

The Transformation of Banking Frontliner Competencies in the Digital Age: A Systematic Review

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Abstract

The banking sector is currently at a crucial juncture in its digital transformation, demanding maximum operational efficiency through system automation. However, automation often creates a gap in the quality of emotional service that can only be filled by the human element. This study aims to construct a conceptual synthesis regarding strategies for adapting the competencies of banking frontline staff to maintain the relevance of their roles in the era of digitalisation. The method used is a Systematic Literature Review (SLR) of 18 reputable scientific articles published between 2021 and 2026. The thematic synthesis indicates that digitalisation does not automatically replace the human role, but rather demands a transformation of competencies from clerical transactional skills towards digital financial literacy, self-efficacy, and emotional intelligence in an advisory capacity. Critical findings reveal that a failure to upskill digital competencies contributes to high rates of human error due to cognitive fatigue. In conclusion, banking management must shift the training paradigm from mere technical tool mastery towards the development of human-centred adaptive capabilities. The managerial implications of this study emphasise the importance of institutionalising mentoring and personalised career development strategies to mitigate technological resistance.

Keywords: Banking Digitalisation, Frontline Competencies, Human Resource Management, Excellent Service, Digital Financial Literacy. Introduction

1. Introduction

Banking industry, with its penetration extending to both conventional and Sharia financial ecosystems (Maulana et al., 2022; Sakinah et al., 2024). The reorientation of business models, which were previously product-centric, has now shifted sharply towards customer experience-based services, where agility and transaction efficiency have become key indicators of an institution's success (Siwi, 2022; Tambunan & Nasution, 2023). At a macro level, the integration of digital systems has proven crucial in boosting institutional performance through cost reduction and expanded access (Fajar et al., 2026). Nevertheless, this massive adoption of technology The escalation of technological innovation today has fundamentally disrupted the operational landscape of the national has actually triggered a new paradox in Human Resource Management (HRM) governance. Financial institutions are currently facing the threat of a digital literacy gap, which has the potential to diminish the existential relevance of frontline staff if they fail to keep pace with the dynamics of automation (Fajar, 2024; Fajar et al., 2026).

In the face of this transition, the functional role of a frontliner is undergoing a radical overhaul. The transactional clerical routines that once dominated their work are now being replaced by the demand to transform into hybrid financial advisers. This new set of competencies requires them not merely to be proficient in operating digital tools, but also to maintain a human touch, professional ethics, and a high level of emotional sensitivity (Ningtyas & Yogatama, 2023; Nusannas et al., 2024; Pitaloka et al., 2021). Ironically, empirical evidence shows that the sophistication of banking technology infrastructure has not been directly proportional to a reduction in the rate of human error. The high burden of adaptation often leads to psychological exhaustion and a lack of mental resilience among staff (Anam & Ratnagung, 2023). This reinforces the postulate that costly capital investment in software will lose its essence without being accompanied by personalised and comprehensive retraining strategies, aimed at building the mental readiness of human resources to keep pace with machines (Fajar, 2024; Khairani & Nasution, 2023)

Amid the pressures of accelerating digital transformation, a frontline worker's resilience is largely determined by psychological factors and a supportive working environment. The effectiveness of the skills transition depends not only on the sophistication of the tools, but also on strengthening employees' self-efficacy (self-confidence) in integrating digital financial literacy into their service routines (Nusannas et al., 2024). These internal factors have proven to be crucial determinants that mediate performance improvement amidst the complexity of new systems. Furthermore, optimising human resource potential requires synergy between intrinsic motivation and structural support in the form of mentoring and solid teamwork (Sitompul & Guntur, 2021). Without strong motivational drive, service quality will

tend to stagnate, even if performance evaluations are conducted periodically (Khairani & Nasution, 2023). Therefore, creating a conducive working environment is the cornerstone for mitigating employee mental fatigue when dealing with increasingly critical customers in the digital age.

Institutionally, the banking sector must formulate a new paradigm for service excellence standards capable of synergising physical interactions with the ease of digital access. The implementation of strategies such as Smart Service is a vital parameter in maintaining its position as the best corporate bank in a competitive market (Pitaloka et al., 2021). This strategy must include proactive efforts by frontline staff to educate customers about products through various channels, including live simulations and social media campaigns to improve customer literacy (Rohman & Atika, 2023). The successful integration of staff friendliness with the sophistication of mobile banking will ultimately serve as the primary catalyst for creating sustainable customer satisfaction and loyalty (Fitri, 2024). In the context of talent management, organisations need to adopt career development schemes that are adaptable to technological disruption to ensure the sustainability of employees' careers in the future (Fajar, 2024).

Although the discourse on banking digitalisation has developed rapidly, there is an academic urgency to conduct a comprehensive literature review to map the patterns of frontline staff competency transformation holistically. To date, the majority of research has remained fragmented, focusing on quantitative analyses of the impact on macro-financial performance (Fajar et al., 2026; Siwi, 2022) or evaluations of customer satisfaction within specific technological segments (Fitri, 2024; Muzdalipah & Mahmudi, 2023). On the other hand, studies on the influence of training and supervision on service effectiveness are often case-specific and limited to a single institution (Sakinah et al., 2024; Sulaiman, 2021). Therefore, this article aims to address this gap by conducting a systematic literature review of 18 reputable academic articles to formulate a competency adaptation framework that integrates digital literacy, psychological readiness, and future career sustainability strategies (Fajar, 2024; Nusannas et al., 2024). This review is expected to provide a theoretical contribution to the literature on human resource management as well as practical guidance for policymakers in the banking sector in managing workforce transitions in the modern economic era.

2. Research Method

The research design in this study adopts the framework of a Systematic Literature Review (SLR). This approach was specifically chosen to comprehensively extract, analyse, and synthesise various empirical records from previous publications focusing on the dynamics of human resource adaptation, particularly front-line staff within the banking ecosystem. Through this methodological framework, the formulation of arguments is not based on isolated observations, but rather on the aggregation of cross-validated secondary data to identify research gaps and trends in competency transformation in the era of digital disruption.

2.1 Initial Identification and Extraction:

Conducting a mass scan using a variety of keywords relevant to the digital transformation of financial institutions, digital financial literacy, and the reorientation of banking talent management competencies.

2.2 Screening of Eligibility Criteria:

Reducing the initial findings by applying binding inclusion criteria, namely: (a) documents in the form of scientific journal articles that have been validated through a peer-review mechanism, and (b) having an actual publication timeframe within the last five years (the period from 2021 to 2026).

2.3 Elimination of Redundancy and Relevance Testing:

Excluding (dropping out) literature that is duplicated across databases, followed by substantive screening through reading titles and abstracts to ensure the focus of the study aligns with the research question.

2.4 Full-Text Assessment:

Conducting an in-depth evaluation of the completeness of data structure and the rigour of methodology in the remaining manuscripts. Through this final stage, the study successfully identified 18 core articles that met all inclusion criteria and were deemed most representative for further analysis.

In the interpretation stage, the analysis method implemented was thematic synthesis. The eighteen articles thus selected were not described separately but were classified into a mapping matrix based on discourse clusters. These thematic groupings encompass: the constellation of macro-level technological impacts, the urgency of hybrid service synergy (physical and digital), the strengthening of employees' psychological capacity, and the formulation of institutional career sustainability strategies. The convergence of these various independent literature perspectives is subsequently reconstructed into a new, comprehensive conceptual framework, to offer a holistic solution to the challenges of banking services in the modern economic era.

3. Result

Data extraction conducted on 18 selected studies (spanning 2021–2026) reveals a systematic transformation map within the national banking sector. This collection of references not only covers the dynamics within conventional banks but also provides an in-depth examination of the Islamic banking ecosystem, which is currently accelerating its digitalisation (Maulana et al., 2022; Sakinah et al., 2024). The rigour of the analysis at this stage aims to identify how technological variables interact with human resource readiness in maintaining the sustainability of service quality.

This literature mapping reveals that whilst system automation is a major trend, the role of frontline staff remains a crucial determinant through the reorientation of their functions from transactional to educational and advisory. The matrix below presents a comprehensive summary of all core references forming the foundation for the synthesis in the subsequent discussion section:

Table 1: This literature mapping reveals

| Author & Year | Focus / Research Variables | Research Method | Key Findings |
|----------------------------|---|---------------------------------------|--|
| Nusannas et al., 2024 | Digital financial literacy, self-efficacy, frontline staff performance. | Quantitative (SEM-AMOS) | Digital literacy, mediated by self-efficacy, is the primary predictor of performance effectiveness in the digital age. |
| Anam & Ratnagung, 2023 | Frontline performance and service quality (Bank BRI) | Descriptive Qualitative | The sophistication of automation has not yet been able to eliminate human error triggered by employees' cognitive fatigue. |
| Reni et al., 2023 | Training and motivation on frontline staff performance. | Quantitative (<i>Path Analysis</i>) | Technical training will lose its significance for performance without stop work motivation. |
| Tambunan & Nasution, 2023 | Banking strategies in the face of the 4.0 disruption era. | Qualitative | The banking sector must make a radical shift from a <i>product-centric</i> model to a <i>customer-centric</i> paradigm. |
| Khairani & Nasution, 2023 | Performance evaluation, motivation, service quality (BTN Syariah). | Quantitative (Regresi Linier) | Transparency in performance evaluation contributes directly to the stability of motivation and the <i>quality of service</i> interactions. |
| Putra & Kenedii, 2024 | Strategies to maximise service via the Muamalat DIN app. | Descriptive Qualitative | Personal communication strategies and digital feature education are key to customer migration to the app channel. |
| Muzdalipah & Mahmudi, 2023 | Digitalisation of Islamic banking and millennial loyalty. | Quantitative (Multiple Regression) | The ease of app operation and trust in Sharia features dominate customer satisfaction factors. |
| Fitri, 2024 | Frontline service and the effectiveness of mobile banking. | Descriptive Qualitative | The harmonious integration of friendly physical services and the capabilities of mobile banking optimises loyalty. |
| Ningtyas & Yogatama, 2023 | Frontline staff professionalism in customer satisfaction. | Qualitative | Responsibility, stress management, and self-efficacy are the pillars of service empathy that cannot be replaced by machines. |
| Rohman & Atika, 2023 | Efforts to improve service (Bank BSI). | Qualitative Descriptive | Role-play and routine simulation techniques are highly effective in maintaining the competency standards of frontline staff. |
| Sitompul & Guntur, 2021 | Teamwork, mentoring, and motivation (Bank BCA). | Quantitative (Linear Regression) | Mentoring programmes are more effective in shaping the performance of new employees than financial incentives alone. |
| Pitaloka et al., 2021 | Smart Service and Service Excellence standards. | Phenomenology (Qualitative) | Standards for excellent service must include staff competence in mitigating digital technical issues (troubleshooting). |
| Sulaiman, 2021 | Training, motivation, and a monitoring system. | Quantitative (Survey) | An appropriate management monitoring system determines the quality of staff interactions with customers during periods of high workload. |
| Sakinah et al., 2024 | Digitalisation innovations in Islamic banking products. | Qualitative (Content Analysis) | Digitalisation provides a competitive advantage but demands high resilience from staff to continue innovating. |
| Maulana et al., 2022 | Transformation of the Islamic ecosystem in the 4.0 era. | Qualitative | HR recruitment must prioritise individuals with up-to-date IT literacy in addition to financial understanding. |
| Siwi, 2022 | The impact of digitalisation on financial statements. | Quantitative (T-test/CAMELS) | Statistically, digitalisation significantly reforms the efficiency structure of banks through the LDR and NIM indicators. |
| Fajar et al., 2026 | Digitalisation and the performance of financial institutions. | Qualitative (Literature Review) | Digitalisation boosts performance through reduced operational costs and expanded accessibility to financial services. |
| Fajar, 2024 | Career strategies and the impact of technology on HRM. | Qualitative (Exploratory) | The implementation of personalised retraining strategies is key to addressing HR resistance to technology. |

4. Discussion

4.1. Thematic Analysis of Frontline Staff Competency Transformation

A narrative synthesis of the curated literature reveals that banking digitalisation drives the reorientation of operational structures and the reconstruction of HR competencies. This phenomenon is no longer understood as the substitution of human roles by machines, but rather as the strengthening of frontline staff functions towards more strategic and value-added roles.

4.2. Macro Impact of Digitalisation on Banking Performance and Orientation

Macro-level technological acceleration has proven to be a catalyst for operational efficiency through reduced transaction costs and the expansion of economic service reach (Fajar et al., 2026). Statistically, this transformation is reflected in improvements to financial efficiency indicators such as the LDR and NIM (Siwi, 2022). However, the success of this financial performance demands that institutions undertake a radical repositioning, namely shifting from a product-centric business model towards a customer-centric paradigm (Tambunan

& Nasution, 2023). Institutional resilience, particularly in the Islamic finance sector, is highly dependent on digital innovation capabilities that can provide a competitive edge in the global market (Sakinah et al., 2024).

4.3. Hybrid Service Synergy: Physical and Digital Collaboration

In the modern banking ecosystem, customer loyalty is now determined by the symbiosis between the friendliness of physical interactions with staff and the capabilities of mobile banking technology (Fitri, 2024). The role of frontline staff has expanded to include that of educators and literacy facilitators for customers transitioning to using applications such as Muamalat DIN or BSI Mobile (Muzdalipah & Mahmudi, 2023; Putra & Kenedii, 2024). To maintain consistent quality in this hybrid service model, standardisation through role-play mechanisms and Smart Service has become a vital tool to ensure staff can perform digital troubleshooting whilst delivering service excellence (Pitaloka et al., 2021; Rohman & Atika, 2023).

4.4. Strengthening Psychological Resilience and Digital Financial Literacy

Competency transformation not only addresses technical aspects but also deeply tests employees' psychological resilience. Digital financial literacy has been identified as a key predictor of superior performance, the effectiveness of which is significantly mediated by employees' level of self-efficacy or self-confidence (Nusannas et al., 2024). On the other hand, system automation often leaves cognitive gaps that trigger human error due to mental fatigue, making empathy and intrapersonal responsibility the distinguishing human values that cannot be imitated by machines (Anam & Ratnagung, 2023; Ningtyas & Yogatama, 2023). Therefore, employees' mental readiness to adopt cutting-edge technology is an absolute prerequisite for the sustainability of the banking ecosystem (Maulana et al., 2022).

4.5. HR Management Strategies and Institutional Career Sustainability

In response to technological disruption, banking talent management must formulate adaptive and personalised career development strategies (Fajar, 2024). Investment in digital infrastructure must be balanced with intensive retraining policies to mitigate staff resistance to system changes. The effectiveness of such training is proven to be more optimal when supported by structured mentoring mechanisms and the reinforcement of work motivation, rather than merely the provision of financial incentives (Reni et al., 2023; Sitompul & Guntur, 2021). Finally, transparency in performance evaluation and a system of periodic workload monitoring form a crucial foundation for maintaining the stability of motivation and service quality in the modern economic era (Khairani & Nasution, 2023; Sulaiman, 2021).

4.6. Managerial Implications

The findings of this research confirm that the success of digital transformation is highly dependent on the alignment between technology policies and HR development strategies. Banking management and HR departments are advised not only to focus on software procurement but also to prioritise human-centred digital literacy-based upskilling programmes. With regard to digital career development strategies, institutions need to create an ecosystem that supports continuous learning to ensure the transition of frontline staff from technical implementers to reliable financial advisory partners (Fajar, 2024). Other practical implications include the need to strengthen mental health support systems and mentoring to mitigate the risk of work-related stress arising from the high burden of technological adaptation.

5. Conclusion

Based on the systematic review extracted from 18 selected literature sources, it can be affirmed that digital disruption in the banking sector—whether in conventional or Sharia ecosystems—does not lead to the existential elimination of human roles, but rather determines the functional evolution of frontline staff. Macro-level system automation has indeed proven to reconstruct operational efficiency and reduce transaction costs; however, the creation of customer satisfaction (service excellence) still requires harmonisation through a hybrid service approach. Crucial competencies in the modern economic era are no longer represented solely by clerical transactional skills, but have fundamentally shifted towards mastery of digital financial literacy, accompanied by a high level of self-efficacy and psychological resilience.

Furthermore, the success of the transition from an administrative role to that of a financial advisor is highly dependent on institutional policies within Human Resource Management (HRM). Banking institutions are recommended to reposition their talent development paradigm from mere technical training (tool mastery) towards a comprehensive retraining scheme, encompassing mentoring and personalised career development strategies (Fajar, 2024). The synergy of these policies serves as a vital instrument to mitigate human error anomalies caused by cognitive fatigue, reduce resistance to technological adaptation, and ensure the sustainability of the banking sector's competitiveness amidst the increasingly accelerated competition of Industry 4.0. In conclusion, this study recommends further empirical research in the future to quantitatively measure the effectiveness of the digital empathy training model across regions, in order to enhance the banking management literature in Indonesia.

6. Recommendations

Referring to the constellation of findings and conclusions outlined, the findings of this study formulate several strategic recommendations, both at a practical level for industry policymakers and in the theoretical realm for the development of further literature.

6.1 Managerial (Practical) Recommendations

1. **Orchestration of Investment and Upskilling:** Leaders of financial institutions are recommended to balance the allocation of technological infrastructure with human resource capacity-building programmes. Training should not merely be oriented towards

technical proficiency in applications (tool-centric), but must focus on strengthening digital empathy and designing personalised career paths (Fajar, 2024; Nusannas et al., 2024).

2. Institutionalisation of Mentoring: Management needs to establish structured mentoring mechanisms and provide psychological support systems to mitigate potential cognitive fatigue among staff. This supportive ecosystem has proven crucial in stimulating high performance and reducing stress in hybrid service operations (Reni et al., 2023; Sitompul & Guntur, 2021).

6.2 Academic (Theoretical) Recommendations

1. Expansion of the Macro Research Focus: Given that the majority of the literature reviewed is still dominated by performance evaluations at a single institutional level (specific branch offices), future studies are strongly encouraged to conduct research on a national scale. A longitudinal (continuous) or cross-sectoral comparative research approach between conventional and Islamic banks is essential to comprehensively validate the transformation model.
2. Exploration of New Moderating Variables: Future researchers are expected to expand the theoretical framework by testing new variables relevant to the era of disruption. Incorporating measurement instruments such as adaptive emotional intelligence or corporate innovation culture is projected to enhance the banking management literature in responding to future dynamics.

References

- [1] Anam, K., & Ratnagung, C. G. (2023). ANALYSIS OF FRONTLINER EMPLOYEE PERFORMANCE AT PT. BANK RAKYAT INDONESIA (PERSERO), TBK KC TANJUNG PRIOK. *JORAPI: Journal of Research and Publication Innovation*, 1(1), 94–103. <https://jurnal.portalpublikasi.id/index.php/JORAPI/article/view/125>
- [2] Fajar, A. (2024). Career Development Strategies in the Digital Age: The Impact of Technology on Human Resource Management. *Innovative: Journal of Social Science Research*, 4(3), 11609–11622. <https://doi.org/10.31004/innovative.v4i3.11938>
- [3] Fajar, A., Fauwas, E. T., Ramadhani, Z., & Priandini, D. D. S. (2026). THE IMPACT OF DIGITALISATION ON THE PERFORMANCE OF FINANCIAL INSTITUTIONS IN THE MODERN ECONOMIC ERA. *Journal of Multidisciplinary Educational Research*, 3(5), 104–116. <https://doi.org/10.71282/jurmie.v3i5.1870>
- [4] Fitri, A. O. (2024). Analysis of Frontline Staff Service and Mobile Banking Services on Customer Satisfaction (A Study at PT Bank BSI Metro Branch). *J-CEKI: Jurnal Cendekia Ilmiah*, 3(4), 2168–2175. <https://doi.org/10.56799/jceki.v3i4.4149>
- [5] Khairani, N., & Nasution, J. (2023). The Influence of Performance Appraisal and Employee Motivation on Frontline Service Quality. *Journal of Business Informatics (INFEBS)*, 5(1), 226–231. <https://doi.org/10.37034/infbe.v5i1.209>
- [6] Maulana, M. I. S., Firdan, M., Sabilla, S. R., & Hakam, A. (2022). The Development of Islamic Banking in the Digital Age. *IQTISADIE: Journal of Islamic Banking and Shariah Economy*, 2(2), 85–110. <https://doi.org/10.36769/iqtisadie.v2i2.254>
- [7] Muzdalipah, & Mahmudi. (2023). DIGITALISATION OF ISLAMIC BANKING: THE USE OF BSI MOBILE IN THE MILLENNIAL ERA IN YOGYAKARTA. *JUREQ: Journal of Economics and Management*, 12(1). <https://doi.org/10.47411/jureq.v12i1.1241>
- [8] Ningtyas, A. S. L., & Yogatama, A. N. (2023). ANALYSIS OF THE ROLE OF BANKING FRONTLINERS' PROFESSIONALISM IN CREATING CUSTOMER SATISFACTION. 2nd MDP Student Conference (MSC) 2023, (1), 541–550. <https://jurnal.mdp.ac.id/index.php/msc/article/view/4343>
- [9] Nusannas, I. S., Sojanah, J., Dabi, R. S. K., & Maulana, D. Y. (2024). Improving Frontliner Performance through Digital Financial Literacy Strategy. *Ann Journal of Economic Sciences (Ekuisci)*, 1(5), 338–351. <https://doi.org/10.62885/ekuisci.v1i5.278>
- [10] Pitaloka, I. D., Hendriyani, C., & Ruslan, B. (2021). Excellent Services by Frontline Staff in Best Corporate Banking. *JIP (Journal of Industry and Urban Affairs)*, 17(2), 14–3. <https://doi.org/10.31258/jip.17.2.14-23>
- [11] Putra, R., & Kenedi, J. (2024). Analysis of Frontline Staff Strategies in Maximising Customer Service Using the Muamalat Digital Islamic Network Application (A Study at Bank Muamalat Payakumbuh Branch). *COSMOS: Journal of Education, Economics and Technology*, 1(5), 285–296. <https://doi.org/10.37567/cosmos.v1i5.165>
- [12] Reni, F., Octaviani, R., Laila, Y., Lubis, P. A., & Nasfi. (2023). Training and Motivation Affect the Performance of Employees in the Bank Frontline. *International Journal of Indonesian Business Review*, 2(1), 61–68. <https://doi.org/10.54099/ijibr.v2i1.447>
- [13] Rohman, F., & Atika. (2023). Efforts by Frontline Staff to Improve Customer Service at Bank Syariah Indonesia KCP Medan Setia Budi. *Trending: Journal of Economics, Accounting and Management*, 1(2), 108–117. <https://doi.org/10.30640/trending.v1i2.824>
- [14] Sakinah, N., Arafah, L., Darman, D. M., Aini, M., & Kenedi, J. (2024). DIGITALISATION INNOVATIONS IN BANKING PRODUCTS AND THEIR IMPACT ON THE GROWTH AND DEVELOPMENT OF ISLAMIC BANKING. *Jurnal Tabarru': Islamic Banking and Finance*, 7(2), 802–812. <https://journal.uir.ac.id/index.php/tabarru/article/view/21282>
- [15] Sitompul, S. S., & Guntur. (2021). The Influence of Teamwork, Mentoring and Motivation on the Performance of Frontline Employees at PT. Bank Central Asia, Tbk Pekanbaru Main Branch. *BANSI: Journal of Business, Management and Accounting*, 1(1), 1–15. <https://doi.org/10.58794/bns.v1i1.32>
- [16] Siwi, F. (2022). THE IMPACT OF DIGITALISATION ON BANKING PERFORMANCE IN INDONESIA. *Journal of Management and Entrepreneurship*, 4(2), 460–468. <https://doi.org/10.24912/jmk.v4i2.17843>
- [17] Sulaiman, F. M. (2021). A STUDY OF THE INFLUENCE OF SERVICE TRAINING, WORK MOTIVATION AND SUPERVISION SYSTEMS ON THE SERVICE PERFORMANCE OF FRONTLINER STAFF AT PT BANK NEGARA INDONESIA (PERSERO) TBK KUPANG BRANCH. *INTELEKTIVA: Journal of Economics, Social Sciences & Humanities*, 2(08), 56–60. <https://www.jurnalintelektiva.com/index.php/jurnal/article/view/434>
- [18] Tambunan, R. T., & Nasution, M. I. P. (2023). Challenges and Strategies for the Banking Sector in Facing the Development of Digital Transformation in the 4.0 Era. *Sci-Tech Journal*, 2, 148–156. <https://doi.org/10.56709/stj.v2i2.75>