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Development of a Model for Implementing the Afitrah Seller App in the Digital Transformation of MSMe Operations

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Abstract

Micro, Small, and Medium Enterprises (MSMEs) are increasingly required to adopt digital technologies to improve operational efficiency and business sustainability. However, many MSMEs face challenges in sustaining digital transformation after technology adoption due to limited organizational readiness, human resource capabilities, and knowledge management practices. This study aimed to develop an implementation model for the Afitrah Seller application to support MSME digital transformation and enhance operational efficiency. The research employed a Research and Development (R&D) approach using a sequential explanatory mixed-method design. The quantitative phase involved 150 MSME respondents who actively used the Afitrah Seller application, with data analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) through SmartPLS software. The qualitative phase was conducted through semi-structured interviews with academics, IT experts, and MSME practitioners to identify implementation barriers and develop the proposed model. The results showed that technology readiness played a significant role in supporting application implementation, while organizational readiness, human resource capability, and knowledge management required further improvement to ensure sustainable digital adoption. The developed implementation model integrated governance enhancement, employee onboarding, knowledge retention mechanisms, and system optimization strategies. Expert validation confirmed that the proposed model was feasible for implementation within MSME operational environments. This study concluded that successful MSME digital transformation required not only technological infrastructure but also socio-technical alignment involving people, processes, and knowledge management. The findings contributed to the digital transformation literature and provided practical guidance for MSMEs and technology developers in achieving sustainable digital adoption.

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are a significant pillar of the national economy, contributing approximately 61% to Indonesia's Gross Domestic Product (GDP) and absorbing 97% of the national workforce (Aprilia et al., 2025; Azzahra et al., 2025; Kurniadi et al., 2024; Mahfud, 2025; Saputra & Darmawan, 2023; Sinha et al., 2024). Facing increasingly intense competition, MSMEs are required to adopt operational digitalization

solutions, such as Point of Sale (POS) systems, to improve efficiency and competitiveness (Arina et al., 2025; Edison et al., 2026; Rony & Anggraeni, 2024; Velasco et al., 2026; Yani et al., 2025; Zamzami et al., 2025). However, technology adoption often remains at the stage of pseudo-digitalization, where digital tools are adopted but fail to generate significant improvements in operational performance.

This implementation gap is evident among users of the Afitrah Seller digital cashier application (Islam & Ferrer, 2025; Usman & Rofiqoh, 2025). User retention remains low, with churn rates reaching 40% within the first three months after adoption. Users who discontinue application usage tend to return to manual recording methods, reducing the expected benefits of digital transformation. This withdrawal from digital processes may increase operational risks, including cash leakage, inventory discrepancies, and inefficient service processes.

The high rate of adoption failure indicates that the availability of advanced technological infrastructure, such as the Afitrah Seller POS application, does not automatically ensure successful digital transformation without adequate organizational governance, human resource capabilities, and knowledge management practices. Previous studies have primarily focused on pre-adoption factors, providing limited understanding of the post-adoption implementation process. Addressing this managerial and research gap, this study analyzed how internal readiness factors influence implementation effectiveness and further developed an implementation model for the Afitrah Seller application. This socio-technical model was designed to reduce technology discontinuation and improve MSME operational efficiency (Amanollahnejad et al., 2026; Kassem et al., 2024; Piera et al., 2022; Sánchez-Rodríguez et al., 2025).

This research was grounded in Operations Management as the grand theory, emphasizing that strategic decisions regarding work process design, human resources, and inventory management are directed toward achieving operational efficiency. Digital transformation success at the MSME level was examined through the integration of the Sustainable Digital Transformation Framework (SDTF), which incorporates technological readiness, organizational readiness, and human resource capabilities.

One of the important digital transformation tools for MSMEs is the Point of Sale (POS) application, which enables businesses to manage transactions, inventory, sales records, and operational reporting more efficiently. However, the implementation of POS systems does not always lead to sustainable operational improvements. Many MSMEs experience pseudo-digitalization, in which digital tools are adopted but are not effectively integrated into daily business processes. In the context of the Afitrah Seller application, this challenge was reflected in the low user retention rate, with approximately 40% of users discontinuing application usage within the first three months after adoption. This condition resulted in businesses returning to manual recording methods and increasing operational risks related to cash management, inventory accuracy, and service efficiency. Therefore, identifying factors that influence successful post-adoption implementation has become an important research focus.

Previous studies have examined various factors influencing MSME digital transformation adoption. Tornatzky and Fleischer (1990) introduced the Technology–Organization–Environment (TOE) framework, which highlights that technology adoption is influenced by technological, organizational, and environmental factors. Recent studies have expanded this perspective by demonstrating that technological readiness, organizational

capability, and human resource competence contribute significantly to digital transformation success among small and medium-sized enterprises. N'Dri and Su (2024), published in Information & Management, found that technology–organization–environment configurations influence successful digital transformation among SMEs. Similarly, Kahveci (2025) in Administrative Sciences emphasized that sustainable digital transformation requires alignment between technological capabilities and organizational adaptation.

Although previous studies have provided valuable insights into digital adoption factors, several limitations remain. Most existing research has focused primarily on the pre-adoption stage, examining why SMEs decide to adopt digital technologies rather than investigating why adopted technologies succeed or fail during implementation. Sagala and Őri (2024) in Information Systems and E-Business Management indicated that sustainable SME digital transformation requires attention not only to technological factors but also to organizational processes, employee capabilities, and continuous adaptation. However, research specifically examining the post-adoption effectiveness of POS applications within micro-business operational environments remains limited. This creates a research gap regarding how internal readiness factors interact to determine whether digital systems can produce sustainable operational improvements.

Another important research gap concerns the role of knowledge management in MSME digital transformation. Many micro-businesses experience employee turnover, particularly among operational staff such as cashiers, which may result in the loss of practical knowledge related to digital system usage. Hafeez et al. (2025) in the Journal of Innovation and Knowledge identified knowledge management as an important mechanism supporting digital transformation sustainability in SMEs. However, empirical evidence regarding how knowledge retention practices support the continuity of POS application implementation in small-scale businesses remains limited. Therefore, incorporating knowledge management into a socio-technical implementation model provides an opportunity to address limitations in existing digital transformation frameworks.

The urgency of this research was strengthened by the increasing need for MSMEs to achieve operational efficiency through digitalization while minimizing unsuccessful technology investments. The availability of advanced digital infrastructure alone cannot guarantee successful transformation without appropriate governance systems, employee readiness, and mechanisms for knowledge transfer. Without an effective implementation model, MSMEs may continue to experience technology rejection, inefficient resource utilization, and operational disruptions. Therefore, developing an evidence-based implementation framework is essential to support MSMEs in maximizing the benefits of digital technologies and achieving sustainable digital transformation.

The novelty of this research lies in the development of an integrated implementation model for the Afitrah Seller application by combining quantitative evaluation, qualitative exploration, and research and development (R&D) validation. Unlike previous studies that primarily examined digital technology adoption intentions, this research focused on the post-adoption implementation phase by analyzing how technology readiness, organizational readiness, human resource capability, and knowledge management influence implementation effectiveness and operational efficiency. The integration of SEM-PLS analysis, qualitative

thematic exploration, and expert validation provided a comprehensive approach to understanding both statistical relationships and practical implementation challenges.

Based on these considerations, this research aimed to develop a model for implementing the Afitrah Seller application to support MSME digital transformation. Specifically, the study sought to examine the influence of internal readiness factors on application implementation effectiveness, identify barriers affecting successful digital adoption, and formulate a practical implementation framework to improve MSME operational efficiency. Through these objectives, the research contributed theoretically by extending digital transformation literature through a post-adoption implementation perspective and practically by providing strategic guidance for MSME owners, application developers, and policymakers in designing sustainable digital transformation strategies.

The findings of this research are expected to provide benefits for academic and practical stakeholders. From an academic perspective, this study contributes to knowledge regarding socio-technical approaches in MSME digital transformation by integrating technology, organizational, human resource, and knowledge management perspectives. From a managerial perspective, the proposed implementation model can assist MSME owners in improving digital adoption consistency, strengthening operational governance, and reducing employee resistance. Furthermore, the research provides recommendations for technology developers to design more user-oriented digital solutions and for policymakers to develop more effective digital empowerment programs for MSMEs. Ultimately, this research supports the development of resilient, efficient, and digitally adaptive MSMEs in an increasingly dynamic business environment.

METHOD

This study applied a Research and Development (R&D) approach combined with a mixed-method sequential explanatory design. The research aimed to develop an implementation model for the Afitrah Seller application to support MSME digital transformation. The research population consisted of MSMEs that had adopted and actively used the Afitrah Seller application. The quantitative phase involved 150 MSME respondents selected through purposive sampling based on the criteria of being active application users and having direct experience with digital cashier system implementation. The qualitative phase involved expert informants, including academics, IT experts/developers, and MSME practitioners, who were selected based on their knowledge and experience related to digital transformation and MSME operations.

The quantitative research instrument was a structured questionnaire using a Likert scale to measure technology readiness, organizational readiness, human resource capability, knowledge management, implementation effectiveness, and operational efficiency. Before data analysis, the instrument was evaluated through validity and reliability testing using the measurement model assessment. Convergent validity was assessed based on the Average Variance Extracted (AVE) value, while reliability was evaluated using Composite Reliability and Cronbach's Alpha values. The results showed that all measurement indicators met the required validity and reliability criteria, confirming that the instrument was suitable for further analysis. Data were collected through questionnaires distributed to Afitrah Seller application

users, followed by semi-structured interviews with selected expert informants to obtain deeper insights into the quantitative findings and implementation challenges.

The research procedure was conducted in three sequential stages: quantitative analysis, qualitative exploration, and R&D evaluation. In the first stage, survey data were analyzed to identify factors influencing the effectiveness of Afitrah Seller application implementation. The second stage involved qualitative interviews and thematic analysis to interpret statistical findings and identify managerial and operational barriers. The final stage focused on developing and validating the proposed implementation model through expert evaluation. Quantitative data were analyzed using SmartPLS software with the Structural Equation Modeling–Partial Least Squares (SEM-PLS) technique. The analysis included outer model evaluation (validity and reliability testing) and inner model evaluation (structural relationships, R-square values, and hypothesis testing through bootstrapping). Qualitative data were analyzed using thematic analysis, while the developed model was evaluated through expert validation to assess its feasibility and applicability.

RESULTS AND DISCUSSION

Quantitative Statistical Evaluation (SEM-PLS)

Testing of the measurement model (outer model) proved that all instruments met the convergent validity criteria, with an Average Variance Extracted (AVE) value above 0.7 (minimum limit > 0.5). The internal consistency test recorded a Composite Reliability value and Cronbach's Alpha above 0.9, confirming that the questionnaire instrument had very high reliability.

In the evaluation of the structural model (inner model), an R-Square value of 0.923 was obtained for the Implementation Effectiveness variable and 0.912 for the Operational Efficiency variable. Hypothetical path analysis using bootstrapping reveals a fundamental anomaly in the digitization of MSMEs:

- **H1 and H5 Accepted:** Infrastructure (Technology Readiness) is proven to be able to drive application operations, which has a direct positive impact on the achievement of Operational Efficiency.
- **H2, H3, H4, and Mediation Pathways (H6-H9) Rejected:** Organizational Readiness, HR Capabilities, and Knowledge Management surprisingly fail to drive system effectiveness and break down midway as a bridge to business efficiency.

The Root of the Problem: Managerial Crisis and Cultural Resistance

Organizational and human dysfunction failures (H2 and H3) occur due to an overly owner-centric culture of operational management. The absence of a standard Standard Operating Procedure (SOP) causes the use of the application to fluctuate. Without administrative sanctions, the resistance of cashier staff who feel that digital input routines are considered "complicated" are allowed to become a chronic habit.

The failure of the Knowledge Management variable (H4) underscores the crisis of knowledge asset loss (knowledge retention) due to the phenomenon of staff turnover. When the cashier who masters the Seller Afitrah app stops working, the technical knowledge capacity vanishes without documentation, forcing the store to revert to conventional methods.

Formulation of the Implementation Model of the Seller Afitrah Application (R&D)

To patch the managerial gaps that cause high churn rates, this study formulated a blueprint for strategic intervention through the Afitrah Seller Application Implementation Model, which was executed through four tactical cycles:

1. **Phase 1 - Pre-Implementation Phase:** Locking the governance dimension by formalizing SOPs to protect the risk of fraud. Compensation sanctions (fines/deductions of cash) are imposed for every difference in mattresses due to input negligence, which is balanced with an incentive scheme (reward).
2. **Phase 2 - HR Alignment (Onboarding Phase):** Mitigating employee resistance by screening digital literacy competencies, as well as the mandatory implementation of offline classes intensively during the first 3 to 7 days post-adoption.
3. **Phase 3 - System Conditioning (Execution Phase):** Daily compliance technical engineering in the form of activation of forced constraint features. The system is designed to hold the automatic logout process if the cashier has not completed the reconciliation of the daily store closure report.
4. **Phase 4 - Turnover Mitigation (Sustainability Phase):** Creating knowledge management infrastructure through the procurement of pictorial/visual Pocket Book guidelines at the cashier desk, integration of video tutorials within the platform, and strict enforcement of SOP handover before the employee resignation period.

In addition to operational improvements, IT experts also instruct the optimization of User Interface/User Experience (UI/UX) engineering on Seller Afitrah's software. This model adopts specific deletions on the structure of the limiting box container throughout the interface. With the elimination of container limitations, all web assets can be fully scaled and fully unfolded freely on the cashier's desktop monitor, to reduce the possibility of human error when the transaction queue is congested. A panel of experts represented by academics, IT practitioners, and MSME actors agreed to set this Implementation Model on a feasibility scale of "Very Feasible" with an average aggregate score of 4.51 out of 5.00.

CONCLUSION

The integration of quantitative findings, qualitative exploration, and R&D validation provided a comprehensive conclusion that digital transformation in micro-business operations cannot be sustained solely through technological infrastructure. The inability to reduce human resource resistance and the lack of effective managerial systems within business environments were identified as major contributors to churn rates and resistance to digitalization adoption. The Afitrah Seller Application Implementation Model was developed as an integrative socio-technical framework designed to address these challenges. The adoption of a four-stage tactical framework, consisting of compensation SOP formalization, structured onboarding classes, visual pocketbooks, and a logout-blocking feature, was considered capable of supporting business actors in maintaining operational efficiency sustainably.

Practical recommendations are directed toward business owners to strengthen staff accountability in daily operations and establish clearer handover procedures during cashier transitions. For PT Afitrah Cipta Sinergi as the application developer, it is recommended to maintain an inclusive Afitrah POS brand positioning strategy and integrate face-to-face assistance (offline training classes) as a standard component during the initial adoption phase.

User interface and user experience (UI/UX) optimization by eliminating restrictive interface elements has proven effective in reducing human errors and should be maintained as part of future system improvements. Future research is expected to extend the testing of this adaptive implementation framework across other digital platforms, service-based business models, or broader Enterprise Resource Planning (ERP) ecosystems.

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