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When Digital Transformation Fails: Evidence From Rural Banking And The Rise Of Compliance-Driven Digitalization

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Abstract: Digital transformation is widely recognized as a driver of competitiveness and governance in banking, yet evidence from smaller financial institutions remains mixed. This study examines why digital transformation fails to enhance governance and competitiveness in rural banks (BPR/BPRS). Grounded in the Resource-Based View, Dynamic Capability Theory, and Institutional Theory, digital transformation is defined as a multidimensional construct encompassing core banking, integrated channeling, and reporting systems. Using Partial Least Squares Structural Equation Modeling (PLS-SEM), the results show that digital transformation has no significant effect on governance or competitiveness. Additionally, human capital does not moderate these relationships. These findings challenge the prevailing assumption that digitalization automatically improves organizational performance. The study introduces the concept of compliance-driven digitalization, where technology adoption is motivated more by regulatory requirements than strategic objectives. This research contributes by offering a failure-based perspective on digital transformation in emerging financial systems.
Keywords: Digital Transformation, Rural Bank, Governance, Competitiveness

Abstrak: *Transformasi digital secara luas dianggap sebagai pendorong daya saing dan tata kelola di sektor perbankan, namun bukti empiris pada lembaga keuangan kecil masih beragam. Penelitian ini mengkaji mengapa transformasi digital gagal meningkatkan tata kelola dan daya saing pada bank perkreditan rakyat (BPR/BPRS). Berlandaskan Resource-Based View, Dynamic Capability Theory, dan Institutional Theory, transformasi digital dikonseptualisasikan sebagai konstruk multidimensi yang mencakup sistem core banking, sistem channeling terintegrasi, dan sistem pelaporan. Dengan menggunakan Partial Least Squares Structural Equation Modeling (PLS-SEM), hasil penelitian menunjukkan bahwa transformasi digital tidak berpengaruh signifikan terhadap tata kelola maupun daya saing. Selain itu, modal manusia tidak memoderasi hubungan tersebut. Temuan ini menantang asumsi umum bahwa digitalisasi secara otomatis meningkatkan kinerja organisasi. Penelitian ini juga memperkenalkan konsep digitalisasi berbasis kepatuhan, yaitu adopsi teknologi yang didorong oleh tekanan regulasi, bukan tujuan strategis. Studi ini berkontribusi dengan memberikan perspektif berbasis kegagalan dalam transformasi digital pada sistem keuangan berkembang.*
Kata kunci: *Transformasi Digital, BPR/BPRS, Tata Kelola, Daya Saing*

I. INTRODUCTION

Digital transformation has become a central strategic priority in the global banking industry, enabling financial institutions to improve efficiency, enhance customer experience, and strengthen governance mechanisms (Verhoef et al., 2021). The integration of digital technologies such as data analytics, digital platforms, and automated processes has been widely associated with improved organizational performance and competitive advantage (Bharadwaj et al., 2013). However, recent studies suggest that the outcomes of digital transformation are highly contingent on organizational context (Warner & Wäger, 2019; Kraus et al., 2021). While large banks successfully

leverage digital technologies as strategic assets, smaller institutions—particularly in emerging economies—often struggle to realize similar benefits. This raises a critical issue: digital transformation may not universally lead to improved performance. Rural banking institutions (BPR/BPRS) provide a unique context to examine this paradox. These institutions play a crucial role in financial inclusion but face significant structural limitations, including limited capital, low digital maturity, and constrained human resources. At the same time, they are subject to increasing regulatory pressure to adopt digital systems such as core banking platforms and integrated reporting systems. From an institutional perspective, organizations may adopt digital technologies not for efficiency but for legitimacy (DiMaggio & Powell, 1983; Scott, 2014). This suggests that digital transformation in rural banking may be driven by compliance rather than strategic intent. As a result, digitalization may become symbolic rather than substantive. Despite the growing importance of digital transformation, prior research has largely focused on success cases, emphasizing positive outcomes (Vial, 2019; Verhoef et al., 2021). There is limited understanding of failure conditions, particularly in resource-constrained and highly regulated environments. This study addresses this gap by investigating: Why does digital transformation fail to improve governance and competitiveness in rural banking institutions?.

This study contributes to the literature in three ways. First, it introduces the concept of compliance-driven digitalization, explaining why digital transformation may fail to generate performance outcomes in regulated environments. Second, it extends Resource-Based View and Dynamic Capability Theory by demonstrating that digital technologies do not constitute strategic resources unless they are organizationally embedded. Third, it provides empirical evidence from rural banking institutions in emerging markets, a context that remains underexplored in digital transformation research.

II. METHODOLOGY

A. Research Design

This study adopts a quantitative explanatory research design to examine the causal relationships between digital transformation, governance, and competitiveness, as well as the moderating role of human capital. A quantitative approach is appropriate because the study aims to test theoretically grounded hypotheses using empirical data (Sekaran & Bougie, 2016).To analyze the proposed relationships, this study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS. PLS-SEM is particularly suitable for this study for several reasons. First, it is appropriate for prediction-oriented research and theory development (Hair et al., 2021). Second, it can handle complex models with multiple constructs and indicators. Third, it does not require strict normality assumptions, making it suitable for data collected from heterogeneous organizational contexts.

B. Population and Sample

The population of this study consists of Rural Banks (BPR) and Islamic Rural Banks (BPRS) in Indonesia. These institutions play a critical role in supporting financial inclusion and microfinance. A purposive sampling technique was employed to select respondents who possess relevant knowledge regarding digital transformation and governance practices. The criteria for respondents include: (1) Senior management (Directors and Executives), Operational managers, IT managers, and Compliance officers. These individuals are directly involved in decision-making processes and digital system implementation, ensuring the reliability of responses. The final sample consists of respondents representing multiple BPR/BPRS institutions across different regions, providing sufficient variability for statistical analysis.

C. Data Collection Procedure

Primary data were collected using a structured questionnaire distributed electronically. The questionnaire utilized a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). To ensure data quality (1) Measurement items were adapted from validated prior studies, (2) A pilot test was conducted to improve clarity and reliability, and (3) Respondents were assured of confidentiality to reduce response bias.

D. Measurement of Variables

Digital transformation was operationalized as a multidimensional construct reflecting the technological infrastructure adopted by rural banking institutions. Specifically, it comprises core banking systems (CBS), integrated channeling systems (ICS), and integrated reporting systems (IRS). These dimensions capture the extent to which digital technologies are embedded in operational processes and service delivery mechanisms. Prior studies emphasize that digital transformation should be conceptualized beyond single-system adoption, encompassing integrated technological capabilities that support organizational processes (Bharadwaj et al., 2013; Verhoef et al., 2021). In the context of rural banking, these systems represent the primary digital backbone required for operational efficiency and regulatory compliance. Governance was modeled as a mediating construct reflecting the effectiveness of organizational control and oversight mechanisms. It was measured using indicators related to transparency, accountability, internal control, and risk management. These dimensions are widely recognized as core components of governance quality in financial institutions (OECD, 2020; Weill & Ross, 2004). In banking environments, governance mechanisms are critical for ensuring compliance, reducing information asymmetry, and enhancing decision-making processes. Competitiveness was specified as the dependent variable, capturing the institution's ability to sustain performance and respond to market pressures. It was measured through operational efficiency, service quality, innovation capability, and customer trust. These indicators reflect both internal performance improvements and external market positioning. Prior research suggests that competitiveness in the banking sector is increasingly driven by service innovation and customer-centric capabilities enabled by digital technologies (Porter, 1985; Nambisan et al., 2017). Human capital was incorporated as a moderating variable, representing the organizational capability to effectively utilize digital technologies. It was measured using indicators such as digital skills, IT competence, adaptability, and strategic understanding. These dimensions reflect the extent to which employees can support digital transformation initiatives. Existing literature highlights that human capital plays a crucial role in translating technological investments into performance outcomes, particularly in digitally transforming organizations (Kane et al., 2015; Westerman et al., 2014). However, its effectiveness may vary depending on the strategic orientation of digital adoption. All constructs were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), consistent with prior studies in digital transformation and banking research.

III. RESULTS AND DISCUSSION

A. Measurement Model Evaluation

The measurement model was assessed to ensure the validity and reliability of the constructs using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. The model consists of six latent variables and 27 indicators, as illustrated in Figure 1.

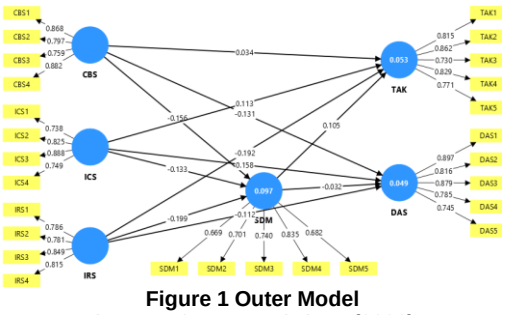

Figure 1 Outer Model
Source: Output PLS-SEM (2026)

1. Convergent Validity

Convergent validity was assessed using outer loadings and Average Variance Extracted (AVE). As shown in Table 1, all constructs meet the recommended thresholds, with outer loadings generally exceeding 0.70 and AVE values above 0.50.

2. Discriminant Validity

Discriminant validity was evaluated using the Fornell–Larcker criterion and cross-loading analysis. First, the Fornell–Larcker results indicate that the square root of AVE for each construct exceeds its correlations with other constructs, confirming discriminant validity.

3. Reliability Assessment

Reliability was evaluated using Cronbach's Alpha and Composite Reliability. All constructs exceed the threshold of 0.70, indicating strong internal consistency

4. Summary of Measurement Model

Overall, the measurement model demonstrates satisfactory validity and reliability. All constructs meet the criteria for convergent validity, discriminant validity, and internal consistency. Therefore, the model is considered robust and appropriate for structural model evaluation.

B. Structural Model Evaluation

The structural model was evaluated to examine the relationships between latent variables using PLS-SEM.

1. Coefficient of Determination (R^2)

The structural model was assessed using the coefficient of determination (R^2) to evaluate its explanatory power. As shown in Table 4, the R^2 values for competitiveness (0.049), human capital (0.097), and governance (0.053) are all below the threshold of 0.25, indicating weak explanatory power.

2. Hypothesis Testing (Bootstrapping)

Hypothesis testing was conducted using bootstrapping procedures to evaluate the significance of path coefficients.

Figure 3 illustrates the structural model results obtained from the PLS-SEM analysis. The model examines the relationships between digital transformation dimensions, Core Banking System (CBS), Integrated Channeling System (ICS), and Integrated Reporting System (IRS), and governance, competitiveness, and human capital.

The endogenous constructs show relatively low explanatory power, with R^2 values of 0.053 for Governance, 0.049 for Competitiveness, and 0.097 for Human Capital. The path coefficients indicate that none of the relationships between digital transformation components and the endogenous variables are statistically significant, as reflected by low coefficients and non-significant p-values.

Overall, the results suggest that digital transformation has not yet produced meaningful impacts on governance and competitiveness, reinforcing the notion of limited strategic integration within the studied institutions.

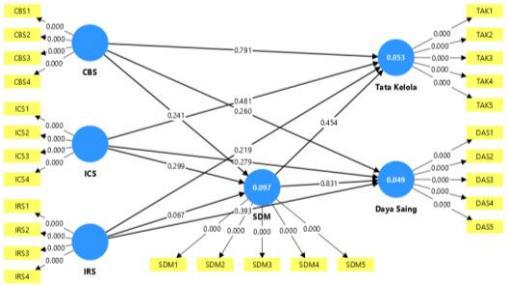

Figure 2 Bootstrapping Results
Source: Output of SMART-PLS (2026)

C. Hypothesis Testing and Interpretation

Based on the results presented in Table 5, none of the hypothesized relationships are statistically significant at the 5% level. For the first group of hypotheses (H1–H4), the effects of digital transformation dimensions on governance

are insignificant, as indicated by the paths from CBS (β = 0.034, p = 0.791) and ICS (β = 0.113, p = 0.481). This suggests that digital transformation has not yet translated into improved governance mechanisms.

Similarly, for the second group (H5–H8), digital transformation does not significantly influence competitiveness. The effects of CBS (β = -0.131, p = 0.260), ICS (β = 0.158, p = 0.279), and IRS (β = -0.112, p = 0.393) on competitiveness are all insignificant, indicating that digital initiatives have not generated measurable competitive advantages.

Regarding the moderating effect (H9), the relationship between IRS and human capital shows a marginal effect (β = -0.199, p = 0.067), but does not meet the conventional significance threshold. This implies that human capital does not significantly moderate the relationship between digital transformation and organizational outcomes.

Overall, the empirical findings indicate that digital transformation, represented by CBS, ICS, and IRS, does not exert significant effects on governance or competitiveness, nor is it effectively strengthened by human capital. The low R^2 values further suggest that a substantial proportion of variance in governance and competitiveness is explained by factors outside the model.

These results imply that digital transformation in rural banking institutions remains largely compliance-driven rather than strategically embedded. The implementation of digital systems appears to be administrative in nature, with limited integration into core business processes. Consequently, digital transformation has not yet reached a level of organizational maturity capable of generating sustainable competitive advantage.

D. Managerial Implications

Given that all hypothesized relationships are statistically insignificant (p > 0.05), managerial implications are derived based on the magnitude of path coefficients (β) and proximity to statistical significance. This approach allows the identification of priority areas for strategic improvement despite the absence of significant effects.

First, the most critical priority lies in strengthening human capital capabilities in utilizing integrated reporting systems (IRS), as indicated by the closest-to-significant relationship (β = -0.199; p = 0.067). This finding suggests that the effectiveness of reporting systems is highly dependent on users' analytical and technical competencies. Managerially, organizations should focus on enhancing data literacy, developing risk-based reporting capabilities, and implementing managerial dashboards that support decision-making. Digital transformation, therefore, must begin with strengthening human capital as the primary enabler.

Second, the relationship between core banking systems (CBS) and human capital (β = -0.156; p = 0.241) indicates that core systems are not yet optimally utilized. This implies that CBS remains operational rather than strategic. Managers should prioritize improving system usability, providing advanced operational training, and integrating CBS with credit risk monitoring and analytical modules. CBS should evolve from a transaction-processing system into a business intelligence tool.

Third, integrated channeling systems (ICS) demonstrate a positive, albeit insignificant, relationship with competitiveness (β = 0.158; p = 0.279), indicating unrealized strategic potential. Organizations should leverage ICS to expand digital services tailored to local market needs, integrate digital channels with marketing strategies, and enhance customer engagement, particularly among micro and small enterprises. When aligned with market strategy, ICS can serve as a source of differentiation.

Fourth, the weak moderating role of human capital (β = -0.133; p = 0.299) suggests that employees are not yet positioned as strategic enablers of digital transformation. This calls for the development of digital leadership, IT risk

management competencies, and performance metrics aligned with digital outcomes. Human capital must transition from a supporting role to a strategic driver of transformation.

Fifth, the negative relationship between CBS and competitiveness ($\beta = -0.131$; $p = 0.260$) indicates potential inefficiencies or suboptimal system utilization. This highlights the need for evaluating the return on digital investments, simplifying system-based processes, reducing redundant manual procedures, and integrating CBS with credit scoring and decision-support systems.

Finally, the weak and insignificant relationships between digital transformation components and governance suggest that digitalization has not yet been embedded within governance mechanisms. To address this, organizations should integrate digital systems with internal audit functions, develop early warning systems, and implement digital dashboards for compliance monitoring. Strengthening digital governance structures is essential to ensure that technology adoption produces tangible organizational outcomes.

Overall, the findings indicate that the primary challenge is not the availability of digital technology, but the organizational capability to strategically manage and utilize it. Digital transformation in rural banking institutions remains largely operational and compliance-driven, rather than strategically embedded. Therefore, future efforts should focus on capability development, system integration, and governance alignment to achieve meaningful performance improvements.

IV. CONCLUSION

A. Conclusion

This study provides a comprehensive evaluation of all proposed hypotheses and finds that each hypothesized relationship is not statistically significant. Accordingly, H1 through Hn are not supported, indicating that none of the independent variables exert a direct effect on the dependent variable within the tested model. These results suggest that the research problem cannot be fully explained through direct causal linkages, and that the theoretical relationships—while conceptually sound—are not empirically confirmed in this context. This implies the presence of more complex mechanisms, including potential mediating or moderating variables, as well as contextual factors such as institutional readiness, user behavior, and environmental dynamics that may suppress or reshape the expected effects.

These findings are consistent with prior studies highlighting that established theoretical models do not produce significant results across different contexts. For instance, Fred D. Davis (1989) and Viswanath Venkatesh et al. (2003) acknowledge that the predictive power of core constructs depends heavily on contextual enablers. Empirical evidence from Oliveira and Martins (2011) and Tarhini et al. (2017) further demonstrates that in developing or transitional settings, structural relationships often become weak or insignificant due to limitations in digital maturity, organizational support, and user trust. Thus, this study reinforces the argument that contextual variability plays a critical role in shaping empirical outcomes.

The novelty of this research lies in its firm positioning of non-significant hypotheses as valuable scientific contributions rather than mere limitations. By empirically showing that all hypotheses are unsupported, this study challenges the dominance of significance-oriented research and emphasizes the importance of reporting and interpreting null results. It contributes to theory development by signaling the need for model refinement through the inclusion of moderating and mediating variables, as well as more context-sensitive and longitudinal approaches. Consequently, this research enriches the literature by offering a more nuanced understanding of

when and why theoretical relationships may fail to manifest empirically.

B. Managerial and Policy Implications

The results indicate that the main challenge is not technology availability but the capability to use it strategically. Managers should align digital initiatives with business strategy, strengthen digital governance, and prioritize human capital development in data analytics, risk management, and digital leadership. Regulators are encouraged to shift from compliance-based supervision toward performance-oriented frameworks, including digital maturity assessments and shared infrastructure support.

C. Limitations and Future Research

This study is limited by low explanatory power, a cross-sectional design, and reliance on perceptual data. Future research should incorporate additional variables such as digital maturity, organizational culture, and leadership, apply longitudinal approaches, and expand the sample to improve generalizability.

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