

“Digital insurance adoption and financial inclusion among urban consumers in Chennai: Mediating effects of awareness, digital literacy, and trust”

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DIGITAL INSURANCE ADOPTION AND FINANCIAL INCLUSION AMONG URBAN CONSUMERS IN CHENNAI: MEDIATING EFFECTS OF AWARENESS, DIGITAL LITERACY, AND TRUST

Abstract

Insurance penetration in India remains critically low (2.7 per cent life, 1.0 per cent general) despite two decades of market liberalization and substantial digital infrastructure expansion. This study investigates how insurance awareness and digital literacy translate into digital insurance adoption among Chennai's urban consumers, with perceived usefulness, perceived ease of use, and trust as cognitive and relational pathways linking capability to market action. Data were collected in August-September 2024 from 405 purposively sampled consumers with digital device access, comprising existing insurance holders and potential first-time buyers, using a structured questionnaire. Chennai, a theoretically relevant research setting with mature digital infrastructure and diverse urban demographics, allows perceptual and informational barriers to be examined independently of connectivity constraints, offering transferable insights for comparable Indian urban markets. Structural equation modeling showed excellent measurement model fit across standard indices, explaining 50.2 per cent of adoption intention variance. Awareness was the strongest predictor of perceived ease of use ($\beta = 0.758$, $R^2 = 57.5$ per cent) and digital literacy of perceived usefulness ($\beta = 0.752$, $R^2 = 56.5$ per cent). Both influenced adoption intention entirely through their respective mediators without significant direct effects, consistent with complete statistical mediation. Trust added serial mediation pathways, reinforcing the role of institutional confidence in credence good markets. Awareness campaigns and literacy programs yield negligible adoption gains unless designed to strengthen perceived platform utility and navigability. Insurers and policymakers should prioritize interface design optimizing functional value and operational ease, with transparent claims processes converting platform confidence into durable institutional trust.

Keywords

insurance, digital, adoption, awareness, literacy, trust, mediation, technology, India

JEL Classification

G22, M31, O33, C51

INTRODUCTION

India's insurance penetration presents a persistent challenge. Despite two decades since market liberalization, life insurance penetration hovers at a mere 2.7 per cent of GDP, whilst general insurance contributes barely 1.0 per cent (IRDAI, 2025). These figures remain conspicuously low against global benchmarks: the OECD average reached 6.2 per cent in 2024, with France, the United Kingdom, and the United States routinely exceeding 10 per cent (OECD, 2025).

India's digital transformation deepens this challenge rather than resolving it. Over 806 million Indians access the internet, representing 55.3 per cent penetration as of January 2025. The Unified Payments Interface processes over 20 billion transactions monthly,



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digital banking and investment platforms enjoy brisk urban uptake, and initiatives such as Digital India, Jan Dhan Yojana, and Aadhaar have built formidable digital infrastructure. Yet insurance, for all its platform availability, lags conspicuously behind every comparable financial service.

Insurers have invested heavily in digital channels, allowing consumers to compare policies, calculate premiums, and track claims online. The platforms exist, the campaigns run, and the skills are improving, yet adoption remains stubbornly low. This points to something structural: the path between capability and behavior is indirect, and the mechanisms connecting what consumers know and can do to what they choose remain theoretically underspecified.

Technology acceptance research has long established that availability and access alone do not guarantee adoption (Van Dijk & Hacker, 2003). Awareness of a platform's existence proves inadequate without the practical competence required to navigate it (Morgan et al., 2019; Pak et al., 2026). Domain-specific financial literacy, moreover, predicts fintech adoption far more reliably than general digital competency across multiple economies (Lyons & Kass-Hanna, 2021; Choung et al., 2023). Insurance sharpens these dynamics further. As a credence good, it defies straightforward evaluation: consumers cannot assess policy quality before purchase, experience benefits only when contingencies materialize, and face pronounced information asymmetries at every stage. Interventions that ignore these pathways risk building underused platforms and raising awareness that never becomes behavior.

Literature is scant on the theoretical account of the intermediate mechanisms through which awareness and digital literacy translate, or fail to translate, into insurance adoption behavior in emerging digital markets. Existing studies treat these constructs as secondary controls or moderators rather than as focal antecedents with structured relationships to adoption, leaving the perceptual pathways through which capability becomes intention theoretically uncharted. This study addresses that gap directly. Empirically, the study does not claim national representativeness; Chennai is used as a theoretically relevant urban setting.

This study examines the mediating mechanisms through which insurance awareness and digital literacy influence digital insurance adoption among urban consumers in Chennai, India, extending Davis's (1989) Technology Acceptance Model by positioning perceived usefulness, perceived ease of use, and trust as the cognitive and relational pathways that connect individual capability to adoption behavior. The following section reviews the theoretical and empirical foundations informing this framework.

1. LITERATURE REVIEW

Understanding why digital insurance platforms remain underutilized despite India's expanding digital reach requires drawing on several streams of scholarship. Technology adoption research, the Indian insurance landscape, awareness and literacy as antecedents, and the mediating perceptions connecting individual capability to market behavior each contribute a distinct piece of the explanatory puzzle. The review proceeds from foundational theoretical frameworks through contextual evidence, arriving at the specific gap this study addresses.

1.1. Technology acceptance in financial services and insurance

Davis (1989) proposed that perceived usefulness and perceived ease of use determine user acceptance of information systems, with these perceptions mediating between system characteristics and actual use. The model's parsimony and empirical record established it as the dominant framework for understanding technology adoption (Venkatesh & Davis, 2000). Subsequent extensions incorporated social influence, experience, and voluntariness whilst retaining the core mediation structure (Venkatesh & Bala, 2008).

The evolution into unified frameworks further consolidated the field by incorporating social influence and facilitating conditions as additional determinants of behavioral intention (Venkatesh et al., 2003), building on the Theory of Planned Behavior, which established that attitude, subjective norms, and perceived behavioral control jointly predict intention (Ajzen, 1991). Pavlou and Fygenson (2006) subsequently extended this logic to electronic commerce, demonstrating that perceived usefulness and ease of use mediate the effects of beliefs on online buying behavior. The central insight across this tradition, that user perceptions rather than objective technical features drive adoption decisions, has held across three decades of empirical testing.

Financial services drew considerable Technology Acceptance Model research attention. The intangibility of financial products, combined with psychological barriers around money management, creates adoption dynamics distinct from physical goods or entertainment technologies. Research on mobile banking consistently demonstrates that perceived usefulness and ease of use explain substantial variance in adoption intentions, with trust and risk perceptions acting as additional mediators (Pavlou, 2003). Evidence from internet adoption studies further confirms that attitudes shaped by perceived access barriers, rather than infrastructure availability alone, determine technology engagement across demographic groups. Insurance, as a credence good, sharpens these tensions: benefits materialize only under uncertain future conditions, products involve technical complexity, and quality remains unverifiable even post-purchase. Insurance-specific Technology Acceptance Model studies bear this out. Hassan et al. (2024) find that trust moderates fintech adoption in Bangladesh's insurance sector. Horvey et al. (2025) show that perceived usefulness, ease of use, and subjective norms drive peer-to-peer insurance adoption in South Africa. De Andrés-Sánchez and Gené-Albesa (2024) establish that trust outweighs usefulness and ease of use in determining chatbot acceptance among insurance customers.

These perceptual constructs take on distinctive characteristics in insurance contexts, where the intangibility of benefits and the complexity of policy terms create particular challenges for both

usefulness and ease of use evaluations. Perceived usefulness captures the degree to which consumers believe digital insurance platforms enhance their financial security, whilst perceived ease of use reflects beliefs about the effort required to navigate these platforms. These perceptions mediate relationships between external variables and adoption decisions. Insurance contexts make both constructs harder to satisfy: the intangibility of coverage benefits makes usefulness perceptions difficult to form, whilst technical policy language creates genuine complexity that shapes ease-of-use judgements.

The relationship between the two constructs is bi-directional. Platforms that feel effortless to navigate enhance confidence in their functional value, a dynamic that matters most when users lack baseline familiarity with coverage concepts. In mobile health contexts, perceived ease of use significantly predicts perceived usefulness, which in turn drives adoption intentions (Zhao et al., 2018). Information quality amplifies this effect, with higher quality strengthening the influence of perceived usefulness on continuance intentions (Zheng et al., 2013). Trust enables both constructs further: in insurance-specific settings, it amplifies their effects on user attitudes rather than functioning as a parallel mediator (De Andrés-Sánchez & Gené-Albesa, 2024). Perceived risk works in the opposite direction, dampening ease-of-use effects on adoption intentions in financial services contexts where security concerns are prominent.

1.2. Digital insurance adoption in the Indian context

India's insurance sector sits in a peculiar position. Despite market liberalization in 2000, insurance penetration reached merely 3.7 per cent of gross domestic product in fiscal year 2024-25, with life insurance contributing 2.7 per cent and non-life insurance 1.0 per cent, far below the Organisation for Economic Co-operation and Development average of 6.2 per cent (IRDAI, 2025; OECD, 2025). Digital transformation was expected to change this picture. The Unified Payments Interface processed over 20 billion transactions monthly by August 2025, establishing infrastructure for digital financial services (NPCI, 2025). COVID-19 accelerated online insurance purchases by nearly 30

per cent between 2020 and 2023, with first-time buyers increasingly using digital channels (Ken Research, 2026). Although primary data were collected between August and September 2024, contextual market statistics are cited from the most recently available industry reports to establish the continued relevance of the research problem; the structural conditions of low insurance penetration and high digital connectivity that motivated this study have persisted and intensified through 2025–2026. Amongst Generation Y and Z users in India, digital literacy and peer influence emerged as the strongest positive drivers of fintech adoption, whilst security concerns remained a significant barrier (Srivastava et al., 2024). Research confirms that top management support, financial readiness, and regulatory backing are the primary organizational predictors of artificial intelligence adoption in India's insurance sector (Gupta et al., 2022).

Yet digital adoption rates remain underwhelming. Industry reports indicate insurance literacy hovers below 30 per cent despite expanding connectivity (Mordor Intelligence, 2026). Metropolitan hubs account for approximately 60 per cent of online insurance premiums, whilst tier-2 and tier-3 cities lag substantially. These patterns confirm that platform availability removes only the most visible obstacles, whilst the psychological and informational roots of non-adoption remain unaddressed.

These aggregate patterns, however, mask important variation within urban India itself, where demographic composition, infrastructure quality, and cultural attitudes interact to produce adoption dynamics that macro-level statistics cannot capture. Urban tele-density exceeded 91 per cent as of December 2025 (TRAI, 2026), yet adoption varies substantially across the urban hierarchy, with tier-1 cities demonstrating markedly higher rates than tier-2 and tier-3 centers despite comparable connectivity (Mordor Intelligence, 2026). This intra-urban variation reflects second-level digital divide dynamics, where skill gaps, educational differentials, and usage quality disparities hold even where infrastructure is present (Lythreathis et al., 2022).

Cultural attitudes pull in a separate direction from technical readiness. Many Indian consumers view insurance through fatalistic lenses, re-

ducing the perceived value of financial protection (Ratna & Mehra, 2015). Joint family structures and informal risk-sharing networks have historically substituted for formal insurance, creating path dependencies that urbanization alone has not dissolved (Mobarak & Rosenzweig, 2013). Urban consumers, whilst more exposed to formal institutions, often rely on agent relationships as trust signals precisely because platform interactions feel impersonal and uncertain (Srivastava et al., 2024). Awareness and digital literacy prove necessary but insufficient in this environment. Mediating perceptual processes, specifically usefulness, ease of use, and trust, do more of the explanatory work than infrastructure or awareness alone.

1.3. Awareness, digital literacy and adoption pathways

Insurance purchase decisions depend on awareness operating at multiple levels: recognizing that insurance exists, understanding specific coverage types, and grasping how policies work. Individuals with inadequate insurance knowledge remain skeptical of offerings, no matter how accessible the platform. Kiwanuka and Sibindi (2023) establish insurance literacy as a precursor to insurance inclusion, arguing that without foundational knowledge, potential users cannot evaluate product suitability or navigate purchase processes. Building on this, Kiwanuka and Sibindi (2025) show that perceived trust partially mediates the relationship between insurance literacy and insurance inclusion, establishing that literacy alone is insufficient because much of its effect on adoption runs through trust.

The awareness-adoption linkage is clearest in emerging markets. Studies on digital financial services reveal that awareness of platform availability proves inadequate without practical navigational competence (Morgan et al., 2019), a finding consistent with multi-method evidence showing that awareness campaigns achieve little unless accompanied by educational interventions that build functional competence (Singh et al., 2020). Evidence from Kenya confirms this pattern, where affordability and educational attainment, rather than cultural attitudes or mistrust, emerged as the primary determinants of insurance uptake, with awareness campaigns identified as critical

to reaching the uninsured population (Yego et al., 2023). Unlike search or experience goods, insurance requires awareness to extend beyond product recognition to encompass risk pooling, premium calculation, and claim adjudication. Digital platforms deploy videos and chatbots to educate consumers and reshape adoption intentions (McKinsey, 2024). Awareness of platform availability is, however, a necessary but insufficient condition for adoption; translating that awareness into action requires a distinct set of practical competencies that the digital literacy literature addresses separately. Empirical evidence confirms that insurance literacy positively influences purchase decision-making, with higher literacy scores correlating with more deliberate and appropriate policy choices (Weedige et al., 2019).

Digital literacy constitutes a distinct competency set beyond general technology familiarity, covering the practical ability to find, judge, and act on digital information in real-world contexts (Ng, 2012). Financial literacy, defined as the knowledge and ability to understand and apply financial concepts to make sound decisions (Lusardi & Mitchell, 2014), provides a necessary but incomplete foundation for digital financial engagement. Navigating digital platforms requires an additional layer of technological competence that financial literacy alone does not supply. Digital financial literacy specifically encompasses awareness of digital financial services, practical operational know-how, and self-protection capabilities against fraud (Pak et al., 2026). These components predict financial service usage more strongly than generic financial knowledge, casting doubt on the view that financial literacy alone is sufficient for adoption (Choung et al., 2023). Across multiple economies, domain-specific financial literacy has proven a stronger predictor of fintech adoption than general digital competency (Lyons & Kass-Hanna, 2021). In the Indian context specifically, financial literacy functions as a significant mediator between fintech availability and actual service uptake rather than as a direct predictor (Hasan et al., 2024).

This domain-specificity is most visible in insurance contexts. General digital competency does not automatically transfer to insurance platforms requiring comprehension of technical terminology, policy comparison, and coverage evaluation.

Studies on digital health insurance platforms confirm that financial literacy moderates the relationship between performance expectancy and adoption intentions, enabling more accurate product evaluation and reduced perceived complexity (Wei et al., 2025). In insurtech contexts specifically, digital literacy positively influences insurtech adoption, which in turn mediates the relationship between digital literacy and insurance inclusion (Kiwauka & Sibindi, 2024). Systematic evidence confirms that second-level digital divides, defined as skill gaps and usage quality disparities rather than mere connectivity shortfalls, matter more in determining meaningful technology engagement than access alone (Lythreath et al., 2022). Coverage, in other words, is not competence.

1.4. Mediation mechanisms: From antecedents to adoption

Technology acceptance research establishes that external variables rarely affect behavior directly. Instead, they shape the perceptions that ultimately move people to act. Awareness operates as informational input that reduces cognitive load, enabling individuals to approach digital platforms with reduced effort perception and form more favorable ease-of-use judgements. Digital literacy, as a domain-specific functional competency, equips individuals with the analytical capability to evaluate platform features and derive functional value, directly shaping perceived usefulness. The mediation literature distinguishes complete mediation, where antecedents affect outcomes solely through mediators, from partial mediation, where both direct and indirect effects operate simultaneously. Evidence from financial technology adoption suggests complete mediation frequently emerges when technology complexity demands real competence from users (Lyons & Kass-Hanna, 2021). Insurance, combining financial and technical complexity, likely exhibits complete mediation dynamics.

Trust is most acute in insurance contexts. Unlike transactional services where outcomes materialize immediately, insurance involves delayed and uncertain payoffs, leaving consumers exposed to provider opportunism. In electronic commerce, trust directly reduces perceived risk and indirectly enhances adoption intentions by increasing

consumers' willingness to engage with unfamiliar digital providers (Pavlou, 2003). Initial trust formation in digital financial services operates through cognitive processes of structural assurance and situational normality rather than experiential familiarity, a finding directly applicable to insurance where consumers rarely have prior claims experience to draw on (McKnight et al., 2002; Zhou, 2012). Trust-building requires deliberate platform strategies encompassing transparency, institutional credibility signals, and consistent service delivery, none of which a well-designed platform automatically provides (Yousafzai et al., 2005). Research demonstrates that trust reduces perceived risk in digital financial transactions, with higher trust levels correlating positively with adoption intentions (Hassan et al., 2024).

Despite this theoretical richness, the literature has not yet integrated these mechanisms into a coherent framework that positions awareness and digital literacy as primary antecedents with structured perceptual pathways in insurance-specific emerging market contexts. Technology Acceptance Model applications in insurance-specific emerging market contexts remain limited. Existing studies predominantly examine mobile banking, digital payments, or generic fintech services rather than insurance's distinctive credence good challenges. Most research treats awareness and digital literacy as control variables or moderators rather than focal antecedents with mediated relationships to adoption, overlooking how these capabilities fundamentally enable perception formation. The Indian context compounds this gap: despite India's status as one of the fastest-growing insurance markets globally, empirical research on digital adoption mechanisms using theoretically grounded frameworks remains sparse. Insurance adoption research in India has documented the problem but has not resolved it. Existing frameworks identify awareness and digital literacy as relevant factors without establishing the perceptual pathways through which they operate. Trust, usefulness, and ease of use have been studied as outcomes rather than as the mechanisms connecting capability to behavior.

Taken together, the literature establishes that technology acceptance in credence good markets is not driven by infrastructure availability or awareness alone, but by the cognitive and relational percep-

tions that capability enables. Awareness and digital literacy have been studied as relevant factors, but their specific perceptual pathways through which they translate into adoption behavior remain theoretically underspecified. The Indian urban insurance context, combining high digital connectivity with persistently low adoption rates, provides the conditions under which resolving this gap carries both theoretical and practical urgency.

Insurance, unlike hedonic or utilitarian digital services, involves deferred gratification, asymmetric information, and a sustained fiduciary relationship, conditions under which cognitive perceptions of utility and ease alone are theoretically insufficient to drive adoption. The proposed model introduces two antecedent constructs, Awareness and Digital Literacy, that give form to the knowledge and skill conditions necessary for Technology Acceptance Model engagement in low-financial-literacy contexts. The constructs, theoretical rationale, and hypotheses are developed in the subsections that follow.

1.5. Construct definitions

Awareness refers to the degree to which an individual possesses informed knowledge of the existence, accessibility, and essential features of digital insurance products and distribution channels, encompassing both awareness of the fact that insurance policies are available through digital platforms and awareness of the mechanisms through which such platforms may be accessed.

Digital Literacy is conceptualized as an individual's functional capacity to locate, critically evaluate, and transact using digital information technologies, with specific reference to the domain of financial services. It extends beyond basic internet familiarity to encompass the competence required to navigate and trust digital financial interfaces.

Perceived Ease of Use denotes the degree to which a prospective user believes that engaging with a digital insurance platform will be free of cognitive and operational effort (Davis, 1989).

Perceived Usefulness denotes the degree to which a prospective user believes that engaging with a digital insurance platform will enhance the efficiency

and effectiveness with which they manage their insurance-related needs (Davis, 1989).

Trust is conceptualized as a second-order construct comprising two theoretically distinct but empirically related dimensions: competence-based trust, reflecting the consumer's belief that the digital platform is technically reliable, navigable, and functionally sound; and credibility-based trust, reflecting the consumer's confidence in the integrity, transparency, and benevolence of the underlying insurance institution. This dual dimensionality is consistent with McKnight et al.'s (2002) distinction between ability-based and integrity-based trust facets in online contexts.

Adoption Intention refers to the individual's subjective probability of engaging with and utilizing digital insurance services in the foreseeable future (Ajzen, 1991).

1.6. Hypothesis development

In digital insurance, a product category characterized by persistently low awareness among underserved urban consumers, the absence of prior knowledge forecloses the possibility of informed evaluation entirely. A consumer who does not know that digital insurance channels exist cannot form any perception of their utility or ease. Awareness therefore functions as a necessary precondition for engagement, and its absence constitutes the most fundamental barrier to adoption in low-penetration markets.

Digital Literacy enables individuals to critically interpret the functional affordances of digital platforms and to position themselves as confident users of digital financial services. Users possessing higher digital literacy exhibit reduced perceived risk and greater self-efficacy in digital financial transactions (Lyons & Kass-Hanna, 2021; Choung et al., 2023), both of which are associated with stronger adoption intentions. In markets where insurance products require active comparison, document comprehension, and platform navigation, literacy is not a supplementary skill but a prerequisite for meaningful engagement.

Beyond their direct motivational influence, antecedent constructs are theorized to shape the cog-

nitive perceptions through which users evaluate a technology. Awareness operates as informational input that reduces cognitive load: individuals who possess prior knowledge of digital insurance channels, including familiarity with the formats, interfaces, and transactional norms of digital financial services, are likely to approach digital insurance platforms with reduced effort perception, finding them more accessible and operable than those encountering them without prior exposure. This parallels the established role of prior experience and information exposure in shaping ease-of-use perceptions (Davis, 1989) and is consistent with the literature reviewed in Section 2.4.

Digital Literacy, as a capacity-level variable, equips individuals with the skills and mental frameworks required to recognize the functional advantages of a digital platform. A digitally literate user is better positioned to appreciate the comparative value of features such as online policy management, premium calculators, and automated claims processing, features that constitute the functional core of perceived usefulness. The relationship between domain-specific digital competency and perceived usefulness is supported by extended Technology Acceptance Model literature (Venkatesh & Davis, 2000; Pak et al., 2026) and confirmed in Indian fintech contexts where literacy functions as a mediator of service uptake rather than a direct predictor (Hasan et al., 2024).

The theoretical centerpiece of this model is the role of Trust as an affective mediator that translates cognitive Technology Acceptance Model evaluations into behavioral intent within a high-stakes financial context. In low-involvement digital services, perceived ease of use and perceived usefulness may be sufficient to drive adoption. However, insurance, as a credence good entailing long-term financial vulnerability, activates risk perception in ways that demand relational confidence beyond cognitive evaluation alone. This is consistent with the risk-as-feelings hypothesis (Pavlou, 2003) and the affect heuristic in financial decision-making.

The model proposes two distinct trust-formation pathways. First, platform usability functions as a competence signal: when a digital insurance interface is experienced as intuitive, error-free,

and navigable, the user infers organizational competence from these observable quality cues, thereby raising trust in the provider (McKnight et al., 2002). Second, platform utility functions as a credibility signal: when a platform transparently presents product comparisons, clearly discloses policy terms including waiting periods, and delivers features that demonstrably serve the user's interests, these affordances communicate institutional integrity and user-centricity, reinforcing trust in the provider's benevolence and reliability (Pavlou, 2003).

It is this established trust that is theorized to be the immediate driver of adoption in financial service contexts. Trust reduces perceived vulnerability, lowers perceived risk, and justifies the decision to commit financial resources to a digital channel, functions that neither perceived usefulness nor perceived ease of use can independently fulfil. Together, the awareness-to-ease-of-use pathway and the digital literacy-to-perceived-usefulness pathway converge on trust, which then determines whether cognitive confidence translates into behavioral commitment.

The following hypotheses are derived from the theoretical rationale.

- H1: Awareness of digital insurance products and platforms exerts a significant positive influence on Adoption Intention.*
- H2: Digital Literacy exerts a significant positive influence on Adoption Intention of digital insurance.*

H3: Digital Literacy exerts a significant positive influence on Perceived Usefulness of digital insurance platforms.

H4: Awareness of digital insurance platforms exerts a significant positive influence on Perceived Ease of Use.

H5a: Perceived Ease of Use exerts a significant positive influence on Trust in digital insurance platforms.

H5b: Perceived Usefulness exerts a significant positive influence on Trust in digital insurance platforms.

H5c: Trust exerts a significant positive influence on Adoption Intention of digital insurance.

Collectively, H3 through H5 articulate a serial mediation mechanism wherein Awareness and Digital Literacy shape Technology Acceptance Model beliefs, which in turn build Trust, with Trust ultimately driving Adoption Intention. This serial chain constitutes the primary theoretical contribution of the proposed framework, extending the Technology Acceptance Model's explanatory scope to accommodate the psychological and relational conditions that characterize financial technology adoption in developing market contexts. Figure 1 presents the proposed model, depicting the hypothesized relationships (H1 to H5c) among the antecedent constructs, the mediators, and adoption intention.

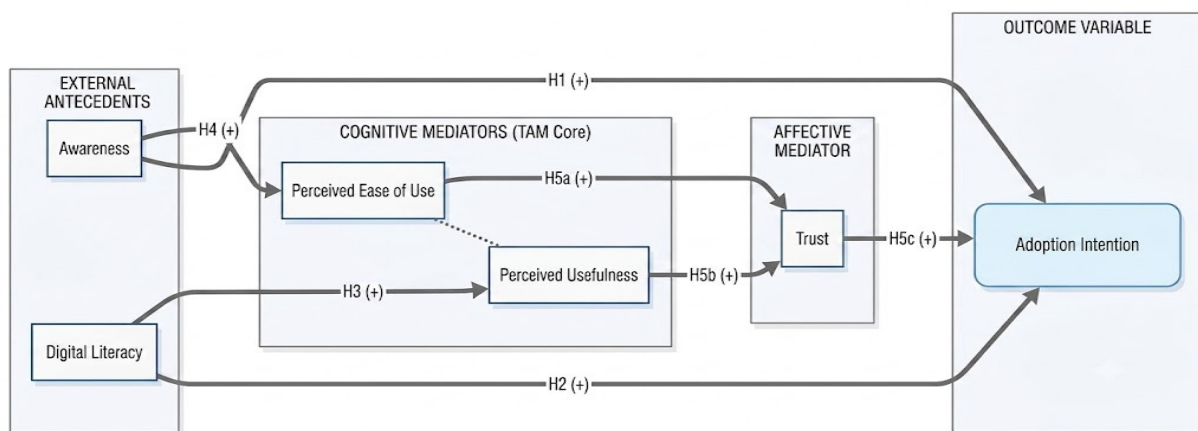


Figure 1. Extended Technology Acceptance Model for digital insurance adoption, incorporating awareness and digital literacy as antecedent constructs and trust as a downstream mediator

2. METHODS

This section describes the research design, ethical procedures, sampling strategy, measurement instruments, and analytical approach adopted in this study. The description follows the sequence in which decisions were made: from setting and ethical clearance through instrument design, data collection, and statistical analysis. Transparency at each stage is essential given that the study involves primary data collected from human participants and employs structural equation modelling, where analytical choices at one stage constrain what is permissible at the next.

2.1. Research design and setting

This study adopted a cross-sectional, quantitative survey design to examine how awareness and digital literacy influence digital insurance adoption through perceived usefulness, perceived ease of use, and trust among urban consumers in Chennai. The Technology Acceptance Model anchored the theoretical structure, extended to account for the credence good characteristics of digital insurance in an emerging market context.

Chennai was selected as the research site on the basis of three considerations that together make it appropriate for isolating perceptual and informational barriers to adoption. First, its population of approximately 11 million spans a wide socioeconomic range, from technology professionals to daily wage earners, providing demographic heterogeneity relevant to Chennai's urban population. Second, smartphone penetration exceeds 70 per cent and urban tele-density exceeds 91 per cent (TRAI, 2026), which means connectivity is not a binding constraint and cannot confound the examination of perception-level barriers. Third, Chennai hosts regional insurtech hubs and has been an early adopter city for digital financial services, making its consumers relatively more exposed to digital insurance platforms than those in tier-2 or tier-3 cities. Data were collected between August and September 2024. This window was chosen deliberately: it followed the Union Budget 2024 announcements on insurance sector reforms, a period during which insurance awareness was an active topic of public discourse, reducing the possibility that respondents would be entirely unfamiliar with the subject matter.

2.2. Ethical considerations

This study involved the collection of primary data from human participants and was conducted in accordance with the institutional research guidelines of Sri Ramachandra Institute of Higher Education and Research, Chennai. Participation was entirely voluntary. All respondents were informed of the study's academic purpose before completing the questionnaire, and informed consent was obtained from each participant prior to data collection. No personally identifiable information was collected at any stage. Questionnaire responses were anonymized at the point of recording, and individual data were accessible only to the research team. Confidentiality was maintained throughout the analysis and reporting process.

The study does not involve clinical procedures, sensitive personal disclosures, or vulnerable populations. No incentives were offered for participation. Respondents were free to withdraw at any stage without consequence. These procedures are consistent with standard ethical practice for survey-based social science research involving adult participants in urban settings.

2.3. Sampling and data collection

Sample size was determined using Cochran's formula:

$$n = \frac{Z^2 p(1-p)}{e^2}, \quad (1)$$

where $Z = 1.96$, $p = 0.5$, and $e = 0.05$, returning a minimum of 384 responses. A dual-mode administration strategy was adopted to prevent the systematic exclusion of respondents with limited digital literacy. Paper questionnaires were distributed in person across residential areas, insurance branch offices, and community centers in Chennai ($n = 225$). An identical version was simultaneously administered through Google Forms for digitally active respondents ($n = 223$). Both versions included Tamil translations prepared by a bilingual academic and reviewed for terminological accuracy before deployment; the English version of the questionnaire is provided in Appendix A.

The target population comprised urban adults aged 18 and above residing in Chennai who possessed at least one digital device and were either current insurance holders or individuals who had previously sought insurance information. Purposive sampling was employed to ensure that respondents had sufficient exposure to digital financial services to form meaningful perceptions of insurance platforms. This criterion was confirmed through a screening question at the start of the questionnaire. A total of 448 responses were received. Twenty-three were excluded for failing embedded attention checks or containing more than 10 per cent incomplete item responses, yielding 405 valid responses and a retention rate of 90.4 per cent. The sample therefore represents digitally reachable, insurance-exposed urban adults in Chennai, and findings should be interpreted within this specific boundary condition.

Table 1 presents the respondent profile.

Table 1. Respondent profile (N = 405)

Characteristic	Category	n	%
Age	Below 25 years	74	18.3
	25 to 40 years	223	55.1
	41 to 55 years	82	20.2
	Above 55 years	26	6.4
Education	Up to higher secondary	64	15.8
	Bachelor's degree	149	36.8
	Postgraduate qualification	192	47.4
Gender	Male	212	52.3
	Female	187	46.2
	Undisclosed	6	1.5
Survey mode	Online	207	51.1
	Paper	198	48.9

2.4. Measurement instrument

Six constructs were measured using items drawn from validated instruments established in the technology acceptance and financial services adoption literature. Items were adapted rather than reproduced verbatim to suit the digital insurance context, following standard practice in Technology Acceptance Model-based research (Hair et al., 2019 a). Each construct was measured using five items on a five-point Likert scale anchored at 1 (Strongly Disagree) and 5 (Strongly Agree).

Awareness items were adapted from Loewenstein et al. (2013) and capture knowledge of digital insurance channel availability and access mechanisms. Digital Literacy items draw on Ng's (2012) framework of functional digital competency, covering the ability to locate, evaluate, and transact using digital financial information. Perceived Ease of Use and Perceived Usefulness items follow Davis's (1989) original operationalization, adapted to reflect the specific effort and utility judgements relevant to digital insurance platforms. Trust items were drawn from McKnight et al. (2002), covering technology-level reliability, provider-level integrity, and regulatory confidence as three theoretically distinct but related dimensions. Adoption Intention items follow Venkatesh et al.'s (2003) behavioral intention operationalization, capturing the respondent's stated likelihood of engaging with digital insurance in the near future.

The selection of five items per construct reflects the minimum recommended for confirmatory factor analysis with adequate degrees of freedom whilst avoiding item redundancy (Hair et al., 2019a). Items were reviewed by two subject experts in financial services and digital literacy before finalization. Their recommendations resulted in the simplification of three items that were judged to conflate two constructs and the reordering of the trust subscale to separate institutional and platform-level items more clearly.

A pilot study involving 30 respondents, excluded from the final sample, was conducted in July 2024. Pilot feedback prompted language simplification in four Tamil-translated items where literal translation had produced ambiguous phrasing. Mean completion time was 12 minutes for both modes. The complete questionnaire, comprising all 30 items, is provided in Appendix A.

Table 2 presents construct-level reliability and descriptive statistics.

2.5. Analysis procedure

Figure 2 presents the four-stage analytical protocol, progressing from data screening through measurement validation, multivariate normality assessment, and structural model testing, with an iterative loop at Stage 2 permitting model re-specification where fit proves inadequate.

Table 2. Construct reliability and descriptive statistics (N = 405)

Construct	Source	Items	α	M	SD
Awareness	Loewenstein et al. (2013)	5	0.834	2.60	0.78
Digital Literacy	Ng (2012)	5	0.841	2.69	0.77
Perceived Ease of Use	Davis (1989)	5	0.858	2.62	0.75
Perceived Usefulness	Davis (1989)	5	0.845	2.65	0.73
Trust	McKnight et al. (2002)	5	0.813	2.58	0.67
Adoption Intention	Venkatesh et al. (2003)	5	0.852	2.65	0.69

Note. α = Cronbach's alpha; M = mean; SD = standard deviation. All alpha values exceed the 0.70 threshold (Nunnally, 1978).

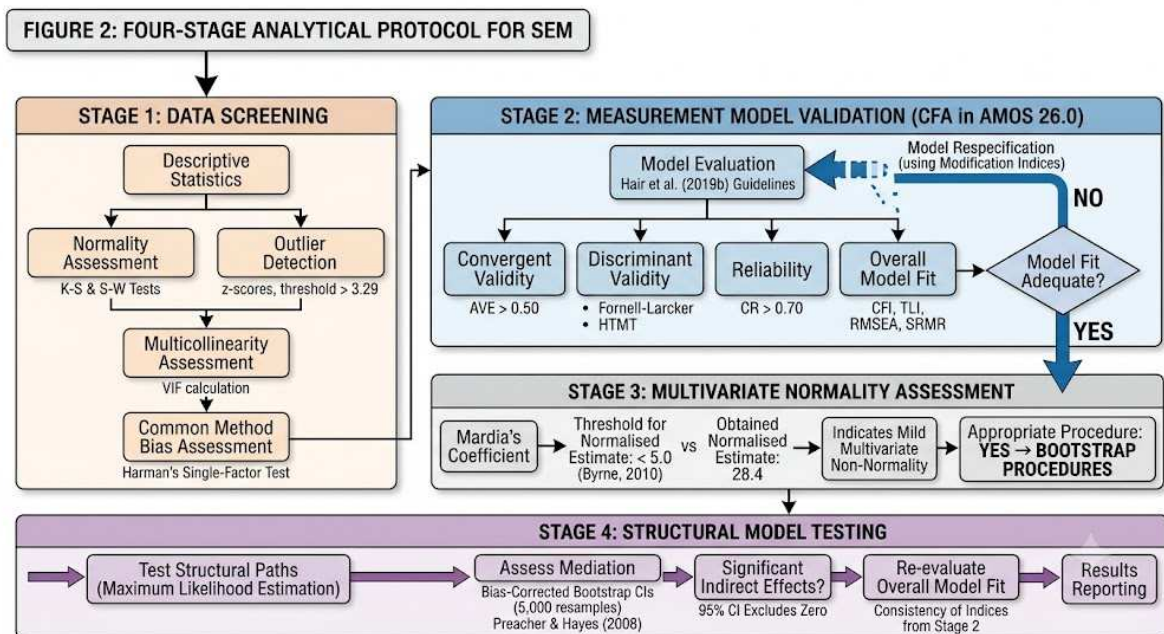
Stage 1 screened data through descriptive statistics, normality assessment using the Kolmogorov-Smirnov and Shapiro-Wilk tests, outlier detection using standardized z-scores with a threshold of 3.29, variance inflation factor calculation for multicollinearity assessment, and Harman's single-factor test for common method bias.

Stage 2 conducted confirmatory factor analysis in AMOS 26.0. Reporting conventions for structural equation modelling followed the guidelines recommended by Hair et al. (2019b). Convergent validity was assessed using average variance extracted (threshold: AVE > 0.50), discriminant validity through the Fornell-Larcker criterion and the heterotrait-monotrait ratio, composite reliability (threshold: CR > 0.70), and overall model fit using the comparative fit index, Tucker-Lewis index, root mean square error of approximation, and standardized root mean square residual. Where fit proved

inadequate, the model was respecified using modification indices before proceeding to Stage 3.

Stage 3 assessed multivariate normality using Mardia's coefficient, with a normalized estimate threshold of 5.0 (Byrne, 2010). The obtained value of 28.4 indicated mild multivariate non-normality, confirming that bootstrap procedures were appropriate at the structural stage.

Stage 4 tested structural paths using maximum likelihood estimation and assessed mediation through bias-corrected bootstrap confidence intervals based on 5,000 resamples (Preacher & Hayes, 2008). Indirect effects were treated as significant when the 95 per cent confidence interval excluded zero. Overall model fit was re-evaluated at the structural stage using the same indices applied during measurement validation, ensuring consistency of assessment across both stages.

**Figure 2.** Four-stage analytical protocol for structural equation modeling

3. RESULTS

Results are reported sequentially across the four analytical stages described in Section 4.5. The sequence moves from preliminary data quality assessment through measurement model validation, structural path estimation, mediation testing, and hypothesis evaluation. Each stage builds on the preceding one, and analytical decisions made at each stage are reported transparently so that the logic connecting method to finding is traceable throughout.

3.1. Preliminary diagnostics

Data distributions were approximately symmetric across all six constructs, with skewness values ranging from -0.023 to 0.125 and kurtosis values ranging from -0.496 to 0.157 , both within the ranges acceptable for maximum likelihood estimation. No extreme outliers were identified using the standardized z-score threshold of 3.29. Univariate normality tests produced statistically significant deviations for all constructs under the Kolmogorov-Smirnov and Shapiro-Wilk tests (all $p < 0.05$); however, given that skewness and kurtosis values remained well within acceptable bounds, these deviations were not considered to compromise estimation.

Inter-construct correlations ranged from $r = 0.30$ to $r = 0.69$. The strongest bivariate associations were between Awareness and Perceived Ease of Use ($r = 0.681$, $p < 0.001$) and between Digital Literacy and Perceived Usefulness ($r = 0.685$, $p < 0.001$), consistent with the theoretical expectations articulated in Section 3.2. Variance inflation factor values ranged from 1.69 to 2.56, with the maximum recorded for Perceived Ease of Use, indicating that multicollinearity was not a concern. Harman's single-factor

test returned a first component accounting for 42.9 per cent of total variance, below the 50 per cent threshold (Podsakoff et al., 2003), suggesting that common method bias was not a material threat to the validity of the findings. Mardia's multivariate kurtosis coefficient of 28.4 exceeded the normalized estimate threshold of 5.0 (Byrne, 2010), indicating mild multivariate non-normality. Bootstrap procedures at Stage 4 addressed this directly.

3.2. Measurement model

The six-factor confirmatory factor analysis model (Anderson & Gerbing, 1988) specified five indicators per construct, totaling 30 items across the full instrument. Standardized factor loadings ranged from 0.751 to 0.843, all significant at $p < 0.001$, satisfying the minimum threshold of 0.70 recommended by Hair et al. (2019 a). Item reliabilities, expressed as squared standardized loadings, ranged from 0.564 to 0.710. Internal consistency was strong across all constructs, with Cronbach's alpha values ranging from 0.813 to 0.858.

Convergent validity was supported: average variance extracted exceeded the 0.50 threshold for all constructs, and composite reliability exceeded 0.70 for all constructs. Discriminant validity was assessed using the Fornell-Larcker criterion, confirming that the square root of average variance extracted for each construct exceeded its highest inter-construct correlation. The heterotrait-monotrait ratio remained below the 0.85 threshold (Henseler et al., 2015) for all constructs. Table 3 presents the full measurement model assessment.

The full Fornell-Larcker correlation matrix and the complete heterotrait-monotrait ratio matrix are presented in Tables 4 and 5, respectively.

Table 3. Measurement model assessment (N = 405)

Construct	α	CR	AVE	$\sqrt{\text{AVE}}$	Loadings	HTMT
Awareness	0.834	0.853	0.637	0.798	0.763-0.831	0.761
Digital Literacy	0.841	0.861	0.652	0.807	0.772-0.831	0.712
Perceived Ease of Use	0.858	0.875	0.636	0.798	0.763-0.843	0.782
Perceived Usefulness	0.845	0.864	0.560	0.748	0.772-0.831	0.782
Trust	0.813	0.837	0.507	0.712	0.751-0.822	0.598
Adoption Intention	0.852	0.869	0.570	0.755	0.781-0.831	0.612

Note: α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted; $\sqrt{\text{AVE}}$ = square root of AVE; HTMT = heterotrait-monotrait ratio; maximum pairwise value reported. Thresholds: $\alpha \geq 0.70$; CR ≥ 0.70 ; AVE ≥ 0.50 ; HTMT < 0.85 (Henseler et al., 2015). All standardized factor loadings were significant at $p < .001$.

Table 4. Fornell-Larcker matrix (N = 405)

Variable	AWR	DL	PEOU	PU	TR	AI
AWR	0.798					
DL	0.468	0.807				
PEOU	0.681	0.436	0.797			
PU	0.398	0.685	0.469	0.748		
TR	0.360	0.363	0.553	0.496	0.712	
AI	0.353	0.299	0.542	0.434	0.564	0.755

Note: Bold diagonal values represent the square root of average variance extracted (VAVE) for each construct. Off-diagonal values represent inter-construct correlations. Discriminant validity is confirmed when each diagonal value exceeds all off-diagonal values in its corresponding row and column. AWR = Awareness; DL = Digital Literacy; PEOU = Perceived Ease of Use; PU = Perceived Usefulness; TR = Trust; AI = Adoption Intention.

Table 5. Heterotrait-monotrait ratio matrix (N = 405)

Variable	AWR	DL	PEOU	PU	TR
DL	0.505				
PEOU	0.736	0.471			
PU	0.430	0.741	0.508		
TR	0.394	0.398	0.605	0.544	
AI	0.385	0.326	0.591	0.474	0.623

Note: All HTMT values fall below the 0.85 threshold recommended by Henseler et al. (2015), confirming discriminant validity for all construct pairs. AWR = Awareness; DL = Digital Literacy; PEOU = Perceived Ease of Use; PU = Perceived Usefulness; TR = Trust; AI = Adoption Intention.

Both matrices confirm adequate discriminant validity across all six constructs, with every diagonal value in the Fornell-Larcker matrix exceeding corresponding off-diagonal correlations, and every heterotrait-monotrait ratio falling below the 0.85 threshold.

3.3. Structural model

The structural model returned fit statistics indicating acceptable model-data correspondence: chi-square to degrees of freedom ratio = 3.55, comparative fit index = 0.954, Tucker-Lewis index = 0.942, root mean square error of approximation = 0.058 (95 per cent confidence interval: 0.045 to

0.072), and standardized root mean square residual = 0.042. These values meet the commonly applied thresholds for acceptable fit in structural equation modelling research (Hu & Bentler, 1999; Byrne, 2010). Table 6 presents the full set of standardized path coefficients, standard errors, critical ratios, significance levels, and variance explained for each endogenous construct.

Awareness exerted the strongest individual effect in the model, predicting Perceived Ease of Use with a standardized path coefficient of 0.758 and explaining 57.5 per cent of its variance. Digital Literacy showed comparable strength in predicting Perceived Usefulness ($\beta = 0.752$, $R^2 = 56.5$

Table 6. Structural path coefficients and variance explained (N = 405)

Path	β	SE	CR	p	R ²
Awareness → Perceived Ease of Use	0.758	0.042	18.05	<.001	0.575
Digital Literacy → Perceived Usefulness	0.752	0.045	16.71	<.001	0.565
Perceived Ease of Use → Trust	0.433	0.055	7.87	<.001	0.518 ^a
Perceived Usefulness → Trust	0.382	0.058	6.59	<.001	–
Perceived Ease of Use → Adoption Intention	0.353	0.048	7.35	<.001	0.502 ^a
Perceived Usefulness → Adoption Intention	0.345	0.051	6.76	<.001	–
Trust → Adoption Intention	0.179	0.063	2.84	.004	–
Awareness → Adoption Intention	0.000	–	–	ns	–
Digital Literacy → Adoption Intention	0.000	–	–	ns	–

Note. β = standardized path coefficient; SE = standard error; CR = critical ratio; R² = variance explained; ns = not significant ($p > .05$). ^a Joint R² from multiple predictors. Correlation between Perceived Ease of Use and Perceived Usefulness: $r = 0.68$, $p < .001$. Significance levels: $p < .001$ and $p < .01$, as indicated.

per cent). Both constructs significantly predicted Trust, jointly explaining 51.8 per cent of its variance, with Perceived Ease of Use carrying the stronger effect ($\beta = 0.433$ against $\beta = 0.382$ for Perceived Usefulness). Both constructs also predicted Adoption Intention directly, with near-identical coefficients of 0.353 and 0.345, respectively. Trust independently predicted Adoption Intention ($\beta = 0.179$, $p = .004$). Together, Perceived Ease of Use, Perceived Usefulness, and Trust accounted for 50.2 per cent of the variance in Adoption Intention. Neither Awareness nor Digital Literacy carried a significant direct effect on Adoption Intention, with both standardized coefficients resolving to zero (ns), establishing the basis for mediation testing in Stage 4.

3.4. Mediation analysis

Mediation was tested using bias-corrected bootstrap confidence intervals based on 5,000 resamples (Preacher & Hayes, 2008). An indirect effect was treated as statistically significant when its 95 per cent confidence interval excluded zero. Table 7 presents the mediation results.

Awareness produced a significant total indirect effect of 0.393, transmitted entirely through Perceived Ease of Use. Digital Literacy produced a significant total indirect effect of 0.311, transmitted entirely through Perceived Usefulness. In both cases, variance accounted for reached 100 per cent,

confirming complete statistical mediation for the hypothesized direct effects tested in H1 and H2. Supplementary analysis further revealed that both antecedents reach Adoption Intention through serial pathways involving Trust: Awareness through Perceived Ease of Use and Trust (indirect effect = 0.094, 95% CI [0.062, 0.131]), and Digital Literacy through Perceived Usefulness and Trust (indirect effect = 0.070, 95% CI [0.044, 0.102]). Trust itself mediated the relationship between each Technology Acceptance Model perceptual construct and Adoption Intention, with Perceived Ease of Use (indirect effect = 0.138, 95% CI [0.093, 0.190]) and Perceived Usefulness (indirect effect = 0.103, 95% CI [0.065, 0.147]) both showing significant indirect paths through Trust. All six indirect effects were significant, confirming that Trust functions as a meaningful downstream mediator extending beyond the two primary mediation pathways identified in H1 and H2.

3.5. Hypothesis testing

Table 8 summarizes the outcome of each hypothesis test.

Five of seven hypotheses were supported. H1 and H2 were not supported: Awareness and Digital Literacy showed no significant direct effect on Adoption Intention. Both antecedents instead exerted significant indirect effects through the perceptual mediators of Perceived Ease of Use and

Table 7. Mediation effects (N = 405)

Pathway	Direct	Indirect	Total	95% CI	VAF	Mediation type
Awareness → Perceived Ease of Use → Adoption Intention	0.000	0.393***	0.393***	[0.331, 0.459]	100%	Complete
Digital Literacy → Perceived Usefulness → Adoption Intention	0.000	0.311***	0.311***	[0.248, 0.374]	100%	Complete
Awareness → Perceived Ease of Use → Trust → Adoption Intention	–	0.094***	–	[0.062, 0.131]	–	Serial
Digital Literacy → Perceived Usefulness → Trust → Adoption Intention	–	0.070***	–	[0.044, 0.102]	–	Serial
Perceived Ease of Use → Trust → Adoption Intention	–	0.138***	–	[0.093, 0.190]	–	Serial
Perceived Usefulness → Trust → Adoption Intention	–	0.103***	–	[0.065, 0.147]	–	Serial

Note: VAF = variance accounted for; CI = bias-corrected bootstrap confidence interval (5,000 resamples; Preacher & Hayes, 2008). Complete mediation is indicated when VAF = 100% and the direct effect is not significant. The first two pathways correspond to the formally hypothesized direct effects (H1, H2). The four serial pathways below report supplementary indirect effects estimating Trust's role as a downstream mediator; these were not associated with a competing direct-effect hypothesis, so the Direct, Total, and VAF columns are marked (–). Indirect effects are significant when the 95% CI excludes zero. *** $p < .001$.

Table 8. Hypotheses test summary (N = 405)

H	Relationship	β	p	Outcome
H1	Awareness → Adoption Intention	0.000	ns	Not supported; indirect effect via Perceived Ease of Use significant (Table 7)
H2	Digital Literacy → Adoption Intention	0.000	ns	Not supported; indirect effect via Perceived Usefulness significant (Table 7)
H3	Digital Literacy → Perceived Usefulness	0.752	< .001	Supported
H4	Awareness → Perceived Ease of Use	0.758	< .001	Supported
H5a	Perceived Ease of Use → Trust	0.433	< .001	Supported
H5b	Perceived Usefulness → Trust	0.382	< .001	Supported
H5c	Trust → Adoption Intention	0.179	.004	Supported

Note: β = standardized path coefficient; ns = not significant ($p > .05$). H1 and H2 were not supported as direct effects; significant indirect effects for both are reported in Table 7, confirming complete statistical mediation. *** $p < .001$; ** $p < .01$.

Perceived Usefulness, respectively, with Trust providing a further significant downstream path. This pattern is consistent with complete mediation and is discussed further in Section 6.

4. DISCUSSION

This study examined the mechanisms through which awareness and digital literacy influence digital insurance adoption among urban consumers in Chennai. Consistent with H1 and H2, neither antecedent exerted a significant direct effect on adoption intention. Both instead operated through cognitive mediators, with trust providing a further significant downstream path. The following paragraphs discuss each finding in relation to prior research, specifying in each case whether this study confirms, extends, or qualifies what predecessors have established.

Awareness emerged as the strongest predictor of Perceived Ease of Use (standardized path coefficient = 0.758, variance explained = 57.5 per cent), with no significant direct path to Adoption Intention. This finding confirms and extends Singh et al. (2020), who observed that product-existence awareness campaigns generate limited behavioral change without accompanying competency development. The present study specifies the structural reason for that pattern: awareness reaches adoption only by reducing perceived cognitive effort, not by motivating behavior independently. When consumers know what digital insurance is and how platforms broadly function, the cognitive burden of engaging drops, making the interface feel more accessible before a single policy detail has been read. Singh et al. (2020) identified the failure of awareness campaigns without di-

agnosing why they fail; the Awareness-to-Perceived-Ease-of-Use pathway documented here provides that diagnosis. Similarly, Morgan et al. (2019) established that knowing a platform exists is insufficient without practical navigational competence, a finding this study corroborates whilst adding that even the informational dimension of awareness works not directly but by reshaping effort perceptions.

Digital Literacy predicted Perceived Usefulness with comparable strength (standardized path coefficient = 0.752, variance explained = 56.5 per cent) and likewise showed no significant direct path to Adoption Intention. This result extends Choung et al. (2023), who found that domain-specific digital financial literacy components predict financial service usage more strongly than generic financial knowledge. The present study replicates that pattern in an insurance context and adds a structural specification: digital literacy shapes adoption by raising perceived functional value, not by directly motivating intent. A consumer who can read a comparison table, identify an exclusion clause in a digital document, and complete a video verification process without anxiety naturally derives greater perceived usefulness from the platform than one who lacks those competencies. Pak et al. (2026) positioned digital financial literacy as encompassing practical operational competencies beyond mere platform awareness; the results confirm precisely this insurance-specific dimension, demonstrating that perceived usefulness is determined by functional evaluation capacity rather than merely by awareness.

Kiwanuka and Sibindi (2024) established that digital literacy positively influences insurtech adoption, which in turn mediates its relationship with insurance inclusion; the present model

extends this finding by specifying that Perceived Usefulness is the cognitive mechanism through which literacy exerts its adoption effect.

The finding that both antecedents exhibit complete mediation, with Variance Accounted For reaching 100 per cent in both cases, aligns with Lyons and Kass-Hanna (2021), who predicted complete mediation as the likely structure in contexts where technology complexity creates genuine competence demands on users. Insurance meets that condition more fully than mobile banking or digital payments, which prior Technology Acceptance Model studies have predominantly examined. Kiwanuka and Sibindi (2023) established insurance literacy as a precursor to insurance inclusion; the present model extends that finding by specifying the perceptual pathway through which literacy reaches inclusion, namely through Perceived Usefulness rather than through direct motivational influence. Davis (1989) and Venkatesh and Bala (2008) positioned external variables as indirect influences on acceptance; the present findings affirm that structure whilst demonstrating that insurance-specific antecedents carry more explanatory weight than the generic external variables those foundational studies examined.

Trust predicted Adoption Intention with a modest but significant path coefficient of 0.179 ($p = .004$), positioned downstream of Perceived Ease of Use and Perceived Usefulness rather than alongside them. Both Technology Acceptance Model constructs predicted Trust significantly, jointly explaining 51.8 per cent of its variance, with Perceived Ease of Use carrying the stronger individual effect (standardized path coefficient = 0.433 against 0.382 for Perceived Usefulness). This finding qualifies Hassan et al. (2024), who found trust moderating intention-behavior links in Bangladesh's insurance sector. The present model places trust earlier in the causal sequence, as a mediator of perceptual evaluations rather than a moderator of intention-behavior translation. The distinction is theoretically important: if trust moderates intention-behavior links, practitioners should focus trust-building efforts after adoption intent has formed. If trust mediates perception, as the present findings suggest, trust must be addressed during the platform experience itself, before intention crystallizes. The modest coefficient for the

Trust-to-Adoption Intention path reflects a contextual condition specific to India: the Insurance Regulatory and Development Authority of India's regulatory oversight likely reduces the institutional trust burden that individual platforms must carry independently, explaining why trust's direct effect is smaller here than in less-regulated markets such as those studied by Hassan et al. (2024). Horvey et al. (2025) found income moderating Technology Acceptance Model relationships in peer-to-peer insurance adoption in South Africa; analogous socioeconomic moderators operating across different urban centers in India represent a productive direction for future investigation beyond the present Chennai-based sample.

Beyond the primary pathways, supplementary analysis revealed that Awareness and Digital Literacy also reach Adoption Intention through serial pathways involving Trust. Awareness exerted a significant indirect effect through the sequence Perceived Ease of Use and Trust (indirect effect = 0.094, 95% CI [0.062, 0.131]), and Digital Literacy showed a parallel pattern through Perceived Usefulness and Trust (indirect effect = 0.070, 95% CI [0.044, 0.102]). Trust itself mediated the relationship between each Technology Acceptance Model perceptual construct and Adoption Intention, confirming that Trust functions not merely as an additional predictor but as an integrating mechanism through which cognitive evaluations of ease and usefulness are converted into behavioral commitment. This serial structure extends Pavlou's (2003) trust-risk framework by demonstrating that in credence good contexts such as insurance, Trust operates as a sequential rather than parallel mediator, positioned downstream of, and partially dependent on, the formation of cognitive perceptions.

The collective message of these findings is that awareness and digital literacy are necessary but structurally insufficient conditions for adoption. Their influence on behavior is entirely conditional on whether they successfully shift cognitive evaluations of ease and usefulness. An awareness campaign that informs consumers that digital insurance exists but leaves the platform experience difficult and opaque contributes nothing measurable to adoption. A digital literacy intervention that improves general smartphone competencies with-

out addressing insurance-specific functional tasks does not shift perceived usefulness sufficiently to move intentions. Functional confidence and relational trust are not interchangeable: a consumer may rationally accept that a digital insurance platform offers superior coverage terms and still hesitate, because the decision to commit financial resources to an unfamiliar provider under conditions of deferred and uncertain payoff requires a form of relational confidence that cognitive evaluations alone cannot supply. This distinction between cognitive adequacy and relational readiness is the main theoretical contribution of the present findings to the Technology Acceptance Model literature in credence good contexts, and is reinforced by the serial mediation pathways through which both perceptual mediators reach adoption only after being filtered through Trust.

Technology Acceptance Model studies in financial services typically treat external variables as secondary factors whose primary function is to improve model fit rather than to carry substantive theoretical weight. This study challenges that position directly. In credence good markets, where consumers have no inspection mechanism before purchase and no reliable evaluation mechanism even after use, domain-specific antecedents such as insurance awareness and digital literacy are not supplementary controls. They are the constructs that make adoption cognitively possible in the first place. Removing them from the model would not merely reduce explanatory power; it would leave the perceptual mediators theoretically unanchored, with no account of how consumers arrive at their evaluations of ease and usefulness in a product domain characterized by information asymmetry and deferred payoffs.

The first theoretical contribution of this study is the proposition that complete mediation should be the expected structure in insurance Technology Acceptance Model research rather than an anomaly requiring post-hoc explanation. Where a product cannot be evaluated before purchase or confirmed even after use, cognitive evaluation is the only available bridge between individual capability and behavioral intent. Partial mediation, which presupposes that antecedents retain independent motivational force alongside their perceptual influence, is theoretically implausible in

a credence good context. Researchers applying the Technology Acceptance Model to insurance, healthcare, or legal services should build this expectation into their hypothesis development rather than treating partial mediation as the neutral default and complete mediation as a surprising outcome to be explained away.

The second contribution concerns the positioning of trust within the adoption sequence. This study establishes that trust sits downstream of perceived ease of use and perceived usefulness rather than alongside them as a parallel mediator. This ordering has a specific theoretical implication: ease of use functions as a competence signal, persuading the consumer that the provider is technically capable; perceived usefulness functions as a credibility signal, conveying that the provider is genuinely oriented toward the consumer's interests; and trust is the relational outcome of both evaluations, enabling the consumer to commit financial resources under conditions of uncertainty. Practitioners and researchers who treat trust as a parallel construct to the Technology Acceptance Model's perceptual mediators, to be built independently through brand campaigns, are working in the wrong theoretical sequence. Trust cannot be established before ease and usefulness have been demonstrated through the platform experience itself.

The third contribution is the specification of distinct perceptual pathways for awareness and digital literacy. Prior research has treated these constructs as interchangeable antecedents or as competing predictors. The present findings establish that they operate through entirely different cognitive mechanisms: awareness shapes adoption by reducing perceived cognitive effort, whilst digital literacy shapes it by enabling recognition of functional value. Conflating them in research design or policy intervention risks misallocating resources toward the wrong mechanism for the barrier being addressed.

The findings carry four actionable implications for insurers, insurtech developers, and policymakers operating in India's digital insurance market.

The first implication concerns the design of awareness campaigns. The present findings establish that awareness reaches adoption only by reducing

perceived cognitive effort, not by motivating behavior independently. This means that campaigns whose primary message is that digital insurance exists are structurally insufficient. Effective awareness communication must shift the message from product existence to platform experience. A campaign showing a consumer completing a renewal in three minutes from a mobile device, with each step made visible, reduces perceived effort before the application is opened. The Insurance Regulatory and Development Authority of India's Bima Sugam initiative has the potential to serve this function at the ecosystem level, but its impact will depend entirely on whether its unified dashboard demonstrably simplifies the user journey or merely consolidates existing complexity under a single interface. Campaigns built around demonstration rather than declaration are the appropriate response to an awareness deficit that operates through ease-of-use perceptions.

The second implication concerns digital literacy programmes. The capability effect documented in this study, whereby domain-specific digital literacy predicts perceived usefulness with a standardized path coefficient of 0.752, establishes that generic smartphone training does not transfer to insurance platforms. The competencies that drive perceived usefulness in insurance are domain-specific: reading claim settlement ratios, identifying exclusions within a digital policy document, completing video-based identity verification without anxiety, and interpreting premium and sum assured disclosures accurately. Insurtech companies should treat insurance-specific digital literacy as onboarding infrastructure rather than as a pre-sales communication exercise. Short instructional content embedded within the platform at the point of first engagement, addressing precisely the tasks that generate perceived usefulness, addresses the capability gap more efficiently than public literacy programs delivered outside the platform context.

The third implication concerns platform design and its relationship to trust. This study establishes that perceived ease of use is the stronger predictor of trust (standardized path coefficient = 0.433) relative to perceived usefulness (0.382), meaning that interface quality signals institutional reliability before any policy content has been evaluated. Progressive disclosure represents the appropriate

design response: presenting premium and sum assured prominently, with conditions and exclusions available through optional navigation, reduces the cognitive load of initial engagement whilst preserving access to full information. Vernacular interfaces that translate insurance concepts into culturally familiar registers communicate utility more effectively than English-language technical descriptions in urban Indian contexts. The Digital Personal Data Protection Act of 2023 creates legal safeguards that could meaningfully raise institutional trust, but only if insurers communicate those safeguards in accessible language at relevant points in the user journey rather than confining them to contractual documents that consumers do not read.

The fourth implication concerns claims processing as the ultimate test of trust. A consumer who adopts a digital platform at purchase but encounters physical document requirements at the claims stage experiences a trust violation that is unlikely to be forgiven or forgotten. The trust extended at the point of adoption is a conditional commitment predicated on the expectation of consistent digital service delivery throughout the policy lifecycle. Artificial intelligence-assisted pre-assessment, provisional claim approvals based on uploaded documentation, and photograph-based damage estimation for motor claims are not efficiency measures in this context. They are the proof that the institutional trust formed during platform adoption was warranted. Insurers who optimize the acquisition experience whilst neglecting the claims experience are investing in a trust structure built on a structurally weak foundation.

This study has four limitations, each of which points toward a productive direction for future research.

The first concerns geographic scope. Chennai provides a research setting where urban infrastructure is mature, and connectivity is not a binding constraint, making it appropriate for isolating perceptual and informational barriers to digital insurance adoption. More precisely, the sample comprises digitally reachable, insurance-exposed urban adults in Chennai, individuals who already own digital devices and have prior engagement with insurance through either purchase or active information-seeking. This is a narrower population than urban Indian consumers in general, and

the findings should not be extrapolated beyond this specific boundary condition. This strength is simultaneously a limitation: the findings cannot be generalized to semi-urban or rural consumers, for whom infrastructure barriers remain active confounds. A consumer in a smaller Tamil Nadu town navigating intermittent mobile connectivity faces a perceived ease of use problem rooted in network reliability rather than interface design, and the antecedent relationships documented here may not hold in that context. Comparative studies across urban, semi-urban, and rural settings within a single state would allow the infrastructure and perception-level barriers to be disentangled more precisely.

The second concerns the cross-sectional research design. Cross-sectional data capture perceptions at a single point in time and cannot establish causal direction. Technology Acceptance Model perceptions are known to evolve with experience: a platform that feels cognitively demanding during a first encounter may feel intuitive after repeated use. Whether complete mediation holds as consumer familiarity with digital insurance platforms grows, or whether direct effects of awareness and digital literacy emerge over time as perceptual mediators become less discriminating, cannot be determined from the present data. Longitudinal research tracking perceptions from initial awareness through first adoption and subsequent renewal decisions would provide a more complete account of how the antecedent-perception-adoption relationship evolves across the adoption lifecycle.

The third limitation concerns the gap between stated intention and actual behavior. Structural equation modelling in adoption research consistently measures behavioral intention rather than behavior itself, and the two diverge in well-documented ways, particularly in financial services contexts where social influence and agent relationships remain strong. Many urban consumers in Chennai who report positive digital insurance intentions ultimately purchase through a trusted family agent or broker. Future research capturing actual purchase transactions alongside stated intentions would clarify the magnitude of this intention-behavior gap in the digital insurance context and identify the conditions under which stated adoption intentions convert to platform transactions.

The fourth limitation concerns product heterogeneity. This study treats digital insurance adoption as a unitary phenomenon, aggregating across term life, health, and motor insurance in the questionnaire design. These product categories differ substantially in emotional stakes, claims frequency, policy complexity, and the degree of ongoing platform engagement they require. Whether the antecedent relationships identified here hold equally across product categories, or whether trust plays a disproportionately larger role in health insurance adoption where claims consequences are most personally significant, remains an open empirical question. Product-specific replications of this model would allow the theoretical framework to be refined with greater granularity.

CONCLUSION

This study examined the mediating mechanisms through which awareness and digital literacy influence digital insurance adoption among digitally reachable, insurance-exposed urban consumers in Chennai, using an extended Technology Acceptance Model tested on 405 respondents between August and September 2024. The main result is that both capabilities affect adoption intention indirectly, through consumers' evaluations of digital insurance platforms. Awareness strongly predicts perceived ease of use ($\beta = 0.758$), and digital literacy strongly predicts perceived usefulness ($\beta = 0.752$); these perceptions, together with trust, carry the effect of both capabilities to adoption intention. Trust adds a further serial path from platform perceptions to adoption, and the model explains 50.2 per cent of the variance in adoption intention.

The novelty of the study lies in treating awareness and digital literacy as insurance-specific antecedents within the Technology Acceptance Model and in showing that each works through a distinct perceptual channel: awareness through ease of use and digital literacy through usefulness. Placing trust down-

stream of these perceptions reflects the credence-good character of insurance, where consumers judge the institution behind the platform as well as the platform itself.

These results have direct practical use. Awareness campaigns are more likely to raise adoption when they show consumers how simple digital purchase and servicing can be. Digital literacy programs are more effective when they build insurance-specific skills, such as comparing policies and reading policy terms online, so that consumers recognise the value of digital channels. Insurers and policymakers should prioritise interface design that combines functional value with operational ease, supported by transparent claims processes that build institutional trust.

The study is limited to one city and a cross-sectional, purposive sample of digitally reachable consumers. Further research could test the model in other Indian cities and semi-urban areas, use longitudinal designs to link adoption intention with actual purchase behavior, and examine whether the mediating paths differ across life, health, and general insurance products.

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REFERENCES

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
2. Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423. <https://doi.org/10.1037/0033-2909.103.3.411>
3. Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd ed.). Routledge.
4. Choung, Y., Chatterjee, S., & Pak, T. Y. (2023). Digital financial literacy and financial well-being. *Finance Research Letters*, 58, Article 104438. <https://doi.org/10.1016/j.frl.2023.104438>
5. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. <https://doi.org/10.2307/249008>
6. De Andrés-Sánchez, J., & Gené-Albesa, J. (2024). Not with the bot! The relevance of trust to explain the acceptance of chatbots by insurance customers. *Humanities and Social Sciences Communications*, 11, Article 104. <https://doi.org/10.1057/s41599-024-02621-5>

7. Gupta, S., Ghardallou, W., Pandey, D. K., & Sahu, G. P. (2022). Artificial intelligence adoption in the insurance industry: Evidence using the technology-organization-environment framework. *Research in International Business and Finance*, 63, Article 101757. <https://doi.org/10.1016/j.ribaf.2022.101757>
8. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019a). *Multivariate data analysis* (8th ed.). Cengage Learning.
9. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019b). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. <https://doi.org/10.1108/EBR-11-2018-0203>
10. Hasan, N., Nanda, S., Agarwal, M. K., & Debnath, S. K. (2024). Evaluating the mediating effect of financial literacy between fintech adoption in microfinance services. *International Journal of System Assurance Engineering and Management*. <https://doi.org/10.1007/s13198-024-02256-4>
11. Hassan, M. S., Islam, M. A., Abdullah, A. B. M., & Nasir, H. (2024). End-user perspectives on fintech services adoption in the Bangladesh insurance industry: The moderating role of trust. *Journal of Financial Services Marketing*, 29(4), 1377-1395. <https://doi.org/10.1057/s41264-024-00268-6>
12. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115-135. <https://doi.org/10.1007/s11747-014-0403-8>
13. Horvey, S. S., Godspower-Akpo-miemie, E. I., & Boateng, R. A. (2025). An empirical evaluation of the Technology Acceptance Model for peer-to-peer insurance adoption: Does income really matter? *Journal of Risk and Financial Management*, 18(4), 209. <https://doi.org/10.3390/jrfm18040209>
14. Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1-55. <https://doi.org/10.1080/10705519909540118>
15. Insurance Regulatory and Development Authority of India (IRDAI). (2025). *Annual report 2024-25*. Retrieved from <https://irdai.gov.in/annual-reports>
16. Ken Research. (2026, January). *India digital insurance and insurtech market: 2019-2030*. Retrieved from <https://www.kenresearch.com/india-digital-insurance-and-insurtech-market>
17. Kiwanuka, A., & Sibindi, A. B. (2023). Insurance literacy: Significance of its dimensions for insurance inclusion in Uganda. *Economies*, 11(2), 33. <https://doi.org/10.3390/economies11020033>
18. Kiwanuka, A., & Sibindi, A. B. (2024). Digital literacy, insurtech adoption and insurance inclusion in Uganda. *Journal of Risk and Financial Management*, 17(3), 119. <https://doi.org/10.3390/jrfm17030119>
19. Kiwanuka, A., & Sibindi, A. B. (2025). Insurance literacy, perceived trust and insurance inclusion in Uganda. *Management Matters*, 22(1), 35-51. <https://doi.org/10.1108/MANM-05-2024-0028>
20. Loewenstein, G., Friedman, J. Y., McGill, B., Ahmad, S., Linck, S., Sinkula, S., Beshears, J., Choi, J. J., Kolstad, J., Laibson, D., Madrian, B. C., List, J. A., & Volpp, K. G. (2013). Consumers' misunderstanding of health insurance. *Journal of Health Economics*, 32(5), 850-862. <https://doi.org/10.1016/j.jhealeco.2013.04.004>
21. Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5-44. <https://doi.org/10.1257/jel.52.1.5>
22. Lyons, A. C., & Kass-Hanna, J. (2021). A methodological overview to defining and measuring digital financial literacy. *Financial Planning Review*, 4(2), Article e1113. <https://doi.org/10.1002/cfp2.1113>
23. Lythreath, S., Singh, S. K., & El-Kassar, A.-N. (2022). The digital divide: A review and future research agenda. *Technological Forecasting and Social Change*, 175, Article 121359. <https://doi.org/10.1016/j.techfore.2021.121359>
24. McKinsey & Company. (2024, November). *Steering Indian insurance from growth to value in the upcoming "techade"*. Retrieved from <https://www.mckinsey.com/in/our-insights/steering-indian-insurance-from-growth-to-value-in-the-upcoming-techade>
25. McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information Systems Research*, 13(3), 334-359. <https://doi.org/10.1287/isre.13.3.334.81>
26. Mobarak, A. M., & Rosenzweig, M. R. (2013). Informal risk sharing, index insurance, and risk taking in developing countries. *American Economic Review*, 103(3), 375-380. <https://doi.org/10.1257/aer.103.3.375>
27. Mordor Intelligence. (2026, March). *India Online Insurance Market Size & Share Analysis - Growth Trends and Forecast (2026-2031)*. Retrieved from <https://www.mordorintelligence.com/industry-reports/online-insurance-market-in-india>
28. Morgan, P. J., Huang, B., & Trinh, L. Q. (2019). *The need to promote digital financial literacy for the digital age (T20 Japan Policy Brief)*. Asian Development Bank Institute. Retrieved from <https://www.global-solutions-initiative.org/wp-content/uploads/2025/03/t20-japan-tf7-3-need-promote-digital-financial-literacy.pdf>
29. National Payments Corporation of India. (2025). *UPI product statistics August 2025*. Retrieved from <https://www.npci.org.in/what-we-do/upi/product-statistics>
30. Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education*, 59(3), 1065-1078. <https://doi.org/10.1016/j.compedu.2012.04.016>
31. Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). McGraw-Hill.

32. Organisation for Economic Co-operation and Development (OECD). (2025). *Global insurance market trends 2025*. OECD Publishing. <https://doi.org/10.1787/0d11ecf4-en>
33. Pak, T. Y., Chatterjee, S., & Choung, Y. (2026). Navigating digital finance: How digital financial literacy influences digital financial services use and benefits in Korea. *Financial Innovation*, 12, Article 42. <https://doi.org/10.1186/s40854-025-00820-w>
34. Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the Technology Acceptance Model. *International Journal of Electronic Commerce*, 7(3), 101-134. <https://doi.org/10.1080/10864415.2003.11044275>
35. Pavlou, P. A., & Fygenson, M. (2006). Understanding and predicting electronic commerce adoption: An extension of the theory of planned behavior. *MIS Quarterly*, 30(1), 115-143. <https://doi.org/10.2307/25148720>
36. Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
37. Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879-891. <https://doi.org/10.3758/BRM.40.3.879>
38. Ratna, P. A., & Mehra, S. (2015). Opinion leaders for increasing the market for non-life insurance products in India. *International Journal of Business Innovation and Research*, 9(2), 210-228. <https://doi.org/10.1504/IJBIR.2015.067916>
39. Singh, S., Sahni, M. M., & Kovid, R. K. (2020). What drives FinTech adoption? A multi-method evaluation using an adapted technology acceptance model. *Management Decision*, 58(8), 1675-1697. <https://doi.org/10.1108/MD-09-2019-1318>
40. Srivastava, S., Mohta, A., & Shunmugasundaram, V. (2024). What drives mobile payment FinTech adoption in India? *Global Business Review*. <https://doi.org/10.1177/09721509241238556>
41. Telecom Regulatory Authority of India. (2026). *Telecom subscription data as on 31st December 2025*. Retrieved from <https://www.trai.gov.in/node/16957>
42. van Dijk, J. A. G. M., & Hacker, K. (2003). The digital divide as a complex and dynamic phenomenon. *The Information Society*, 19(4), 315-326. <https://doi.org/10.1080/01972240309487>
43. Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39(2), 273-315. <https://doi.org/10.1111/j.1540-5915.2008.00192.x>
44. Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the Technology Acceptance Model: Four longitudinal field studies. *Management Science*, 46(2), 186-204. <https://doi.org/10.1287/mnsc.46.2.186.11926>
45. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478. <https://doi.org/10.2307/30036540>
46. Weedige, S. S., Ouyang, H., Gao, Y., & Liu, Y. (2019). Decision making in personal insurance: Impact of insurance literacy. *Sustainability*, 11(23), 6795. <https://doi.org/10.3390/su11236795>
47. Wei, A., Talib, Y. Y. A., & Sharif, Z. (2025). Comparative analysis of digital health insurance platform adoption among urban-rural users: A UTAUT and financial literacy integration perspective. *Digital Health*, 11. <https://doi.org/10.1177/20552076251346656>
48. Yego, N. K., Nkurunziza, J., & Kasozi, J. (2023). Drivers of potential policyholders' uptake of insurance in Kenya using Random Forest. *Insurance Markets and Companies*, 14(1), 22-34. [https://doi.org/10.21511/ins.14\(1\).2023.03](https://doi.org/10.21511/ins.14(1).2023.03)
49. Yousafzai, S. Y., Pallister, J. G., & Foxall, G. R. (2005). Strategies for building and communicating trust in electronic banking: A field experiment. *Psychology & Marketing*, 22(2), 181-201. <https://doi.org/10.1002/mar.20054>
50. Zhao, Y., Ni, Q., & Zhou, R. (2018). What factors influence the mobile health service adoption? A meta-analysis and the moderating role of age. *International Journal of Information Management*, 43, 342-350. <https://doi.org/10.1016/j.ijinfomgt.2017.08.006>
51. Zheng, Y., Zhao, K., & Stylianou, A. (2013). The impacts of information quality and system quality on users' continuance intention in information-exchange virtual communities: An empirical investigation. *Decision Support Systems*, 56, 513-524. <https://doi.org/10.1016/j.dss.2012.11.008>
52. Zhou, T. (2012). Understanding users' initial trust in mobile banking: An elaboration likelihood perspective. *Computers in Human Behavior*, 28(4), 1518-1525. <https://doi.org/10.1016/j.chb.2012.03.021>

APPENDIX A: RESEARCH QUESTIONNAIRE

Digital Insurance Adoption in India: Mediating Effects of Awareness, Digital Literacy, and Trust

Instructions to respondents

This questionnaire is part of an academic research study on digital insurance adoption among urban consumers in Chennai. Your responses will be used solely for research purposes and will remain strictly confidential. There are no right or wrong answers. Please respond based on your own experience and opinion. The questionnaire takes approximately 10–12 minutes to complete.

Eligibility: This questionnaire is intended for adults aged 18 and above residing in Chennai who own or regularly use a digital device and have either purchased insurance or actively sought insurance information in the past 12 months.

Scale for Part B: Please indicate your level of agreement with each statement using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

Screening questions

S1. Do you own or regularly use a smartphone, tablet, or computer?

- ☐ Yes
☐ No (Please stop here – thank you for your time)

S2. Have you ever purchased insurance, or have you actively looked for insurance information in the past 12 months?

- ☐ Yes
☐ No (Please stop here – thank you for your time)

Part A – respondent profile

Age Group	☐ 18-25 ☐ 26-35 ☐ 36-45 ☐ 46 and above
Gender	☐ Male ☐ Female ☐ Prefer not to say
Highest Educational Qualification	☐ Up to Higher Secondary (Class 12) ☐ Bachelor's Degree (Graduate) ☐ Master's Degree (Post-Graduate) ☐ Professional / Doctoral Degree
Monthly Household Income	☐ Below ₹25,000 ☐ ₹25,001 – ₹50,000 ☐ ₹50,001 – ₹1,00,000 ☐ Above ₹1,00,000
Current Insurance Status	☐ No insurance at present ☐ Yes, purchased through an agent / branch (offline) ☐ Yes, purchased through a website or app (online) ☐ Not sure
Frequency of Internet Use for Financial Purposes	☐ Rarely (a few times a year) ☐ Occasionally (a few times a month) ☐ Daily – general browsing / social media ☐ Daily – active financial transactions (banking, payments, investments)

Part B – Research constructs

Please circle or tick the number that best represents your level of agreement with each statement.

Section 1: Awareness of digital insurance

Source: Adapted from Loewenstein et al. (2013).

Statement	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
AWR1 I am aware that insurance policies can be purchased through digital platforms such as websites and mobile applications					
AWR2 I know how to access digital insurance platforms to compare and purchase insurance products					
AWR3 I am familiar with the types of insurance products available through digital channels in India					
AWR4 I have seen or heard about digital insurance services through advertisements, social media, or word of mouth					
AWR5 I understand the general process of buying insurance through a digital platform					

Section 2: Digital literacy

Source: Adapted from Ng (2012).

Statement	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
DL1 I can easily navigate websites and mobile applications to find the financial information I need					
DL2 I can evaluate the reliability of digital financial information before acting on it					
DL3 I can confidently complete financial transactions such as payments or fund transfers using digital platforms					
DL4 I know how to protect my personal and financial information when using digital services					
DL5 I am comfortable using digital tools to compare, select, and purchase financial products					

Section 3: Perceived ease of use

Source: Adapted from Davis (1989).

Statement	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
PEOU1 I find it easy to navigate digital insurance platforms without needing any assistance					
PEOU2 Interacting with a digital insurance platform requires minimal mental effort from me					
PEOU3 The steps involved in buying insurance through digital channels are clear and straightforward					
PEOU4 I find it easy to complete the insurance purchase process using digital platforms					
PEOU5 Overall, I believe that using digital insurance platforms would be easy for me					

Section 4: Perceived usefulness

Source: Adapted from Davis (1989).

Statement	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
PU1 Using digital insurance platforms would help me compare policies more efficiently than traditional methods					
PU2 Digital insurance platforms would make it easier for me to manage my insurance needs					
PU3 Buying insurance through digital channels would save me time compared to visiting a branch or agent					
PU4 Digital insurance platforms provide better information to help me make more informed insurance decisions					
PU5 Overall, I believe that using digital insurance platforms would be useful for managing my insurance needs					

Section 5: Trust

Source: Adapted from McKnight et al. (2002).

Statement	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
TR1 I trust that digital insurance platforms in India are technically reliable and secure					
TR2 I believe that insurance companies offering digital platforms are honest and transparent about their policies					
TR3 I am confident that the Insurance Regulatory and Development Authority of India (IRDAI) adequately regulates digital insurance platforms					
TR4 I trust that digital insurance platforms will process my claims fairly and without unnecessary delays					
TR5 Overall, I have confidence in the integrity of digital insurance service providers in India					

Section 6: Adoption intention

Source: Adapted from Venkatesh et al. (2003).

Statement	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
AI1 I intend to purchase or renew my insurance policy through a digital platform in the near future					
AI2 I plan to use digital insurance platforms to compare policies before making my next insurance decision					
AI3 I would recommend digital insurance platforms to my family and friends					
AI4 I am likely to shift from traditional insurance purchasing methods to digital channels					
AI5 I expect to become a regular user of digital insurance platforms within the next six months					

Thank you for your participation.
Your responses contribute to improving insurance access for urban consumers in Chennai.