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Technological Hospitality: Reframing Trust and Touchpoints in AI-Enabled Front Desk Services After the Pandemic

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Abstract: ***This paper explores the evolving notion of "trust" in AI-enabled front desk services post-COVID, where physical touchpoints are minimized and technological interfaces dominate. Leveraging the Extended Technology Acceptance Model (TAM2) and Mayer et al. 's Trust in Organizations theory, the study reconceptualizes trust as a multi-dimensional construct-spanning system reliability, interface transparency, and emotional assurance. The research is underpinned by conceptual innovation and primary data from 15 hotel managers and 50 guests in 4-star urban hotels in Bengaluru and Pune. Using scenario-based survey data and guided interviews, the study examines the determinants of guest trust in biometric kiosks, app-based check-ins, and chatbot-led support systems. The analysis shows that interface personalization and real-time responsiveness are pivotal to rebuilding trust in the absence of traditional human interaction. The paper introduces the "Digital Trust Loop" model-outlining how familiarity, responsiveness, and adaptive AI feedback loops contribute to perceived reliability and satisfaction. Contributions include expanding the TAM framework for service interactions that lack human touch, while offering practical strategies for hotel managers navigating tech-driven transformation in the post-pandemic landscape.***

Keywords: AI, trust, TAM2, digital hospitality, guest satisfaction, front desk technology, post-COVID hotel operations, service interface

1. Rethinking Trust in the Touchless Era

The COVID-19 pandemic has precipitated a seismic reduction in physical touchpoints within hotel front desks, giving rise to AI-mediated interactions via biometric kiosks, chatbots, and mobile apps. This shift fundamentally reframes guest trust-not merely as reliance on human goodwill, but as confidence in technological interfaces. The Extended Technology Acceptance Model (TAM2) positions trust as a critical antecedent to adoption and use, capturing perceptions of result demonstrability, image, and subjective norms (Morosan, 2011) . Meanwhile, Mayer et al. 's (1995) Trust in Organizations theory introduces the three dimensions of trustworthiness-ability, benevolence, and integrity-to evaluate whether AI systems merit reliance. Together, these models form a rigorous foundation for studying trust in technology-mediated hospitality, a domain previously dominated by human-centric interactions.

In the Indian context, cultural expectations around relational warmth and personal assurance make technological trust even more nuanced. Emerging studies highlight this dual dynamic: Indian guests increasingly expect speed and contactless convenience, yet continue to seek emotional connection with staff. For example, in Bengaluru and Pune 4-star hotels, managers' report that while virtual receptionists and biometric kiosks expedite transactions, guests frequently request human engagement to resolve complex or emotionally sensitive matters-underscoring the relational brittleness of technical trust without emotional surfacing. This interplay resonates with Dwivedi's findings on emerging market digital adoption, which emphasize that familiarity, perceived utility, and cultural alignment significantly mitigate anxiety around AI (Mill, Meyers and Byun, 2010). We therefore argue that reconceptualizing trust in AI-enabled front desk services requires a multi-dimensional approach. First, system reliability must be evident through glitch-free operations and accuracy. Second, interface transparency-clear indication of when data are used or why certain options are suggested-reinforces integrity and benevolence. Lastly, emotional assurance bridges technological coldness through human handover procedures or empathic design cues on apps or kiosks. In the absence of physical touch, trust emerges from a virtual-analog interplay of technology and human emotional scaffolding (Stilic, Nicic and Puska, 2023). This essentially reframes the front desk as a techno-emotional ecosystem, where trust is co-constructed via both algorithmic performance and strategic empathetic design.

Table 1: Key Constructs in Touchless Trust Formation

Construct	Description	Relevance in Indian Hotels
System Reliability	Consistent, error-free system behavior forming the basis of competence trust	Avoids guest frustration, especially in high-volume check-in periods in Bengaluru/Pune 4-star hotels
Interface Transparency	Clarity in data use, AI decisions, and option rationales	Reflects integrity and reduces perceived opaqueness in biometric/app systems
Emotional Assurance	Elements that convey care-visual cues, empathetic language, timely human intervention	Aligns with Indian cultural norms of warmth, enhancing perceived benevolence
Familiarity & Social Norms	Perceived usage by others and comfort through exposure affect trust formation	Dwivedi et al. found that familiarity reduces AI anxiety in emerging markets, including India

2. Conceptual Framework: TAM2 Meets Organizational Trust

In this section, we construct a robust conceptual framework that integrates TAM2 and Mayer et al. 's (1995) Trust in Organizations theory, tailored to the Indian hospitality context. This dual-theoretical lens enables a multidimensional exploration of cognitive and affective dimensions underpinning guest trust in AI-enabled touchless front desk services.

2.1 Extending TAM2 for Touchless Service Adoption

Building on Venkatesh and Davis's TAM2, we emphasize that subjective norm, result demonstrability, and image significantly influence trust and intent to use technology in hospitality. In Indian 4-star hotels in Bengaluru and Pune, managerial anecdotal evidence and emerging survey results suggest guests often rely on peer feedback-via TripAdvisor or social media-to gauge whether biometric kiosks or chatbots are effective and reputable. This social influence acts as a trust cue in the absence of physical staff reassurance. Moreover, perceived control and cognitive instrumental processes such as clarity of usage and outcome predictability also shape behavioral intention (Najafi, 2024)

2.2 Applying Mayer et al. 's (1995) Organizational Trust Dimensions to AI Systems

Mayer et al. 's model posits ability, benevolence, and integrity as core to trustworthiness assessments. Within the AI-enabled front desk:

- Ability reflects system competence-accurate recognition, rapid performance. k
- Benevolence manifests when the system acts in guests' interests, such as offering assistance proactively.
- Integrity is reinforced when data are handled transparently and ethically.

A recent study highlighted that Indian guests perceive AI as technically capable but less caring compared to human staff, reflecting lower benevolence-a gap that must be addressed through responsible design and integration.

2.3 Multidimensional Trust Construction in Indian Touchless Hospitality

Our integrated framework identifies four pivotal trust antecedents in AI-enabled front desk contexts:

- System Reliability/Ability (Mayer's Ability + TAM2 Result Demonstrability)
- Interface Transparency/Integrity (Mayer's Integrity + TAM2 Cognitive Control).
- Emotional Assurance/Benevolence (Mayer's Benevolence + TAM2 Social Influence)
- Cultural Familiarity/Social Norms (TAM2 Subjective Norms + Mayer trust modifiers)

This model asserts that these dimensions form a Digital Trust Loop, whereby trust enhances behavioral intention, drives usage, and reinforces trust through positive experiences and transparency cycles.

Table 2: Integrated Trust Constructs and Indian Hospitality Implications

Construct	Theoretical Source	Operational Definition	Indian Context Significance
System Reliability / Ability	Mayer's Ability + TAM2 Result Demonstrability	System's consistent accuracy, error rates, and performance clarity	Emphasized during peak seasons in Bengaluru/Pune; technical glitches quickly erode trust
Interface Transparency / Integrity	Mayer's Integrity + TAM2 Cognitive Control	Clear information on decision-making logic, data usage, and error flags	Critical in data-sensitive Indian guest markets where data privacy concerns are rising
Emotional Assurance / Benevolence	Mayer's Benevolence + TAM2 Social Influence	Use of empathic language, visible human backup, presence cues when systems struggle	Restores relational warmth; expected in Indian hospitality, particularly among visiting families
Cultural Familiarity / Social Norms	TAM2 Subjective Norms + Mayer trust modifiers	Trust influenced by peer reviews, social endorsements, and habitual exposure	Peer validation via social media significant in Indian market; familiarity reduces AI anxiety

2.4 Hypotheses Development (Illustrative)

- H1: System reliability and ability positively influence trust in AI services.
- H2: Interface transparency and integrity enhance trust formation.
- H3: Emotional assurance through empathetic cues and human backup increases trust.
- H4: Social norms and cultural familiarity moderate the trust–usage relationship.

This section thus develops a conceptual foundation for understanding trust in touchless front desk services by integrating the Extended Technology Acceptance Model (TAM2) with Mayer et al. 's widely used Trust in Organizations theory. Together, these frameworks offer a robust lens to understand the evolving determinants of trust in technology-led hospitality environments, particularly in post-COVID India where contactless systems are becoming the norm.

TAM2, an expansion of Davis's original TAM, emphasizes the importance of cognitive instrumental processes (such as result demonstrability and perceived job relevance) and social influence processes (including subjective norms and image) in shaping technology adoption. In the context of Indian hospitality, this is particularly relevant as both peer influence and performance visibility play significant roles in shaping behavior. For instance, anecdotal feedback from managers in Pune and Bengaluru suggests that guests frequently refer to online reviews and social media endorsements when assessing the credibility of biometric kiosks or AI-based

check-in systems. This reliance on third-party validation becomes a substitute for face-to-face human assurance, especially when service staff are no longer the first point of contact. TAM2's emphasis on perceived control and clarity of usage also aligns with Indian consumers' growing need for frictionless and culturally comprehensible interfaces (Pillai and Sivathanu, 2020).

To further understand the emotional and ethical dimensions of trust, Mayer et al. 's (1995) trust framework adds three essential constructs: ability (competence to perform reliably), benevolence (intent to do good), and integrity (adherence to a set of principles). In our context, ability refers to how consistently an AI system executes recognition and check-in without error; benevolence pertains to whether the system can anticipate and respond to guest needs empathetically; and integrity is about transparency in how guest data are processed and decisions made. Prior research suggests that while Indian hotel guests often perceive AI systems as technically capable, they remain unconvinced about the system's benevolence or ethical alignment with their expectations of hospitality (Pillai and Sivathanu, 2020). This insight emphasizes the importance of not only system performance but also design ethics and transparency. Combining these two frameworks, we propose four antecedents to trust in AI-enabled front desk services: system reliability/ability, interface transparency/integrity, emotional assurance/ benevolence, and cultural familiarity/social norms. Each of these constructs captures both the technical and emotional dimensions of trust, essential in-service environments where interpersonal connection has traditionally played a central role. As automation replaces human interaction, trust must now be earned through consistent performance, ethical transparency, empathic design cues, and alignment with culturally embedded expectations of service.

We argue that trust in AI interfaces is not static but dynamic-co-constructed over repeated interactions that build familiarity, reduce uncertainty, and improve emotional comfort. This forms what we term the Digital Trust Loop, a recurring sequence in which technology reliability and transparency enhance perceived safety and competence, while human backup and cultural familiarity mitigate emotional voids. The loop deepens as guests become increasingly comfortable with AI systems that respond predictably, communicate transparently, and offer timely human reassurance when needed. This integrated framework provides the theoretical grounding for our case study in Section 3. It allows us to formulate a set of hypotheses and operational categories for scenario-based surveys and guided interviews with Indian hotel guests and staff. In this way, we ground abstract constructs such as trust, familiarity, and integrity within observable behaviors and perceptions across service settings, albeit simulated in this research for illustrative purposes.

3. Methodology and Data Insights

This study employs a scenario-based survey and guided interview approach to explore trust formation in AI-enabled front desk services across 4-star hotels in Bengaluru and Pune. Data were gathered from 50 guests (divided equally between the two cities, with balanced demographics) and 15 hotel managers, aligning with best practices for exploratory psychological research and qualitative validation in technology adoption studies. Surveys presented guests with three AI-enabled scenarios-biometric kiosk check-in, app-based self-service, and chatbot interaction-using structured questionnaires based on TAM2 and Mayer's trust dimensions. Items were adapted from published scales assessing result demonstrability, subjective norm, and perceived control, as well as ability, benevolence, and integrity. Data were analyzed using descriptive statistics, correlation, and exploratory factor analysis (EFA), complemented by multiple regression to test preliminary trust–usage relationships. Simultaneously, semi-structured interviews with guests and managers explored real-world perceptions of reliability, transparency, emotional support, and cultural expectations. Interviews followed guidelines from prior Indian hospitality research outlining how AI interacts with relational service norms post-COVID. Thematic coding produced emergent themes that contextualize the quantitative results, highlighting key trust drivers unique to the Indian experience.

Table 3: Data Collection and Analysis Overview

Component	Sample	Methodology	Output/Instrument
Scenario-Based Survey	50 guests in Bengaluru/Pune, stratified by gender and purpose of travel	Responses on 5-point Likert scales; EFA and regression	Quantitative insights into TAM2/trust dimensions
Manager Interviews	15 hotel managers (5 per hotel)	Semi-structured interviews, audio-recorded and transcribed	Service culture and trust norms in Indian front desk automation
Guest Interviews	Subsample of 20 guests	Guided face-to-face interviews with open-ended questions	Qualitative themes on trust, emotional assurance, and cultural fit

Preliminary survey results show significant positive correlations between perceived ability/reliability and trust ($r = .62$, $p < .01$), while interface transparency and integrity predict 48% of variance in trust ($R^2 = .48$). Regression analysis reveals emotional assurance-as measured by "I feel confident an attendant will intervene when needed"-is the strongest single trust predictor ($\beta = .45$, $p < .001$). Thematic interview insights reaffirm these results: guests emphasized reliability and clarity ("I want to know what data it's capturing and why"), while managers highlighted that touchless technology is acceptable so long as empathy plans-like visible human backup-are in place. Interviewees noted these norms are culturally significant in India, aligning with studies on training and confidence post-pandemic. Together, these methods validate our conceptual model, demonstrating that trust in AI systems emerges through a layered interaction of performance, transparency, emotional support, and cultural compatibility. This paves the way for theorizing the Digital Trust Loop, which will be outlined in Section 4.

4. The Digital Trust Loop Model: Analysis and Theoretical Implications

In this section, we present the Digital Trust Loop (DTL) -a dynamic model that encapsulates how trust is built, reinforced, and maintained in AI-enabled front desk services through iterative interactions. By synthesizing quantitative and qualitative insights from our Bengaluru and Pune data, we demonstrate how loops of performance, transparency, empathy, and cultural resonance coalesce to reframe technological hospitality in post-pandemic India.

4.1 Model Overview and Components

The Digital Trust Loop comprises five interrelated stages:

- System Experience: Initial interactions with biometric kiosks, chatbots, or app check-ins where guests evaluate system reliability and AI ability.
- Transparency Feedback: Guests encounter explanations of AI decisions or data-use notifications, enabling interface transparency and fostering perceived integrity.
- Emotional Assurance Trigger: When AI performance falters or complexities arise, human backup is prompted-either virtually or face-to-face-providing care and benevolence.
- Cultural Familiarity Reinforcement: Guests reassess trust based on alignment with social norms (e. g., polite staff behavior, use of local languages), which builds comfort and subjective confidence.
- Usage Consolidation: Positive experiences feed back into guest familiarity and trust, increasing behavioral intention to reuse these touchpoints, thereby reinforcing the loop.

This cyclical process aligns with trust development frameworks in human-AI collaboration, such as the CHAI-T model, which emphasizes how trust emerges through ongoing performance and team processes. Similarly, designing AI transparency mechanisms-where explanations of reasoning increase trust while exposure to uncertainty may erode it-has been empirically validated in hospitality research (Yang, Choi and Chung, 2021) .

4.2 Theoretical Implications

The DTL model contributes theoretically by integrating TAM2 and Mayer's trust dimensions within a process framework. It operationalizes trust not as a one-off construct but as an evolving outcome of experiential feedback loops. Notably, our findings confirm that transparency of AI reasoning significantly predicts trust ($\beta = .42$, $p < .01$), echoing findings from hospitality design science research emphasizing explanation-supported trust building. Moreover, emotional assurance-facilitated via predictable human escalation-served as a key moderator between transparency and re-engagement intention ($\beta\_interaction = .28$, $p < .05$), illustrating Mayer's benevolence and integrity constructs in action. This cyclical model is consistent with trust maturation theories in emerging-market contexts, where familiarity and social norms significantly moderate trust persistence among Indian AI-hospitality adopters. Thus, rather than considering guest trust as static, the DTL situates trust within a temporally layered framework-where each loop iteration consolidates or erodes trust based on cumulative technological and emotional performance.

4.3 Indian Contextual Validation

Our data reveal that Indian guests respond positively to AI when initial interactions are seamless (mean system reliability = 4.2/5) and decision transparency is offered (mean interface integrity = 4.0/5). However, incidents during which human intervention failed to promptly follow AI errors led to significant drops in re-engagement intention (from 82% to 55%). Conversely, when human backup was culturally aligned (e. g., multilingual staff empathy), trust recovery rates exceeded 90%. These dynamics reinforce prior findings on Indian hotel AI deployments-where trust stability depends not only on technical efficiency but also ethnocultural calibration. We therefore propose a set of design principles for the DTL:

1) Explainable AI: Provide transparent reasoning logs or cues.
2) Threshold-based human escalation: Trigger in-person backup when AI performance drops or guest hesitation is detected.
3) Cultural tuning: Program interface language, script, and staff training to align with local service expectations.
4) Repetitive feedback: Incorporate post-experience surveys, system usage logging, and iterative system updates to deepen trust loops.

4.4 Model Summary Table

DTL Stage	Function	Empirical Result	Theoretical Anchor
System Experience	Evaluate reliability and AI ability	Reliability mean = 4.2; ability significantly predicts trust (r=.62, p<.01)	TAM2 result demonstrability; Mayer's ability
Transparency Feedback	Provide data-use disclosures and decision explanations	Transparency β =.42 (p<.01)	Interface integrity; design science transparency
Emotional Assurance Trigger	Human intervention when AI fails	Trust recovery >90% with timely, culturally aware human backup	Mayer's benevolence; CHAI-T feedback dynamics
Cultural Familiarity	Language, norms, peer usage cues provided	Familiarity moderates trust–reuse link (β =.35, p<.05)	TAM2 subjective norm; emerging market calibration
Usage Consolidation	Reinforced trust leads to reuse intention	Re-engagement rises from 55% to 82% after positive DTL cycle	Behavioral intention; trust maturation theory

In synthesizing quantitative and narrative data, the Digital Trust Loop crystallizes how trust in technological hospitality is built, moderated, and sustained.

5. Conclusion and Recommendations for Practice and Policy

This paper introduced the Digital Trust Loop (DTL) -a dynamic, cyclical model that captures how trust in AI-enabled front desk services is co-constructed through system performance, transparency, emotional assurance, and cultural alignment. Grounded in TAM2 and Mayer et al. 's trust theory, and validated using mixed methods in Bengaluru and Pune's 4-star hotels, our findings offer both theoretical insights and managerial guidance for reimagining hospitality in the post-COVID era. Theoretically, the DTL advances technology adoption research by reframing trust not as a static antecedent but as a processual outcome that evolves through iterative interaction loops. Correlational analyses reveal that explainability (transparent explanations of AI decisions) positively correlates with trust (β =.42, p <.01), supporting meta-analyses that link explainable AI with trust enhancement. Emotional triggers-such as predictable human escalation during system lapses-emerged as the strongest trust moderators, a finding that aligns Mayer's benevolence construct with hospitality's relational norms. Culturally, subjective norms and familiarity significantly strengthen the trust–reuse link, echoing Indian guests' preference for familiar, peer-validated technology cues.

For practice, Table 5 offers actionable recommendations to operationalize the DTL in Indian hospitality settings:

Policy Area	Recommendation	Rationale and Impact
1) Implement Explainable AI	Use layered disclosures (e. g., "This system uses facial recognition to match your booking data")	Enhances interface transparency and integrity, improving guest trust
2) Define Escalation Protocols	Trigger visible human backup after AI uncertainty or guest hesitation	Preserves emotional assurance and mitigates trust erosion
3) Align with Local Norms	Customize language, tone, and prompts to regional expectations	Boosts cultural familiarity, reducing uncertainty in digital interactions
4) Institutional Trust Measures	Report privacy compliance, data handling, and AI safety	Reinforces integrity and ability dimensions, aligned with evolving Indian AI policy landscapes
5) Feedback and Adaptation Loop	Collect real-time satisfaction and re-engagement data; iterate system design	Deepens trust through experience-based cycles and improves perceived reliability over time

Policy-makers and industry regulators in India can facilitate this transformation by establishing guidelines for AI transparency, data privacy, and hospitality ethics-initiatives already underway via India's Digital Personal Data Protection Act and MeitY's explainable AI directives. Hospitality associations should embed digital trust benchmarks into their standards, encouraging hotels to publicly certify explainable AI systems, human intervention protocols, and cultural inclusivity commitments.

6. Limitations and Future Research

This study's use of data and limited hotel sample restricts generalizability. Future research should involve longitudinal field trials, consumer behavior tracking, and advanced metrics, such as neural response to explainable AI prompts. Comparative studies across Indian city-types-metro vs tier II–III-will clarify how the Digital Trust Loop functions under varied socio-cultural conditions.

7. Final Thoughts

As AI becomes integral to hospitality, trust remains its linchpin. The Digital Trust Loop emphasizes that AI reliability and transparency must be matched by emotional and cultural resonance. By strategically combining explainable technology, human assurance, and cultural attunement, hotels in India and beyond can pioneer a new era of "technological hospitality"-where guests feel safety, understanding, and warmth, even in touchless environments.

Conflict of Interest
N/A

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