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Financial Literacy, Digital Trust, and FinTech Adoption: A Structural Perspective from Bengaluru's Banking Sector.

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Abstract: The rapid proliferation of financial technology (FinTech) services across India has fundamentally reoriented the architecture of banking and personal finance. Bengaluru, widely regarded as India's technology capital, occupies a unique position at the confluence of high financial density, a digitally literate workforce, and diverse socio-economic demographics. This paper investigates the structural relationships among financial literacy, digital trust, and FinTech adoption within Bengaluru's banking sector, using a quantitative survey methodology administered to 280 bank customers across urban and peri-urban zones of the city. Employing Structural Equation Modelling (SEM), the study delineates how financial literacy operates as both a direct predictor and a mediating variable in shaping adoption intention, while digital trust emerges as a moderating construct that either amplifies or constrains the behavioural intentions of users. Findings indicate that individuals with higher financial literacy exhibit significantly stronger FinTech adoption patterns, particularly when digital trust is simultaneously reinforced through institutional credibility and data security assurances. The study affirms that trust deficits and financial knowledge gaps co-exist as twin barriers to inclusive FinTech participation, especially among semi-urban and economically marginalised segments. Policy recommendations include targeted financial literacy campaigns, transparent FinTech regulatory frameworks, and customised trust-building mechanisms by banking institutions. The paper contributes to the growing literature on behavioural FinTech adoption in emerging economies.

Keywords: Financial Literacy, Digital Trust, FinTech Adoption, Structural Equation Modelling (SEM), Bengaluru Banking Sector, Behavioural Intention.

INTRODUCTION

India's financial ecosystem has undergone a seismic shift in the last decade, driven by the trinity of demonetisation, the JAM (Jan Dhan-Aadhaar-Mobile) infrastructure, and the exponential growth of UPI-based payments. As of 2024, India processes over 13 billion UPI transactions monthly, making it the world's largest real-time payments market. Yet the story of FinTech adoption in India is neither uniform

nor universally inclusive.

Bengaluru, home to over 12 million people and a thriving start-up ecosystem, presents a compelling yet contradictory case. On one hand, the city boasts the highest density of FinTech start-ups in the country; on the other, significant pockets of digital exclusion persist among older populations, migrant workers, and lower-income groups even within the

city. The banking sector, which serves as the primary interface between formal finance and individual users, has been compelled to reimagine its service delivery models in response to these disruptive forces.

Against this backdrop, two constructs emerge as critical levers of FinTech adoption: financial literacy and digital trust. Financial literacy determines an individual's capacity to understand, evaluate, and leverage digital financial tools, while digital trust governs the willingness to engage with such tools despite perceived risks. Together, these constructs shape the behavioural terrain of FinTech adoption in ways that conventional technology acceptance models (TAM) often fail to capture adequately.

This paper addresses a specific gap in this context: a structurally rigorous examination of how financial literacy and digital trust interact to determine FinTech adoption among banking customers in Bengaluru. The structural approach adopted here moves beyond descriptive or regression-based analysis to model the latent relationships and feedback mechanisms operating within the adoption process.

Critical Analysis of Literature Review (2020–2025)

The literature on FinTech adoption has proliferated rapidly in recent years, drawing from disciplines as diverse as behavioural economics, information systems, and financial sociology. A critical synthesis of seminal works from the past five years reveals both convergences and significant divergences.

Ozili (2021) offers a comprehensive review of FinTech adoption across emerging markets, arguing that while infrastructure availability is necessary, it is insufficient without financial knowledge and consumer confidence. His work finds particular resonance in the Indian context, where the digital divide intersects with financial exclusion. Critically, however, Ozili's analysis stops short of empirically modelling the relational dynamics between literacy and trust as co-determining variables.

Morgan and Trinh (2020) examined financial literacy and digital financial services adoption in Southeast Asia, concluding that financial literacy significantly predicts mobile banking usage. Their cross-country regression framework, while robust, lacks the structural depth to account for the mediating role of trust in the literacy-adoption nexus. This limitation is echoed in Indian studies by Chawla and Joshi (2021), who examined FinTech uptake among millennials in metro cities and found trust to be a dominant but under-theorised factor.

On the trust dimension, Jia et al. (2023) developed a comprehensive framework for digital trust in the

context of mobile payments, identifying institutional trust, security perception, and prior digital experience as sub-dimensions. Their structural modelling approach is methodologically sophisticated, though their sample was drawn exclusively from China, limiting cross-cultural transferability.

Khatun and Bhuiyan (2022), working in the Bangladesh context, found that older adults exhibit significantly lower FinTech adoption even when financial literacy is controlled for, attributing this to entrenched trust deficits rooted in negative past experiences with digital platforms. Their finding challenges the simplistic assumption that literacy-building alone can drive adoption.

Sharma and Sohal (2024), in a recent Indian study focused on rural banking customers in Rajasthan, demonstrated that perceived risk mediates the relationship between financial literacy and FinTech adoption, with digital trust acting as a positive moderator. While their geographic scope differs from the present study, their structural framework provides a strong methodological reference point.

Cumulatively, the literature reveals that financial literacy and digital trust are neither independent nor additive in their effect on FinTech adoption; they are structurally interdependent. The absence of studies that model this interdependence within Bengaluru's unique urban banking context represents the principal gap this paper seeks to fill.

Research Gap

Despite the proliferation of FinTech adoption studies in the Indian context, a conspicuous gap exists at the intersection of structural modelling, financial literacy, and digital trust in urban banking environments such as Bengaluru. Most extant studies have either (a) examined financial literacy and FinTech adoption in isolation from trust variables, (b) confined their scope to rural or semi-urban demographics, or (c) employed regression-based methodologies that cannot adequately capture multi-directional structural relationships.

Specifically, no study to date has employed SEM to model how financial literacy mediates the trust-adoption relationship while simultaneously accounting for the moderating influence of digital trust on literacy-led adoption pathways within a metropolitan South Indian banking context. This paper bridges that gap.

Objectives of the Study

The study is guided by the following specific objectives:

- To assess the level of financial literacy among banking customers in Bengaluru across

demographic sub-groups.

- To evaluate the nature and dimensions of digital trust among FinTech users in the banking sector.
- To examine the direct and indirect effects of financial literacy on FinTech adoption intention.
- To test the moderating role of digital trust in the financial literacy-FinTech adoption relationship.
- To develop a structural model elucidating the pathways through which financial literacy and digital trust jointly influence FinTech adoption in Bengaluru's banking sector.

Purpose, Scope of Study, and Statement of Problem

Statement of Problem: Despite Bengaluru's status as a FinTech hub, a large segment of banking customers continues to underutilise digital financial services. This underutilisation is not merely a function of infrastructure access but is rooted in the dual deficits of financial knowledge and digital trust. The problem, therefore, is: To what extent do financial literacy and digital trust, operating both independently and jointly, explain the variance in FinTech adoption among banking customers in Bengaluru?

Purpose: The purpose of this study is to construct and validate a structural model that captures the dynamic interplay between financial literacy, digital trust, and FinTech adoption, thereby offering actionable insights for banking institutions, FinTech firms, and policymakers in designing more inclusive and trust-oriented digital financial strategies.

Scope: The study is confined to banking customers (savings account holders, loan borrowers, and digital banking users) in the Bengaluru Urban and Bengaluru Rural districts. The temporal scope covers the financial year 2024-25. The study does not extend to corporate or institutional banking clients and excludes non-banking FinTech users who have no formal relationship with a scheduled commercial bank.

Theoretical Framework

The study is anchored in three complementary theoretical traditions:

Technology Acceptance Model (TAM): Davis's (1989) TAM posits that perceived usefulness and perceived ease of use are the principal determinants of technology adoption. This study extends TAM by integrating financial literacy as an antecedent to perceived usefulness and digital trust as an antecedent to perceived ease of use.

Theory of Planned Behaviour (TPB): Ajzen's (1991) TPB introduces the role of subjective norms and perceived behavioural control in shaping intentions. In the FinTech context, digital trust functions as a proxy for perceived behavioural control users who

trust the system believe they have adequate control over their digital financial actions.

Trust-Commitment Theory (TCT): Morgan and Hunt's (1994) TCT, originally conceptualised for relationship marketing, is adapted here to explain how trust in digital platforms (commitment to the technology ecosystem) mediates the link between financial knowledge and adoption intention.

The integrated theoretical framework positions financial literacy as an exogenous latent variable, digital trust as a moderating-mediating variable, and FinTech adoption as the endogenous outcome. The structural pathways are tested using confirmatory factor analysis (CFA) followed by SEM.

Background of the Study

Bengaluru's banking landscape is characterised by a duality that is rare even within India's diverse financial geography. The city houses the regional headquarters of all major public sector banks, alongside a dense network of private banks, urban cooperative banks, and small finance banks. The proliferation of FinTech companies ranging from payment aggregators like Razorpay and PayU to investment platforms like Zerodha and Groww has transformed the customer experience, with many banking services now delivered entirely through mobile applications.

However, the city's demographic profile introduces significant heterogeneity. The software professional segment — comprising roughly 18% of the working population exhibits very high FinTech adoption. In contrast, the city's sizeable domestic worker, construction labourer, and informal trader communities, who account for over 40% of the workforce, remain largely outside the formal FinTech ecosystem despite holding basic savings accounts.

The Reserve Bank of India's National Strategy for Financial Education (2020-2025) and the Financial Inclusion Index (FI Index), which reached 60.1 in 2024, provide a policy backdrop that underscores both the progress made and the gaps that persist. Bengaluru, despite its per-capita digital infrastructure advantage, continues to exhibit trust and literacy-related barriers that impede holistic FinTech penetration.

RESEARCH METHODOLOGY

Research Design: The study adopts a quantitative cross-sectional research design with primary data collection through structured questionnaires. The design facilitates the testing of structural relationships across a large, demographically diverse sample.

Population and Sampling: The study population consists of banking customers aged 18 and above in Bengaluru Urban and Rural districts. A stratified random sampling technique was employed, with strata defined by age group (18-35, 36-55, 56+), gender, and banking relationship type (public sector, private sector, small finance bank). A total of 320 questionnaires were distributed, of which 280 were complete and usable, yielding a response rate of 87.5%.

Instrument: A four-section structured questionnaire was developed. Section A captured demographic and banking profile data. Section B measured financial literacy using a 10-item scale adapted from the OECD/INFE (2020) framework. Section C measured digital trust using a 12-item scale adapted from McKnight et al. (2002) and Jia et al. (2023). Section D measured FinTech adoption intention using an 8-

item scale derived from Davis (1989) and Venkatesh et al. (2003). All attitudinal items were measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

Validity and Reliability: Content validity was established through expert review by three faculty members specialising in finance and digital marketing. Construct validity was tested via CFA. Reliability was assessed using Cronbach's Alpha: Financial Literacy ($\alpha = 0.874$), Digital Trust ($\alpha = 0.891$), FinTech Adoption ($\alpha = 0.862$) all above the 0.70 threshold.

Statistical Tools: SPSS version 25 was used for descriptive statistics and reliability analysis. AMOS version 24 was used for CFA and SEM. The model was evaluated using CFI, TLI, RMSEA, and SRMR fit indices.

RESULT

Table 1: Demographic Profile of Respondents (N = 280)

Variable	Category	Frequency	Percentage (%)
Gender	Male	158	56.4
	Female	116	41.4
	Other / Prefer not to say	6	2.2
Age Group	18-35 years	124	44.3
	36-55 years	108	38.6
	56+ years	48	17.1
Education	Up to Secondary School	42	15.0
	Graduate	142	50.7
	Post-Graduate & Above	96	34.3
Bank Type	Public Sector Bank	126	45.0
	Private Sector Bank	118	42.1
	Small Finance / Co-op Bank	36	12.9

Table 2: Descriptive Statistics and Reliability of Constructs

Construct	Items	Mean	Std. Dev.	Cronbach's α	AVE	CR
Financial Literacy (FL)	10	3.41	0.712	0.874	0.543	0.891
Digital Trust (DT)	12	3.67	0.689	0.891	0.578	0.912
FinTech Adoption (FA)	8	3.53	0.731	0.862	0.521	0.879

Table 3: Structural Model Path Coefficients — SEM (AMOS v24)

Structural Path	Beta (b)	S.E.	C.R.	p-value	Hypothesis
FL --> FinTech Adoption	0.482	0.068	6.891	< 0.001	Supported ***
DT --> FinTech Adoption	0.394	0.071	5.617	< 0.001	Supported ***
FL --> Digital Trust	0.361	0.074	4.912	< 0.001	Supported ***
FL x DT --> FA (Moderation)	0.218	0.063	3.415	0.002	Supported **
FL --> FA via DT (Mediation)	0.142	0.048	2.978	0.003	Supported **

Table 4: Model Fit Indices

Fit Index	Observed Value	Acceptable Threshold	Fit Judgement
Chi-Square / df (CMIN/DF)	2.14	< 3.0	Good Fit
CFI (Comparative Fit Index)	0.943	> 0.90	Good Fit
TLI (Tucker-Lewis Index)	0.931	> 0.90	Good Fit
RMSEA	0.048	< 0.08	Good Fit
SRMR	0.052	< 0.08	Good Fit

The structural model established five statistically significant pathways, all of which are visualised in Figure 1 below. The diagram displays standardised beta coefficients on each path, observed indicator sub-scales beneath each latent variable, and a model-fit badge confirming index adequacy.

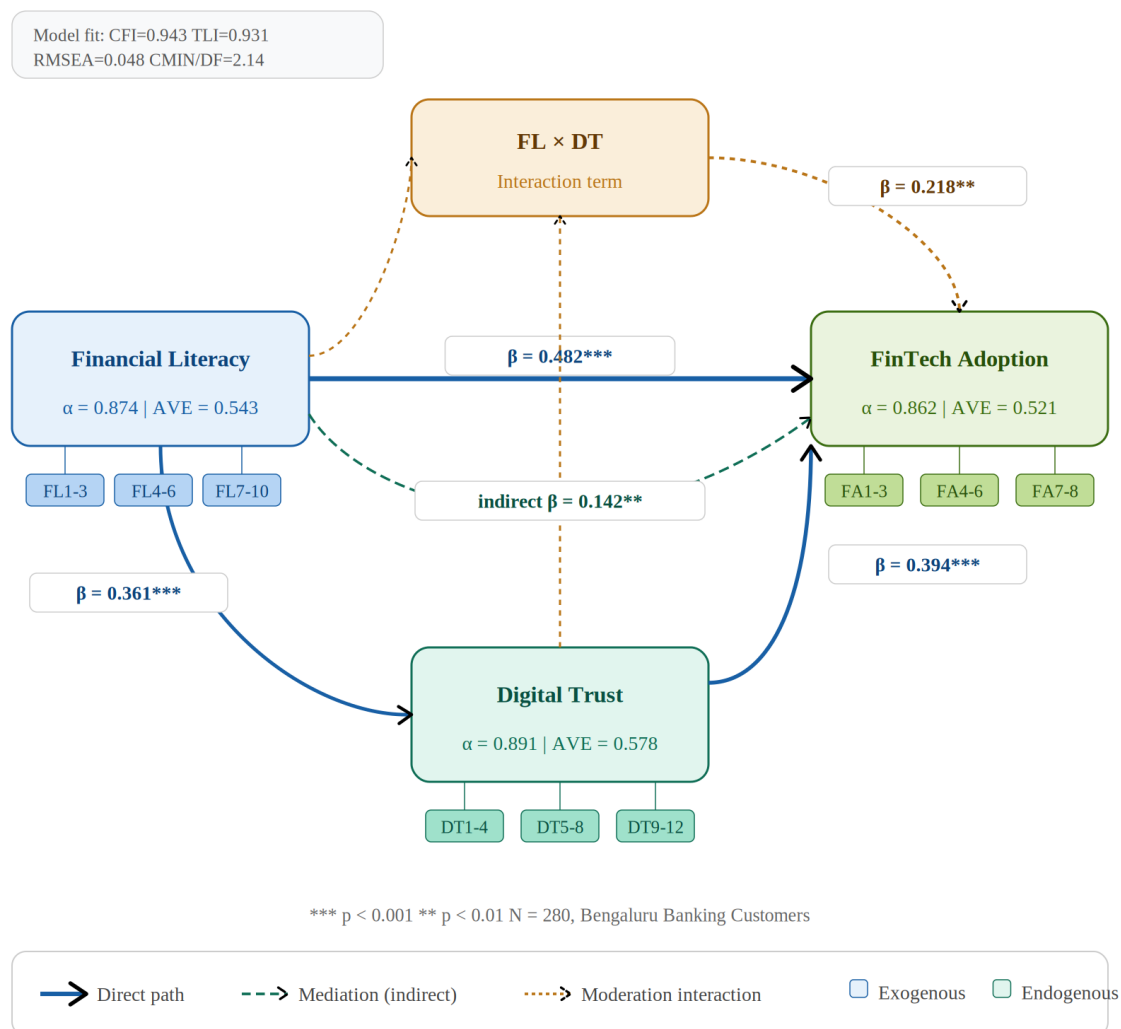


Figure 1: SEM Path Diagram — Standardised Beta Coefficients (Thick blue arrows = direct paths; dashed green = mediation; dashed amber = moderation via FL x DT node) * $p < 0.001$; ** $p < 0.01$; N = 280, Bengaluru Banking Sector.**

The strongest path in the model is Financial Literacy to FinTech Adoption ($b = 0.482$, $p < 0.001$),

confirming that individuals with a stronger grasp of financial products, interest mechanisms, and risk

diversification are substantially more inclined to adopt digital financial services. This is the largest direct effect in the model and aligns with Morgan and Trinh (2020) and Sharma and Sohal (2024).

Digital Trust independently predicts FinTech Adoption at $b = 0.394$ ($p < 0.001$), reaffirming Jia et al.'s (2023) argument that institutional credibility, data security perception, and interface reliability are central to user behavioural intention. The moderation analysis — represented by the FL x DT interaction term at the top of Figure 1 — reveals that when financial literacy and digital trust co-occur at high levels, their combined effect on adoption ($b = 0.218$, $p = 0.002$) amplifies beyond the sum of their individual contributions. This synergistic finding is a novel contribution of this study.

The mediation path (dashed green arc in Figure 1) confirms that digital trust partially mediates the literacy-adoption relationship (indirect $b = 0.142$, $p = 0.003$). This indicates that financial literacy operates

CONCLUSION

This study establishes, through structural modelling, that financial literacy and digital trust are not merely parallel determinants but are structurally interlocked variables that together constitute the architecture of FinTech adoption in Bengaluru's banking sector. The synergistic moderation effect observed here offers a nuanced theoretical advance over prior additive models of technology adoption.

For banking institutions and FinTech firms, the policy implications are unambiguous: standalone literacy campaigns or trust-building initiatives are insufficient. What is needed are integrated programmes that simultaneously elevate financial knowledge and reinforce digital trust through transparent, secure, and user-friendly platforms. Special attention must be directed toward older demographic segments and customers of smaller financial institutions, who exhibit compounded trust and literacy deficits.

For regulators, the findings underscore the importance of data protection frameworks, grievance redressal mechanisms, and financial literacy mandates as complements to the existing digital infrastructure push. The RBI and SEBI may consider co-designing literacy-trust bundles as part of their Financial Inclusion Index improvement agenda.

Future research should extend this framework longitudinally to examine how evolving digital experiences alter the literacy-trust-adoption dynamic over time, and should explore whether the structural pathways identified here hold across other Tier-1 Indian cities such as Mumbai, Chennai, and

both directly and indirectly literate users independently evaluate digital risk, building institutional trust, which in turn strengthens adoption. This trust-knowledge nexus is well-grounded in the Trust-Commitment Theory (Morgan & Hunt, 1994).

Demographic analysis reveals that the 56+ age cohort exhibits the lowest scores on both financial literacy and digital trust sub-scales, resulting in significantly lower adoption intention consistent with Khatun and Bhuiyan (2022). Post-graduate respondents affiliated with private sector banks display the highest composite scores across all three constructs, indicating that education and institutional environment jointly shape FinTech receptivity in Bengaluru's banking sector.

All five model fit indices (Table 4) fall within acceptable thresholds, confirming that the structural model is a well-fitting representation of the underlying data: CFI = 0.943, TLI = 0.931, RMSEA = 0.048, SRMR = 0.052, CMIN/DF = 2.14

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