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Digital Debt Restructuring for MSMEs: A Framework for Digital-Based Bankruptcy Cases Under Law No. 4 of 2023 and Principle of AL-Qardh

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Abstract

The development of financial technology over the past decade has transformed the financing patterns of MSMEs in Indonesia through the widespread use of digital lending services. Although this digitalization has expanded access to funding sources, it has also generated new challenges, including rising default rates, high service fees, and limited legal protection for MSME borrowers. Meanwhile, Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector (UU P2SK) provides an opportunity to modernize digital dispute-resolution mechanisms, although it has not yet comprehensively addressed the specific needs of digital debt restructuring for MSMEs. This study aims to examine the model of digital debt restructuring within the framework of digital insolvency under the UU P2SK and to explore the incorporation of the al-qardh principle as an ethical approach to MSME recovery. This research employs a qualitative method using a normative–sociological approach through an analysis of relevant regulations, OJK policies, and insolvency literature, complemented by observations of digital restructuring practices in the field. The findings indicate that although the UU P2SK facilitates digital identity, electronic dispute mechanisms, and cross-institutional data integration, normative gaps remain regarding digital restructuring procedures and standards of electronic evidence. This study proposes a restructuring model that integrates positive law with the al-qardh principle to provide a fairer recovery mechanism that does not impose additional financial burdens on MSMEs

Keywords:Digital Debt, MSMEs, Al-Qardh

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INTRODUCTION

The development of digital technology over the past decade has brought major changes to the global financial sector, including Indonesia. Digital transformation has not only shifted the way people conduct transactions but has also created a new ecosystem known as the digital financial ecosystem, which includes various services such as digital payments, digital lending, investment management, and electronic dispute-resolution mechanisms. The emergence of these digital services has made a significant contribution to expanding financial inclusion, particularly for Micro, Small, and Medium Enterprises (MSMEs) that previously faced obstacles in accessing formal financing. According to Maria et al., increased access to peer-to-peer (P2P) lending has enabled many MSMEs to accelerate capital turnover, reduce administrative barriers, and expand market reach (M. Safitri et al., 2025). These findings are consistent with Rendra Wirawan (2024), who shows that the growth of fintech lending has a positive relationship with the increase in MSME production capacity (Wirawan, 2024). Nevertheless, the rapid expansion of digitalization also brings new risks, including higher default rates, digital-based fraud, and growing vulnerability of borrowers to unethical collection practices.

This transformation in financing patterns demands a legal framework capable of responding to the dynamics of digital transactions. In this context, Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector (UU P2SK) stands as one of the most significant regulatory reforms in Indonesia's financial sector over the past 25 years. The law restructures the architecture of financial supervision, strengthens consumer protection, and introduces new regulations on digital financial entities and activities. However, various studies criticize that the UU P2SK has not fully accommodated the mechanisms needed for digital debt resolution among MSMEs, particularly those trapped in online loans (Affandi & Harahap, 2024). The absence of clear procedures for electronic debt verification, standards for digital transaction evidence in insolvency cases, and integrated guidelines for digital platform-based restructuring indicates normative gaps that may disadvantage both debtors and creditors.

At the same time, default cases in digital lending continue to rise in line with the rapid penetration of fintech lending. Studies by Tika et al. reveal that many MSMEs relying on digital loans struggle to repay their debts due to income instability, low levels of financial literacy, and high service fees (Amelia et al., 2025). The post-pandemic economic climate has further exacerbated this condition, leaving many MSMEs under psychological and financial pressure caused by accumulated digital loan arrears. Research by Ikram et al. also shows that rising defaults are influenced by inadequate

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legal protection within the digital ecosystem, including misuse of personal data and non-transparent collection procedures (Azhim et al., 2025). Therefore, digital debt restructuring is considered an essential instrument to provide recovery space for MSMEs without requiring them to enter complex insolvency processes.

Within Indonesia's legal framework, debt settlement may take the form of restructuring, suspension of debt repayment obligations (PKPU), or bankruptcy (Firdaus, 2017). However, current insolvency regulations remain rooted in manual procedures and are not fully compatible with the fast-paced, automated, and cross-platform nature of digital transactions. Academic debates emerge regarding how digital transaction records can serve as grounds for bankruptcy petitions, how creditor verification can be conducted electronically, and whether digital debtors can be treated equivalently to conventional debtors (Amada & Wardianto, 2025). Although the UU P2SK creates opportunities to reform digital debt-dispute mechanisms, its implementation has not yet received sufficient academic scrutiny.

This gap is evident from the limited number of studies that comprehensively examine dispute-resolution mechanisms within the digital financial ecosystem, particularly those involving interactions among consumers, business actors, and regulatory authorities. Meanwhile, the rapid growth of digital financing services requires a legal framework that is adaptive, transparent, and capable of ensuring effective consumer protection (Bintarawati & Rismana, 2024). The discrepancy between regulatory provisions and practical implementation highlights the need for deeper academic evaluation to assess the alignment of the UU P2SK with the operational realities of the industry. Moreover, implementation challenges persist, including the absence of responsive alternative dispute-resolution mechanisms, limited public understanding of digital legal procedures, and the lack of technical guidelines that ensure procedural certainty (Arrofii & Januar, 2024). These challenges may reduce the effectiveness of dispute handling, especially in cases involving financial-technology platforms characterized by rapidly executed and cross-border transactions.

At the same time, Islamic economic principles offer an alternative approach distinct from purely formal legal mechanisms. The principle of al-qardh, particularly qardh al-hasan, represents a benevolent loan model emphasizing justice, empathy, and social benefit. In the context of MSMEs, qardh may serve as a restructuring instrument through measures such as burden reduction, elimination of penalties, or extension of repayment periods without additional charges (Ash-Shiddiqy, 2019). Research by Baroroh et al. shows that qardh-based microfinance has reduced default rates and improved the

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sustainability of small enterprises (Baroroh et al., 2026). Similar findings are put forward by Ghozali, who asserts that qardh can serve as an ethical solution for vulnerable borrowers struggling with conventional loan obligations (Ghozali et al., 2022). However, the integration of al-qardh principles with digital debt-restructuring models and the insolvency framework under the UU P2SK remains insufficiently explored.

There is an urgent need to design a digital debt-restructuring framework that aligns not only with national regulations but also with moral and social principles emphasized in Islamic economics. Several studies recommend developing a hybrid model that integrates positive law with Islamic finance to address the complexities of digital transactions (Sayuti, 2020). Such a model may include the integration of Islamic fintech services, the establishment of qardh-based restructuring standards, and the utilization of Islamic social funds (zakat, productive waqf, and benevolent funds) as supporting instruments (Meli Saputri, 2024). However, the implementation of this concept requires comprehensive theoretical elaboration and a well-structured policy framework. Therefore, this study aims to analyze digital debt restructuring for MSMEs within the digital insolvency framework of Law No. 4 of 2023 and to develop an integrated model that incorporates al-qardh principles as an ethical and humane solution.

DISCUSSION

Mechanism of Digital Debt Restructuring for MSMEs within the Digital Bankcruotcy Framework Under Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector (P2SK Law)

The development of digital financing within the fintech lending ecosystem has created a new form of legal relationship between MSMEs as borrowers and platform providers as digital creditors. The expansion of access to funding has been accompanied by a rise in default rates among MSMEs, driven by fluctuating business performance and limited digital literacy. In this context, digital debt restructuring serves as a fundamental instrument for maintaining business continuity while reducing systemic risk. Through schemes emphasizing relief and sustainability, qardh-based restructuring mechanisms not only help MSMEs stabilize their cash flow during periods of financial distress but also mitigate potential surges in defaults that could disrupt the stability of Islamic fintech platforms. This approach ensures that digital intermediation functions remain healthy, while still adhering to prudential principles.

In addition, the implementation of restructuring grounded in the values of justice and economic solidarity fosters more ethical relationships between service providers and

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users. By offering restructuring schemes that do not impose additional financial burdens on debtors, platforms are able to sustain user trust, which in turn enhances loyalty and strengthens the stability of the digital ecosystem. This condition reinforces the position of Islamic fintech as a financing alternative that is not only competitive but also socially oriented. Moving forward, integrating qardh-based restructuring policies with digital monitoring technologies and real-time risk analysis is expected to produce a more adaptive and resilient industry governance framework. The synergy between regulation, technological innovation, and Islamic principles forms an essential foundation for building an inclusive, stable, and sustainable digital financing system for MSMEs and society at large.

According to Adi, platform-based restructuring enables rescheduling and renegotiation of obligations to be conducted automatically, rapidly, and electronically documented, thereby reducing transaction costs compared to conventional mechanisms (Malie et al., 2023). This efficiency creates space for MSMEs to obtain payment relief without undergoing lengthy administrative processes and minimizes the risk of delays caused by bureaucratic barriers. Thus, the digitalization of restructuring processes functions as a catalyst for accelerating business recovery and improving debtor compliance (Anggita et al., 2023). Moreover, automation in assessing restructuring eligibility enhances the objectivity and accuracy of credit decisions. Real-time transaction data allow platforms to conduct more precise risk analyses, ensuring that restructuring decisions are fair, transparent, and aligned with the debtor's actual payment capacity. This process strengthens accountability and reduces the potential for moral hazard commonly present in manual restructuring schemes. Such technological integration aligns with Islamic finance principles emphasizing fairness, ease, and the avoidance of exploitation in financial relations (Widodo & Latifa, 2026). By eliminating additional charges and facilitating more humane settlement processes, digital qardh-based restructuring reflects the social orientation of Islamic finance. Ultimately, these innovations promote sustainable financing, strengthen platform stability, and support the creation of a more inclusive digital economic ecosystem.

Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector (P2SK Law) provides a new legal basis for digital financial activities, including dispute resolution and consumer protection. However, the Law does not explicitly regulate digital debt restructuring mechanisms for MSMEs, especially those facing potential insolvency. According to Farah, MSMEs often hold weak bargaining positions in resolving digital debt issues, requiring a more protective legal framework that is flexible with electronic

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evidence and online transactions (Karar et al., 2025). In this situation, regulations explicitly recognizing the validity of digital documents, automated transaction records, and risk-scoring algorithms become essential to ensuring transparency and accountability in restructuring processes. This ensures that MSMEs are no longer confronted with legal uncertainty or unilateral interpretation by digital platform providers.

Within modern bankruptcy ecosystems, the digitalization of administrative processes and evidence verification is considered crucial. Digital bankruptcy models adopted in several OECD countries demonstrate that electronic transaction verification, smart contracts, and digital footprints can serve as the basis for determining insolvency (Chen & Lee, 2020). The P2SK Law opens the door for integrating these technologies through the strengthening of digital identity, mandatory transaction data storage, and digital dispute resolution frameworks, which together provide the foundation for developing a digital bankruptcy mechanism compatible with the characteristics of MSME financing (Raysa Maharani, 2023).

In the context of digital debt restructuring, the P2SK Law emphasizes consumer protection and obliges fintech providers to establish transparent dispute-resolution mechanisms. This can be interpreted as an opportunity to develop platform-based restructuring models such as automatic rescheduling, partial principal reduction based on risk profiles, or temporary moratoriums for MSMEs affected by crises. According to Titin's research, restructuring models such as digital rescheduling and automatic refinancing can reduce default rates by up to 30% in the MSME sector (Aryanti et al., 2023). These findings illustrate that automated systems not only enhance process efficiency but also enable more responsive adjustments to the debtor's changing financial conditions. Digital restructuring thus offers MSMEs the possibility of maintaining business operations without being burdened by lengthy administrative procedures (Tohir et al., 2025).

Furthermore, digital restructuring models provide room for enhanced transparency between creditors and debtors. All processes from restructuring applications to eligibility assessments and final decisions can be electronically tracked. This transparency reduces potential conflicts, misinterpretation, and rule ambiguity commonly found in manual restructuring. In the digital economy, documentation based on electronic logs and time-stamped records also strengthens the legal legitimacy of restructuring decisions. According to Riyan, digital transformation is not merely technical innovation but a strategic instrument in reinforcing MSME resilience against financial pressures (Ryan Pratamansyah, 2024). By adopting technology-based restructuring models, fintech platforms can build more adaptive, inclusive, and sustainable financing ecosystems.

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Therefore, digital rescheduling and automatic refinancing should be integrated into national restructuring policies so their benefits can be evenly accessed across MSMEs, especially those operating in high-risk business environments.

Additionally, digital bankruptcy frameworks stress the importance of credit data integration between OJK, fintech lenders, and MSME development institutions. Such integration enables rapid solvency assessments based on transaction history stored in credit-scoring engines. The P2SK Law's expansion of inter-agency data integration facilitates the establishment of a more comprehensive early-warning system to assess MSME financial health objectively. With access to cross-sector information including digital transaction history, app-based cash flows, and digital borrowing records financing platforms can conduct more accurate assessments of business viability. Consequently, decisions on whether an MSME requires debt relaxation or should enter a micro-bankruptcy procedure can be made more precisely (Utama et al., 2024).

However, the implementation of digital debt restructuring still faces normative challenges. The absence of technical guidelines on platform-based restructuring procedures, including the validity of digital evidence and digital creditor verification obligations, creates legal uncertainty. In conventional bankruptcy, courts require clear evidence of debt existence, maturity, and default. In digital ecosystems, such evidence often exists only in soft-copy format and lacks uniform authentication standards. This is emphasized by Basrowi, who notes that digital evidence in fintech financing disputes is frequently contested in litigation (Basrowi, 2019). From an MSME protection standpoint, digital restructuring must be positioned as a preventive measure before bankruptcy occurs. Wijaya asserts that rapid and adaptive restructuring prevents up to 40% of MSME insolvency cases in Southeast Asia (Nadirah, 2026). The P2SK Law provides policy direction to strengthen fintech providers' role in offering restructuring facilities, but more specific implementing regulations are required to ensure that restructuring carries adequate legal force rather than being merely administrative.

Furthermore, digital-era MSME bankruptcy requires a simplified insolvency procedure that is accessible, low-cost, and capable of accommodating electronic evidence. The P2SK Law does not explicitly regulate digital bankruptcy, as insolvency matters still refer to Law No. 37 of 2004. This lack of harmonization presents a challenge, considering that digital transactions often occur without physical documents, while the Bankruptcy Law continues to rely on conventional forms of evidence. This reinforces Puspitasari's argument that Indonesia needs procedural bankruptcy reforms to match the needs of the digital economy (Ratuwalu et al., 2025).

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Thus, mechanisms for digital debt restructuring for MSMEs under the P2SK Law can be viewed as an initial framework bridging consumer protection, administrative digitalization, and electronic dispute resolution. Nevertheless, successful implementation depends heavily on OJK's technical regulations and the integration of cross-sector digital data ecosystems. Looking ahead, strengthening the legal structure for digital bankruptcy is essential to ensure that digital debt restructuring aligns with the needs of MSMEs and the dynamics of the digital economy.

The Implementation of the Al-Qardh Principle in Digital debt Restructuring for MSMEs

The integration of the al-qardh principle into digital debt restructuring schemes for MSMEs offers a new paradigm that is more just and ethically grounded compared to conventional restructuring models. In *fiqh mu'amalah*, al-qardh is understood as a non-compensatory loan contract intended to provide relief to those in need; therefore, any form of increment, interest, or late penalties (*ta'zir al-muta'akhkhir*) is strictly prohibited. This concept aligns with the objectives of the Shari'ah (*maqasid al-shari'ah*), which emphasize welfare, justice, and protection for financially vulnerable parties (Muhaki & Aziz, 2024). In the MSME context where fluctuations in income and liquidity constraints are common applying al-qardh allows the formation of restructuring mechanisms that do not burden debtors while maintaining the sustainability of digital platforms as creditors.

Through this principle, platforms can provide debtors the opportunity to reorganize their cash flows without additional financial burdens such as interest or penalties, thereby ensuring a more stable business recovery process. At the same time, platform sustainability is preserved because the al-qardh mechanism encourages long-term, trust-based relationships, which form the foundation of successful Islamic digital financing services. Thus, restructuring is not merely an instrument of debt relief, but a sustainable business strategy that benefits both parties. A restructuring model based on al-qardh supports the creation of an inclusive digital financial ecosystem, particularly for high-risk MSMEs that cannot access bank financing. With a non-profit–oriented approach at the restructuring stage, Islamic fintech prioritizes welfare while enabling the integration of social justice principles into financial technology. This approach is consistent with the findings of Junnita et al., who emphasize that economic stability can only be achieved if the financial system provides structural protection for vulnerable economic groups (Herawati et al., 2024). In the digital context, such protection can take the form of adjusted repayment schedules, moratoriums, or conversion of certain obligations into non-

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compensatory loans through self-executing smart contractsThe Implementation of a National Standards–Based Quality Management System in Islamic Educational Institutions.

Beyond promoting distributive justice, restructuring based on al-qardh enhances the long-term resilience of MSMEs. When a debtor's financial burden decreases, their focus can return to strengthening business competitiveness, increasing production, and expanding markets. This is supported by the study of Alimaaini, which shows that financing grounded in social contracts significantly improves the sustainability of small enterprises by providing recovery space without excessive financial pressure (Alimaini & Nasution, 2023). In the digital financial ecosystem, this value is reinforced by the speed and transparency of digital systems, allowing the entire restructuring process to be monitored in real time. Thus, al-qardh becomes not only a Shari'ah-compliant solution for debt resolution but also a strategic pillar in strengthening MSME resilience in the digital era.

Islamic fintech platforms may also adopt smart contracts to ensure that restructuring is carried out automatically, transparently, and in full compliance with Sharī'ah principles, without data manipulation or unilateral decisions. The integration of al-qardh strengthens ethical dimensions in digital debt resolution, especially during unforeseen economic conditions such as pandemics or regional crises. As noted by Karim, MSMEs receiving relief based on social contracts exhibit faster business recovery and lower moral hazard, supported by more structured digital control mechanisms (Karim et al., 2020). This approach is consistent with the principles of *al-taysir* (facilitation) and *raf'u al-haraj* (removal of hardship), which form the basis for applying qardh in emergency situations. In digital ecosystems, such standards can be implemented through risk-assessment algorithms that evaluate eligibility for qardh-based restructuring using transaction data.

By utilizing machine learning and behavioral scoring, platforms can more accurately assess a debtor's financial condition, including income patterns, transaction frequency, and payment histories. This data enables Islamic fintech providers to differentiate between debtors facing temporary difficulties and those exhibiting potential moral hazard, ensuring that al-qardh relief is targeted appropriately (Maryam, 2020). With more objective, data-driven assessments, restructuring becomes more efficient and reduces the potential for conflict or inequitable treatment between debtors and creditors. Furthermore, the application of such risk algorithms supports justice in Shari'ah-compliant restructuring, as systems can identify debtor vulnerability without discrimination and

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ensure that assistance is directed to those who genuinely need it. This mechanism strengthens the ethical character of Islamic fintech, ensuring that restructuring decisions rely not only on internal policies but also on measurable and Shari'ah-accountable indicators.

Integrating al-qardh into digital debt restructuring strengthens debtor protection as outlined in Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector (P2SK Law). The law highlights the importance of fair dispute resolution and the provision of restructuring mechanisms that do not disadvantage consumers. By incorporating al-qardh, Islamic fintech providers can offer ethical restructuring pathways that prioritize MSME sustainability and digital financial system stability over short-term profit. This aligns with Deby et al., who argue that MSME financial inclusion improves when structural protections minimize financial pressure through Shari'ah-based financing (Vebriyani et al., 2024).

Implementing al-qardh as a restructuring instrument also aligns Islamic fintech practices with distributive justice as articulated in Islamic economics. Financing is positioned as an empowerment tool rather than an exploitative mechanism, making qardh-based restructuring a concrete expression of social justice (Lut'fiyah et al., 2025). This approach provides MSMEs with room to restore operational capacity without excessive financial pressure, while ensuring debtor-creditor relations are grounded in cooperation (*ta'awun*) and social responsibility. By eliminating commercial elements from the restructuring process, the qardh principle creates a more proportional alignment between debtor capacity and financial obligations. This reduces default risks and fosters long-term commitment among debtors to fulfill obligations in a realistic, phased manner.

The application of qardh in digital restructuring promotes a more inclusive financial ecosystem for small enterprises that often lack access to formal financial institutions due to insufficient collateral or limited credit histories. The qardh principle allows for fairer risk redistribution, with Islamic fintech acting not only as a fund provider but also as a partner in empowerment. This resonates with Rahmat Hidayat's view that Islamic financing ideally balances profit considerations with social responsibility (Hidayat, 2020). In this context, qardh-based restructuring serves as an effective instrument to enhance MSME resilience through humane and adaptive financial approaches tailored to the challenges of the digital economy.

At the macro level, qardh-based restructuring also contributes to the stability of the digital financial system. When MSMEs are given opportunities to recover without interest, penalties, or unethical collection practices, repayment performance improves and

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systemic risk diminishes (Megawati et al., 2025) . This generates healthier economic circulation and strengthens the contribution of MSMEs to national economic growth. Thus, qardh-based restructuring emerges not only as an alternative solution for digital debt resolution but also as a foundation for building a financial ecosystem that is just, sustainable, and morally aligned with the principles of Islamic finance. According to Joni et al., social-contract-based financing enhances small business resilience by fostering trust and solidarity between creditors and debtors (Hendra & Halbadika Fahlevi, 2024). In digital ecosystems, this solidarity can be reinforced through peer monitoring and transparent reporting of restructuring status via application dashboards.

Such transparency enables stakeholders debtors, funders, and platform managers to monitor obligations in real time, preventing misunderstandings or disproportionate collection pressure. Digital monitoring models also promote shared responsibility because all parties have equal access to relevant information and can monitor mutual compliance (Hendra & Fahlevi, 2024). In this sense, digitalization serves not only as a means of distributing financing but also as a tool for constructing an ethical ecosystem consistent with social justice principles in Islamic economics. Peer monitoring allows user communities to actively participate in safeguarding the integrity of al-qardh-based restructuring processes. Community involvement may take the form of reporting features, discussion forums, or rating systems that evaluate debtor and creditor compliance. Such community-based approaches strengthen oversight and create moral incentives for debtors to honor their obligations without excessive coercion. For fintech platforms, a community supervisory layer helps identify risk early and provides insights into the effectiveness of ongoing restructuring procedures.

This transparency and peer monitoring support the Shari'ah principle of *al-tawazun* (balance) between rights and obligations. Debtors receive protection from unethical collection practices, while creditors gain assurance that debt resolution proceeds in a monitored and accountable manner. Digital features such as automated reminders, payment-status notifications, and commitment tracking serve as objective and fair evaluation tools. The integration of solidarity values through technology not only enhances restructuring quality but also strengthens MSMEs' agency within the digital financial system, while safeguarding the sustainability of Islamic fintech platforms committed to justice and welfare (D. Safitri & Vidiati, 2025).

Accordingly, integrating al-qardh into digital debt restructuring models not only provides legal protection and financial relief for MSMEs but also addresses the need for humane, inclusive, and socially just debt settlement mechanisms in the digital economy.

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The application of this principle has the potential to become an effective restructuring policy, especially in strengthening MSME resilience amid business volatility in the digital era. Moving forward, technical guidelines from the Financial Services Authority (OJK) are necessary to ensure that al-qardh can be implemented uniformly across Islamic fintech platforms, producing restructuring frameworks that are not merely legalistic but oriented toward economic sustainability.

These guidelines should ideally include digital data based debtor eligibility assessments, standards for user information transparency, and operational boundaries preventing practices contrary to Shari'ah values such as exploitative charges. More detailed regulations should also cover the use of smart contracts in qardh restructuring, reporting procedures to supervisory authorities, and risk-mitigation schemes that maintain fairness for vulnerable MSMEs (Raharja, 2021). Harmonizing al-qardh principles with positive law particularly the P2SK Law and its derivatives must be strengthened to prevent disharmony in Islamic fintech operations. This includes integrating Shari'ah compliance standards with consumer protection principles and risk-governance frameworks established under the national digital financial supervisory system. With consistent, measurable, and coordinated implementation, qardh-based restructuring will serve as a cornerstone in building a digital financial system that is inclusive, just, and aligned with Shari'ah principles.

CONCLUSION

Digital debt restructuring for MSMEs through the integration of the *al-qardh* principle within the framework of the P2SK Law offers a fairer, more adaptive, and sustainability-oriented approach while leveraging digital technology to enhance efficiency, transparency, and the accuracy of risk assessment. Digitalization through automation, cross-sector data integration, and the use of risk algorithms enables the restructuring process to be faster, more objective, and well-documented, thereby preventing defaults and strengthening business resilience. At the same time, the *al-qardh* principle ensures that restructuring is carried out without additional financial burdens, in line with the values of justice, public welfare, and protection for vulnerable groups. Nevertheless, normative challenges such as the absence of technical guidelines, the lack of standardized digital evidence authentication, and the misalignment between conventional bankruptcy regulations and digital realities necessitate further reforms so that restructuring mechanisms can operate more effectively and possess stronger legal legitimacy. With the synergy of regulation, technology, and Shari'ah values, *al-qardh* based digital

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restructuring has the potential to establish a more inclusive, ethical, and stable MSME financing ecosystem in the long term.

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