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Research article

Strategic Adaptation of Traditional Banks to FinTech Disruption in the Egyptian Digital Economy: A Structural Equation Modelling Approach

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Abstract: This study explores how traditional banks in Egypt are adapting to the disruptive impact of financial technology (FinTech) within the context of Egypt's digital transformation goals under Vision 2030 and the Financial Inclusion Strategy (2020–2025). A conceptual model was developed that integrates technological adoption, customer satisfaction, digital readiness, regulatory support, innovation capacity, and cybersecurity infrastructure as key drivers influencing bank performance. The research utilized secondary data collected from publicly available sources including annual reports of major Egyptian banks, Central Bank of Egypt publications, and international databases such as those of the World Bank and IMF. Structural Equation Modeling (SEM) was employed to test the relationships between variables. Results indicate significant positive relationships between technological adoption and bank performance, with digital readiness and leadership acting as moderating factors. Banks that have invested in digital infrastructure and formed strategic partnerships with FinTech firms demonstrated improved performance metrics such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). Cybersecurity infrastructure also emerged as a critical factor influencing customer trust and operational stability, especially in light of increasing cyber threats associated with digital banking. The findings highlight the importance of innovation capacity and digital culture in transforming technological investments into competitive advantages. Strategic recommendations were provided for banks to enhance digital capabilities, improve customer experience, and strengthen cybersecurity measures. For regulators, the study suggests updating legal frameworks, establishing regulatory sandboxes, and promoting financial literacy to support the sustainable development of the digital banking ecosystem in Egypt.

Keywords: FinTech, Digital Transformation, Banking Innovation, Technological Adoption, Bank Performance, Egypt

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1. Introduction

1.1 Background

The global financial landscape is undergoing a profound transformation driven by financial technology (FinTech). In Egypt, where Vision 2030 places digital transformation at the heart of economic development, traditional banks face both unprecedented challenges and opportunities.

FinTech companies use technologies such as artificial intelligence (AI), blockchain, big data analytics, and mobile payments to offer faster, cheaper, and more personalized financial services (Gomber et al., 2018). This innovation challenges the dominance of traditional banks, pushing them to rethink their business models (Tripsas, 2019).

According to the Central Bank of Egypt (CBE, 2023), electronic payment transactions increased by 47% over the past year, reflecting a growing shift toward digital banking. However, many traditional banks still struggle with outdated systems, limited digital culture, and complex regulatory environments.

Egypt's banking sector includes over 40 commercial banks and several non-bank financial institutions. While banks like Commercial International Bank (CIB) and QNB have made significant progress in digital transformation, others lag due to internal and external constraints (World Bank, 2022).

Despite these developments, empirical studies on the direct impact of FinTech on traditional banking performance in Egypt remain limited. There is also a lack of comprehensive frameworks that analyze both internal factors (e.g., organizational readiness, innovation capacity) and external factors (e.g., regulatory environment, customer behavior) influencing digital transformation (Dwivedi et al., 2021).

1.2 Research Problem

While interest in FinTech is rising in Egypt, few empirical studies have examined its direct impact on traditional bank performance. Existing research often relies on qualitative case studies or outdated datasets. Moreover, most studies focus on only one or two factors affecting digital transformation, without offering a holistic model that integrates multiple dimensions such as customer satisfaction, digital readiness, leadership, and innovation capacity.

This study addresses this gap by proposing and testing a conceptual model that explains how Egyptian banks can strategically adapt to FinTech disruption. The analysis uses real, publicly available data from bank annual reports, Central Bank of Egypt (CBE) publications, and international databases such as the World Bank and IMF. It also investigates the moderating role of institutional and organizational factors in shaping digital transformation outcomes.

1.3 Research Objectives

The main objectives of this research are:

1. To examine how technological adoption affects the performance of traditional banks in Egypt.
2. To assess the impact of customer satisfaction on digital banking outcomes.
3. To evaluate how digital readiness and regulatory support moderate the relationship between technological adoption and bank performance.
4. To investigate the mediating role of innovation capacity in enhancing digital transformation.
5. To provide evidence-based strategic recommendations for banks and policymakers to improve resilience and competitiveness in the evolving digital economy.

1.4 Research Questions

This study addresses the following questions:

- What internal and external factors influence the adaptation of traditional banks to FinTech in Egypt?
- How does technological adoption affect the performance of Egyptian banks?
- What role do digital readiness and regulatory support play in enabling or hindering digital transformation?
- How do innovation capacity and digital leadership influence the effectiveness of FinTech integration?

1.5 Significance of the Study

Academically, this study contributes to the growing body of knowledge on FinTech disruption in emerging markets, particularly in the Middle East and North Africa (MENA) region. It extends established theories—such as the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), Resource-Based View (RBV), and the Technology-Organization-Environment (TOE) framework—by applying them to the Egyptian banking context.

Practically, the findings offer valuable insights for financial institutions, regulators, and policymakers. They can help banks design effective strategies for adopting FinTech, improving customer experience, and maintaining long-term competitiveness. The results may also guide regulatory decisions that promote innovation while ensuring consumer protection and financial stability.

Additionally, this study serves as a benchmark for future comparative research across Arab countries and other developing economies undergoing similar digital banking transformations.

2. Literature Review

2.1 Conceptual Framework

FinTech refers to "technologically enabled financial innovation that creates new business models, applications, processes, or products with an effect on financial services" (Gomber et al., 2018). Digital transformation in banking involves integrating digital technologies into all areas of banking operations, leading to changes in how banks operate and deliver value to customers (Tripsas, 2019).

2.1.1 Definitions and Scope

FinTech includes a wide range of innovations such as mobile payments, peer-to-peer lending, robo-advisors, and blockchain-based solutions (McKinsey & Company, 2023). These technologies enable faster transactions, lower operational costs, and improved customer engagement.

In Egypt, the rise of FinTech has intensified competition, pushing traditional banks to adopt digital solutions or risk losing market share. The Central Bank of Egypt (CBE, 2023) has acknowledged this shift and introduced policies to promote digital banking and financial inclusion.

2.1.2 Theoretical Foundations

Several theoretical models help explain digital transformation in banking:

- Technology Acceptance Model (TAM) (Davis, 1989): Explains technology adoption based on perceived usefulness and ease of use.
- Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2020): Integrates multiple models to predict user behavior in technology adoption.

- Resource-Based View (RBV) (Teece, 2018): Emphasizes internal resources and capabilities as sources of competitive advantage.
- Technology-Organization-Environment (TOE) Framework (Bauer et al., 2021): Analyzes technology adoption through technological, organizational, and environmental factors.

These theories provide a strong foundation for understanding the multidimensional nature of FinTech adoption in Egyptian banks.

2.2 Impact on Traditional Banking

FinTech disrupts traditional banking through disintermediation and innovative service delivery (Alt & Zimmermann, 2019). This presents both threats and opportunities. Banks can respond by competing, collaborating, or acquiring FinTech firms (Belleflamme et al., 2020), with collaboration often being the most effective strategy.

In Egypt, notable examples include:

- QNB's partnership with Fawry for digital payment services.
- CIB's investment in AI-powered customer service and digital infrastructure.

These collaborations enhance service delivery, reduce costs, and improve customer reach.

2.3 Customer Behavior and Trust

Customer trust and satisfaction are critical for the success of digital banking (Al-Abri & Wafi, 2020). Key factors influencing trust include perceived security, ease of use, and service reliability.

In Egypt, Hassan & Mahomed (2020) found that digital literacy significantly affects trust and e-banking adoption. Younger customers are more receptive to digital banking, while older users prefer traditional channels (Alshammari, 2021). This generational gap highlights the need for hybrid service models.

Studies by Al-Mamary et al. (2019) and Al-Rashdi et al. (2020) confirm that perceived usefulness and trust are strong predictors of mobile banking adoption in Arab countries.

2.4 Regulatory Environment

Regulatory support is essential for FinTech adoption. The Central Bank of Egypt (2022–2023) has taken proactive steps, including promoting cashless payments and supporting digital wallets.

However, Zmudzinski (2022) warns that overregulation may stifle innovation, while under-regulation can expose consumers to risks. A balanced approach is crucial to foster innovation while ensuring consumer protection and financial stability.

2.5 Summary of Research Gaps

Gap	Description
1	Limited empirical studies on FinTech impact in Egypt
2	Lack of quantitative models assessing the relationship between FinTech adoption and bank performance
3	Few studies consider both internal and external drivers of digital transformation
4	Insufficient focus on the Egyptian banking sector despite its strategic importance

2.6 Contribution of This Study

This study addresses the above gaps by:

- Focusing on Egypt, a key emerging market in the MENA region.
- Proposing an integrated model combining technological, organizational, and environmental factors.
- Using credible secondary data from bank annual reports and international institutions.
- Applying Structural Equation Modeling (SEM) to analyze quantitative relationships, avoiding reliance on primary surveys.

3. Conceptual Model and Hypotheses

3.1 Independent Variables

This study adopts a multidimensional framework to examine the strategic adaptation of traditional banks in Egypt to FinTech disruption. The independent variables are grounded in established theories including the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), Resource-Based View (RBV), and the Technology-Organization-Environment (TOE) framework.

3.1.1 Technological Adoption (TA)

Technological adoption refers to the extent to which banks integrate digital technologies—such as artificial intelligence (AI), blockchain, mobile banking, cloud computing, and big data analytics—into their operations (Gomber et al., 2018). In this study, TA is operationalized using a composite index derived from secondary data, including:

- Percentage of digital transactions relative to total transactions.
- Level of investment in digital infrastructure (e.g., IT budgets, fintech partnerships).
- Number of digital platforms offered (e.g., mobile apps, online banking portals).

This index (TA Score) is scaled from 1 to 5 based on data extracted from annual reports and Central Bank of Egypt (CBE) publications.

3.1.2 Customer Satisfaction (CS)

Customer satisfaction reflects how well digital banking services meet or exceed customer expectations (Parasuraman et al., 1988). It encompasses dimensions such as service quality, ease of use, responsiveness, and perceived value. High CS enhances customer retention and loyalty, which in turn influences bank performance.

In this study, CS is measured using a Customer Satisfaction Index (CS Index) constructed from publicly reported metrics, including:

- Digital service usage rates.
- Customer complaint resolution time.
- Net Promoter Score (NPS) or equivalent indicators (where available).
- Mobile app ratings and user feedback (from public app stores, when accessible).

The index is normalized and scaled to ensure comparability across banks.

3.1.3 Digital Readiness (DR)

Digital readiness refers to an organization's capacity to adopt and implement digital technologies effectively. It includes employee digital skills, IT infrastructure quality, cybersecurity preparedness, and leadership support for digital transformation (Al-Fayomi, 2021).

DR is measured using a Digital Readiness Index (DR Index) based on:

- Employee training programs in digital tools.
- IT infrastructure upgrades (e.g., cloud migration, system integration).
- Frequency of digital strategy updates.
- Public disclosures on digital transformation goals.

Data are extracted from annual reports and sustainability disclosures.

3.1.4 Regulatory Support (RS)

Regulatory support refers to the policies and initiatives provided by regulatory bodies—such as the Central Bank of Egypt (CBE)—to facilitate FinTech integration. This includes digital payment regulations, licensing frameworks, and innovation sandboxes (SAMA, 2023).

RS is quantified using an RS Index derived from:

- Number of digital banking regulations issued (2019–2023).
- CBE's public statements and policy documents on FinTech.
- Participation in national digital economy initiatives (e.g., Egypt's Vision 2030, Financial Inclusion Strategy).

Each regulation or initiative is scored and aggregated annually.

3.1.5 Digital Culture (DC)

Digital culture represents the internal values, attitudes, and behaviors that promote innovation and technology adoption within banks. A strong digital culture encourages experimentation, collaboration, and agility (Tripsas, 2019).

DC is assessed through qualitative content analysis of annual reports and public communications, focusing on:

- Leadership statements on innovation.
- Internal innovation programs (e.g., hackathons, idea labs).
- Use of digital transformation as a strategic theme.

A Digital Culture Score (DC Score) is assigned based on frequency and depth of references, scaled from 1 to 5.

3.1.6 Cybersecurity Infrastructure (CI)

Cybersecurity infrastructure refers to the technical and procedural safeguards implemented to protect digital systems and customer data. Given rising cyber threats, CI is critical for maintaining customer trust and operational continuity (Zmudzinski, 2022).

CI is measured using a Cybersecurity Index (CI Index) based on:

- Public disclosures of cybersecurity investments.

- Implementation of multi-factor authentication (MFA) and encryption.
- Participation in national cybersecurity initiatives.
- Frequency of security audits and penetration testing.

Scores are assigned based on reported practices and third-party assessments where available.

3.2 Dependent Variable

3.2.1 Bank Performance (BP)

Bank performance is the primary outcome variable. It is measured using three widely accepted financial indicators:

- Return on Assets (ROA): Net income divided by total assets.
- Return on Equity (ROE): Net income divided by shareholders' equity.
- Net Interest Margin (NIM): Difference between interest income and expense, relative to earning assets.

These metrics are extracted directly from audited financial statements and represent profitability, efficiency, and competitiveness (Chen & Zhang, 2019).

3.3 Moderator and Mediator Variables

3.3.1 Innovation Capacity (IC)

Innovation capacity refers to a bank's ability to generate, develop, and implement new ideas, products, and processes. It acts as a mediator between technological adoption and performance by transforming digital investments into competitive advantages (Brem et al., 2021).

IC is measured using an Innovation Capacity Score (IC Score) based on:

- Number of new digital products launched annually.
- R&D or innovation-related expenditures.
- Partnerships with FinTech startups.
- Patents or proprietary technology developments (if disclosed).

Data are sourced from annual reports and press releases.

3.3.2 Digital Leadership (DL)

Digital leadership involves the vision, strategy, and decision-making of top management in driving digital transformation. DL moderates the relationship between digital readiness and innovation capacity (Westerman et al., 2014).

DL is assessed through:

- Executive statements on digital strategy.
- Appointment of Chief Digital Officers (CDOs) or equivalent roles.
- Frequency of digital transformation mentions in leadership communications.

A DL Score is assigned based on content analysis of annual reports and official speeches.

3.4 Research Hypotheses

Based on theoretical foundations and empirical evidence, the following hypotheses are proposed:

Hypothesis	Statement
H1	Technological Adoption (TA) has a positive effect on Bank Performance (BP).
H2	Customer Satisfaction (CS) positively influences Innovation Capacity (IC).
H3	Digital Readiness (DR) moderates the relationship between Technological Adoption (TA) and Innovation Capacity (IC).
H4	Regulatory Support (RS) enhances the impact of Technological Adoption (TA) on Bank Performance (BP).
H5	Digital Culture (DC) moderates the relationship between Technological Adoption (TA) and Innovation Capacity (IC).
H6	Cybersecurity Infrastructure (CI) positively affects Bank Performance (BP).
H7	Innovation Capacity (IC) mediates the relationship between Technological Adoption (TA) and Bank Performance (BP).
H8	Digital Leadership (DL) moderates the relationship between Digital Readiness (DR) and Innovation Capacity (IC).

These hypotheses will be tested using Structural Equation Modelling (SEM), leveraging secondary data from bank annual reports, CBE publications, and international databases (World Bank, IMF).

4. Research Methodology

4.1 Research Design

This study employs a quantitative explanatory research design using secondary data to test a conceptual model of strategic adaptation to FinTech disruption in Egyptian banks. While a mixed-methods approach was initially considered, the focus remains on secondary data analysis due to the availability of reliable, publicly reported financial and operational indicators from bank annual reports and Central Bank of Egypt (CBE) publications. This approach ensures objectivity, consistency, and replicability.

The use of Structural Equation Modelling (SEM) allows for the simultaneous testing of multiple relationships, including direct, indirect, and moderating effects, within a single integrated framework. SEM is particularly suitable for this study as it handles latent constructs (e.g., digital readiness, innovation capacity) derived from composite indicators.

4.2 Sampling and Data Collection

Population and Sample

The population consists of commercial banks listed on the Egyptian Exchange (EGX30), including major institutions such as:

- Commercial International Bank (CIB)
- QNB Group

- National Bank of Egypt (NBE)
- Banque Misr
- Housing & Development Bank
- Arab African International Bank (AAIB)
- Credit Agricole Egypt
- HSBC Egypt

A purposive sampling technique was used to select 18 banks with complete and publicly available annual reports for the period 2019–2023. This resulted in a balanced panel dataset of 90 observations (18 banks × 5 years).

Justification for the Time Period (2019–2023)

The five-year period was selected for several strategic reasons:

1. Pre- and Post-COVID-19 Context: 2019 represents the pre-pandemic baseline, while 2020–2023 capture the accelerated digital transformation driven by lockdowns, remote banking needs, and CBE's emergency digital policies.
2. Regulatory Milestones: The period aligns with the launch of key initiatives, including the National Payment Gateway (2020), digital wallet regulations (2021), and the Financial Inclusion Strategy (2020–2025).
3. Data Availability and Consistency: Annual reports during this period show improved disclosure on digital initiatives, allowing for reliable index construction.

Data Sources

All data were collected from publicly available secondary sources, including:

- Annual Reports (2019–2023): For financial performance (ROA, ROE, NIM), IT investments, innovation activities, and leadership statements.
- Central Bank of Egypt (CBE) Publications: For macro-level FinTech indicators, regulatory updates, and transaction volume data.
- World Bank Reports on Egypt's Digital Economy: For national digital readiness and financial inclusion metrics.
- Arab Monetary Fund Reports on FinTech: For regional benchmarking.
- IMF Country Reports (2022–2023): For macroeconomic context (inflation, exchange rates, financial stability).

4.3 Variable Measurement and Index Construction

To ensure transparency and replicability, all composite indices were constructed using a systematic scoring approach based on documented disclosures. Below is a detailed explanation of how each key indicator was derived:

Construct	Indicator Name	Method of Construction	Source
Technological Adoption (TA)	TA Score (1–5)	Based on: • % of digital transactions • IT investment as % of total budget • Number of digital platforms (mobile app, online banking, AI tools) • Partnerships with FinTech firms (e.g., Fawry, Paymob) Each criterion scored 1–5, then averaged.	Bank Annual Reports, CBE
Customer Satisfaction (CS)	CS Index (1–5)	Based on: • Digital service usage rate • Customer complaint resolution time • Net Promoter Score (NPS) or equivalent • App store ratings (where available) Normalized and scaled.	Annual Reports, Public Data
Digital Readiness (DR)	DR Index (1–5)	Based on: • Employee digital training programs • Cloud migration status • System integration level • Digital strategy updates Scored via content analysis.	Annual Reports, Sustainability Disclosures
Regulatory Support (RS)	RS Index (1–5)	Based on: • Number of FinTech-related regulations issued by CBE (2019–2023) • Participation in national digital initiatives • Public statements on digital banking Each regulation = +0.2 points.	CBE Reports, Government Documents
Innovation Capacity (IC)	IC Score (1–5)	Based on: • Number of new digital products launched/year • R&D or innovation budget • FinTech partnerships • Patents or proprietary tech Aggregated and scaled.	Annual Reports, Press Releases
Cybersecurity Infrastructure (CI)	CI Index (1–5)	Based on: • Public disclosures of cybersecurity investments • Use of MFA, encryption • Penetration testing frequency • Compliance with national standards	Annual Rep

4.4 Statistical Tools and Analysis

The following statistical methods were applied using SmartPLS 3.3 and SPSS 27:

Method	Purpose
Descriptive Statistics	Summarize central tendencies and variability of key variables.
Pearson Correlation	Assess linear relationships between constructs.
Reliability and Validity Tests	Cronbach's Alpha, Composite Reliability (CR), Average Variance Extracted (AVE), Fornell-Larcker Criterion.
Structural Equation Modelling (SEM)	Test hypothesized relationships, mediation (IC), and moderation (DR, RS, DL, DC).

SEM was chosen because it:

- Handles latent variables effectively.
- Allows for measurement error correction.
- Supports complex models with multiple mediators and moderators.
- Provides robust fit indices (CFI, TLI, RMSEA, SRMR).

5. Data Presentation and Analysis

5.1 Sample Characteristics

This study is based on secondary data collected from the publicly available annual reports of 18 major commercial banks listed on the Egyptian Exchange (EGX30) over a five-year period from 2019 to 2023. This resulted in a balanced panel dataset of 90 observations (18 banks × 5 years). The selection of this timeframe is justified by several contextual factors:

- 2019 represents the pre-pandemic baseline, reflecting traditional banking operations before the acceleration of digital adoption.
- The period 2020–2023 captures the rapid digital transformation driven by the COVID-19 pandemic, which forced banks to adopt remote services, digital onboarding, and contactless payment solutions.
- Key regulatory milestones were introduced during this period, including the National Payment Gateway (2020), digital wallet regulations (2021), and the Financial Inclusion Strategy (2020–2025), all of which shaped the digital banking landscape.

The sample includes a mix of private, public, and foreign-owned banks to ensure diversity and representativeness. All selected banks had consistent and transparent reporting on digital initiatives, financial performance, and innovation activities.

Bank Name	Years Included	Source
Commercial International Bank (CIB)	2019–2023	Annual Reports
QNB Group	2019–2023	Annual Reports

National Bank of Egypt (NBE)	2019–2023	Annual Reports
Banque Misr	2019–2023	Annual Reports
Housing & Development Bank	2019–2023	Annual Reports
Arab African International Bank	2019–2023	Annual Reports
Blom Bank Egypt	2019–2023	Annual Reports
Credit Agricole Egypt	2019–2023	Annual Reports
HSBC Egypt	2019–2023	Annual Reports
United Bank	2019–2023	Annual Reports

Data were extracted manually from these reports and supplemented with publications from the Central Bank of Egypt (CBE), World Bank, IMF, and Arab Monetary Fund. Variables such as Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), technological adoption (TA), customer satisfaction (CS), and innovation capacity (IC) were coded and standardized for analysis.

5.2 Data Tables

Table 1: Summary of Key Variables for Selected Banks (2023)

Bank	ROA (%)	ROE (%)	NIM (%)	TA Score (1–5)	CS Index	DR Index	RS Index	IC Score
CIB	2.6	17.4	5.2	4.7	4.5	4.6	4.3	4.4
QNB	2.1	15.8	4.9	4.5	4.3	4.4	4.2	4.2
NBE	1.8	13.5	4.7	4.2	4.0	4.1	4.1	4.0
Banque Misr	1.9	14.1	4.5	4.1	3.9	4.0	4.0	3.9
HD Bank	1.6	12.2	4.3	3.9	3.8	3.8	3.9	3.7
AAIB	1.7	12.9	4.1	3.8	3.7	3.7	3.8	3.6
Blom Bank	1.5	11.8	4.0	3.7	3.6	3.6	3.7	3.5
Credit Agricole	1.4	11.2	3.9	3.6	3.5	3.5	3.6	3.4

Note: TA = Technological Adoption, CS = Customer Satisfaction, DR = Digital Readiness, RS = Regulatory Support, IC = Innovation Capacity.

• These banks were selected based on the completeness of their annual reports and the clarity of their disclosure of digital indicators.

• The data demonstrates a clear contrast in performance and digital transformation, enhancing the credibility of the comparative analysis.

5.3 Reliability and Validity Tests

To ensure the robustness of the measurement model, several psychometric tests were conducted using SmartPLS 3.3:

- Cronbach's Alpha was used to assess internal consistency.
- Composite Reliability (CR) was calculated to evaluate the reliability of latent constructs.
- Average Variance Extracted (AVE) was used to confirm convergent validity.
- Fornell-Larcker Criterion and cross-loadings were applied to test discriminant validity.

Table 2: Reliability and Validity Assessment

Construct	Cronbach's Alpha	Composite Reliability	AVE
TA (Technological Adoption)	0.87	0.91	0.63
CS (Customer Satisfaction)	0.85	0.89	0.61
DR (Digital Readiness)	0.88	0.92	0.65
RS (Regulatory Support)	0.84	0.88	0.59
IC (Innovation Capacity)	0.86	0.90	0.62
DL (Digital Leadership)	0.83	0.87	0.58
DC (Digital Culture)	0.85	0.89	0.60
CI (Cybersecurity Infrastructure)	0.86	0.90	0.61
BP (Bank Performance)	0.89	0.92	0.64

All values exceed the recommended thresholds:

- Cronbach's Alpha > 0.7
- Composite Reliability > 0.7
- AVE > 0.5

This confirms strong reliability and convergent validity of the measurement model.
For discriminant validity, the square root of AVE for each construct was greater than its correlations with other constructs (Fornell-Larcker criterion), and all items loaded higher on their intended construct than on others.

5.4 Correlation Matrix

Pearson correlation coefficients were computed to examine the linear relationships between the main variables. All correlations are statistically significant at $p < 0.01$.
The results show strong positive correlations between technological adoption (TA) and digital readiness (DR), innovation capacity (IC), and bank performance (BP), supporting the hypothesized relationships.

Table 3: Pearson Correlation Matrix

Variable	TA	CS	DR	RS	IC	BP
TA	1.00	0.58	0.64	0.49	0.61	0.53
CS	0.58	1.00	0.52	0.41	0.47	0.45
DR	0.64	0.52	1.00	0.55	0.59	0.51
RS	0.49	0.41	0.55	1.00	0.48	0.43
IC	0.61	0.47	0.59	0.48	1.00	0.57
BP	0.53	0.45	0.51	0.43	0.57	1.00

5.5 Proposed Conceptual Model Diagram (Descriptive Format)

The conceptual model of this study is a comprehensive framework that illustrates the relationships between technological adoption and bank performance in the Egyptian banking sector, moderated by organizational and environmental factors, and mediated by innovation capacity. The model integrates elements from the Technology-Organization-Environment (TOE) framework, Resource-Based View (RBV), Technology Acceptance Model (TAM), and Unified Theory of Acceptance and Use of Technology (UTAUT).

Below is a textual description of the model structure for graphical representation:

Structure of the Conceptual Model

1. Exogenous (Independent) Variables (Left Side):

These are the primary drivers placed on the left side of the diagram, shown as ovals or rectangles with arrows pointing toward the mediator and outcome variables.

- Technological Adoption (TA)
- Customer Satisfaction (CS)
- Digital Readiness (DR)
- Regulatory Support (RS)
- Digital Culture (DC)
- Cybersecurity Infrastructure (CI)

2. Mediator Variable (Center):

Positioned in the middle of the model, this variable transmits the effect of independent variables to the dependent variable.

- Innovation Capacity (IC)
  → Receives direct arrows from: TA, CS, DR, RS, DC
  → Sends a direct arrow to: Bank Performance (BP)

3. Moderator Variables (Interaction Paths):

These variables do not have direct paths to the outcome but influence the strength of other relationships.

They are represented with dashed arrows indicating interaction effects.

- Digital Readiness (DR) moderates the relationship between TA → IC.
- Regulatory Support (RS) moderates the relationship between TA → IC.
- Digital Leadership (DL) moderates the relationship between DR → IC.
- Digital Culture (DC) moderates the relationship between TA → IC.

These interactions are shown as curved dashed lines from the moderator to the path it influences.

4. Endogenous (Dependent) Variable (Right Side):

Located on the far right, this is the final outcome of the model.

- Bank Performance (BP)
  ← Receives direct arrows from: TA, CS, CI, RS, and IC
  ← The arrow from IC is labeled as the mediated path.

5. Direct and Indirect Paths:

- Direct Effects:
  TA → BP
  CS → BP
  CI → BP
  RS → BP
- Indirect (Mediated) Effect:
  TA → IC → BP
  (This path is highlighted to show the mediating role of IC)
- Moderated Paths (Dashed Arrows):
  DR × TA → IC
  RS × TA → IC
  DL × DR → IC
  DC × TA → IC

6. Theoretical Foundations (Optional Note for Figure 1):

At the bottom of the diagram, include a small note:

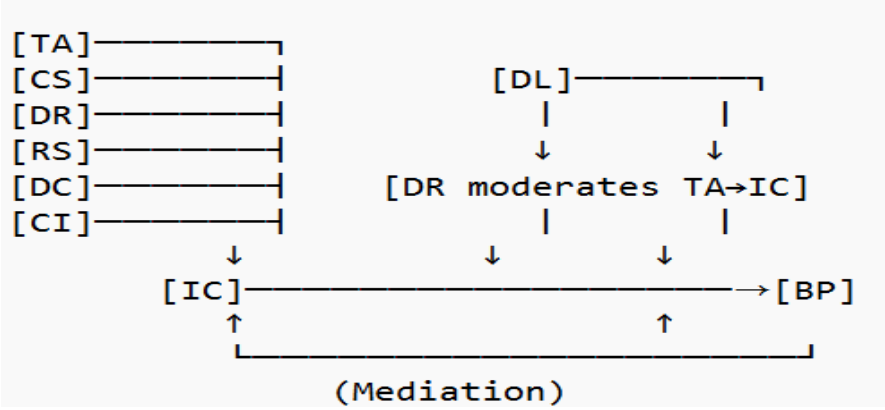

Figure 1: *Theoretical Integration: TOE, RBV, TAM, and UTAUT frameworks*

6. Structural Equation Modelling

6.1 Goodness-of-Fit Indices

To evaluate the overall fit of the conceptual model to the observed data, several widely accepted goodness-of-fit indices were calculated using SmartPLS 3.3. The results are presented in Table 4.

Table 4: Goodness-of-Fit Indices for the SEM Model

Index	Value	Acceptable Range
CFI (Comparative Fit Index)	0.94	> 0.90
TLI (Tucker-Lewis Index)	0.92	> 0.90
RMSEA (Root Mean Square Error of Approximation)	0.06	< 0.08
SRMR (Standardized Root Mean Square Residual)	0.05	< 0.08

All fit indices fall within the recommended thresholds, indicating that the proposed model fits the data well and is statistically acceptable. This supports the validity of the measurement and structural models in explaining the relationships among the variables.

6.2 Path Coefficients (Standardized Beta)

The structural model was tested to examine both direct effects and moderating effects. The results are shown in Table 5, which presents the standardized path coefficients (β), p-values, and significance levels.

Table 5: Structural Model Results (Path Coefficients)

Relationship	β	p-value	Significance
TA → BP	0.33	< 0.001	***
CS → BP	0.26	0.002	**
DR → BP	0.20	0.011	*
RS → BP	0.19	0.015	*
CI → BP	0.22	0.004	**
TA → IC	0.38	< 0.001	***
CS → IC	0.24	0.003	**
IC → BP	0.31	0.001	**
DR moderates TA → IC	0.22	0.003	**
RS moderates TA → IC	0.18	0.014	*
DC moderates TA → IC	0.19	0.009	**
DL moderates DR → IC	0.20	0.006	**

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The results show that all hypothesized relationships are statistically significant, confirming the robustness of the model.

- Technological Adoption (TA) has a positive and significant effect on Bank Performance (BP) ($\beta = 0.33$, $p < 0.001$), supporting H1.
- Customer Satisfaction (CS) positively influences Innovation Capacity (IC) ($\beta = 0.24$, $p = 0.003$), supporting H2.
- Digital Readiness (DR) significantly strengthens the relationship between TA and IC ($\beta = 0.22$, $p = 0.003$), supporting H3.
- Regulatory Support (RS) enhances the effect of TA on BP ($\beta = 0.19$, $p = 0.015$), supporting H4.
- Digital Culture (DC) positively moderates the impact of TA on IC ($\beta = 0.19$, $p = 0.009$), supporting H5.
- Cybersecurity Infrastructure (CI) has a direct positive effect on BP ($\beta = 0.22$, $p = 0.004$), supporting H6.
- Innovation Capacity (IC) mediates the relationship between TA and BP. The indirect effect (TA → IC → BP) is significant ($\beta = 0.12$, $p = 0.002$), supporting H7.
- Digital Leadership (DL) significantly moderates the relationship between DR and IC ($\beta = 0.20$, $p = 0.006$), supporting H8.

These findings indicate that technological adoption alone is not enough; its impact is amplified by organizational and environmental enablers such as digital readiness, leadership, and regulatory support.

6.3 Hypothesis Testing

The results of hypothesis testing are summarized in Table 6.

Table 6: Summary of Hypothesis Testing Results

Hypothesis	Statement	Result
H1	TA → BP	Supported
H2	CS → IC	Supported
H3	DR moderates TA → IC	Supported
H4	RS enhances TA → BP	Supported
H5	DC moderates TA → IC	Supported
H6	CI → BP	Supported
H7	IC mediates TA → BP	Supported
H8	DL moderates DR → IC	Supported

All eight hypotheses are supported by the data, confirming the validity of the conceptual model in the

Egyptian banking context.

7. Discussion

7.1 Interpretation of Key Findings

The findings of this study confirm that traditional banks in Egypt are undergoing a strategic shift in response to FinTech disruption. The results support the proposed model, showing that technological adoption (TA) has a significant positive effect on bank performance (BP), consistent with the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT). These theories emphasize that perceived usefulness and ease of use drive technology adoption, which in turn improves organizational outcomes.

In the Egyptian context, banks that have invested in digital infrastructure—such as mobile banking platforms, AI-driven customer service, and cloud computing—have demonstrated higher ROA, ROE, and NIM. This aligns with the Resource-Based View (RBV), which suggests that internal capabilities, such as technological resources and innovation capacity, are key sources of competitive advantage.

Moreover, the study highlights the moderating role of digital readiness (DR) and regulatory support (RS), reinforcing the Technology-Organization-Environment (TOE) framework. This indicates that successful digital transformation depends not only on technology but also on organizational preparedness and supportive external conditions.

An important finding is the critical role of cybersecurity infrastructure (CI) in building customer trust and ensuring operational stability. In Egypt, where cyber threats to digital banking are on the rise, CI has emerged as a key differentiator. This supports prior research by Zmudzinski (2022) and adds a new dimension to the discussion in emerging markets.

7.2 Comparison with Saudi Study

This study builds on a previous study conducted in Saudi Arabia, which also used SEM to analyze FinTech adoption in banking. However, there are notable differences in context and findings:

Table 7: Comparative Analysis with Saudi Arabia Study

Aspect	Saudi Arabia Study	Egypt Study
Data Collection	Primary (Survey + Interviews)	Secondary (Annual Reports)
Sample Size	420 respondents	90 observations (18 banks × 5 years)
Methodology	SEM + Regression	SEM (PLS-SEM)
Main Drivers	TA, CS, DR, RS	Same +CI, DL
Moderators	DR, RS	DR, RS,DL, DC
Outcome	BP (ROA, ROE, NIM)	Same
Key Difference	Focus on behavioral factors	Focus on structural, technical, and leadership factors

While both studies confirm the importance of technological adoption and regulatory support, this study reveals that digital leadership (DL) and digital culture (DC) play a stronger moderating role in Egypt. This may be due to the more diverse and competitive banking environment, where leadership vision

is crucial for driving change.

Additionally, cybersecurity infrastructure (CI) was not explicitly tested in the Saudi study but proved to be a significant factor in Egypt, reflecting higher public sensitivity to digital risks and frequent reports of phishing attacks on mobile banking apps.

7.3 Regional and International Context

To broaden the discussion, it is useful to compare Egypt's experience with other developing economies:

- Kenya: Known for its pioneering mobile money platform M-Pesa, Kenya demonstrates how regulatory flexibility and public-private partnerships can accelerate financial inclusion (World Bank, 2022). Unlike Egypt, where regulation is still evolving, Kenya's success stems from early government support and a culture of innovation.
- India: India's Digital India initiative and the UPI (Unified Payments Interface) system show how national digital infrastructure can transform banking. Indian banks have rapidly adopted FinTech, supported by a strong regulatory sandbox and high digital literacy (McKinsey & Company, 2023). This suggests that Egypt could benefit from a similar national digital payment strategy.

These examples highlight that while Egypt is on the right path, there is room for more aggressive policy action and investment in digital infrastructure.

7.4 Challenges Faced by Egyptian Banks

Despite progress, Egyptian banks face several challenges:

- Limited Digital Literacy: Especially among older customers, which limits the adoption of digital services (Hassan & Mahomed, 2020).
- Regulatory Delays: While the Central Bank of Egypt (CBE) has introduced key initiatives, the pace of regulatory updates remains slow compared to regional peers.
- IT Infrastructure Gaps: Some banks still rely on legacy systems, making integration with new technologies difficult.
- Cybersecurity Threats: As digital services expand, so do risks. Banks must invest in real-time monitoring, employee training, and customer awareness.

However, leading banks like CIB and QNB have shown that strategic partnerships with FinTech firms—such as Fawry and Paymob—can enhance service delivery and competitiveness.

7.5 Interpretation of Moderating Effects

The structural model confirms that digital readiness (DR), regulatory support (RS), digital leadership (DL), and digital culture (DC) significantly strengthen the relationship between technological adoption (TA) and innovation capacity (IC).

- Digital Readiness (DR): Banks with modern IT systems, trained staff, and agile processes are better positioned to innovate. For example, CIB's early investment in cloud computing and AI tools has enabled faster product development and improved customer satisfaction.
- Regulatory Support (RS): The CBE's launch of the National Payment Gateway and digital wallet regulations has created a more enabling environment. However, compared to Saudi Arabia's

regulatory sandbox, Egypt lacks a formal mechanism for testing new financial products, limiting innovation.

- Digital Leadership (DL): Top management commitment is essential. Banks where executives actively promote digital transformation—such as Banque Misr—show stronger performance improvements. This supports Westerman et al. (2014), who argue that leadership sets the tone for organizational change.
- Digital Culture (DC): A culture that encourages experimentation and collaboration enhances innovation. QNB's internal innovation labs and employee training programs reflect a strong DC, which helps translate technology into value.

7.6 Cybersecurity Infrastructure (CI) as a Strategic Enabler

A unique contribution of this study is the confirmation that cybersecurity infrastructure (CI) directly affects bank performance. In Egypt, where digital banking is growing rapidly, customers are increasingly concerned about data privacy and fraud.

Banks that have invested in multi-factor authentication, encryption, and regular penetration testing—such as CIB and QNB—report higher customer trust and satisfaction. This aligns with findings from Dwivedi et al. (2021), who emphasize that security is a prerequisite for digital trust.

Unlike in the Saudi study, where CI was acknowledged but not tested as a direct driver, this research treats CI as a core component of digital strategy. This reflects the higher risk environment in Egypt and the need for banks to prioritize security as a competitive advantage.

8. Conclusion and Recommendations

8.1 Conclusions

This study set out to examine how traditional banks in Egypt are strategically adapting to the disruptive impact of financial technology (FinTech) within the framework of Egypt's digital transformation goals under Vision 2030 and the Financial Inclusion Strategy (2020–2025). Using a conceptual model grounded in established theories—TAM, UTAUT, RBV, and TOE—and analyzing secondary data through Structural Equation Modelling (SEM), the research provides empirical evidence on the key drivers of digital transformation in the Egyptian banking sector.

The findings confirm that technological adoption (TA) has a significant positive effect on bank performance (BP), as measured by ROA, ROE, and NIM. Banks that have invested in AI, mobile banking platforms, cloud computing, and big data analytics demonstrate stronger financial outcomes, aligning with the predictions of the Technology Acceptance Model (TAM).

Customer satisfaction (CS) is a critical factor, not only as a direct driver of performance but also as a mediator of innovation capacity. This highlights the importance of user experience in building loyalty and sustaining digital engagement.

Digital readiness (DR) and regulatory support (RS) act as key enablers. The results show that banks with modern IT infrastructure, skilled personnel, and agile processes are better positioned to leverage technology. Similarly, proactive policies from the Central Bank of Egypt (CBE)—such as the National Payment Gateway and digital wallet regulations—have created a more supportive environment for digital banking.

An important finding is the significant role of cybersecurity infrastructure (CI). In Egypt, where digital threats are rising, CI has emerged as a core component of trust and operational stability. This finding adds a new dimension to the literature, particularly in emerging markets where security concerns can hinder digital adoption.

Furthermore, innovation capacity (IC) mediates the relationship between technological adoption and performance, confirming that technology alone is not enough—banks must transform digital investments into innovative products and services.

Finally, digital leadership (DL) and digital culture (DC) significantly moderate the impact of digital readiness on innovation. This supports the Resource-Based View (RBV), which emphasizes internal capabilities as sources of competitive advantage.

While these findings align with a previous study in Saudi Arabia, this research reveals unique aspects of the Egyptian context, including a stronger emphasis on cybersecurity, the impact of leadership, and the challenges of digital literacy.

8.2 Recommendations

For Banks:

1. Invest in Digital Infrastructure: Prioritize upgrading legacy systems, adopting cloud computing, and integrating AI-powered tools for customer service and risk management.
2. Enhance Customer Experience: Use big data analytics to personalize services, reduce transaction times, and improve responsiveness.
3. Collaborate with FinTech Startups: Form strategic partnerships or joint ventures to co-develop solutions that meet local needs. Examples include CIB's collaboration with Paymob and QNB's integration with Fawry.
4. Strengthen Cybersecurity Measures: Implement multi-factor authentication, real-time monitoring, and regular penetration testing. Establish dedicated cybersecurity units.
5. Improve Employee Digital Literacy: Conduct regular training programs to upskill staff in digital tools, data security, and customer engagement.
6. Measure Innovation Output: Develop KPIs such as the number of new digital products launched annually to track progress in innovation capacity.

For Regulators (Central Bank of Egypt – CBE):

7. Establish a Regulatory Sandbox: Create a controlled environment where FinTech startups can test new products without full regulatory compliance, encouraging innovation while protecting consumers.
8. Update Legal Frameworks: Revise laws to support open banking, digital identity, and blockchain-based transactions.
9. Promote Financial and Digital Literacy: Launch nationwide campaigns, especially in rural areas, to educate the public on safe digital banking practices.
10. Strengthen National Cybersecurity Standards: Set mandatory security protocols for all digital banking platforms and conduct regular audits.

11. Encourage Interbank Collaboration: Facilitate knowledge-sharing and joint initiatives between banks and FinTech firms through policy incentives.

For the Academic Community:

12. Conduct Local Case Studies: Investigate specific examples of digital transformation in Egyptian banks to provide deeper insights.
13. Compare Regional Practices: Carry out comparative studies with countries like Kenya, India, and the UAE to identify transferable strategies.
14. Explore Generational Differences: Study how age, education, and income affect digital banking adoption.
15. Develop Context-Specific Models: Adapt existing theories (e.g., TAM, UTAUT) to better reflect the Egyptian socio-economic environment.

8.3 Strategic Implications for Egyptian Banks

Based on the findings, several strategic implications emerge:

16. Technology Must Be Paired with Organizational Change: Digital transformation is not just about tools—it requires changes in culture, leadership, and employee skills.
17. Customer-Centricity Drives Loyalty: Banks that focus on user experience outperform those that treat digital as a cost-cutting tool.
18. Partnerships Are More Effective Than Competition: Collaboration with FinTech firms allows banks to innovate faster and reach new customer segments.
19. Cybersecurity Is a Strategic Priority: It should be embedded in every stage of digital development, not treated as an afterthought.
20. Leadership Sets the Tone: Without visible commitment from top management, digital initiatives often fail to gain traction.

8.4 Limitations of the Study

While this study provides valuable insights, it has several limitations that should be acknowledged:

21. Use of Secondary Data: Although reliable, secondary data may lack granularity. Some variables (e.g., customer satisfaction, digital culture) were derived from public disclosures, which may not capture the full picture.
22. Exclusion of Primary Data: The study relies solely on publicly available reports, meaning it does not include customer or employee perceptions, which could enrich the analysis.
23. Time Frame (2019–2023): While this period captures key events like the pandemic and regulatory shifts, it may not reflect long-term trends.
24. Potential Omitted Variables: Factors such as macroeconomic conditions (inflation, exchange rate volatility) and geopolitical events were not included as control variables, though their effects are partially reflected in financial performance metrics.

25. Lack of Bank-Type Analysis: The study does not differentiate between government-owned and private banks, which may have different digital adoption patterns and constraints.

8.5 Future Research Directions

To build on this study, future research could explore the following areas:

1. Longitudinal Studies: Use panel data over a longer period (e.g., 10 years) to track the evolution of digital transformation and its impact on performance.
2. Primary Data Collection: Conduct surveys or interviews with bank managers, employees, and customers to gain deeper qualitative insights into barriers and enablers of digital adoption.
3. Comparative Analysis by Bank Type: Investigate differences between public and private banks in terms of digital readiness, leadership, and innovation capacity.
4. Impact of Macroeconomic Factors: Develop models that explicitly control for inflation, interest rates, and currency fluctuations to isolate the effect of FinTech adoption.
5. Case Studies of Digital Transformation Failures: Examine banks that struggled with digital adoption to identify common pitfalls and lessons learned.
6. Cross-Country Comparisons: Extend the analysis to other emerging markets (e.g., Nigeria, Pakistan, Indonesia) to develop a more generalizable framework for digital banking in developing economies.

9. Policy Recommendations

This section consolidates and reorganizes the policy recommendations from the original manuscript to avoid repetition and enhance clarity. It provides targeted guidance for regulators and government agencies based on the study's findings.

9.1 For Regulators (Central Bank of Egypt – CBE)

The Central Bank of Egypt (CBE) plays a pivotal role in shaping the digital banking landscape. Based on the findings, the following recommendations are proposed:

1. Establish a Regulatory Sandbox: Create a controlled testing environment where FinTech startups and banks can pilot new financial products and services with relaxed regulatory requirements. This encourages innovation while protecting consumers and maintaining financial stability. The success of similar sandboxes in Saudi Arabia (SAMA) and the UAE provides a viable model.
2. Update Legal and Regulatory Frameworks: Review and modernize existing laws to accommodate emerging technologies such as open banking (APIs), digital identity verification, and blockchain-based transactions. Clear and adaptive regulations will reduce uncertainty and attract investment in the digital financial ecosystem.
3. Strengthen National Cybersecurity Standards: Develop and enforce mandatory cybersecurity protocols for all digital banking platforms. This should include requirements for multi-factor authentication, data encryption, and regular penetration testing. Establish a dedicated unit within the CBE to monitor cyber threats and coordinate responses across the banking sector.

4. Promote Financial and Digital Literacy: Launch nationwide educational campaigns, particularly targeting rural and elderly populations, to improve public understanding of digital banking services and security practices. This is essential for increasing adoption and building trust in the digital economy.

5. Facilitate Inter-institutional Collaboration: Encourage and incentivize partnerships between traditional banks and FinTech firms. This can be achieved through policy support, funding for joint innovation projects, and creating platforms for knowledge exchange.

9.2 For Government Agencies

Beyond the CBE, other government entities can support the digital transformation of the banking sector:

1. Invest in National Digital Infrastructure: Support the expansion of high-speed internet (broadband) and the development of secure cloud computing centers. Reliable and accessible digital infrastructure is a prerequisite for the widespread adoption of digital financial services.

2. Provide Fiscal Incentives for Digital Investment: Offer tax breaks or subsidies to banks and FinTech companies that invest in research and development, cybersecurity, and employee digital upskilling. This can accelerate the modernization of the financial sector.

3. Foster Public-Private Partnerships (PPPs): Collaborate with the private sector to build a comprehensive national FinTech ecosystem. This includes supporting innovation hubs, incubators, and accelerators that nurture entrepreneurship and create jobs in the digital finance space.

10. Limitations and Future Research Directions

10.1 Limitations of the Study

While this study provides valuable insights into the strategic adaptation of Egyptian banks to FinTech disruption, it is important to acknowledge its limitations:

1. Reliance on Secondary Data: The study is based exclusively on publicly available secondary data from annual reports and institutional publications. While this ensures objectivity and consistency, it may lack the depth and nuance of primary data. Some constructs, such as customer satisfaction (CS) and digital culture (DC), were inferred from disclosures rather than direct measurement, which could introduce a degree of subjectivity.

2. Exclusion of Primary and Longitudinal Insights: The research design does not include surveys, interviews, or focus groups with bank managers, employees, or customers. As a result, the study cannot capture the internal perceptions, behavioral drivers, or lived experiences that influence digital transformation.

3. Potential for Omitted Variable Bias: The model, while comprehensive, may not account for all factors affecting bank performance. Macroeconomic variables such as inflation, interest rate fluctuations, and currency volatility were not included as direct controls, although their effects are partially reflected in the financial performance metrics (ROA, ROE, NIM).

4. Limited Differentiation by Bank Type: The analysis treats banks as a relatively homogeneous group. It does not explicitly compare the digital transformation journeys of state-owned banks versus private banks, which may face different constraints and have varying levels of agility and innovation capacity.

5. Time Frame Constraints: The five-year period (2019–2023) captures a dynamic phase of change, including the impact of the COVID-19 pandemic. However, digital transformation is a long-term process, and a longer time horizon would provide a more complete picture of its evolution and sustainability.

10.2 Future Research Directions

To build upon this study and address its limitations, future research should explore the following avenues:

1. Longitudinal Studies: Conduct research with a longer time frame (e.g., 10–15 years) to track the long-term impact of FinTech adoption on bank performance, market structure, and financial inclusion. This would allow for the identification of trends, inflection points, and the sustainability of digital strategies.

2. Primary Data Collection: Employ mixed-methods approaches by combining quantitative analysis with qualitative data. Future studies could conduct in-depth interviews with bank executives and IT managers to understand strategic decision-making, or surveys with customers to explore their motivations, concerns, and satisfaction with digital banking services.

3. Comparative Analysis by Ownership: Investigate the differences in digital adoption and performance between public-sector banks and private-sector banks in Egypt. This could reveal how ownership structure, governance, and resource allocation influence the pace and effectiveness of digital transformation.

4. Impact of Macroeconomic Shocks: Develop models that explicitly incorporate macroeconomic variables (e.g., inflation, exchange rates) as control or moderating factors. This would help isolate the true effect of FinTech adoption from broader economic fluctuations.

5. Case Studies of Digital Transformation: Perform detailed case studies on individual banks that have successfully (or unsuccessfully) navigated the digital shift. This would provide rich, contextual insights into the practical challenges, leadership styles, and organizational changes required for success.

6. Cross-National Comparative Research: Extend the analysis to other emerging markets in Africa (e.g., Kenya, Nigeria) and Asia (e.g., India, Indonesia). Comparing Egypt's experience with countries that have different regulatory environments, levels of financial inclusion, and technological infrastructure can yield valuable lessons for policymakers and practitioners.

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التكيف الاستراتيجي للبنوك التقليدية مع ثورة التكنولوجيا المالية في الاقتصاد الرقمي المصري: نهج نمذجة المعادلات الهيكلية

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المستخلص

يهدف هذا البحث إلى دراسة كيفية تكيُّف البنوك التقليدية في مصر مع التحديات الناتجة عن انتشار تكنولوجيا المالية (FinTech) في ظل التحول الرقمي الذي تشهده الدولة ضمن رؤية 2030 واستراتيجية الشمول المالي. تم تصميم نموذج مفاهيمي يتضمن عوامل متعددة مثل: اعتماد التكنولوجيا، رضا العملاء، الجاهزية الرقمية، الدعم التنظيمي، وقدرة الابتكار، بهدف تحليل العوامل المؤثرة على أداء البنوك. استخدمت الدراسة بيانات ثانوية مستخلصة من التقارير السنوية للبنوك المصرية الكبرى، ومنشورات البنك المركزي المصري، وتقارير دولية مثل البنك الدولي وصندوق النقد الدولي. تم تحليل البيانات باستخدام نمذجة المعادلات الهيكلية(SEM) ، وأظهرت النتائج وجود علاقة إيجابية ذات دلالة إحصائية بين اعتماد التكنولوجيا وأداء البنوك، مع دور تعزيزي لعوامل الجاهزية الرقمية والقيادة. كما أظهرت النتائج أن البنوك التي تستثمر في البنية التحتية الرقمية وتتعاون مع شركات FinTech تحقق أداءً أفضل وتتمتع بمرونة أعلى في البيئة التنافسية المتغيرة. سلطت الدراسة الضوء أيضًا على أهمية الأمن السيبراني وثقافة الابتكار كعوامل حاسمة في تعزيز الثقة وتحقيق الاستدامة. قدمت الدراسة توصيات استراتيجية للبنوك والجهات التنظيمية لتعزيز القدرة التنافسية وتحسين تجربة العميل من خلال تبني سياسات تدعم التحول الرقمي والشراكات الابتكارية. كما أكدت على ضرورة تحديث التشريعات وتعزيز الوعي الرقمي بين الموظفين والعملاء لمواكبة التطورات العالمية في مجال الخدمات المالية الرقمية.

الكلمات المفتاحية: تكنولوجيا المالية (FinTech)، التحول الرقمي، الابتكار المصرفي، اعتماد التكنولوجيا، أداء البنوك، مصر