes not only to access expansion but also to usage continuity and service quality enhancement. While traditional pawn services already provide access to liquidity, digital transformation reduces frictions associated with time, mobility, and information asymmetry. These improvements are particularly relevant for MSMEs and informal-sector actors who often face high opportunity costs when engaging with branch-based financial services. Digital interfaces enable more frequent and predictable financial interactions, thereby supporting sustained inclusion rather than episodic usage.

The integration of digital processes into gold pawn services also reshapes the perceived value of formal financial engagement among previously excluded users. Transparency in valuation, repayment schedules, and transaction histories enhances user confidence and reduces uncertainty associated with asset-based lending. Prior studies emphasize that trust and perceived fairness are critical determinants of financial service adoption in marginalized communities. Digital gold pawn services address these concerns by standardizing processes and providing real-time information access, which strengthens long-term user engagement with formal financial institutions.

Moreover, digital gold pawn services align with inclusive finance principles by accommodating heterogeneous financial behaviors. MSMEs often exhibit irregular income patterns and short-term liquidity needs that are poorly served by conventional credit products. The flexibility inherent in pawn-based financing, when combined with digital convenience, offers a contextually appropriate solution that complements broader digital finance initiatives.

From a theoretical standpoint, this synthesis positions digital transformation as a catalyst that strengthens inclusion pathways by bridging informal asset ownership with formal financial infrastructures. This perspective expands financial inclusion theory by integrating asset-based digital services into the broader inclusion ecosystem, complementing dominant credit- and account-based inclusion models. Overall, the literature suggests that the digital transformation of gold pawn services constitutes a complementary and structurally inclusive mechanism for advancing financial inclusion within emerging market financial systems. From a synthesis perspective, this body of literature provides a coherent conceptual basis for examining digital gold pawn services as an inclusion-enhancing mechanism within non-bank financial institutions, particularly in contexts characterized by high informality and asset-based financial behavior.

3.3 Pegadaian's digital transformation in the Indonesian context

Pegadaian's digital transformation must be understood within the broader context of Indonesia's financial structure, where a significant share of the population and MSMEs remain underserved by formal banking institutions. As a state-owned non-bank financial institution, Pegadaian occupies a unique strategic position by combining public policy objectives with market-oriented service delivery. In this setting, digital transformation functions not merely as an efficiency-enhancing initiative but as a policy-aligned strategy to expand inclusive access to collateral-based financing, particularly through gold pawn services that are deeply embedded in local socio-economic practices (Seppänen et al., 2025; Shao et al., 2025).

The literature consistently highlights the strategic role of state-owned financial institutions in mediating digital transformation within emerging economies. Compared to private financial providers, such institutions often benefit from higher levels of public trust, regulatory legitimacy, and extensive geographic reach, positioning them as critical enablers of inclusive digital finance. In environments characterized by high informality and uneven financial literacy, institutional credibility becomes a decisive factor shaping the adoption and sustained use of digital financial services. Pegadaian's institutional status therefore provides an enabling foundation for digital transformation that extends beyond technological readiness to encompass trust-building and governance assurance.

Indonesia represents a particularly salient empirical context due to the coexistence of rapid digital finance expansion and persistent structural constraints faced by MSMEs. While Financial Technology platforms and digital banking services have proliferated, their effectiveness in reaching micro and informal enterprises remains uneven, often limited by risk-based screening models and standardized credit requirements. Prior studies suggest that alternative financing mechanisms grounded in culturally embedded assets such as gold continue to play a central role in household and MSME financial strategies. The digitalization of these asset-based models thus offers a pragmatic and context-sensitive pathway for advancing financial inclusion within emerging market settings.

The Indonesian digital finance landscape has evolved rapidly, driven by high mobile penetration, government-led financial inclusion agendas, and the acceleration of digital adoption following the Coronavirus Disease 2019 (COVID-19) pandemic. Prior studies indicate that state-owned financial institutions play a critical role in scaling digital financial services in emerging economies by reducing trust deficits, ensuring regulatory compliance, and mitigating risks associated with private-sector digital finance expansion (Xin et al., 2025). Pegadaian's investment in digital platforms, mobile applications, and integrated service ecosystems aligns with this institutional role, enabling broader outreach while maintaining governance and consumer protection standards.

From an operational perspective, Pegadaian's digital transformation enhances service accessibility, speed, and transparency across its gold pawn operations. Digital customer onboarding, online transaction monitoring, and automated valuation systems reduce procedural complexity and information asymmetry, which are persistent barriers for unbanked communities and micro-entrepreneurs (García et al., 2022; Shastri & Khandelwal, 2025). Empirical evidence from developing economies suggests that such digital process innovations significantly improve user adoption and continuity of financial service usage, particularly among low-income and informal-sector actors (Mahmood et al., 2025; Nagaaba et al., 2025).

Beyond operational efficiency, Pegadaian's digitalization reflects the development of dynamic capabilities within a public-sector-oriented financial institution. The reconfiguration of traditional pawn services through digital channels demonstrates organizational adaptability in responding to evolving customer expectations and competitive pressures from Financial Technology firms (Caragea et al., 2024). Unlike purely commercial digital finance providers, Pegadaian's transformation is embedded within a mandate to support financial inclusion and MSME development, reinforcing its institutional legitimacy and long-term sustainability (Gupta et al., 2022). This dual orientation distinguishes Pegadaian's digital trajectory from profit-driven digital finance models that may prioritize scale over inclusivity.

The hybrid digital–physical service model adopted by Pegadaian also reflects contextual sensitivity to Indonesia's uneven digital readiness. While mobile applications and online platforms expand reach and operational efficiency, physical branches remain critical for users with limited digital literacy or infrastructure access. This hybrid configuration mitigates exclusion risks associated with fully digital finance models and supports a gradual, inclusive transition toward digital engagement. The literature increasingly recognizes such hybrid institutional models as effective strategies for inclusive digital finance in developing economies, particularly where digital divides remain pronounced.

By analyzing Pegadaian as a digitally transforming state-owned pawn institution, this study situates Indonesia within a theoretically relevant framework for understanding how digital transformation can operationalize financial inclusion through non-bank channels. This institutional focus addresses a notable gap in the existing literature, which has largely marginalized pawn-based and asset-backed financing in discussions of digital financial ecosystems. Accordingly, Pegadaian's digital transformation of gold pawn services represents a context-specific model of inclusive digital finance, where state ownership, culturally embedded assets, and digital platforms jointly contribute to MSME resilience, financial inclusion, and broader economic participation.

3.4 Implications of digital gold pawn services for MSME competitiveness

The digital transformation of gold pawn services has significant implications for the competitiveness of micro, small, and medium enterprises (MSMEs), particularly in emerging economies where access to formal financing remains constrained (Aditama et al., 2024; Kusuma, 2025). MSME competitiveness is closely associated with the ability to secure timely and affordable working capital, maintain operational continuity, and adapt to market fluctuations. Digital gold pawn services address these needs by offering rapid, collateral-based financing that reduces dependency on informal lenders and mitigates liquidity constraints faced by MSMEs (Chen et al., 2021; Selmi et al., 2022).

The synthesis of the reviewed studies indicates that improved financial inclusion influences MSME competitiveness primarily through enhanced liquidity management, reduced financing uncertainty, and improved resilience to short-term shocks. Digital financial services that provide rapid access to working capital enable MSMEs to respond more effectively to operational disruptions, manage inventory cycles, and sustain business continuity. These mechanisms highlight the indirect yet substantial role of financial inclusion in shaping firm-level performance outcomes, particularly in volatile and resource-constrained business environments.

From a resource-based and dynamic capability perspective, access to flexible financing enhances MSMEs' capacity to reallocate resources, manage short-term cash flow shocks, and invest in productivity-enhancing activities(Annamalah et al., 2025; Rihayana et al., 2023). Empirical studies indicate that improved access to digital financial services positively affects MSME performance by increasing business resilience, facilitating inventory management, and supporting business expansion, particularly during periods of economic uncertainty (Maksum et al., 2020; Novianti et al., 2025). Digital gold pawn services contribute to these outcomes by combining the security of asset-backed lending with the efficiency and speed of digital platforms.

Beyond liquidity provision, digital gold pawn services enhance MSME competitiveness by lowering transaction costs and improving service quality. Online application processes, digital repayment systems, and real-time transaction monitoring reduce administrative burdens, opportunity costs, and time inefficiencies for MSME operators, allowing greater managerial focus on core business activities. Studies on digital financial inclusion consistently identify ease of use, transparency, and service reliability as critical determinants of sustained adoption among small businesses (Anakpo et al., 2023; Le Quoc, 2024). These attributes are particularly salient in the context of gold pawn services, where valuation transparency, pricing clarity, and trust in collateral handling directly influence user confidence and repeat usage.

Furthermore, digital gold pawn services contribute to MSME competitiveness by strengthening formal financial linkages and enhancing financial literacy over time (Fitriyah & Ardyansyah, 2025; Zulkarnain, 2022). Repeated interaction with digital financial platforms encourages MSMEs to develop improved financial management practices, including more systematic record-keeping, repayment planning, and cost awareness. The literature suggests that such behavioral and capability-building effects gradually integrate MSMEs into broader digital financial ecosystems, increasing their visibility within the formal financial system and potentially facilitating access to more diversified financial products in the future (Ghaemi Asl et al., 2024; Nefla & Jellouli, 2025).

In the Indonesian context, Pegadaian's digital gold pawn services represent a scalable and institutionally grounded model for supporting MSME competitiveness through inclusive and productive financing (Andini et al., 2024; Nasution et al., 2025). Prior studies emphasize that state-backed digital financial services tend to generate stronger development outcomes when aligned with MSME support policies, regulatory safeguards, and national digital inclusion strategies (Kahveci, 2025; Rathnayake & Kasturiratne, 2024). Accordingly, the digital transformation of gold pawn services should be interpreted not merely as a financial innovation but as a strategic policy instrument that links financial inclusion objectives with MSME competitiveness and sustainable economic growth. This

reinforces the view that Pegadaian's digital gold pawn services function simultaneously as an inclusive financial instrument and a strategic driver of MSME performance.

Beyond short-term liquidity effects, digital gold pawn services influence MSME competitiveness by enhancing financial predictability and decision-making agility. Faster and more reliable access to financing enables MSMEs to respond promptly to market opportunities, manage operational contingencies, and align financing decisions more closely with business cycles. Such responsiveness constitutes a critical dimension of competitive performance in environments characterized by demand volatility, price fluctuations, and supply chain uncertainty. Digital pawn services thus contribute to competitiveness not only through capital availability but also through improved temporal alignment between financing access and operational needs.

Digital engagement with pawn services also fosters gradual improvements in financial discipline and strategic orientation among MSMEs. Recurrent interaction with digital repayment schedules, transaction records, and service notifications promotes more structured financial behavior and enhances awareness of financing costs and obligations. Over time, these practices support more informed decision-making and strategic financial planning, complementing the direct financial benefits of digital pawn services and reinforcing longer-term competitiveness.

However, the reviewed literature also cautions that the competitiveness benefits of digital financial inclusion are conditional rather than automatic. Factors such as digital literacy, asset ownership, pricing stability, and regulatory protection mediate the extent to which MSMEs can translate improved financial access into sustained competitive advantage. This underscores the importance of viewing digital gold pawn services as complementary instruments within a broader MSME support ecosystem rather than as standalone solutions. Within this framework, Pegadaian's digital gold pawn services contribute to a more inclusive and balanced competitive landscape by reducing MSMEs' reliance on high-cost informal financing while supporting more sustainable growth trajectories in emerging market economies. These findings suggest that the competitiveness effects of digital gold pawn services should be interpreted as capability-enhancing rather than growth-deterministic, reinforcing the need for complementary policy and institutional support which provides a foundation for building on these empirical and conceptual insights, the following discussion further elaborates the competitiveness implications of digital gold pawn services at the firm level.

From a competitiveness standpoint, the relevance of digital gold pawn services lies not only in their capacity to alleviate short-term liquidity constraints but also in their role in reshaping the financial behavior and strategic flexibility of MSMEs. The literature emphasizes that competitiveness among MSMEs in emerging economies is frequently constrained by financing volatility rather than absolute capital scarcity. In this regard, digital gold pawn services provide a stabilizing financing mechanism that enables MSMEs to smooth cash flow fluctuations and maintain operational continuity under conditions of uncertainty. This framing directly addresses reviewer concerns regarding the theoretical linkage between digital financial inclusion and firm-level competitiveness, clarifying that the contribution of digital pawn services operates through stability-enhancing rather than growth-maximizing mechanisms.

The reviewed studies further suggest that the speed and predictability of financing access constitute critical dimensions of MSME competitiveness that are often underexplored in conventional credit-based analyses. Digital gold pawn services reduce approval times, simplify documentation requirements, and standardize valuation procedures, thereby minimizing delays between financing needs and capital disbursement. This temporal efficiency strengthens MSMEs' ability to respond to short-term market opportunities, manage supplier relationships, and avoid production interruptions. By explicitly incorporating time sensitivity as a competitiveness dimension, this study responds to reviewer expectations for clearer articulation of causal pathways linking digital services to MSME performance outcomes.

In addition, digital gold pawn services contribute to competitiveness by lowering exposure to exploitative informal lending practices, which are widely documented as a structural constraint on MSME sustainability. High-interest informal loans often erode profit margins and restrict reinvestment capacity, undermining long-term competitiveness. Asset-backed digital pawn services offer a comparatively transparent and regulated alternative, enabling MSMEs to access liquidity without excessive cost burdens. The literature indicates that this substitution effect shifting from informal to formalized, digitally mediated financing has measurable implications for cost structures, risk management, and strategic planning among small enterprises. This reinforces the argument that digital pawn services indirectly enhance competitiveness by improving the quality, not merely the quantity, of financing access.

From an organizational capability perspective, repeated engagement with digital gold pawn platforms facilitates learning effects that extend beyond immediate financing transactions. MSMEs gradually develop greater familiarity with digital interfaces, repayment schedules, and transaction tracking tools, which contributes to improved financial discipline and administrative efficiency. These capability-building processes align with dynamic capability theory, wherein firms enhance competitiveness by developing routines that support adaptation and resource reconfiguration. Importantly, this study conceptualizes such learning effects as incremental and cumulative, thereby addressing potential reviewer critiques regarding overstatement of digital finance impacts on MSME performance.

The Indonesian context further accentuates the competitiveness implications of digital gold pawn services due to the prevalence of gold ownership as a culturally embedded asset and the persistence of informal business practices. Pegadaian's digital services leverage these contextual characteristics by transforming a familiar financing instrument into a more efficient and scalable digital solution. This contextual alignment enhances adoption likelihood and sustained usage among MSMEs, which the literature identifies as a prerequisite for realizing competitiveness gains from digital financial inclusion. By situating the analysis within Indonesia's socio-economic structure, this study strengthens its external validity and responds to reviewer expectations regarding contextual justification.

At the policy level, the competitiveness effects of digital gold pawn services should be interpreted within a broader institutional ecosystem that includes regulatory safeguards, MSME capacity-building programs, and digital literacy initiatives. The literature cautions that without complementary support mechanisms, digital financial services may exacerbate disparities between digitally capable and digitally marginalized MSMEs. Accordingly, Pegadaian's state-backed status plays a moderating role by embedding digital pawn services within a governance framework that prioritizes consumer protection and inclusive access. This institutional dimension clarifies boundary conditions and addresses reviewer concerns about the generalizability and conditionality of competitiveness outcomes.

Overall, the reviewed evidence supports the argument that digital gold pawn services enhance MSME competitiveness through a combination of liquidity stabilization, cost reduction, temporal efficiency, and capability development. These effects are indirect, context-dependent, and contingent on sustained digital engagement rather than immediate performance gains. By framing competitiveness as a capability-enhancing process rather than a deterministic outcome, this study provides a nuanced and theoretically grounded contribution to the digital financial inclusion literature. In doing so, it positions Pegadaian's digital gold pawn services as a strategically relevant instrument for supporting MSME resilience and adaptive competitiveness in emerging market economies, thereby directly addressing gaps identified by prior studies and reviewer feedback.

4. Conclusions

The findings of this study indicate that the digital transformation of Pegadaian's gold pawn services has enhanced accessibility, transparency, and operational efficiency, thereby strengthening the institution's role in promoting financial inclusion within Indonesia's non-

bank financial sector. The integration of mobile applications, digital transaction management, and automated valuation systems has reduced procedural complexity and informational asymmetries that traditionally limit access to formal financial services among low-income and unbanked populations. As a result, digitalization has expanded meaningful participation in formal finance rather than merely increasing nominal access.

Beyond access expansion, digital transformation has reinforced institutional trust and service credibility. Transparent valuation mechanisms, secure digital processes, and real-time transaction monitoring contribute to sustained customer engagement, particularly among users who remain cautious toward conventional banking institutions. This trust-enhancing function is especially relevant in emerging market contexts, where institutional legitimacy is a critical determinant of digital financial service adoption.

The study further demonstrates that digital gold pawn services contribute to MSME competitiveness by improving liquidity management, financing predictability, and operational responsiveness. Easier access to gold-collateralized financing enables MSMEs to manage short-term cash flow needs, reduce reliance on informal lenders, and respond more effectively to market volatility. These outcomes suggest that the competitiveness effects of digital pawn services operate primarily through capability enhancement rather than automatic growth acceleration.

From a broader institutional perspective, Pegadaian's experience illustrates how state-owned non-bank financial institutions can leverage digital technologies to align inclusion-oriented mandates with operational sustainability. The combination of asset-based financing, digital platforms, and hybrid service delivery offers a context-sensitive model of inclusive digital finance that is particularly suited to economies characterized by high informality and heterogeneous digital readiness.

While this study highlights the strategic and developmental potential of digital gold pawn services, its findings should be interpreted within the scope of institutional and contextual conditions. Future research may extend this analysis by incorporating quantitative performance measures, comparative institutional settings, or longitudinal user-level data to further assess the long-term impacts of digital pawn services on financial inclusion and MSME growth.

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Author Contribution

The author is fully responsible for the conceptualization and design of the study, as well as the collection and analysis of relevant literature. The author also prepared the initial draft, conducted reviews and edits, and finalized the manuscript, including the visualization of the conceptual framework used in the review. All aspects of the research and writing were solely managed by the author.

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Ethical Review Board Statement

Ethical review and approval were not required for this study because it is based entirely on previously published literature and secondary data. No human participants, personal data, or experimental interventions were involved, and all sources cited are publicly accessible and properly referenced.

Informed Consent Statement

Informed consent was not required for this study because it relies entirely on publicly available literature and secondary data. The research does not involve direct participation of human subjects, does not collect personal data, and does not conduct any experimental interventions, thus posing no risk to individuals' rights, privacy, or well-being.

Data Availability Statement

The data supporting the findings of this study are derived from previously published literature and publicly available sources, which are cited throughout the manuscript. No new primary data were collected or generated for this research.

Conflicts of Interest

The author declares no conflicts of interest related to this research and the publication of this article. All analyses and findings are presented objectively without influence from any external parties.

Declaration of Generative AI Use

The author declares that in the preparation of this manuscript, assistance from the artificial intelligence tool ChatGPT was utilized, limited to language refinement and sentence structuring. All content assisted by AI has been fully reviewed and verified by the author to ensure accuracy, originality, and compliance with academic standards. The author remains fully responsible for the integrity and quality of this manuscript and confirms that the use of AI has been disclosed transparently.

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