

Application of the Technology Acceptance Model (TAM) in the Context of NBFC Customers

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Abstract: This study investigates how the Technology Acceptance Model (TAM) and its extensions can explain and predict the adoption of digital services offered by Non-Banking Financial Companies (NBFCs) in India. Central to TAM are two key user perceptions: Perceived Usefulness (PU)—the belief that a technology enhances performance or convenience—and Perceived Ease of Use (PEOU)—the belief that using the system is effort-free. These constructs drive Behavioral Intention (BI), which precedes actual use.

To contextualize TAM within the NBFC sector—which primarily serves underserved and financially vulnerable populations—this research incorporates additional factors such as Trust, Perceived Risk, Subjective Norms, and Facilitating Conditions. Trust captures users' beliefs in institutional reliability and data protection; Perceived Risk reflects fears of privacy breaches or hidden charges; Subjective Norms cover the influence of family or social circles; and Facilitating Conditions include factors such as smartphone access, digital literacy, and support systems.

Based on these constructs, we formulate a conceptual framework in which PU, PEOU, Trust, Risk, and Social Influence affect BI, and BI in turn predicts actual usage behavior. Facilitating Conditions are postulated to moderate the translation from intention to action.

Empirically, the framework is validated using a structured survey administered to a representative sample of 400–500 NBFC customers across urban and rural India. Measures are adapted from validated TAM studies and extended-fintech acceptance research. Structural Equation Modeling (SEM) is leveraged to test measurement reliability and the hypothesized relationships.

Findings are expected to show that PU and Trust are strong positive predictors of BI, PEOU influences PU and intention, and that Perceived Risk exerts a negative effect. Subjective Norms and Facilitating Conditions are also anticipated to play significant roles. The research explores how demographic moderators—such as age, education, and digital literacy—shape these relationships.

This study contributes to theory by adapting extended TAM to the unique context of NBFC customers in India, offering a nuanced understanding of digital financial adoption. Practically, it offers actionable insights for NBFCs and regulators seeking to enhance adoption and financial inclusion—emphasizing user-friendly design, transparent policies, trust-building mechanisms, and supportive digital ecosystems.

Keywords: Technology Acceptance Model (TAM), Perceived Usefulness (PU), NBFC Digital Adoption, NBFC customers' technology acceptance, Behavioral Intention (BI)

I. Introduction

Digital financial services have transformed the landscape of credit and payments in India—particularly through rapid proliferation of alternate credit providers like Non-Banking Financial Companies (NBFCs), fintech lenders, and e-commerce platforms integrating credit offerings. Between 2012 and 2022, India's digital lending market expanded from approximately \$9 billion to nearly \$270 billion, growing at a staggering compounded annual growth rate of 39.5%. Recently, players like Flipkart gained full NBFC licensure from the Reserve Bank of India (granted on March 13, 2025), enabling them to offer direct loans via their fintech app ecosystem, signaling the intensifying convergence of retail and finance technology. Moreover, the rollout of the Unified Lending Interface (ULI)—an RBI-led initiative—aims to digitize and accelerate credit assessment processes for small borrowers in rural and MSME sectors, akin to UPI's role in revolutionizing payments.

Against this backdrop, understanding what drives NBFC customers—especially underserved micro-entrepreneurs, rural borrowers and gig-economy workers—to adopt digital services becomes critical. The Technology Acceptance Model (TAM), originally formulated by Davis (1989), offers a robust theoretical lens: per TAM, Perceived Usefulness (PU)—the conviction that using a digital system improves performance—and Perceived Ease of Use (PEOU)—the belief that the system is user-friendly—shape Behavioral Intention (BI), which in turn drives actual usage behavior.

While TAM has been extensively employed to study mobile banking and fintech adoption across India—highlighting the roles of trust, cost perception, and social norms—its application to the NBFC ecosystem, especially digital lending platforms for financially marginalized users, remains limited. One pilot study in India involving NBFC fintech adoption showed that demographics (such as higher education and urban residence), trust, PU, and PEOU significantly predicted adoption, but fuller empirical frameworks are

scarce. Likewise, mobile-banking adoption research in India consistently finds that trust and perceived risk are equally critical alongside usability and usefulness.

To address this gap, the present study proposes an extension of TAM tailored to the NBFC context—especially digital borrowers among low-income and digitally novice populations. Core constructs include PU and PEOU, but we enrich TAM with:

- Trust (in the institution's data practices and fairness)
- Perceived Risk (concerns over hidden fees, data misuse, aggressive debt recovery)
- Subjective Norms (influence of peers, family, community)
- Facilitating Conditions (such as digital literacy support, smartphone access, multilingual app interfaces)

Drawing from multi-theory literature—such as integrated TAM, TPB, and TAM 3 or UTAUT frameworks—this enriched model enables a nuanced inquiry into both enabling and inhibiting factors shaping NBFC customers' digital service uptake.

Empirically, we adopt a structured survey approach with a sizable sample (400–500 respondents) of NBFC customers representing both urban and rural areas. Standard validated measures from prior TAM and fintech acceptance studies are deployed, and Structural Equation Modeling (SEM) techniques are used to validate the measurement model and test hypothesized relationships.

By situating TAM within the evolving Indian NBFC-fintech ecosystem—amid regulatory reforms like ULI, rising NBFC market share, and new entrants like Flipkart Finance—this research contributes both theoretically and practically. Practically, it offers actionable insights: NBFCs and policymakers should focus on user-friendly onboarding, transparent pricing, trust-building features, and socio-technical support to accelerate comparative digital adoption among underserved segments.

II. Literature Review

Core TAM and Its Traditional Extensions

The foundational Technology Acceptance Model (TAM) developed by Davis (1989) centers on two core beliefs: Perceived Usefulness (PU)—the extent to which users feel a system improves their task performance—and Perceived Ease of Use (PEOU)—the belief that using the system will be effortless. Extended versions like TAM2 and TAM3 incorporate additional variables such as subjective norms, job relevance, trust, and perceived risk, providing broader explanatory power.

Empirical Applications in Indian Fintech and Mobile Banking

In India, multiple studies have adapted TAM to explore adoption of mobile banking and digital financial services. Kumar et al. (2020) proposed an extended TAM framework adding trust, self-efficacy, subjective norms, and personal innovativeness to PU and PEOU, all of which significantly predicted behavioral intention to adopt mobile banking. Another investigation involving 265 users revealed that perceived trust and perceived risk meaningfully influence usage intention, alongside PU and PEOU.

UTAUT and Integrated Models

Broader adoption frameworks like UTAUT and UTAUT2 have also been widely applied. These integrate constructs such as Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions, often augmented with trust and risk factors in fintech research.

Fintech Adoption in Underserved and Rural India

In low-income and rural contexts, traditional TAM constructs alone are insufficient. Adapted models highlight the importance of digital literacy, language accessibility, institutional trust, and perceived risk to better explain technology usage decisions among underserved users.

Limited Research on NBFC-Specific TAM Applications

There are few studies directly applying TAM to NBFC customers, despite the NBFC sector accounting for a significant share of digital loan disbursements in India. Available evidence indicates that demographic factors (like age, education, urban residence), PU, PEOU, and trust play important roles in adoption—but comprehensive, publicly reported SEM-based models are scarce.

Trust, Privacy, and Perceived Security

Research consistently underscores that trust and perceived security are pivotal in digital finance adoption. While perceived risk often acts as a deterrent, some extensions of UTAUT2 find its predictive power may diminish once trust and security are explicitly modeled. This nuance is especially relevant for users wary of data misuse and hidden costs in digital lending.

Rationale for Extending TAM to NBFC Context

Given the nascent state of research focusing on NBFC customers—particularly those from financially marginalised and digitally novice populations—this literature review supports the rationale for developing an extended TAM framework. It should integrate:

- Perceived Usefulness (PU)
- Perceived Ease of Use (PEOU)
- Trust (data privacy, institutional fairness)
- Perceived Risk (fee transparency, privacy breaches)
- Subjective Norms (family/community influence)
- Facilitating Conditions (app support, digital access)

Contextualizing TAM to NBFC Customers

The Unique Operating Environment of NBFCs in India

Non-Banking Financial Companies (NBFCs) in India play a vital role in delivering credit to underserved segments such as micro-entrepreneurs, gig workers, and first-generation borrowers. For example, UGRO Capital reports that 78% of its clients are first-generation entrepreneurs accessing formal credit for the first time, highlighting the deeply novel nature of these customers' financial engagement. In response to rising risks in the sector—including aggressive pricing, poor recoveries, and lack of transparency—the Reserve Bank of India (RBI) has implemented tighter regulatory oversight, recently reinstating limits on Navi Finserv and other NBFCs until they brought their practices in line with compliance norms.

NBFCs are also rapidly adopting AI-enabled credit underwriting, processing behavioral and financial data in real time to automate loan decisions—thereby transforming how trust is established with customers during digital interactions.

How TAM Maps onto the NBFC Customer Journey

In light of this, adapting TAM to NBFC digital service contexts requires more than just measuring PU and PEOU. For digital lending platforms—where loans are disbursed via apps, e-KYC completes digitally, and aggregators rate products—the model must reflect institutional trust, perceived security, and transparency. Empirical research on digital lending usage has already underscored these dimensions: perceived usefulness, ease of use, and perceived security positively influence adoption intention, though perceived risk may not always predict behavior when security is strongly established.

Key Variables in an NBFC-Tailored TAM Framework

Perceived Usefulness (PU)

Customers need to believe that using NBFC digital services—such as instant loan approvals, flexible repayment, and self-service access—offers tangible advantages over traditional paper-based interactions or informal lending.

Perceived Ease of Use (PEOU)

Given that many NBFC customers may lack prior exposure to formal digital financial services, usability factors (like vernacular interfaces, simplified application flows, or minimal documentation) become critical for forming positive perceptions of effortlessness.

Trust & Perceived Security

Trust emerges as a cornerstone in digital finance adoption. Institutional trust—confidence in NBFC's data practices, fairness of pricing, and grievance mechanisms—shapes behavioral intention. Security perception mediates perceived risk by assuaging fears about fraud or data misuse. Research confirms trust reduces perceived risk, enabling higher intention to adopt.

Perceived Risk

Concerns over hidden charges, opaque algorithms, and aggressive debt recovery are major inhibitors. Evidence shows that high perceived risk weakens the linkage between intention and actual use unless trust and security measures are robustly established.

Subjective Norms (Social Influence)

In collectivist and financially underserved communities, peer or family endorsement of digital platforms strongly influences adoption. Prior studies in mobile banking contexts confirm that subjective norms positively affect both perceived usefulness and behavioral intention.

Facilitating Conditions

Elements such as availability of smartphones, reliable internet connectivity, digital literacy programs, and responsive customer support are vital in enabling the transition from intention to actual use, particularly among novice digital users.

Constructing an Extended TAM for NBFC Context

Synthesizing the above:

- PU, PEOU, trust, perceived security, perceived risk, social influence, and facilitating conditions act as antecedent variables influencing Behavioral Intention (BI).
- PU and PEOU drive BI, per classic TAM logic.
- Trust and perceived security reduce the deterrent impact of perceived risk.
- Subjective norms influence PU and BI directly.
- Facilitating conditions act as enablers, moderating the transition from intention to actual use.

Tailoring Hypotheses for NBFC Digital Adoption

Using the adapted model, plausible hypotheses include:

1. PU positively influences BI—customers adopt platforms they believe deliver time savings, ease, and flexibility.
2. PEOU positively influences PU and BI—ease drives usefulness and motivation to use.
3. Trust and security perceptions positively influence BI and mitigate perceived risk's negative effect.
4. Perceived risk negatively influences BI or disrupts BI to actual use conversion if not offset by trust.
5. Subjective norms positively affect PU and BI within community-oriented borrower profiles.
6. Facilitating conditions enhance the likelihood that BI results in actual use, especially for low-digital-literacy users.

Moderating Effects & Demographic Controls

In the NBFC customer base, demographic moderators such as age, education level, urban versus rural residence, and previous exposure to formal credit or digital interfaces may moderate relationships—especially between BI and actual use. For instance, older or lower-literacy users may rely more heavily on trust and facilitating conditions.

In summary, extending TAM for NBFC customers requires embedding constructs that reflect regulatory and behavioral realities—trust, risk, social norms, and infrastructure support. This enriched framework provides a solid theoretical foundation for empirical studies that aim to explain—and ultimately enhance—digital financial inclusion through NBFC platforms.

III. Methodology

Research Design & Study Population

We propose a quantitative, cross-sectional survey design, targeting NBFC customers who have used digital lending platforms. Drawing inspiration from recent TAM-based fintech studies, such as Yadav & Shanmugam (2024), which focused on digital lending, this study adopts a survey-based measurement and structural equation modeling (SEM) approach using SmartPLS or CB-SEM. The intended sample size—similar to other empirical studies in India—is between 400 and 500 respondents, to ensure sufficient statistical power and model stability in SEM analyses.

Sampling Strategy & Data Collection

- Stratified convenience sampling will be employed across multiple geographic zones (urban/rural), income brackets, and literacy levels.
- Data will be collected through structured questionnaires—either in person at branch points or via app-based surveys.
- We will adapt and pre-test validated Likert-scale measures from prior TAM and fintech adoption studies (including constructs such as PU, PEOU, Trust, Risk, Social Influence, Facilitating Conditions).

Measurement Instrument

- Items will be drawn from established scales in previous literature: e.g., Kumar et al. (2020) for PU, PEOU, trust, subjective norms; Yadav & Shanmugam (2024) for digital lending-specific constructs like perceived security and perceived risk.
- Questionnaire items will be translated into local vernacular where needed and pre-tested for clarity among a small pilot group.

Data Analysis Strategy

The analysis will follow a two-step SEM approach:

Measurement Model Assessment

- Evaluate reliability (Cronbach's α , composite reliability), convergent validity (factor loadings, Average Variance Extracted), and discriminant validity (Fornell-Larcker criteria or HTMT).
- Assess common method bias using Harman's single-factor test (variance explained by a single factor should be <50%).

Structural Model Evaluation

- Test hypothesized paths (e.g. PU $\rightarrow$ BI, PEOU $\rightarrow$ PU/BI, Trust & Security $\rightarrow$ BI, Risk $\rightarrow$ BI, SN $\rightarrow$ BI/PU, FC $\rightarrow$ BI $\rightarrow$ Use Behavior).
- Evaluate R^2 (variance explained), path coefficients (β values and t-values), effect sizes (f^2), and model fit indices if CB-SEM is used.

Moderators & Control Variables

Demographic variables—age, gender, education, digital literacy, urban/rural location, and prior exposure to formal credit—will be included as moderators to assess differences in construct relationships (e.g. perception $\rightarrow$ intention, intention $\rightarrow$ use) across segments. Moderator effects can be tested via multi-group analysis or interaction terms in SEM.

Ethical Considerations & Data Quality

- Participant consent and contributor anonymity will be ensured.
- Data screening procedures (missing value treatment, normality checks, outlier analysis) will be applied.
- To mitigate common method bias, procedural remedies (e.g. assuring anonymity, varying item order) and statistical checks (Harman's test) will be conducted.

Analytical Software & Tools

- Primary analysis will use SmartPLS (PLS-SEM), common in TAM and fintech research in developing contexts.
- Where appropriate, CB-SEM in software like AMOS or LISREL may be used to confirm model robustness.
- Supplementary analyses (e.g. descriptive statistics, correlations) to profile respondents and constructs.

This methodology is aligned with established empirical frameworks in Indian digital-finance research (e.g. Kumar et al., 2020; Yadav & Shanmugam, 2024; Verma & Shome, 2025). It offers a robust empirical foundation to test the extended TAM model for NBFC digital adoption and supports drawing actionable insights across customer segments.

IV. Findings

NBFCs Leading India's Digital Lending Boom

NBFCs are at the forefront of digital credit in India, consistently outpacing banks. As of 2020, digital channels accounted for over 60% of NBFCs' total loan disbursements, compared with just 5–6% for banks. Highlights include:

- Retail lending by NBFCs—which significantly serves first-generation and new-to-credit borrowers—has expanded rapidly, with unsecured loans growing at a ~32–35% CAGR between 2017 and 2024.
- MSME and personal unsecured loans continue to rise sharply, especially via digital channels, driven by fintech-enabled credit models.

These trends underscore the importance of studying NBFC customer behavior in digital lending contexts.

Expanding Credit for the Underserved

Data shows that 78% of borrowers at MSME-focused NBFCs like UGRO are first-time credit users, indicating limited prior exposure to formal credit mechanisms and a high degree of novelty in their experience. NBFCs often deploy AI/ML-based underwriting, incorporating alternative data sources (such as mobile behavior and social indicators) to assess creditworthiness—enhancing reach among customers lacking traditional financial footprints.

Regulatory Landscape & Trust Implications

The RBI's Digital Lending Guidelines, issued in September 2022, mandate transparency in disclosures, upfront cost presentation, responsible lending practices, and enforcement of grievance redressal mechanisms. These steps significantly enhance trust by promoting responsible conduct and ethical frameworks in digital lending. Evidence from recent fintech analyses indicates that trust and transparency are key enablers of behavioral intention, helping mitigate perceived risk despite occasional algorithmic opacity.

Trust, Risk, and Adoption Behavior

Research from UTAUT2-based fintech adoption models shows that perceived institutional trust and perceived security significantly influence intention to use digital finance tools—whereas perceived risk may not retain significance once trust is well established. At the same time, studies on financial inclusion caution that data misuse, black-box credit decisions, and aggressive recovery practices can deter usage and exacerbate debt risks among vulnerable borrowers.

Social Influence and Digital Inclusion

In Indian contexts, subjective norms—peer or family recommendations—play a significant role in shaping digital financial adoption. Several studies in mobile banking and fintech domains show that community endorsement boosts perceived usefulness and directly influences intention to adopt.

Facilitating Conditions and Literacy Support

Access to smartphones, internet connectivity, vernacular-based UI, and digital literacy support are essential enabling factors, especially for NBFC customers with low digital exposure. Hybrid engagement models—combining digital tools with field staff support—have proven effective for last-mile borrowers.

Implications for Modeling TAM in NBFC Context

Taken together, these studies reinforce that extensions of TAM for the NBFC customer context must incorporate:

1. Trust and perceived security as key influencers of intention.
2. Perceived risk as a potentially negative driver—mediated by trust and institutional reputation.
3. Subjective norms shaping both PU and BI, particularly in community contexts.
4. Strong emphasis on facilitating conditions (digital access, multilingual usability, on-ground support) for enabling actual usage behavior among new-to-credit and digitally novice users.

This empirical synthesis sets a firm foundation for the empirical testing of the extended TAM model proposed—one that is tailored to the behavioral, socio-technical, and regulatory realities of NBFC digital customer journeys in India.

V. Discussion

Core Drivers of Adoption: Usefulness, Trust & Ease of Use

Consistent with the bulk of digital finance literature, both Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) emerged as pivotal drivers of adoption. As studies in Indian M-banking show, PU and PEOU strongly predict behavioral intention across diverse demographic settings—extending even to rural and low-literacy users. In the NBFC digital lending space, PU translates to tangible benefits like rapid loan disbursal, flexible tenures, and digital record-keeping—factors that empower underserved users with limited prior credit exposure. Meanwhile, an easy-to-navigate interface, vernacular support, and streamlined onboarding amplify PEOU, reinforcing positive perceptions even among digital novices.

The Mediating Role of Trust and Influence of Perceived Risk

In line with broader fintech adoption theory, trust in the NBFC platform—stemming from transparency in pricing, secure information handling, and grievance redress mechanisms—is a powerful catalyst for intention to adopt. Research indicates that trust not only acts as a direct antecedent to adoption but also mediates the negative influence of perceived risk—including fears of hidden charges, data misuse, or algorithmic errors. In digital lending contexts where automated underwriting and alternative data are used, investors and borrowers alike must rely on reputational cues and institutional credibility. Such findings echo the notion that perceived risk has a reduced direct impact when institutional trust is robust.

Social Influence in Community and Informal Settings

Studies in Indian digital finance environments consistently highlight the importance of subjective norms—community or familial approval—as a significant predictor of both perceived usefulness and behavioral intention. Borrowers in rural or collective ecosystems often rely on word-of-mouth endorsements and peer validation when adopting digital tools, reinforcing the social pathways through which PU and BI are shaped.

Enabling Actual Usage: Facilitating Conditions & Demographic Moderators

Facilitating conditions—such as smartphone access, multilingual support, functional internet, and on-ground help desks—often determine whether intention translates into actual usage. Especially for first-generation borrowers with low digital literacy, hybrid support models (combining field agents with digital tools) have shown to materially increase onboarding and retention. Moderating these relationships, factors like age, education level, urban/rural status, and prior exposure to formal credit shape how much trust or perceived usefulness matter across segments. Older or less literate users, for instance, may rely more on institutional trust and support, while younger urban users may lean more on interface design and speed.

Regulatory Context as a Trust Builder

RBI's Digital Lending Guidelines (issued September 2022) mandate transparency in interest and fee disclosure, responsible creditor practices, and institutional accountability in digital lending. Such regulatory measures serve as vital safeguards that help reduce perceived risk and bolster trust within extended TAM frameworks. In tandem with cybersecurity mandates—such as RBI's call for “zero-trust” AI-aware defence strategies—these developments elevate customers' confidence in institutional frameworks governing NBFC platforms.

Implications for Theory, Practice & Policy

Theoretical Contributions

The synthesis reinforces that an extended TAM—featuring trust, risk, social influence, and facilitating conditions—provides a far more robust explanatory framework than classic PU/PEOU alone, particularly when applied to NBFC digital adoption. Trust emerges not only as an essential direct determinant but also as a mediator that mitigates perceived risk's dampening effects—confirming and extending models from fintech studies across Africa and Asia.

Managerial Implications

NBFCs looking to drive digital adoption among customers should:

- Prioritize transparency: Upfront cost disclosure, easy-to-understand terms, and open communication channels.
- Design user-centric platforms: Simple UI flows, language/voice support, minimal documentation, and visible onboarding success stories.
- Build trust infrastructure: Publicize grievance redressal systems, secure data practices, and fair debt collection approaches.
- Leverage social proof and endorsement: Employ peer testimonials, community ambassadors, or referral schemes to harness social influence.
- Invest in support ecosystems: Provide helpline support, digital literacy workshops, and local field integration for bridging digital divides.

Policy Insights

Regulators play a critical role in legitimizing digital lending. Policy mandates for disclosure, algorithmic fairness, and platform accountability help to institutionalize trust and moderate risk—making extended TAM models practically implementable and theoretically sound.

Limitations & Future Directions

While existing studies provide rich insights, most are cross-sectional and rely on self-reported intention, which risks common-method bias and limits behavioral inference. Future research should explore longitudinal designs, track actual use patterns over time, and test interventions—for example A/B testing of different UI elements or trust-building messages. Experimental or quasi-experimental studies could validate causal effects of facilitating conditions, social nudges, or transparency interventions. Segment-specific investigations—e.g. comparing rural versus urban, first-generation versus repeat borrowers—would further broaden theoretical precision.

This discussion underscores that adopting digital services via NBFC platforms is shaped by a holistic constellation of cognitive perceptions, social influences, institutional assurances, and infrastructural support—elements that must be systematically integrated into extended TAM frameworks tailored for India's underserved markets.

A Comprehensive Extended TAM Framework to Accelerate Digital Adoption in NBFCs

Non-banking financial companies (NBFCs) confront unique hurdles in adopting digital technologies—from legacy systems and regulatory compliance, to low digital literacy and customer trust concerns. An Extended Technology Acceptance Model (TAM), customized for the NBFC context and enriched by organizational and environmental factors, offers a holistic roadmap for driving meaningful digital adoption.

1. Core TAM Constructs Reimagined for NBFCs

- Perceived Usefulness (PU): Users are more inclined to embrace digital tools (such as mobile lending apps or CRM platforms) when they believe these tools will boost efficiency and service effectiveness. This belief is a powerful driver of adoption.
- Perceived Ease of Use (PEOU): Simplicity in design is critical—particularly for rural agents and clients with limited digital experience. Interfaces must minimize friction to foster sustained usage.

- Trust & Perceived Risk: In the NBFC space, trust in security, transparency, and fair practices significantly shapes adoption decisions. Users weigh potential risks carefully before embracing technology.

2. Behavioral & Social Influences

- Self-Efficacy & Innovativeness: When users are confident in their ability to navigate digital tools—thanks to tailored training or micro-learning modules—they're more likely to engage actively.
- Subjective Norms & Peer Influence: Recommendations and encouragement from managers, peers, or community leaders can substantially elevate adoption rates, especially in semi-rural markets.
- Government & Regulatory Support: Regulatory mandates (such as digital lending norms by the RBI) and supportive policy frameworks serve as both facilitators and motivators in NBFC digital transformation.

3. Integrating Organizational, Technological, and Environmental Contexts (TOE Framework)

To enrich the extended TAM, the TOE framework considers broader factors:

- Technological Context: The availability of digital support systems—like in-app help, AI-guidance, or walkthroughs—helps ease adoption in real time.
- Organizational Context: Leadership-driven change management, multilingual design, localized hiring, and performance-linked adoption metrics reinforce internal readiness.
- Environmental Context: Competitive pressures, rural market dynamics, and compliance requirements further shape the urgency and direction of digital adoption.

4. How It All Works

- Core Drivers: PU, PEOU, social norms, self-efficacy, and innovation drive Behavioral Intent (BI) to use digital tools.
- Checks and Balances: Trust, risk perception, regulatory conformity, and support conditions moderate both intention and actual use.
- Organizational Backbone: Training programs, onboarding tools, and leadership support transform intent into real usage—especially in tier-2/3/4 regions.

5. Implementation Roadmap

1. Embed Assisted Onboarding: Incorporate in-app walkthroughs and real-time AI support to guide agents during onboarding and usage phases.
2. Prioritize Trust & Compliance: Align systems with RBI's digital lending norms, ensure data privacy, and establish grievance redressal mechanisms to reduce perceived risk.
3. Localize Experience: Provide interfaces in local languages, design culturally appropriate interfaces, and hire locally to deepen community engagement.
4. Track Adoption Metrics: Monitor usage, onboarding velocity, error rates, and user feedback to assess progress—and involve leadership in adoption oversight.
5. Iterate Based on Feedback: Use insights from users, regulatory updates, and field realities to continuously refine usability and support mechanisms.

VI. Conclusion

The application of an extended Technology Acceptance Model (TAM) to the context of digital adoption among NBFC customers in India underscores that Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) remain foundational predictors for intentions to adopt—especially when borrowing involves formal credit delivery. However, in a setting characterised by first-generation borrowers, low digital literacy, and minimal prior exposure, Trust, Perceived Security, Perceived Risk, Subjective Norms (SN), and Facilitating Conditions (FC) become essential components of the adoption framework.

Trust emerges as both a direct enabler of behavioral intention and a buffer against perceived risk associated with opaque algorithms, aggressive recovery tactics, or hidden costs. As seen in lending contexts employing AI-based underwriting, trust-building practices—such as transparent disclosures and grievance mechanisms—increase the likelihood of digital adoption.

Meanwhile, perceived risk—though a potential barrier—can be moderated effectively when institutional regulations such as the RBI's *Key Fact Statement*, cooling-off provisions, and explicit data consent mechanisms are in place. The recent *Digital Lending Guidelines (2022)* and *2025 Master Directions* significantly enhance product transparency and strengthen consumer safeguards, thereby boosting institutional trust and reducing risk perception among borrowers.

Subjective Norms (SN)—reflecting community or family endorsement—continue to influence both perceived usefulness and behavioral intention. In collectivist rural contexts, peer validation often catalyzes adoption more than individual perceptions alone.

Facilitating Conditions (FC)—such as smartphone access, vernacular interface, and on-ground support—play a crucial role in converting intention into actual usage, especially for digitally novice segments and older borrowers relying on hybrid outreach models.

Regulatory reforms — for example, mandated fund flow segregation, audit protocols for Lending Service Providers (LSPs), and certification requirements — further solidify trust and clarify institutional accountability within the digital lending ecosystem.

Theoretical & Practical Implications

- Theoretical: This adapted TAM framework—integrating trust, risk, social influence, and infrastructure support—offers broader explanatory power for populations with limited exposure to formal credit or digital experience.
- Managerial: NBFCs must emphasise product clarity, intuitive onboarding, transparent data usage policies, and community-based trust-building practices to drive digital adoption.
- Policy: Regulators can reinforce digital inclusion by supporting hybrid onboarding models and mandating algorithmic transparency and customer grievance mechanisms.

Limitations and Future Research

Most findings are based on cross-sectional, self-reported intention data, limiting inference about actual usage. Longitudinal or field-experimental designs would better reveal causal effects and behavioral patterns—such as how trust interventions or app modifications influence real user behavior over time. Examining specific borrower segments (e.g. rural vs urban, low literacy vs high education) can uncover moderation effects and tailor policies more effectively.

Final Takeaway

By tailoring TAM to the NBFC digital context—anchored in cognitive, social, institutional, and technological nuances—this research offers a comprehensive roadmap for understanding and promoting digital finance adoption among underserved borrowers. Strategic integration of usability, trust, peer influence, regulatory clarity, and support conditions will not only increase adoption but also foster inclusive and responsible lending ecosystems across India's digital lending era.

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