Digital Transformation and Competitive Advantage in Regional Banking: Relational Conversion and Contextual Constraints in an Emerging Market

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ABSTRACT

This study examines how digital transformation capabilities translate into competitive advantage at branch level within a semi-urban emerging-market banking context. Drawing on the Resource-Based View, Dynamic Capabilities theory, the Technology–Organization–Environment framework, and Relationship Marketing theory, the study develops and tests a relational conversion model in which digital capabilities influence competitive advantage both directly and indirectly through customer relationship strength. Using survey data from 147 customers and branch-level inputs, regression and bootstrapped mediation analyses reveal that digital network capability and digital skills significantly enhance competitive advantage, while digital marketing exhibits a smaller but positive effect. Customer relationship strength emerges as the strongest predictor and partially mediates the digital capability–advantage relationship. The findings demonstrate that in infrastructurally constrained environments, digital resources do not automatically generate performance benefits. Instead, competitive advantage emerges when digital capability is embedded in relational trust and organizational integration. The study refines resource-based logic by identifying relational conversion as a boundary condition shaping digital capability effectiveness in emerging markets.

Keywords: Digital transformation; competitive advantage; emerging markets; relational conversion; banking; digital capabilities

INTRODUCTION

Digital transformation (DT) has fundamentally altered competition in banking. Mobile platforms, integrated networks, and data-driven services have reshaped cost structures and customer interaction models. While digitalization is often assumed to enhance competitiveness, evidence remains mixed, particularly in emerging markets where infrastructural limitations, digital literacy gaps, and trust constraints persist.

Most prior research examines digital transformation at firm or cross-country level. Less attention has been paid to branch-level variation within heterogeneous environments. Yet digital capability effectiveness may differ significantly across geographic contexts, especially in semi-urban regions where adoption constraints and relational dynamics shape outcomes.

This study addresses the question: “Under what conditions does digital transformation translate into competitive advantage at branch level in semi-urban emerging-market banking?”

We argue that digital capability alone does not generate competitive advantage. Instead, advantage emerges through a relational conversion mechanism whereby digital resources strengthen customer trust and satisfaction, which in turn drive retention and perceived market positioning.

Using survey data from a commercial bank branch operating in a semi-urban African context, we test a mediation model linking:

Digital capabilities → Customer relationship strength → Competitive advantage.

The study makes three contributions:

1. It reframes digital transformation as a capability system rather than isolated technology adoption.
2. It identifies relational conversion as a boundary condition in the digital capability–performance relationship.
3. It advances emerging-market strategy research by demonstrating context-dependent capability effectiveness at branch level.

Theoretical Framework and Hypotheses

Digital Transformation as a Capability System

The Resource-Based View (RBV) posits that sustained competitive advantage arises from valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). In banking, digital infrastructure, staff competencies, and market-facing digital engagement represent potential strategic resources when effectively integrated into operations.

However, RBV alone does not explain variation in performance outcomes across contexts. Dynamic Capabilities theory (Teece et al., 1997; Teece, 2018) emphasizes the firm's ability to reconfigure and deploy resources under environmental change. In digital banking, this includes continuous upskilling, system integration, and adaptation to evolving customer expectations.

The Technology–Organization–Environment (TOE) framework further suggests that technology outcomes depend on organizational readiness and environmental conditions (Tornatzky & Fleischer, 1990). In semi-urban emerging markets, connectivity constraints, digital literacy disparities, and trust considerations shape digital transformation effectiveness.

Integrating these perspectives, we conceptualize digital transformation as a multi-dimensional capability system comprising:

- Digital Network Capability (infrastructure reliability, integration, system performance)
- Digital Skills (staff competence in digital tools and support)
- Digital Marketing Capability (digital engagement and outreach)

These capabilities influence competitive advantage directly and indirectly through relational mechanisms.

Relational Conversion Mechanism

Relationship Marketing theory (Morgan & Hunt, 1994; Oliver, 1999) emphasizes trust and satisfaction as drivers of loyalty and sustained performance. In banking, where switching costs and perceived risk are high, relational strength is central.

Digital transformation improves service speed, reliability, and accessibility. However, customers interpret these improvements through relational lenses. Competitive advantage therefore emerges not merely from technology deployment but from technology being translated into trust, satisfaction, and commitment.

We define Customer Relationship Strength (CRS) as satisfaction, trust, engagement quality, and likelihood of continued use. CRS functions as a conversion mechanism translating digital capability into retention and market positioning.

Hypotheses Development

Digital Network Capability

Reliable and integrated digital systems reduce transaction failures and enhance service consistency. As a strategic IT resource, digital network capability should directly enhance operational efficiency and perceived reliability.

H1: Digital network capability positively influences competitive advantage.

Digital Skills

Human capital is central to technology value realization. Staff competence enhances onboarding, troubleshooting, and customer confidence.

H2: Digital skills positively influence competitive advantage.

Digital Marketing Capability

Digital marketing supports awareness and engagement but may yield weaker effects in constrained contexts where trust and infrastructure matter more.

H3: Digital marketing capability positively influences competitive advantage.

Mediation Hypothesis

Digital capabilities improve customer experience. Improved experience enhances satisfaction and trust, which drive retention and perceived advantage.

H4: Customer relationship strength mediates the relationship between digital transformation capabilities and competitive advantage.

METHODOLOGY

Research Design

The study adopts a positivist, deductive approach and employs a cross-sectional explanatory design. The unit of analysis is a commercial bank branch operating in a semi-urban emerging-market environment.

Sample and Data Collection

Data were collected from 147 customers using structured questionnaires administered during branch visits and digital interactions. Systematic sampling ensured representation across customer categories. Management inputs provided contextual triangulation.

The sample size exceeds recommended thresholds for multivariate regression (Hair et al., 2019).

Measurement of Variables

All constructs were measured using multi-item five-point Likert scales.

- Competitive Advantage (CA**):** operational efficiency, retention, perceived market positioning.
- Digital Network Capability (DNC): reliability, speed, integration.
- Digital Skills (DS): staff competence, digital support quality.

- Digital Marketing (DM): digital engagement effectiveness.
- Customer Relationship Strength (CRS): satisfaction, trust, loyalty intention.

Composite indices were constructed by averaging standardized items.

Model Specification

Main model:

$CA_i = \beta 0 + \beta 1 DNC_i + \beta 2 DS_i + \beta 3 DM_i + \beta 4 CRS_i + \epsilon i$

Mediation model:

$CRS_i = \alpha 0 + \alpha 1 DNC_i + \alpha 2 DS_i + \alpha 3 DM_i + ui$

Data Analysis

Analysis included descriptive statistics, correlation analysis, multiple regression, and bootstrapped mediation (5,000 resamples). Variance Inflation Factors (VIF) were below 5, indicating no multicollinearity concerns.

RESULTS

Descriptive and Correlation Findings

All digital capability dimensions positively correlate with competitive advantage. The strongest correlation is between customer relationship strength and competitive advantage.

Table 1 Descriptive Statistics and Internal Consistency (N = 147)

Variable	Mean	SD	Cronbach's α
Digital Network Capability (DNC)	3.87	0.64	0.86
Digital Skills (DS)	3.94	0.59	0.88
Digital Marketing (DM)	3.72	0.71	0.81
Customer Relationship Strength (CRS)	4.02	0.56	0.90
Competitive Advantage (CA)	3.95	0.60	0.89

Note. All scales measured on five-point Likert scales (1 = strongly disagree; 5 = strongly agree). All reliability coefficients exceed the recommended 0.70 threshold.

Correlation Matrix

Table 2: Pearson Correlation Matrix

Variable	1	2	3	4	5
1. DNC	—				
2. DS	.54**	—			
3. DM	.48**	.51**	—		

4. CRS	.59**	.63**	.46**	—	
5. CA	.57**	.65**	.42**	.71**	—

Note. p < .01. All correlations are below .80, indicating no multicollinearity concerns.

Regression Results

Multiple Regression Results (Direct Effects Model)

Table 3: **Regression Results Predicting Competitive Advantage**

Predictor	**B**	**SE**	**β**	**t**	**p**
Digital Network Capability	0.21	0.07	.19	3.02	.003
Digital Skills	0.28	0.06	.27	4.67	< .001
Digital Marketing	0.12	0.05	.11	2.14	.034
Customer Relationship Strength	0.41	0.08	.39	5.13	< .001

Model Statistics:

$R^2 = .621$

Adjusted $R^2 = .609$

$F(4, 142) = 58.21$

$p < .001$

Note. VIF values ranged from 1.62 to 2.48.

The model explains 62.1% of variance in competitive advantage ($R^2 = 0.621$, $p < .001$).

Customer Relationship Strength

CRS is the strongest predictor ($p < .001$), indicating that trust and satisfaction significantly enhance retention and perceived market positioning.

Digital Network Capability

Digital network capability positively predicts competitive advantage ($p < .01$), supporting its role as a strategic infrastructure resource.

Digital Skills

Digital skills exhibit a strong positive effect ($p < .001$), confirming the importance of human capital capability in digital transformation outcomes.

Digital Marketing

Digital marketing shows a positive but smaller effect ($p < .05$), consistent with contextual constraints in semi-urban settings.

Mediation Analysis

Table 4: Bootstrapped Mediation Results (5,000 Resamples)

Path	Indirect Effect	SE	95% CI Lower	95% CI Upper	Result
DNC → CRS → CA	0.08	0.03	0.02	0.15	Significant
DS → CRS → CA	0.11	0.04	0.05	0.19	Significant
DM → CRS → CA	0.04	0.02	0.01	0.09	Significant
Total Indirect Effect	**0.18**	-	**0.07**	**0.32**	Significant

Note. Indirect effects are significant when confidence intervals exclude zero.

Digital capabilities significantly predict CRS. When CRS is included in the full model, coefficients for DNC and DS reduce but remain significant, indicating partial mediation.

Bootstrapped indirect effect:

- Indirect Effect = 0.18
- 95% CI [0.07, 0.32]
- Confidence interval excludes zero → mediation confirmed.

CRS functions as a relational conversion mechanism translating digital capability into sustained advantage.

Hypothesis Testing Summary

Table 5: Hypothesis Testing Results

Hypothesis	Statement	Result	Decision
H1	DNC → CA	Positive, significant	Supported
H2	DS → CA	Positive, significant	Supported
H3	DM → CA	Positive, moderate	Supported
H4	CRS mediates	Partial mediation	Supported

DISCUSSION

Digital Transformation as Relationally Embedded Capability

The findings challenge deterministic assumptions that digital investment directly produces competitive advantage. Instead, digital transformation operates as a capability system requiring relational embedding.

Network capability and skills matter, but their strategic value materializes through customer trust and satisfaction.

Relational Conversion as Boundary Condition

The study identifies relational conversion elasticity as a boundary condition in the resource–performance relationship. In infrastructurally constrained environments, digital resources require relational reinforcement to generate advantage.

This refines RBV by demonstrating that digital capability effectiveness depends on relational integration in emerging-market contexts.

Contextual Implications

The modest digital marketing coefficient supports TOE logic: environmental constraints shape capability effectiveness. Infrastructure and trust dominate over promotional outreach in semi-urban settings.

Theoretical Contributions

This study contributes by:

1. Reframing digital transformation as an integrated capability system.
2. Identifying relational conversion as a mediating mechanism.
3. Demonstrating context-dependent capability effectiveness in emerging markets.
4. Extending RBV and Dynamic Capabilities theory by introducing relational embedding as a necessary condition under infrastructural constraints.

Managerial and Policy Implications

Banks operating in semi-urban markets should:

- Prioritize digital infrastructure reliability.
- Invest in staff digital upskilling.
- Strengthen trust-building mechanisms.
- Align digital marketing strategies with local readiness.

Regulators should support digital literacy initiatives and infrastructure development to enhance digital transformation benefits.

Limitations and Future Research

The study is limited by its cross-sectional design and single-branch focus. Future research should employ longitudinal designs, multi-branch comparisons, and objective performance indicators to further validate relational conversion dynamics.

CONCLUSION

Digital transformation enhances competitive advantage in semi-urban emerging-market banking, but only when digitally enabled services are embedded within strong customer relationships and organizational capabilities. Technology alone does not produce sustained advantage; relational integration does.

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