

Digital Transformation Capability and Bank Innovation Performance: The Mediating Role of Financial Innovation——A Case of Industrial and Commercial Bank of China, Guangdong Branch

Yanqun Gao^{1*}, Danaikrit Inthurit²

Watcharanan Thongma³, and Krittiya Tongkoom⁴

Ph.D. student, Digital Economics and Management Innovation, International College, Maejo University, Thailand^{1*}

International College, Maejo University, Thailand^{2, 3, 4}

*Corresponding author. E-mail: 94645229@qq.com^{1*}

Received July 16, 2026; **Revised** August 19, 2026; **Accepted** August 25, 2026

Abstract

This research aimed to: 1) identify the influence relationship among the three variables, including the effect of DTC on BIP; the effect of FI on BIP; and the effect of DTC on FI; and 2) explore the mediating effect of financial innovation on the relationship between the digital transformation capability and bank innovation performance. The study sample comprised the Guangdong Branch of ICBC, selected via stratified random sampling. Data were collected by distributing a five-point Likert-scale questionnaire to bank managers via an online platform, yielding 400 valid responses. Descriptive statistics and structural equation modeling (SEM) were employed for data analysis. The findings revealed that: 1) digital transformation capability positively influenced financial innovation ($\beta = 0.961$), which in turn positively influenced bank innovation performance ($\beta = 0.742$). Digital transformation capability also has a certain impact on bank innovation performance ($\beta = 0.214$); and 2) financial innovation served as a mediator between digital transformation capabilities and bank innovation performance, with an indirect effect of 0.714. The theoretical contribution of this study lies in breaking the fragmented approach of the four major theories and constructing a unified framework with a progressive relationship: identifying heterogeneous digital resources based on RBV and considering organizational context based on TOE; emphasizing the dynamic reorganization of resources by organizations based on DCT; explaining the transmission medium (indirect effect) of value creation based on FIT; and ultimately focusing on innovation performance.

Keywords: digital transformation capability; financial innovation; bank innovation performance; structural equation modeling

Introduction

In the banking context, digital transformation entails a fundamental shift from the traditional role of financial intermediary to that of a technology-driven service provider. Consequently, banks are no longer mere facilitators of fund flows; rather, they must function as technology-oriented institutions equipped with the digital capabilities essential for sustaining competitiveness (Abdurrahman, 2025). From the perspective of the resource-based view (RBV), these digital transformation capabilities are embedded in a bank's unique bundle of resources. When effectively integrated and deployed, these resources constitute the foundation for a bank's capacity to drive digital transformation. In essence, digital transformation capability is the intrinsic strength on which banks rely for survival and competitiveness in the digital age, shaping the depth, breadth, and sustainability of their transformation trajectories.

Innovation performance serves as a comprehensive metric for evaluating the outcomes of an organization's innovation activities. In the banking industry, it centers on the value generated through innovation—whether in the form of novel customer-facing products and services or through enhancements to internal processes and operational efficiency.

Financial innovation serves as a critical nexus between digital transformation capabilities and innovation performance. It entails the introduction of novel elements and combinations into financial products, services, business processes, or business models by financial institutions. In the digital age, the scope of financial innovation has broadened considerably, encompassing not only traditional product innovation but also innovations in service models, channels, and risk management—all underpinned by digital technologies.

Despite notable progress in research on digital transformation and banking innovation, several gaps persist in the extant literature. First, there is a disconnect rather than a synthesis among theoretical perspectives. Most existing studies rely on a single theoretical framework, and attempts to integrate multiple perspectives—such as RBV, DCT, TOE, and FIT—within a unified analytical model remain scarce. Second, the mediating role of financial innovation remains underexplored. Existing research predominantly focuses on the direct effects of digital transformation

on bank performance; however, the specific mechanism by which digital transformation capabilities drive innovation performance through financial innovation has yet to be adequately examined.

To systematically investigate the interaction mechanisms among digital transformation capabilities, financial innovation, and bank innovation performance, this study integrates four complementary theoretical frameworks: Dynamic Capability Theory (DCT), the Resource-Based View (RBV), the Technology–Organization–Environment (TOE) framework, and Financial Innovation Theory (FIT). On this basis, it proposes a conceptual model following the pathway of “Digital Transformation Capability → Financial Innovation → Bank Innovation Performance.” Within this integrative framework, RBV establishes the resource foundation of digital transformation capabilities, preventing the analysis from devolving into an abstract discussion of capabilities in isolation. DCT elucidates the process through which resources are transformed into organizational capabilities, thereby compensating for RBV’s inherent static orientation. TOE delineates the broader systemic environment in which these capabilities are deployed, introducing contextual dimensions that the preceding two theories largely neglected. Finally, FIT explicates the mediating pathway by which capabilities translate into performance outcomes, thereby clarifying the causal chain linking digital transformation capabilities to bank innovation performance.

Research Objectives

This study is expected to achieve three research objectives:

1. To identify the influence relationship among the three variables, including the effect of DTC on BIP, the effect of FI on BIP, and the effect of DTC on FI.
2. To explore the mediating effect of financial innovation on the relationship between the digital transformation capability and bank innovation performance.

Scope of Research

Scope of contents: First, this study examines the relationships among the three variables, including the effects of DTC on BIP, FI on BIP, and DTC on FI. Second, this study tests the mediating role of financial innovation in the relationship between digital transformation capability and bank innovation performance.

Geographic scope: This study centers on the Industrial and Commercial Bank of China (ICBC)—the nation’s largest state-owned commercial bank—with a specific focus on its Guangdong

branch. This branch is particularly noteworthy for its early adoption of digital transformation and its demonstrated strengths across multiple dimensions, including a premium customer base, a diversified business portfolio, substantial innovation capacity, and robust market competitiveness. This study covers the Industrial and Commercial Bank of China (ICBC) branches across 21 prefecture-level cities in Guangdong Province. Given a total workforce of 35,000 employees across these branches, a sample size of 400 was derived using Yamane's formula.

Time scope: July 2025– March 2026

Literature Review

Concepts of the main research variables

Digital Transformation Capabilities (DTC): Previous studies have frequently conceptualized digital transformation capability in a narrow, technology-centric manner. Levallet and Chan (2022) proposed that organizations can leverage digital capabilities to facilitate managerial improvisation in response to unexpected contingencies; however, their operationalization remained heavily skewed toward an IT-enabled construct. Similarly, in examining entrepreneurial growth, Drechsler et al. (2020) adopted a technical-alignment perspective, which fell short of capturing the comprehensive nature of digital transformation capability.

Financial Innovation (FI): Financial innovation encompasses activities within the financial sector that generate or introduce new products, services, processes, institutions, or systems—either by introducing novel elements or by creatively reconfiguring existing resources. In practice, financial innovation takes various forms, notably product, process, and institutional innovation (WallStreetMojo, 2025).

Bank Innovations Performance (BIP): Bank innovation performance denotes the operational effectiveness of a bank, as reflected in its earnings, efficiency metrics, and managerial outcomes. This metric plays a pivotal role in mitigating the risk of bank failures and contributes to the overall stability of the banking sector. Moreover, it captures the bank's capacity to convert innovation inputs into sustainable future growth and income, thereby conveying value-relevant information to stakeholders (Ciftci et al., 2011).

Research on the relationship between variables

Digital Transformation Capabilities (DTC) and Financial Innovation (FI): Existing studies have generally reached a consistent conclusion regarding the direct effect of digital transformation

capabilities on financial innovation, offering a body of mutually reinforcing empirical evidence across multiple analytical levels and perspectives. At the financial services industry level, Urban and Mateyo (2025) examined a sample of 228 financial services companies in South Africa and found that both digital capabilities and digital orientation positively influence digital innovation. As this evidence derives from an emerging-market context, it enriches sample diversity and provides a valuable test of the universality of digital transformation capability across different economic settings.

The intrinsic mechanisms through which digital transformation capabilities facilitate financial innovation have attracted considerable scholarly attention. Existing studies have identified two primary pathways. First, the resource allocation optimization pathway suggests that digital transformation capabilities empower not only the front end of innovation but also its back-end operations (Yan & Yong, 2025). Second, the risk governance synergy pathway—drawing on data from Chinese listed companies over the period 2011–2023—has uncovered a synergistic effect between digital transformation and financial innovation (Yang & Wang, 2026). This indicates that, by mitigating information asymmetry, digital transformation capabilities can foster a more stable and reliable institutional environment conducive to financial innovation.

Digital Transformation Capabilities (DTC) and Bank Innovations Performance (BIP): A substantial body of empirical evidence substantiates the positive effect of digital transformation capabilities on banks' innovation performance. Drawing on panel data from Chinese listed commercial banks, Yuan et al. (2025) demonstrate that digital transformation significantly reduces operating costs, thereby enhancing profitability. Notably, this effect exhibits structural heterogeneity by bank size, with profitability gains more pronounced among large banks. Integrating the resource-based view and dynamic capability theory, Abdurrahman (2025) investigates the impact of digital transformation on the innovation performance of digital products within the banking industry. His findings suggest that cultivating digital capability entails not merely the accumulation of technical assets but also a dynamic process of organizational agility in responding to market shifts—both of which collectively underpin digital product innovation.

Theories supporting relevant variables

The Resource-Based View (RBV) identifies the source of a bank's digital transformation capabilities as rooted in accumulated heterogeneous resources, such as IT infrastructure, data assets, technical talent, and organizational processes. Dynamic Capability Theory (DCT) subsequently transforms these static resources into dynamic operational capabilities. The Technology–

Organization–Environment (TOE) framework analyzes the factors influencing banks’ adoption and implementation of technological innovations across three dimensions: technology, organization, and environment. Finally, Financial Innovation Theory (FIT) examines how financial institutions introduce new products, services, and processes while navigating the inherent tensions between risk aversion and return-seeking objectives.

However, significant research gaps persist concerning the integration and application of these four theoretical frameworks. In particular, the existing literature on the impact of digital transformation capabilities on banks’ innovation performance largely overlooks the mediating role of financial innovation. While cultivating digital transformation capabilities creates enabling conditions for financial innovation, it is the effective implementation of that innovation that ultimately yields observable performance outcomes. This mediating logic thus constitutes a critical theoretical link for understanding the relationship between digital transformation capabilities and innovation performance.

Based on the above analysis and literature review, the author sets forth the following research hypotheses.

H1: Digital Transformation Capabilities (DTC) positively affect Bank Innovations Performance (BIP)

H2: Digital Transformation Capabilities (DTC) positively affect Financial Innovation (FI)

H3: Financial Innovation (FI) has a positive influence on Bank Innovations Performance (BIP)

H4: Financial Innovation (FI) has a mediating role between Digital Transformation Capabilities (DTC) and Bank Innovations Performance (BIP)

Research Methodology

Population and samples

This study covers the Industrial and Commercial Bank of China (ICBC) branches located across the 21 prefecture-level cities of Guangdong Province. According to official ICBC data as of December 2025, the Guangdong branch had 35,000 employees and operated 1,399 outlets throughout these cities.

According to Taro Yamane’s sample size formula, the minimum sample size can be determined with a 5% margin of error (Yamane, 1973). In the formula, n is the sample size, N is the population size, and e is the sampling error (0.05). The specific calculation process is as follows:

$$n = \frac{N}{1 + Ne^2} = \frac{35000}{1 + 35000 * 0.05^2} \approx 395$$

To ensure the accuracy and reliability of the survey findings, the final sample comprised 400 respondents. Given the operational heterogeneity across the prefecture-level cities within the ICBC Guangdong branch's jurisdiction, stratified random sampling was employed to guarantee sample representativeness.

$$n_i = \frac{N_i}{N} * n$$

Where: N_i =The overall size of the i stratum; N =Overall size; n =Total sample size; n_i =The sample size taken from the i stratum

Data Collection

The questionnaires were distributed via the China Questionnaire Star platform and administered to bank employees through WeChat or email. Prior to the formal survey, three experts from academia and industry were invited to review the questionnaire and provide feedback. Following the necessary revisions, a pilot test was conducted with 10% of the intended sample size. Subsequently, the official questionnaire was distributed via the same platform, yielding 400 valid responses.

Data Analysis

To comprehensively analyze the impact of digital transformation capabilities on bank innovation performance through financial innovation, an SEM analysis was conducted in AMOS following preliminary data collection. Maximum likelihood estimation (MLE) was used for hypothesis testing. The analysis mainly consisted of two steps:

1) Confirmatory factor analysis (CFA) is used to assess the validity of the indicators. The standard for indicator validity was that the standardized factor loadings for each observed variable must exceed 0.50 (Hair et al., 2019).

2) Latent variable path analysis: used to test the goodness of fit of the structural model. The following criteria were used to evaluate the goodness of fit: chi-square value (χ^2/df) less than 5 (Kline, 2016; Hair et al., 2019), root mean square error (RMSEA) less than 0.10 (Browne & Cudeck, 1993), and standardized root mean square residual (SRMR) less than 0.05. Furthermore, the comparison fit index (CFI) should be 0.90 or higher (Schumacker & Lomax, 2010).

Research Results

Individual Characteristics of the Sample

The largest age group was 31–50 years old, including 175 participants, accounting for 43.7% of the sample. Most of the respondents had a master's degree or higher (243, accounting for 60.7%). Jobs included most positions in banks, with 130 first-level branch presidents, accounting for 32.5%. In terms of the distribution of respondents' cities, Guangzhou, the capital of Guangdong Province, had the largest number of respondents, with 110, accounting for 27.5%.

Reliability and Convergent Validity

Table 1: Reliability and Convergent Validity

Variable	Cronbach's α	KMO	Bartlett's Test of Sphericity	CR	AVE
DTC	0.892	0.881	significant	0.894	0.534
FI	0.880	0.870	significant	0.886	0.527
BIP	0.874	0.871	significant	0.880	0.513

Note: CR=composite reliability, AVE=average variance extracted.

As shown in Table 1, the Cronbach's α values for all variables exceeded the standard threshold of 0.7, indicating good internal consistency. The KMO values for all variables exceeded 0.8, and Bartlett's test of sphericity was significant ($p < 0.05$). According to Kaiser (1974) and Bartlett (1950), these variables are suitable for factor analysis. AVE values exceeded 0.5 and CR values exceeded 0.7 for all variables, confirming good convergent validity.

Discriminant Validity

Table 2: Measurement Model Discriminant Validity

Variable	DTC	FI	BIP
DTC	0.731		
FI	0.580	0.726	
BIP	0.574	0.571	0.716

Note: The numbers on the diagonal are the square roots of the AVE of constructs, and the numbers on the off-diagonal are the Pearson correlation coefficients between one construct and another.

As shown in Table 2, all correlation coefficients are below 0.7, indicating the absence of multicollinearity. In addition, the square root of AVE is greater than the corresponding inter-construct correlation, providing evidence of discriminant validity. Therefore, the measurement instruments used in this study have good reliability and validity.

Overall model fit

Table 3: Model Fit Evaluation of the Modified CFA Measurement Model

Fit Index	Criterion	Value after Modification	Interpretation
χ^2/df	<3.00	3.586	Within an acceptable range
GFI	>0.90	0.667	Below the minimum threshold
AGFI	>0.90	0.635	Below the minimum threshold
CFI	>0.90	0.892	Marginally acceptable
TLI	>0.90	0.885	Marginally acceptable
NFI	>0.90	0.856	Acceptable at a low level
IFI	>0.90	0.892	Marginally acceptable
RMSEA	<0.08 = good; <0.10 = acceptable	0.082 (90% CI: 0.080~0.085)	Passed with acceptable criteria
SRMR	<0.08	0.0258	Pass

Note: GFI=Goodness of Fit Index, AGFI=Adjusted Goodness of Fit Index, CFI=Comparative Fit Index, IFI=Incremental Fit Index, NFI=Normed Fit Index, RMSEA=Root Mean Square Error of Approximation.

Evaluating measurement models via confirmatory factor analysis (CFA) is a critical step in assessing the extent to which the theoretical constructs and their corresponding indicators adequately capture the underlying empirical structure (Hair et al., 2019). Table 3 presents the fit indices for the CFA measurement model.

Although GFI and AGFI values are relatively low, these indices are known to be sensitive to sample size and model complexity (Kline, 2016; Hair et al., 2019). Contemporary CFA literature places greater emphasis on RMSEA and SRMR for evaluating overall model adequacy. In summary, although the model does not meet strict ideal thresholds, it clearly meets academic standards for acceptable model adequacy and does not pose a methodological barrier to CFA analysis. Therefore, it is confirmed that the modified measurement model is sufficiently robust to proceed to the next stage of analysis, namely the Structural Model (SEM).

Summary of path analysis

Table 4: Structural Model Regression Statistics

Path	Unstandardized Coefficient	SE	z(CR)	p Value	Standardized Coefficient	R ²
DTC → FI	1.609	0.045	23.492	***	0.961	0.924
DTC → BIP	0.223	0.081	2.758	0.006	0.214	0.901
FI → BIP	0.699	0.077	9.081	***	0.742	

Note: *** means the p-value is less than 0.001.

As shown in Table 4, the p-values for the unstandardized regression coefficients were all less than 0.05, indicating that these relationships were statistically significant. The R² values for variables FI and BIP reached 0.924 and 0.901, respectively, indicating that their explanatory power was good. DTC had a positive impact on FI, explaining 92.4% of the variance. DTC and FI also had a positive impact on BIP, contributing 90.1% of the variance. The standardized regression coefficients of DTC and FI on BIP were 0.214 and 0.742, respectively, indicating that FI had a greater impact on BIP than DTC.

Hypothesis testing

Table 5. Path coefficients from external latent variables to internal latent variables.

Hypothesis	Path	β (Standardized)	p-value	Test Result	Conclusion
DTC	DTC → BIP	0.214	0.006	Significant	Accepted
FI	DTC → FI	0.961	***	Significant	Accepted
BIP	FI → BIP	0.742	***	Significant	Accepted

Note: *** means the p-value is less than 0.001.

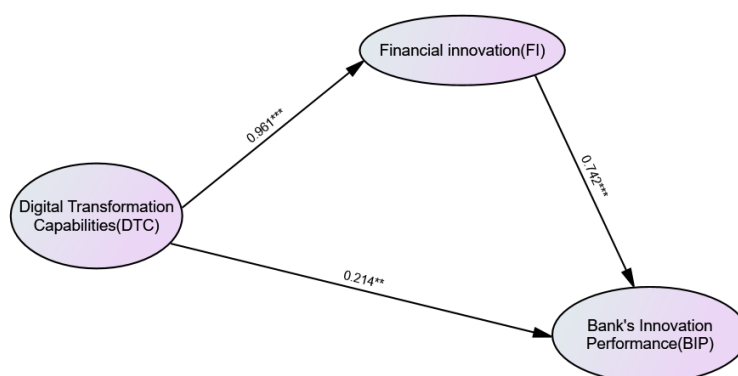


Figure 1: SEM result of the hypotheses model

From: Compiled by the author

Direct Effects: Based on the results of the SEM model (Figure 1 and Table 5), all remaining structural paths were found to be statistically significant and can be interpreted as follows:

H1: Digital Transformation Capabilities (DTC) positively affect Bank Innovations Performance (BIP)

H3: Financial Innovation (FI) has a positive influence on Bank Innovations Performance (BIP)

The research results show that both DTC and FI have a significant positive impact on BIP, explaining 90.1% of the variance, with standardized regression coefficients of 0.214 and 0.742, respectively. FI has a greater impact on BIP than DTC. These findings indicate that DTC and FI significantly influence bank innovation performance. For the Guangdong Branch of the Industrial and Commercial Bank of China, improving bank innovation performance requires not only focusing on digital transformation capabilities but also emphasizing financial innovation.

H2: Digital Transformation Capabilities (DTC) positively affect Financial Innovation (FI).

The results show that DTC has a significant positive impact on FI ($\beta = 0.961$, $P < 0.001$), explaining 92.4% of its variance. This indicates that when banks improve their digital transformation capabilities, their level of financial innovation increases. When bank managers recognize the importance of digital transformation capabilities, they are more likely to value them and engage in proactive financial innovation within the bank.

Mediation Effects: This study uses the Bootstrap method to evaluate the mediating role of financial innovation in the relationship between the digital transformation capability of commercial banks and their innovation performance (Freedman, 1981). Table 6 lists the results of the mediating effects test, including bias–corrected confidence intervals and percentile position intervals at the 95% confidence level (Tibbe & Montoya, 2022).

Table 6 The results of mediating effects test

Hypothesis	Path	Effect	Effect value	Bias-Corrected 95% CI (Lower, Upper)	Result
H4	DTC → FI → BIP	Total effect	0.927	(0.898, 0.950)	Accepted
		Direct effect	0.214	(-0.098, 0.493)	
		Indirect effect	0.714	(0.429, 1.012)	

Note: *** means the p-value is less than 0.001.

As shown in Table 6, the indirect effect of financial innovation on the relationship between digital transformation capability (DTC) and banks' innovation performance (BIP) was 0.714. The Bias-corrected 95% confidence interval (CI) for this indirect effect ranged from 0.429 to 1.012 and did not include zero. This result indicates a significant mediating effect. Meanwhile, the 95% CI for the direct effect (DTC→BIP) ranged from -0.098 to 0.493, which includes zero. This suggests that the direct effect is not significant. Therefore, financial innovation plays a complete mediating role between digital transformation capability (DTC) and banks' innovation performance (BIP), thereby supporting Hypothesis H4.

Discussion

With respect to the first research objective, the empirical results indicate that digital transformation capabilities exert a significant positive influence on both bank innovation performance (direct effect = 0.214) and financial innovation (direct effect = 0.961), while financial innovation, in turn, positively affects bank innovation performance (direct effect = 0.742). This pattern is largely attributable to digital transformation's ability to reshape banks' underlying technical architecture, thereby providing a robust technological foundation for financial product innovation, service model transformation, and business process optimization. Such enhanced capabilities enable banks to identify customer needs more swiftly and design risk-controlled innovative instruments—i.e., financial innovation—thereby converting technological dividends into more efficient business growth and improved customer experience, i.e., bank innovation performance. These findings corroborate those of Guo and Xu (2021) regarding the nexus between enterprise digital transformation and innovation performance. Their study found that digital technology applications enhance process and

product innovation performance by improving organizational learning and knowledge integration capabilities, with this effect being particularly pronounced in highly dynamic industry environments.

Regarding the second research objective, the empirical results confirm that financial innovation plays a significant mediating role in the relationship between digital transformation capabilities and bank innovation performance (indirect effect = 0.714). This indicates that digital transformation capabilities not only directly enhance bank innovation performance but also exert an indirect positive influence by stimulating financial innovation. This effect can be largely attributed to enhanced digital capabilities, which enable banks to respond promptly to market shifts and drive financial innovation across product design, service delivery, and risk management. These innovative outcomes ultimately translate into quantifiable performance gains, forming a value-creation chain: "capability enablement → innovation output → performance enhancement." These findings are consistent with those of Ferreira et al. (2019), whose research on the relationship between dynamic capabilities and innovation performance demonstrated that dynamic digital capabilities significantly enhance a firm's business model and product innovation by enabling the organization to identify and capitalize on new opportunities, thereby boosting overall performance.

Conclusion

Regarding the first research objective, this study empirically examines the direct relationships among digital transformation capabilities, financial innovation, and bank innovation performance. The results indicate that banks endowed with stronger digital transformation capabilities are likely to achieve higher innovation performance. Similarly, banks that more actively innovate their financial products, service processes, and business models tend to exhibit superior overall performance. Furthermore, robust digital transformation capabilities have been shown to effectively facilitate financial innovation. All three hypothesized relationships were supported by the empirical data. This research extends the application of dynamic capability theory to the banking context. From a practical standpoint, banks are encouraged to pursue innovation initiatives that translate technological capabilities into customer-perceptible value, thereby genuinely improving innovation performance.

Regarding the second research objective, the mediation analysis reveals that the indirect effect mediated by financial innovation accounts for a substantial portion of the total effect and is statistically significant. This finding substantiates the posited causal pathway of "digital transformation capability → financial innovation → bank innovation performance." The present study extends the

applicability of dynamic capability theory in the financial industry and provides a methodological reference for future investigations into mediation mechanisms. In practical terms, banks pursuing digital transformation should prioritize the mediating role of financial innovation and tailor their resource allocation strategies to the efficiency of this transmission mechanism.

Suggestions

Bank managers should prioritize the critical mediating role of financial innovation. Serving as a pivotal link between digital transformation capabilities and innovation performance, financial innovation operates through a sequential logic: digital transformation first endows banks with foundational technological, organizational, and data-related capabilities; these capabilities are subsequently channeled through financial innovation across various dimensions, ultimately generating tangible improvements in innovation performance.

To broaden the theoretical scope, future research should pursue international comparative studies. Extending the analytical lens beyond domestic settings, scholars could conduct cross-regional and cross-national comparisons. Adopting a cross-cultural perspective would enrich the theoretical understanding of digital transformation and innovation management in the banking sector, while simultaneously offering a more robust conceptual foundation and practical guidance for digital transformation initiatives across the global banking industry.

New Knowledge

As a key theoretical contribution, this study pioneers the integration of four major theoretical perspectives—Dynamic Capability Theory (DCT), the Resource-Based View (RBV), the Technology–Organization–Environment (TOE) framework, and Financial Innovation Theory (FIT)—into a unified analytical model, thereby formulating a conceptual framework that maps the pathway from “Digital Transformation Capability → Financial Innovation → Bank Innovation Performance.” This integrative approach not only transcends the explanatory constraints inherent in single-theory perspectives but also provides a robust theoretical foundation for guiding future empirical inquiry.

As a key mechanistic contribution, this study explicitly positions financial innovation as a mediating variable linking digital transformation capabilities to bank innovation performance, thereby systematically elucidating the “capability → innovation → performance” pathway. This hypothesized mechanism departs from prior research traditions that tend to prioritize direct effects

over mediating channels, consequently deepening the theoretical understanding of value creation in the context of bank digital transformation.

References

- Abdurrahman, A. (2025). Examining the impact of digital transformation on digital product innovation performance in the banking industry through the integration of the resource-based view and dynamic capabilities. *Journal of Strategy & Innovation*, 36(1), 200540. <https://doi.org/10.1016/j.jsinno.2025.200540>
- Bartlett, M. S. (1950). Tests of significance in factor analysis. *British Journal of Psychology*, (3), 77–85. <https://doi.org/10.1111/j.2044-8317.1950.tb00285.x>
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen and J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). SAGE.
- Ciftci, M., Lev, B., & Radhakrishnan, S. (2011). Is research and development mispriced or properly priced risk adjusted?. *Journal of Accounting, Auditing & Finance*, 26(1), 81–116. <https://doi.org/10.1177/0148558X11400581>
- Drechsler, K., Gregory, R., Wagner, H., & Tumbas, S. (2020). At the crossroads between digital innovation and digital transformation. *Communications of the Association for Information Systems*, 47, 521–538. <https://doi.org/10.17705/1CAIS.04723>
- Ferreira, J. J., Fernandes, C. I., & Ferreira, F. A. (2019). To be or not to be digital, that is the question: Firm innovation and performance. *Journal of Business Research*, 101, 583–590. <https://doi.org/10.1016/j.jbusres.2018.11.013>
- Freedman, D. A. (1981). Bootstrapping regression models. *The Annals of Statistics*, 9(6), 1218–1228. <http://www.jstor.org/stable/2240411>
- Guo, L., & Xu, L. (2021). The effects of digital transformation on firm performance: Evidence from China's manufacturing sector. *Sustainability*, 13(22), 12844. <https://doi.org/10.3390/su132212844>
- Hair, J. F., Babin, B. J., Anderson, R. E., & Black, W. C. (2019). *Multivariate data analysis* (8th ed.). England: Pearson Prentice.
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31–36. <https://doi.org/10.1007/BF02291575>

- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
- Levallet, N., & Chan, Y. (2022). Uncovering a new form of digitally-enabled agility: An improvisational perspective. *European Journal of Information Systems*, 31(6), 681–708. <https://doi.org/10.1080/0960085X.2022.2035262>
- Schumacker, R., & Lomax, R. (2010). *A beginner's guide to structural equation modeling* (3rd ed.). Lawrence Erlbaum Associates.
- Tibbe, T. D., & Montoya, A. K. (2022). Correcting the bias correction for the bootstrap confidence interval in mediation analysis. *Frontiers in Psychology*, 13, 810258. <https://doi.org/10.3389/fpsyg.2022.810258>
- Urban, B., & Mateyo, K. (2025). The role of entrepreneurial culture, digital orientation, and digital capabilities in fostering digital innovation: A focus on the financial services sector in South Africa. *International Journal of Technological Learning, Innovation and Development*, 16(3), 217–237. <https://doi.org/10.1504/IJTLID.2025.148088>
- WallStreetMojo. (2025, Mar 3). *Financial innovation?*. WallStreetMojo. <https://www.wallstreetmojo.com/financial-innovation/#1>
- Yamane, T. (1973). *Statistics: an introductory analysis* (3rd ed.). Harper and Row.
- Yan, P., & Yong, C. (2025). FinTech and corporate digital technology innovation. *Finance Research Letters*, 85(B). <https://doi.org/10.1016/j.frl.2025.108007>
- Yang, Y., & Wang, L. (2026). Digital intelligence transformation, financial innovation, and the Effectiveness of enterprise risk management. *International Review of Financial Analysis*, 110. <https://doi.org/10.1016/j.irfa.2025.104865>
- Yuan, X., Puah, C. H., & Marikan, D. A. B. A. (2025). An empirical study on the impact of financial Technology and the profitability of China's listed commercial banks. *Journal of Risk and Financial Management (JRFM)*, 18(8), 440. <https://doi.org/10.3390/jrfm18080440>