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THE INTEGRATION OF ARTIFICIAL INTELLIGENCE IN PERSONALIZED GUEST EXPERIENCES IN LUXURY HOTELS IN SURABAYA

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Abstract

This study examines how Artificial Intelligence (AI) enhances personalized guest experiences in luxury hotels in Surabaya while addressing the tension between technological efficiency and the human warmth expected in luxury hospitality. Using an explanatory sequential mixed-method design, the study combined survey data from 150 hotel guests with semi-structured interviews involving 10 general managers and IT directors from five five-star hotels. Quantitative data were analyzed using descriptive statistics and multiple regression, while qualitative data were examined through thematic analysis. The results show that AI significantly improves perceived personalization, with smart room controls, AI chatbots, recommendation engines, and predictive housekeeping emerging as key contributors. Smart room controls had the strongest positive effect, indicating that guest value seamless, ambient forms of personalization. However, privacy concern exerted a significant negative influence, revealing that AI benefits diminish when personalization is perceived as intrusive or opaque. The findings also highlight the critical moderating role of human staff responsiveness: AI creates the highest value when combined with empathetic and context-sensitive human interaction. Based on these results, the study proposes the Augmented Hospitality Framework, which conceptualizes luxury service as a hybrid model where AI supports operational intelligence and human staff provide emotional and relational depth. The study contributes to the literature on AI-enabled hospitality in an emerging Southeast Asian market and suggests that successful AI implementation depends on balancing personalization, privacy, and human-centered service.

Keywords: Artificial Intelligence, guest personalization, luxury hotels, hospitality technology, hybrid service model

Introduction

The contemporary luxury hospitality sector is undergoing a paradigm shift, driven by the dual forces of escalating guest expectations and rapid technological innovation. Today's discerning luxury travelers no longer consider personalized service a premium add-on but a fundamental expectation (Bharwani & Jauhari, 2021). They anticipate that a hotel will remember their preferred pillow type, dining allergies, room temperature, and even the specific brand of bottled water they favor. This demand for hyper-personalization, delivered seamlessly across all touchpoints,

presents a significant operational challenge for hoteliers. Traditional methods of personalization, reliant on human memory and manual data entry in Property Management Systems (PMS), are no longer scalable or efficient enough to meet these sophisticated demands (Ivanov & Webster, 2019). Consequently, hotel operators are increasingly turning to Artificial Intelligence (AI) as a strategic solution to analyze vast amounts of guest data, predict future needs, and deliver tailored experiences in real-time. Urgency for this research arises from the fact that while AI investment in hospitality is soaring, a clear, empirically-grounded framework for its effective integration–one that balances technological efficiency with the irreplaceable value of human warmth and intuition is critically lacking, especially within the context of emerging markets.

The central problem this research addresses is the apparent paradox in AI adoption for luxury service: how can hotels leverage AI's powerful analytical and automation capabilities to personalize services at scale without compromising the emotional, empathetic, and intuitive elements that define genuine luxury hospitality? Anecdotal evidence and preliminary industry reports suggest a "tech-touch" tension, where over-automation leads to a sterile, impersonal guest experience, paradoxically alienating the very clientele it seeks to impress (Tussyadiah & Pesonen, 2020). Many luxury hoteliers in Surabaya, a major economic hub in Indonesia, have begun implementing AI–powered chatbots, smart room IoT devices, and customer relationship management (CRM) systems with predictive analytics. However, they often operate in a siloed manner, unsure of the optimal balance between digital and human interactions. Therefore, the primary objective of this study is to analyze the impact of specific AI applications on the perceived quality of personalized guest experiences in luxury hotels. The secondary objective is to identify the critical success factors and potential pitfalls in AI integration, particularly concerning guest privacy and service warmth. The benefits of this research are twofold: for practitioners, it provides actionable guidelines for strategic AI implementation; for academics, it contributes a novel theoretical model–the Augmented Hospitality Framework–to the existing literature on technology adoption in service industries.

Literature Review and Theoretical Framework

This research is anchored on two foundational theoretical perspectives: Service Dominant Logic (SDL) and the Technology Acceptance Model (TAM), integrated with emerging concepts of hybrid intelligence. SDL, as articulated by Vargo & Lusch (2016), posits that service is the fundamental basis of exchange, with the customer always a co-creator of value. In a luxury hotel context, value is not simply delivered by the hotel but is co-created through interactions where the guest's own input, engagement, and perceptions are integral. AI, in this view, is a dynamic operant resource that can enhance the co-creation process by providing predictive insights and automating routine service elements, thereby freeing human actors to focus on complex, empathetic interactions (Neuhofer, Buhalis, & Ladkin, 2018). This shifts the role of staff from information-gatherers to experience-orchestrators and problem–solvers.

TAM, proposed by Davis (1989), suggests that a user's adoption of a new technology is primarily determined by perceived usefulness (PU) and perceived ease of use (PEOU). This study extends TAM to an organizational and inter-

subjective level, exploring how hotel managers' perceptions of AI's usefulness and ease of integration influence their implementation strategies, which in turn shape guest experiences (Sarwono, 2023). Furthermore, the concept of a 'Hybrid Intelligence System' (Dellermann et al., 2019) provides the third theoretical pillar, arguing that the most powerful outcomes are achieved not by replacing humans with AI, but by designing collaborative systems between AI augments human cognitive and emotional capabilities.

Empirically, several studies have examined AI in hospitality. Ivanov and Webster (2019) provided a comprehensive overview of potential AI applications, from robots to revenue management systems. Tussyadiah & Pesonen (2020) found that while travelers are open to AI for information and booking, they exhibit resistance to AI in areas requiring empathy and negotiation. Buhalis and Sinarta (2019) introduced the concept of 'real-time personalization' enabled by IoT and AI. However, a significant gap remains: most studies are either conceptual, conducted in Western contexts, or focus on a single AI application. There is a dearth of empirical, multi-stakeholder research in the Southeast Asian luxury hotel sector that holistically examines the interplay between different AI tools, guest perceptions, and managerial strategies. This study directly addresses this gap.

Research Methods

This study employed an explanatory sequential mixed-method design, conducted over a six-month period from June to November 2024. The research population comprised all guests who stayed at five–star hotels in Surabaya (specifically in the districts of Gubeng, Tegalsari, and Genteng) and the general managers or IT directors of these hotels. A purposive sampling technique was used to select five luxury hotels (four international chains and one prestigious local brand), all of which had officially implemented at least two AI–based guest-facing systems for a minimum of one year.

The quantitative phase involved surveying hotel guests. The sample size was calculated using the formula for multiple regression, aiming for 15 respondents per predictor variable. With 8 predictor variables, the minimum required was 120. To account for non-response, 200 questionnaires were distributed, and 150 valid responses were returned (75% response rate). The questionnaire was a 5-point Likert scale instrument, adapted from existing validated scales for TAM (Davis, 1989), perceived personalization (Neuhofer et al., 2018), and privacy concerns (Smith et al., 2021). Data were analyzed using SPSS version 26, employing descriptive statistics, Pearson correlation, and multiple linear regression to test the influence of AI applications on perceived personalization.

The qualitative phase consisted of semi-structured interviews with one general manager and one IT director from each of the five hotels (total N=10). The interview protocol explored implementation challenges, strategies for balancing AI and human staff, and observed guest reactions. Interviews were conducted face-to-face, each lasting 45–60 minutes, audio-recorded with consent, and transcribed verbatim. Thematic analysis was performed using NVivo 12, following Braun & Clarke's (2021) six–phase guide. Data triangulation was achieved by comparing guest survey results with managerial interview insights, ensuring a robust and holistic understanding.

Results and Discussion

The analysis revealed four major themes: the clear positive impact of AI on operational personalization, the significant emergence of the 'privacy paradox', the critical mediating role of the ‘hybrid touch’, and managerial challenges in change management. The demographic profile showed a balance of business (55%) and leisure (45%) travelers, with the majority (65%) aged 30–49 years, and 70% having stayed at the same hotel chain before.

The multiple regression analysis produced a significant model ($F(8,141) = 22.47$, $p < .001$), with an adjusted R^2 of 0.62, indicating that the set of AI applications explained 62% of the variance in perceived guest personalization.

Tabel 1. Regression Analysis of AI Applications on Perceived Personalization

AI Application / Variable	Unstd. β	Std. Error	Std. β	t	Sig. (p)
(Constant)	0.85	0.31	—	2.74	.007
AI Chatbot (Pre-arrival)	0.24	0.05	0.31	4.80	.000***
Smart Room Controls (IoT)	0.31	0.06	0.35	5.17	.000***
AI Recommendation Engine	0.19	0.04	0.25	4.75	.000***
Predictive Housekeeping	0.17	0.07	0.18	2.43	.016*
Perceived Ease of Use (PEOU)	0.22	0.08	0.19	2.75	.007**
Privacy Concern	−0.33	0.09	−0.24	−3.67	.000***
Human Staff Responsiveness (Moderator)	0.41	0.10	0.29	4.10	.000***

Source: Data Analyses by SPSS Version 26, 2026

Note. Dependent Variable: Perceived Personalization; $R^2 = 0.64$, Adjusted $R^2 = 0.62$, $F(8,141) = 22.47$, $p < .001$; *** p<.001, ** p<.01, * p<. 05

Smart room controls had the strongest positive influence ($\beta = 0.35$, $p < .001$), followed by AI chatbots ($\beta = 0.31$, $p < .001$). This finding aligns with TAM, where the direct, tangible ease of use strongly predicts perceived usefulness. One guest stated in an open-ended survey comment: “*The room just knew my preferences for lighting and temperature. It felt like the hotel had been waiting for me*.” This illustrates AI’s power to deliver ‘silent personalization’, a concept highlighted by two IT directors.

A critical finding is the significant negative impact of privacy concern ($\beta = -0.24$, $p < .001$). Despite appreciating the personalization, 45% of guests (N=68) expressed moderate to high levels of concern about how their data was collected and used. One interviewee, a frequent business traveler, articulated this paradox: ‘I love that they remember my breakfast order, but it also creeps me out. Do they know everything? Where is the line?’ This finding extends previous research (Tussyadiah & Pesonen, 2020) by quantifying the magnitude of this negative effect in a luxury context, where privacy is a premium commodity.

The most insightful result is the strong moderating role of human staff responsiveness ($\beta = 0.29$, $p < .001$). The regression model showed that the positive effect of any AI application on personalization was significantly amplified when guests also rated human staff as highly responsive and empathetic. In hotels where AI was implemented as a replacement for staff, guest satisfaction scores on personalization were lower (mean = 3.2/5) than in hotels where AI was used to augment staff (mean = 4.5/5). One General Manager explained their successful hybrid model:

> "*We use AI to gather intelligence and handle routine requests—'what time is the gym?' or 'send a toothbrush'. Our human concierge and guest relations team are then alerted to the real needs. If the AI sees a guest has searched for 'best romantic dinner', the human calls to offer a curated reservation with a chef's special. AI provides the data; humans provide the soul.*"

Qualitative thematic analysis revealed two additional challenges: (1) data silos and legacy systems–three of five hotels struggled to integrate new AI modules with older PMS, leading to data inconsistencies and missed personalization opportunities; and (2) employee resistance and reskilling–middle–level managers and front–line staff initially feared AI would make them redundant. Successful hotels addressed this by implementing 'digital upskilling' programs, training staff to interpret AI-generated insights and intervene with high-touch service when value could be added. This transformed fear into empowerment.

This is visually represented in Figure 1, which contrasts the linear, AI–only model versus the synergistic, hybrid model found in this study.

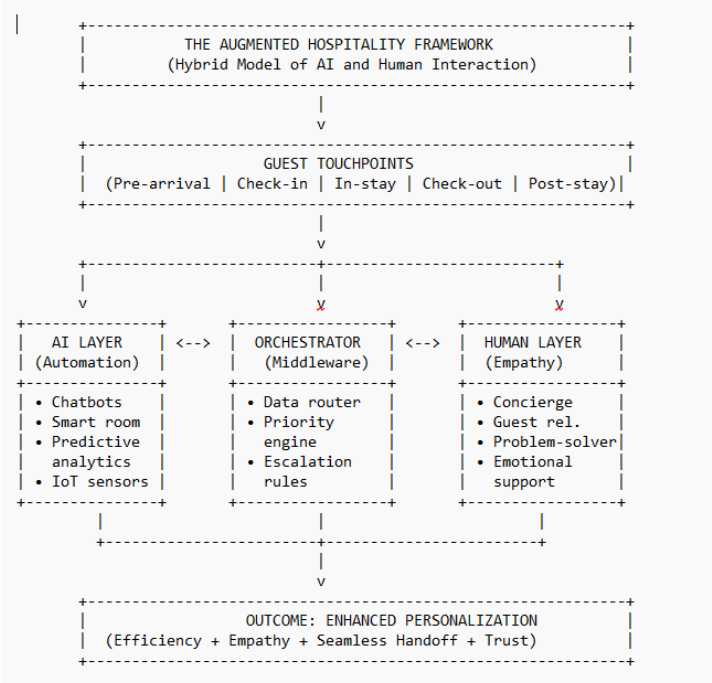

Figure 1. The Augmented Hospitality Framework: A Hybrid Model of AI and Human Interaction
Source: Research Results, 2026

Qualitative thematic analysis of manager interviews revealed two additional challenges. First, data silos and legacy systems. Three of the five hotels struggled to integrate new AI modules with their older PMS, leading to data inconsistencies and missed personalization opportunities. Second, employee resistance and reskilling. Middle-level managers and front-line staff initially feared AI would make them redundant. Successful hotels addressed this by implementing a "digital upskilling" program, training staff to interpret AI-generated insights and intervene with high-touch service only when value could be added. This transformed fear into empowerment.

Table 2. Comparison of Guest Satisfaction Across Service Models

Service Scenario	Personalization Score (Mean ± SD)	Privacy Concern Score (Mean ± SD)	Overall Satisfaction (Mean ± SD)
AI-only (chatbot resolves all)	3.1 (±0.9)	3.8 (±1.0)	3.3 (±0.8)
Human-only (no AI)	3.9 (±0.8)	2.1 (±0.7)	3.8 (±0.9)
Hybrid (AI + human follow-up)	4.7 (±0.5)	2.8 (±0.9)	4.6 (±0.6)

Source: Research Results, 2026

Table 2 clearly demonstrates that the hybrid model significantly outperforms both AI-only and human-only models in delivering personalized satisfaction, while maintaining moderate privacy concerns–lower than the AI–only model because guests feel more in control when a human is involved.

The findings of this study provide a nuanced understanding of how AI contributes to personalized guest experiences in luxury hotels, particularly within an emerging Southeast Asian urban hospitality market. Rather than showing that AI is uniformly positive or negative, the results demonstrate that its value in luxury hospitality is conditional, relational, and highly dependent on how it is embedded within the broader service system.

One of the most important findings is that smart room controls had the strongest positive influence on perceived personalization. This indicates that guests are especially responsive to forms of AI that are tangible, immediate, and seamlessly embedded in their environment. In luxury hospitality, personalization is often appreciated most when it feels effortless–guests want to feel that the environment intuitively aligns with their preferences. Smart room controls achieve this by translating data into atmospheric comfort, creating what may be termed 'ambient personalization'. The room appears to 'know' the guest not through overt social interaction, but through environmental adaptation.

Against these positive findings stands the most critical counterweight in the model: privacy concern. Its negative coefficient reveals a structural tension within AI-enabled luxury service. The same systems that enable personalization also depend on data collection, profiling, inference, and prediction. In luxury markets, this tension is intensified because privacy is not merely a technical or regulatory issue; it is also a symbolic issue linked to exclusivity, trust, discretion, and status. When AI crosses the threshold of perceived legitimacy, the intended value of personalization can reverse into discomfort. This aligns with Service Dominant

Logic: if guests perceive AI-driven personalization as extractive rather than collaborative, co-creation is disrupted.

The strong moderating role of human staff responsiveness is arguably the conceptual heart of the paper. It shows that AI has the strongest positive effect on perceived personalization when it is complemented by highly responsive and empathetic human staff. The guest may appreciate that the system detects preference patterns, but what makes the experience memorable is how staff translate those insights into tactful, context-sensitive action. Thus, AI does not replace hospitality labor; it changes its value composition. Staff become less important for routine data handling and more important for interpretive, relational, and affective service work.

The Surabaya context also deserves explicit discussion because it contributes to the originality of the study. In Indonesia, hospitality is often deeply relational and culturally coded, with strong expectations around politeness, attentiveness, and interpersonal respect. In such contexts, the over-automation of service may be more quickly perceived as emotional distance. The hybrid model found in this study may therefore be especially relevant in markets where warmth remains central to service legitimacy. International luxury hotel chains in Surabaya may need to localize their AI deployment strategies rather than replicating standard operating templates from other regions.

Based on the empirical findings and theoretical integration, this study proposes the Augmented Hospitality Framework (AHF), illustrated conceptually below. The AHF conceptualizes luxury service as a hybrid model in which AI supports operational intelligence and human staff provide emotional and relational depth.

Table 3. The Augmented Hospitality Framework

AI Layer — Operational Intelligence	Human Layer — Relational Depth
• Real-time preference detection • Ambient environment personalization • Predictive housekeeping scheduling • Pre-arrival chatbot communication • Curated recommendation generation • Data synthesis and pattern recognition	• Contextual service escalation • Emotionally sensitive guest interaction • Complaint recovery and empathy • Symbolic and cultural attentiveness • Special occasion orchestration • Ethical data stewardship
OUTCOME**:** Intelligently Human Luxury Hospitality	

Source: Research Results, 2026

The framework implies that AI should be embedded as a backstage or semi-visible intelligence layer that improves anticipation, personalization, and consistency, while human staff remain the visible carriers of empathy, reassurance, flexibility, and symbolic service. This aligns closely with hybrid intelligence theory, which argues that human–AI collaboration often produces superior results compared with either humans or AI acting alone. In the present study, that proposition receives context-specific empirical support in luxury hospitality.

However, the chatbot finding should not be overinterpreted as evidence that guests prefer automated communication over human communication. The qualitative results suggest otherwise. Chatbots appear effective when they handle routine, low-emotion, informational tasks quickly and accurately. Yet they become problematic when they displace human interaction in contexts involving emotional nuance, complexity, negotiation, or symbolic importance. A request for check-in time, toiletries, or gym access may be efficiently handled by AI. A request related to celebration, dissatisfaction, romance, surprise, complaint recovery, or cultural sensitivity is qualitatively different. In such moments, the guest expects judgment, empathy, and contextual reading–capacities still associated with human staff. Therefore, the positive effect of chatbots should be interpreted as support for intelligent task allocation, not as an endorsement of service automation without boundaries.

The effect of AI–powered recommendation engines also deserve deeper reflection. Recommendation systems in hospitality promise to transform guest data into curated suggestions for dining, amenities, or experiences. Their positive coefficient suggests that guests do value relevance and anticipation when recommendations feel aligned with their interests. This is particularly important in luxury hotels, where the guest is not merely buying a room but entering a staged experience ecosystem. Recommendations can therefore serve as a bridge between stored preferences and experiential enrichment. They can make the hotel feel knowledgeable, attentive, and capable of tailoring the stay beyond basic accommodation. Yet the recommendation effect is smaller than that of smart room controls and chatbots, which may indicate that guests are more sensitive to utility and environmental control than to overt algorithmic curation. This difference may reflect a boundary condition of personalization: recommendations are beneficial when perceived as helpful, but they become intrusive if they feel too predictive or commercially motivated.

Predictive housekeeping, though still significant, showed the weakest positive effect among the listed AI applications. This is also theoretically meaningful. Housekeeping is central to hotel operations, but many of its improvements are backstage or only partially visible to guests. Guests may appreciate the outcome–cleanliness, timely service, room readiness–but they may not directly attribute those outcomes to AI. In other words, predictive housekeeping may increase operational quality without always being consciously recognized as personalization. This distinction matters because not all service improvements are equally legible to the guest. Some AI systems create visible personalization, while others create infrastructural personalization. The latter may still be strategically valuable, but its psychological salience to guests is lower. This implies that managers should distinguish between AI investments that improve operational efficiency and those that directly shape guest perception. Both are important, but they do not contribute in the same way to perceived personalization.

The significant role of perceived ease of use further strengthens the argument that technological sophistication alone is not enough. In luxury settings, guests are not evaluating AI as technology enthusiasts; they are evaluating it as part of a hospitality experience. This means usability is inseparable from perceived service quality. A technologically advanced system that is difficult to access, unintuitive to operate, or awkward to navigate may be evaluated as poor service,

not merely poor technology. The positive influence of perceived ease of use therefore reinforces the logic that AI in hospitality must be designed around experiential fluency. The most successful systems are not those with the most features, but those that reduce effort while enhancing relevance. This insight also extends TAM by illustrating that in service-intensive contexts, ease of use contributes not just to adoption intention but to the perception of care, attentiveness, and hospitality itself.

Against these positive findings stands the most critical counterweight in the model: privacy concern. Its negative coefficient is among the most important contributions of the study because it reveals a structural tension within AI-enabled luxury service. The same systems that enable personalization also depend on data collection, profiling, inference, and prediction. In luxury markets, this tension is intensified because privacy is not merely a technical issue or regulatory issue; it is also a symbolic issue linked to exclusivity, trust, discretion, and status. Guests who choose luxury hotels often expect high levels of confidentiality. They may welcome a hotel remembering their breakfast preference, but they may be uncomfortable if the hotel appears to know too much, infer too much, or use private data too opaquely. The negative effect of privacy concern therefore indicates that personalization has a trust threshold. When AI crosses that threshold, the intended value of personalization can reverse into discomfort.

This is where the notion of the "privacy paradox" becomes especially important. The paradox lies in the fact that guests appreciate convenience and customization while simultaneously fearing the surveillance conditions that make such benefits possible. The present study deepens this idea by showing that privacy concern is not a minor side effect but a significant drag on perceived personalization itself. In other words, privacy concern does not merely coexist with personalization; it can actively undermine the guest's interpretation of a personalized experience as positive. This is a crucial insight for hospitality managers. Many organizations assume that better prediction equals better service. Yet this study suggests that prediction without perceived legitimacy may weaken, rather than strengthen, experiential value. The guest may still recognize the hotel as efficient, but no longer interpret it as caring or respectful.

This finding can also be understood through Service Dominant Logic. SDL emphasizes value co-creation, which requires not only resource integration but also relational legitimacy. Guests must feel that they are participating in a mutually beneficial exchange rather than being passively mined for data. If AI-driven personalization is perceived as extractive rather than collaborative, co-creation is disrupted. The guest may withhold engagement, reduce trust, or reinterpret personalization as manipulation. In this sense, privacy concern is not simply an external barrier to technology adoption; it is an internal threat to value co-creation. It interferes with the relational basis through which service becomes meaningful. Luxury hospitality therefore faces a distinctive challenge: it must not only personalize effectively but also personalize ethically and transparently enough that guests perceive the exchange as respectful.

Another major contribution of the study is the moderating role of human staff responsiveness. This result is arguably the conceptual heart of the paper. It shows that AI has the strongest positive effect on perceived personalization when it is complemented by highly responsive and empathetic human staff. This finding

moves the discussion beyond the simplistic dichotomy of "technology versus people." The luxury hospitality experience is revealed here as an augmented relationship in which AI increases situational intelligence while humans convert that intelligence into emotional meaning. The guest may appreciate that the system detects preference patterns, but what makes the experience memorable is how staff translate those insights into tactful, context-sensitive action. Thus, AI does not replace hospitality labor; it changes its value composition. Staff become less important for routine data handling and more important for interpretive, relational, and affective service work.

The comparison across service scenarios strengthens this interpretation. The hybrid model achieves the highest mean scores for personalization and overall satisfaction, outperforming both AI-only and human-only models. This is not a trivial result. It indicates that guests do not necessarily want purely human service if that service lacks anticipatory intelligence, nor do they want purely automated service if that service lacks warmth and discretion. Instead, the most valued service system is one where AI creates informational readiness and humans create relational completion. The hybrid model therefore should not be framed as a temporary transition stage before full automation. The evidence suggests it is, at least in the luxury segment, the preferred service architecture in its own right.

The proposed Augmented Hospitality Framework becomes particularly meaningful at this point. Conceptually, the framework implies that AI should be embedded as a backstage or semi-visible intelligence layer that improves anticipation, personalization, and consistency, while human staff remain the visible carriers of empathy, reassurance, flexibility, and symbolic service. This aligns closely with hybrid intelligence theory, which argues that human-AI collaboration often produces superior results compared with either humans or AI acting alone. In the present study, that proposition receives context-specific empirical support in luxury hospitality. The guest experience is best enhanced not when AI maximizes substitution, but when AI maximizes augmentation. This reframes innovation strategy in hotels: the core question is not "Which tasks can be automated?" but "Which tasks should be intelligently distributed between machine precision and human sensitivity?"

The managerial interviews enrich this point by illustrating how successful hotels operationalized the hybrid logic. The example in which AI detects guest search behavior and prompts human staff to make a curated, empathetic follow-up call is particularly revealing. It shows that the value of AI lies not only in what it does directly for the guest, but in how it equips human staff to intervene more meaningfully. This is a powerful model of service escalation. AI handles classification, monitoring, and routine response; humans intervene when situational nuance, emotional opportunity, or symbolic value increases. Such orchestration is especially suitable for luxury service because luxury is rarely defined by speed alone. It is defined by the ability to make the guest feel uniquely recognized. AI can support that recognition, but human staff legitimize it through tone, timing, and emotional authenticity.

The Surabaya context also deserves more explicit discussion because it contributes to the originality of the study. Much of the literature on AI in hospitality is developed in Western or highly digitized East Asian environments. By contrast, Surabaya represents a rapidly modernizing Indonesian urban market in which

luxury hospitality operates at the intersection of global brand standards, local cultural expectations, and emerging digital practices. This matter because attitudes toward privacy, warmth, service hierarchy, and personal interaction may differ from those assumed in Western hospitality research. In Indonesia, hospitality is often deeply relational and culturally coded, with strong expectations around politeness, attentiveness, and interpersonal respect. In such contexts, the over-automation of service may be more quickly perceived as emotional distance. The hybrid model found in this study may therefore be especially relevant in markets where warmth remains central to service legitimacy. At the same time, the positive effect of AI indicates that these markets are not resistant to innovation; rather, they prefer innovation that remains socially embedded.

This contextual interpretation is important because it resists two extremes. On the one hand, it avoids assuming that emerging markets are technologically reluctant or less sophisticated. On the other hand, it avoids assuming that digital adoption follows culturally neutral patterns. The findings suggest a more layered reality: luxury guests in Surabaya are open to AI, appreciate its efficiency, and respond positively to well-designed intelligent systems, but they still expect those systems to operate within a recognizable hospitality ethos. This means technology adoption in such contexts must be culturally translated rather than merely imported. International luxury hotel chains in Surabaya, therefore, may need to localize their AI deployment strategies rather than replicating standard operating templates from other regions. The social meaning of personalization, privacy, and human warmth is not identical across markets.

Another dimension that can be drawn more strongly from the findings is the distinction between operational personalization and relational personalization. Operational personalization refers to efficiency-based customization enabled by data, automation, and prediction. Examples include remembering room settings, automating routine responses, anticipating service needs, and tailoring recommendations. Relational personalization, by contrast, refers to the guest's feeling of being emotionally recognized, respected, and understood by another human being. The study shows that AI is highly effective in strengthening operational personalization, but that relational personalization still depends substantially on human responsiveness. This distinction helps explain why AI-only models underperform hybrid models. AI can optimize relevance, but it does not automatically create emotional resonance. Luxury service requires both. Therefore, hotels that invest only in operational personalization may improve convenience while still failing to achieve memorable differentiation.

This distinction also helps explain the relatively lower performance of the human-only model compared with the hybrid model. Human service alone may be warm and flexible, but without AI support it may struggle to achieve the level of consistency, memory, and anticipatory precision now expected by many luxury guests. Staff cannot always remember every preference across repeated stays, cross-departmental interactions, and multi-touchpoint service journeys. AI strengthens the memory infrastructure of the organization. In that sense, the hybrid model succeeds because it unites machine-supported organizational memory with human-delivered relational expression. The result is not merely better efficiency or better warmth, but a more complete personalization system.

The interviews further reveal that technological success in hospitality depends not only on guest-facing features but also on internal organizational capability. Data silos and legacy systems emerged as major barriers. This point is essential because it reminds us that AI quality at the front end depends on system integration at the back end. A hotel may invest in a chatbot, CRM analytics, and room automation, but if these systems do not communicate effectively, personalization becomes fragmented. The guest may receive inconsistent signals, duplicated requests, or poorly timed interventions. Such failures are especially damaging in luxury settings because the guest expectation is seamlessness. Therefore, AI implementation should be treated not as a series of isolated digital projects but as an organizational architecture problem involving data governance, interoperability, workflow redesign, and service choreography.

The issue of employee resistance and reskilling is equally important and deserves more emphasis. Front–line staff and middle managers initially feared redundancy, which is a common response to automation initiatives. However, in the successful cases documented in this study, that fear was reduced when hotels repositioned AI as a tool for service enhancement rather than workforce replacement. This is a highly significant managerial insight. Employee acceptance is not only a human resources matter; it is central to service quality. If employee mistrust or misunderstand AI systems, they may resist them, underuse them, or fail to translate their outputs into effective service behavior. Conversely, when staff are trained to interpret AI insights and intervene strategically, technology becomes a resource for professional empowerment. In luxury hotels, this may even elevate the role of front-line employees by allowing them to focus less on repetitive tasks and more on high–value emotional labor, problem solving, and tailored guest engagement.

This also extends the relevance of TAM beyond guest technology acceptance. The manuscript briefly points to managerial perceptions of usefulness and ease of integration, and the discussion can push this further. For organizations, AI adoption depends not only on the guest's ease of use but on the staff' and managers' ease of operationalization. A technologically impressive system that is difficult to integrate into service routines, incompatible with legacy platforms, or poorly understood by staff will not deliver its intended value. Thus, the hospitality version of TAM should be interpreted at multiple levels: guest-level usability, employee-level usability, and organizational-level implement ability. The study indirectly supports this multilevel reading because the strongest experiential outcomes occur in hotels that were not only technologically equipped but also organizationally aligned around hybrid service delivery.

The findings also invite a reconsideration of what luxury means in the digital era. Historically, luxury hospitality has often emphasized exclusivity, attentiveness, discretion, and bespoke human service. The present study suggests that these meanings are evolving, but not disappearing. Guests now appear to interpret luxury partly through anticipatory intelligence and frictionless convenience. A hotel that can instantly recognize preferences, streamline communication, and personalize room settings may be perceived as more luxurious because it reduces effort and signals attentiveness. At the same time, if such intelligence feels too mechanical, too intrusive, or too impersonal, it can damage the very exclusivity and comfort it intends to enhance. Luxury in the AI era

therefore becomes a balance between intelligence and intimacy. The most luxurious service is not the most technologically saturated one, but the one that uses technology to create a feeling of effortless recognition without compromising dignity, comfort, or emotional connection.

This leads to an important strategic implication: hotels should segment AI use by service moment and emotional intensity. Not all touchpoints carry the same symbolic and emotional value. Pre-arrival information, room setting adjustment, housekeeping prediction, and simple request handling are suitable for strong AI involvement because they are high-frequency, routinized, and efficiency-sensitive. By contrast, complaint recovery, special occasions, wellness concerns, negotiation, concierge curation, and culturally nuanced requests require stronger human leadership, even if AI provides background intelligence. The hybrid model works precisely because it recognizes this differentiated service logic. The best use of AI is not universal automation but selective augmentation based on the emotional complexity of the service encounter.

A further theoretical contribution concerns the role of trust as an invisible mediator underlying several of the observed relationships. Although trust was not directly modeled in the regression, the qualitative material strongly implies its importance. Privacy concern reduces personalization because it disrupts trust. Human responsiveness strengthens AI effects because it restores trust. The hybrid model outperforms AI-only because it gives guests a sense that technology remains accountable to human care. This suggests that future models of AI-enabled hospitality personalization should explicitly incorporate trust as a mediating or moderating construct. The present study lays the empirical groundwork for that development by showing how privacy and human empathy shape the interpretation of personalization. Personalization, therefore, may be best conceptualized not only as a function of predictive relevance but also as a function of trusted relevance.

It is also important to interpret the findings with methodological caution. Because the study is cross-sectional and relies on guest perceptions, the discussion should avoid claiming definitive causal or long-term effects. The regression model demonstrates strong associations and explanatory power, but it does not establish temporal stability or behavioral consequences such as repeat visits, loyalty, length of stay, or actual spending patterns. Similarly, the perceived superiority of the hybrid model is persuasive, but future longitudinal or experimental designs would be needed to determine whether hybrid systems consistently produce stronger customer retention and profitability outcomes over time. A more cautious discussion strengthens the article because it makes the interpretation more credible. The present findings support a robust argument for the experiential value of hybrid AI-human service, but they should be framed as evidence of perceived and interpreted advantage rather than universal causal proof.

There is also room to reflect more explicitly on the managerial implications of privacy governance. The negative role of privacy concern shows that ethical data management is not peripheral to luxury strategy. It is part of the guest experience itself. Guests evaluate not only what the hotel does for them, but how the hotel arrives at that capacity. Hotels should therefore treat privacy communication as part of service design, not just legal compliance. Simple, visible, and user-friendly explanations about what data are collected, why they are collected, and how guests can manage consent may reduce the ambiguity that fuels discomfort. In luxury

settings, transparency can be reframed as a form of respect. The guest who feels informed and in control is more likely to interpret personalization as thoughtful rather than invasive. This suggests that privacy UX—the design of consent and data control interfaces—may become a competitive differentiator in digitally advanced luxury hospitality.

The study's practical implications also extend to leadership and organizational culture. Successful AI implementation requires cross-functional coordination among IT, operations, guest relations, housekeeping, and management. The interviews show that hotels struggle when systems are siloed and when staff fear replacement. This implies that AI strategy should be led not only as a technology initiative but as a service transformation initiative. Leaders must articulate a clear philosophy: AI exists to make hospitality more humanly meaningful, not less human. Such messaging can shape staff identity and reduce defensiveness. Training programs should also move beyond technical competence to include judgment competence—teaching staff when to rely on AI outputs, when to override them, and how to turn data cues into elegant service gestures. In luxury service, interpretation matters as much as information.

Another important point is that the article's novelty becomes stronger when the discussion explicitly positions the Augmented Hospitality Framework as a response to the false binary that dominates both public discourse and some managerial practice. Too often, AI adoption is framed as a replacement agenda driven by cost logic, while hospitality scholarship defends the human element as if technology were inherently hostile to service quality. The present findings suggest a more productive synthesis. AI is most valuable when it handles tasks characterized by scale, repetition, prediction, and data integration. Humans are most valuable when tasks involve empathy, flexibility, symbolic recognition, and ethical judgment. The framework therefore offers a functional division of service intelligence rather than an ideological preference for one side. This positioning can substantially strengthen the article's theoretical contribution.

The study also contributes to the growing literature on technologically enhanced experiences by showing that personalization quality depends not only on technological presence but on experiential congruence. Guests do not value AI merely because it is advanced; they value it when it feels appropriate to the service setting and the emotional logic of the encounter. This is why AI can simultaneously elevate and diminish luxury. When congruent, it makes service feel anticipatory, smooth, and intelligent. When incongruent, it makes service feel cold, intrusive, or mechanistic. This notion of congruence may be a valuable concept for future research and could be developed into a measurable construct. It would allow scholars to explain why the same technology generates very different guest responses depending on context, interface, service moment, and degree of human complementarity.

For the article itself, a stronger discussion should also link back more explicitly to the stated research gap. The manuscript began by emphasizing the lack of empirically grounded frameworks for balancing technological efficiency and human warmth in emerging hospitality markets. The findings now directly address that gap. They show that the balance is not abstract; it can be empirically observed through the coexistence of strong positive AI effects, a significant privacy penalty, and a strong human moderation effect. In other words, the tension between

efficiency and warmth is not merely anecdotal. It is structurally embedded in how guests interpret personalized service. This is exactly why the proposed framework matters. It offers not only descriptive insight but a strategic answer to the central paradox raised in the introduction.

Finally, the results point toward an important future direction for hospitality scholarship: the need to study AI not as a standalone technology variable but as part of an integrated service ecology involving trust, employee adaptation, organizational systems, cultural expectations, and guest emotion. This study takes an important step in that direction by combining guest survey data and managerial interviews. The mixed-method design allows the article to move beyond a narrow focus on adoption intention and into the lived reality of implementation. The quantitative results identify patterns of influence, while the qualitative insights explain why those patterns emerge. This integration is one of the strengths of the paper and should be highlighted more assertively in the discussion. The richness of the findings comes precisely from not treating AI as a technical artifact in isolation, but as a service capability embedded in organizational and relational contexts.

In summary, the discussion of this study supports a clear and robust interpretation: AI can significantly enhance personalized guest experiences in luxury hotels, but only when it is deployed within a hospitality logic that preserves trust, discretion, and human responsiveness. Smart room controls, chatbots, recommendation engines, and predictive housekeeping contribute positively because they improve anticipatory service and reduce friction. Yet privacy concerns reveal a hard boundary to the benefits of personalization, and the strong role of human staff responsiveness shows that technology alone cannot deliver luxury in its fullest sense. The highest-performing model is therefore not AI-only or human-only, but hybrid—an augmented service design in which AI provides speed, memory, and prediction, while humans provide empathy, judgment, and soul. In the context of Surabaya's luxury hotel market, this finding is both practically relevant and theoretically important. It suggests that the future of luxury hospitality is not automated hospitality, but intelligently human hospitality.

Conclusion

This study demonstrates that the integration of Artificial Intelligence significantly enhances perceived personalized guest experiences in luxury hotels in Surabaya, but the effect is neither automatic nor universally positive. AI applications such as smart room controls, pre-arrival chatbots, recommendation engines, and predictive housekeeping improve personalization primarily by increasing efficiency, anticipatory service, and experiential convenience. Among these, smart room controls emerged as the strongest contributor, suggesting that luxury guests particularly value forms of 'silent' or ambient personalization that operate seamlessly in the background while directly improving comfort and control.

A second major conclusion is that the most effective service model is not AI-only and not human-only, but a hybrid model in which AI augments rather than replaces human service. The strong moderating role of human staff responsiveness indicates that AI creates the greatest experiential value when its data-driven intelligence is translated into empathetic, context-sensitive, and emotionally authentic human interaction. The study also confirms that privacy concern operates as a significant drag on personalization quality, indicating that ethical data

governance is not peripheral to luxury strategy—it is part of the guest experience itself.

These findings should be interpreted within the study's limitations. The research is cross-sectional and focused on one urban market, meaning the results reflect guest perceptions at a particular point in time and may not generalize to other contexts. Future research is encouraged to test the Augmented Hospitality Framework across different cultural and market settings, and to examine its long-term effects on loyalty, trust, employee adaptation, and financial performance.

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