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A Study on The Service Architecture of Fintech-Enabled Investment Products Among Bengaluru Investors

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Abstract: This study investigates how bank-linked investors in Bengaluru evaluate FinTech-enabled investment and transaction services. It moves beyond a generic technology-adoption explanation by identifying the underlying service architecture through which investors experience digital financial value.

A cross-sectional questionnaire survey generated 468 usable responses between March 2023 and February 2024. Respondents were depositors or investors using investment products through traditional banks and FinTech platforms. Stratified random sampling was reported. The analysis uses descriptive statistics, age-based association tests, principal component analysis with Varimax rotation and an exploratory higher-order measurement model.

FinTech use was frequent: 32.7% reported always using FinTech products and 59.8% used them when needed. Four components explained 69.29% of variance: mobile convenience, transactional utility, process integration, and tracking/control. Online transfers (.897), buyer-seller utility (.883), mobile access (.899), transaction tracking (.869) and reminders (.846) were particularly salient. Age was associated with most service evaluations but not frequency of use (chi-square = 3.015, p = .807). The higher-order model was only marginally adequate (CFI = .888; GFI = .710), so its coefficients are treated as exploratory.

The article introduces a layered service-architecture account of FinTech use in an emerging-market investment setting. It also demonstrates why reported adoption, substitutability for cash, and preference for bank-owned applications should not be treated as equivalent outcomes.

Keywords: FinTech adoption, investment products, investor preference, digital banking, service architecture, Bengaluru, emerging markets

1. Introduction

India's digital financial system has evolved from branch-led banking to a platform ecosystem that combines banks, payment interfaces, mobile applications, brokers, investment platforms and technology vendors. This transformation has reduced search and transaction frictions, widened access to financial products and made real-time account information routine. Yet high transaction volumes do not necessarily imply that users experience all digital functions in the same way or that FinTech has displaced bank relationships and cash.

Investment-related FinTech is particularly consequential. Digital platforms allow investors to initiate transfers, review portfolios, receive reminders, compare products and execute transactions with lower temporal and geographic friction. They also shift responsibility towards users, who must judge interfaces, security signals, disclosures and product suitability. For banks, the issue is therefore not simply whether customers adopt an application, but which service attributes make the digital investment journey usable, credible and controllable.

Most adoption studies use broad constructs such as perceived usefulness, ease of use, trust and behavioural intention. These models are valuable, but they can hide the structure of actual service experience. A user may value online transfers but distrust a bank wallet; appreciate speed but continue carrying cash; or use FinTech frequently while needing better transaction tracking. Treating these responses as a single adoption score obscures the design decisions faced by banks and platforms.

Bengaluru provides an analytically useful context because

of its dense banking and technology ecosystem, high digital exposure and heterogeneous population. The study asks three questions: (1) Which service attributes are most strongly endorsed by FinTech-linked investors? (2) How do these attributes cluster into experience dimensions? and (3) Does age differentiate service perceptions and usage? The central contribution is a four-layer service architecture that distinguishes access, utility, integration and control.

2. Literature and theoretical framing

2.1. From technology acceptance to service architecture

Technology acceptance research explains adoption through usefulness, ease of use, social influence and facilitating conditions (Davis, 1989; Venkatesh et al., 2003). FinTech studies extend this logic by incorporating trust, perceived risk, financial literacy and institutional support. Recent evidence from emerging markets shows that these determinants vary by population, context and digital capability. Adoption is therefore better understood as an interaction between technology attributes and institutional conditions than as an individual preference alone.

This paper advances a service-architecture perspective. Architecture refers to the configuration of functions that together create a usable financial journey. Mobile access provides an entry point; transactional utility delivers immediate value; process integration connects digital functions with accounts and banking workflows; tracking and control allow the user to verify, remember and manage outcomes. The distinction is theoretically meaningful because each layer creates different value and failure modes.

2.2. FinTech, investment access and investor protection

FinTech can reduce brokerage and information costs, expand app-based participation and improve access to investment products. The SEBI Investor Survey 2025 recognises the role of FinTech platforms in widening access while also documenting continuing differences in awareness and participation. Platform expansion simultaneously raises concerns about suitability, unregistered providers, algorithmic trading, persuasive interface design and information quality. Convenience must therefore be interpreted alongside informed choice and recourse.

2.3. Demographic heterogeneity

Age can influence digital confidence, risk perception, channel preference and familiarity with mobile interfaces. However, frequency of use may become less age-specific when payments and bank communication are embedded in everyday life. This creates a useful distinction between whether people use FinTech and how they evaluate particular functions. The study examines both.

2.4. Research gap

Indian FinTech research has emphasised intention, financial inclusion and aggregate digital adoption. Less attention has been paid to the item-level structure of investors' experience with bank-linked digital services. Furthermore, studies often infer successful adoption from frequency alone. The present analysis addresses these gaps by separating usage intensity, service evaluations and latent service dimensions.

3. Method

3.1. Design and setting

The study used a quantitative, cross-sectional survey design in Bengaluru. Primary data were collected from March 2023 to February 2024. The target population comprised depositors and investors interested in investment products offered through traditional banks and FinTech platforms. The thesis reports stratified random sampling and 468 usable responses after incomplete questionnaires were excluded.

3.2. Instrument and pilot study

A structured English-language questionnaire measured demographic characteristics, frequency and duration of FinTech use, and evaluations of digital service functions. Substantive items used a five-point Likert-type response format. A 40-person pilot was used to remove repetitive or unclear items. Reported pilot Cronbach's alpha values ranged from .78 to .87, exceeding the conventional .70 threshold.

Table 1: Respondent profile. Source: Primary data

Characteristic	Distribution (N = 468)
Age	<20: 51 (10.9%); 20-40: 255 (54.5%); 40-60: 108 (23.1%); 60-80: 54 (11.5%)
Gender	Women: 267 (57.0%); men: 201 (43.0%)
Residence	Urban: 300 (64.1%); semi-urban: 93 (19.9%); rural: 75 (16.0%)
FinTech frequency	Always: 153 (32.7%); when needed/often: 280 (59.8%); rarely: 35 (7.5%)
Duration	<1 year: 198 (42.3%); 1-3 years: 81 (17.3%); 6-9 years: 189 (40.4%)

3.3. Analysis strategy

IBM SPSS Statistics 26 was used for descriptive and association analysis. Principal component analysis (PCA) with Varimax rotation was used to reduce the service items. Sampling adequacy was assessed using KMO and Bartlett's test. A higher-order measurement model was estimated in AMOS. Because several fit indices were below .90 and scale-development documentation is incomplete, the measurement model is interpreted as exploratory rather than confirmatory.

3.4. Analytical integrity

The paper preserves the numerical results reported in the thesis and does not generate replacement values. Several constraints affect inference: item wording is functional rather than construct-reflective; one item ('no need to carry cash') had low communality (.176) and was excluded from the rotated four-factor solution; the higher-order model did not include the tracking/control component; and the sampling frame and stratum allocation were not fully documented. These limitations are incorporated into interpretation.

4. Results

4.1. Usage and service evaluations

FinTech engagement was widespread but primarily situational. While 32.7% always used FinTech products, 59.8% used them when needed and 7.5% did so rarely. This pattern suggests normalisation without complete dependence. The coexistence of long-tenure users (40.4% reported six to nine years) and recent users (42.3% reported less than one year) also indicates multiple adoption cohorts.

Table 2: Selected service evaluations. Percentages are reconstructed directly from the reported response distributions

Service attribute	High endorsement	Interpretation
Online money transfer and purchases	73.7% rated 4 or 5	Core transactional utility
Transactions are fast and easy	69.9% rated 4 or 5	Speed remains a visible benefit
Easy to track transactions	68.6% rated 4 or 5	Control and verification
Easy to maintain accounts	67.9% rated 4 or 5	Process integration
Buyer-seller benefit	67.9% rated 4 or 5	Two-sided transactional value
Bank account linked to mobile	67.3% rated 4 or 5	Integration and notifications
No need to carry cash	19.9% rated 4 or 5	Low perceived substitutability

Table 3: Selected chi-square tests. Degrees of freedom were not reported in the source tables; effect sizes therefore cannot be calculated reliably.

Age association with	Chi-square	p	Decision
Period of FinTech use	30.596	<.001	Associated
Frequency of use	3.015	.807	Not associated
Mobile convenience	60.381	<.001	Associated
Bank-mobile linkage	86.365	<.001	Associated
Transaction tracking	50.123	<.001	Associated
Fast and easy transactions	49.650	<.001	Associated
Account maintenance	88.324	<.001	Associated

Table 4: Rotated PCA solution. KMO = .733; Bartlett's chi-square = 1,874.074, df = 55, p < .001; cumulative variance = 69.289%.

Component	High-loading indicators	Variance
Mobile convenience	Mobile access (.899); utility payments (.839); bank wallets (.781)	19.847%
Transactional utility	Online transfers/purchases (.897); buyer-seller benefit (.883)	18.112%
Process integration	Mobile-linked account (.837); account upkeep (.792); speed/ease (.664)	16.831%
Tracking and control	Transaction tracking (.869); reminders/retrieval (.846)	14.498%

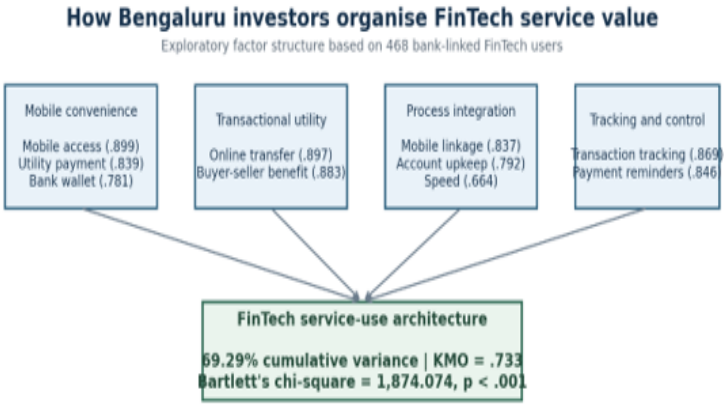

Figure 1: Experimental prototype of Proposed system

Table 5: Exploratory higher-order model fit. Cut-offs are diagnostic guidelines, not mechanical acceptance rules.

Index	Reported value	Reference point	Assessment
Chi-square / df	82.035 / 27	CMIN/df = 3.068	Marginal
RMR	.076	Lower preferred	Borderline
GFI / AGFI	.710 / .817	.90 often preferred	Weak
NFI / CFI	.885 / .888	.90 or .95 often preferred	Near but below
TLI / IFI	.784 / .792	.90 or .95 often preferred	Weak

Age was associated with most service perceptions and tenure, but not with frequency of use. The pattern supports a distinction between behavioural normalisation and experiential heterogeneity: people across age groups may use FinTech with similar frequency while evaluating specific design functions differently.

The higher-order specification represented FinTech use through convenience (marker loading fixed at 1.000), benefits (.168, $p < .001$) and process integration (.451, $p < .001$). Process integration had the larger freely estimated coefficient. However, the model omitted tracking/control, contained two non-significant item paths, and did not meet stronger incremental-fit standards. The evidence therefore supports the exploratory architecture but not a definitive confirmatory claim.

5. Discussion

5.1. FinTech value is layered

The four-factor solution shows that investors do not collapse digital financial experience into generic convenience. Mobile access, transactional value, process integration and control represent distinct service jobs. This extends technology-acceptance research by locating usefulness within a configured journey. Banks can therefore diagnose adoption problems more precisely: a platform may be easy to access but weak in tracking, or transactionally useful but poorly integrated with account maintenance.

5.2. Adoption does not equal cash substitution

The lowest endorsement concerned not needing to carry cash, and its communality was only .176. This finding is substantively important rather than a nuisance. Digital use can coexist with cash because users manage acceptance uncertainty, outages, budgeting habits and situational preferences. Adoption should not be operationalised as a binary movement from cash to digital.

5.3. Bank applications compete on orchestration

Neutral views concerning bank wallets suggest that simply offering a digital feature does not create differentiation. Third-party platforms benefit from habitual use and cross-bank interoperability. Banks possess advantages in trust, account data and regulated relationships, but must convert these advantages into seamless orchestration: unified authentication, clear notifications, transparent product information and dependable recourse.

5.4. Age changes experience more than frequency

The absence of an age-frequency association contrasts with strong age differences in specific evaluations. This implies that age-inclusive design should not assume that older users are non-users. Banks should instead test where the journey becomes difficult: terminology, authentication, small-screen navigation, risk warnings, help-seeking or error recovery.

5.5. Interpreting the marginal model fit

A Q1-standard interpretation must resist labelling the model 'good' merely because CMIN/df is close to three. The CFI of .888 is near .90, but GFI, TLI and IFI remain weak. The divergence between the four-factor PCA and three-dimension higher-order model also signals incomplete specification. A new sample should test the four-layer structure with reflective multi-item scales and competing models.

6. Implications

6.1. Implications for banks and FinTech platforms

- Design and monitor the investment journey as four linked service layers rather than a single adoption funnel.
- Prioritise transaction visibility, reminders, downloadable records and rapid error resolution as control features.
- Integrate investment interfaces with bank accounts while preserving clear product boundaries and consent.
- Segment usability testing by age and digital capability, but avoid equating age with non-use.
- Measure completion, abandonment, complaints, reversals and informed-choice outcomes in addition to downloads and transaction volume.

6.2. Policy implications

RBI and SEBI initiatives increasingly connect digital access with customer protection. Banks and investment platforms should use verified app identities, plain-language disclosures, auditable recommendations and accessible grievance channels. The SEBI Investor Survey 2025 reinforces the need to connect platform expansion with financial awareness, while recent safeguards for retail algorithmic trading illustrate the move towards

controlled participation.

6.3. Research implications

Future research should validate the architecture across metropolitan, tier-two and rural settings; compare bank, broker and independent FinTech interfaces; and test whether tracking/control mediates the relationship between transactional utility and continued use. Longitudinal designs can distinguish learning from cohort differences. Multi-group CFA should test measurement invariance by age, gender, income and digital literacy.

7. Limitations and future research

The Bengaluru sample limits geographic generalisation, and the reported occupation and income distribution suggests that the sampling frame may not represent the city's investor population. The English-only questionnaire may exclude less fluent users. Several items describe functions rather than established constructs. The PCA is exploratory, common-method bias was not assessed, and no convergent or discriminant validity statistics were reported. Degrees of freedom and effect sizes were missing for the age-based chi-square tests. Finally, cross-sectional data do not establish causality.

A confirmatory extension should develop at least three reflective indicators per layer, conduct cognitive pretesting in English and Kannada, preregister the measurement model, use probability-based or quota-balanced sampling, and collect a holdout sample. CFA should report omega, composite reliability, AVE, HTMT, residuals, modification decisions and invariance. Structural tests could then link the four layers to trust, informed investment choice, continuance and financial well-being.

8. Conclusion

FinTech has become routine among the surveyed Bengaluru investors, but routine use is not a unitary experience. The evidence identifies four layers of value: mobile convenience, transactional utility, process integration and tracking/control. The latter two are especially important for banks because they connect digital speed with institutional reliability and user oversight.

The paper's central implication is simple: successful FinTech investment services must do more than make transactions possible. They must help investors understand, verify and manage what happens after a tap. Banks and platforms that design for this complete architecture are better positioned to support durable use, informed choice and investor protection.

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