

# Impact of Modern Technologies on the Guest Relation in 5-Star Hotels

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## Abstract

**Background:** The hospitality sector is undergoing rapid digital transformation, particularly in the luxury segment where delivering superior guest experiences is crucial. Modern technologies now serve as both operational enablers and key drivers of guest satisfaction. **Objective:** This study assessed the impact of technology on guest relations in five-star hotels by examining employee and guest perspectives. **Methodology:** A descriptive cross-sectional design was used. Non probability sampling was done. Data was collected from 45 hotel employees and 55 guests in the Delhi NCR region through structured questionnaires. Responses were analyzed using descriptive statistics. **Results:** Findings indicate high adoption of digital tools, with 81% of employees reporting consistent use for guest interactions and 98% confirming improved personalization. Email (44%) and telephone (40%) were the most common modes of communication, while mobile check-in was used by 72% of guests. Overall, 80% of guests agreed that technology enhanced satisfaction, though 63% preferred a hybrid model that combined digital and face-to-face service. Notably, 83% of employees reported experiencing operational challenges, compared to only 27% of guests, suggesting that staff often shield guests from technical issues. **Conclusion:** Technology has become integral to guest relations in five-star hotels, enhancing efficiency and satisfaction. However, the human touch remains essential. Continuous staff training and system reliability are recommended to support a balanced high-tech, high-touch approach.

**Keywords:** Hospitality technology, guest relations, five-star hotels, customer satisfaction, hotel management, digital transformation

## Introduction

The hospitality industry, particularly the luxury segment, has always been defined by exceptional service quality and personalized guest experiences. In five-star hotels, guest relations traditionally relied on interpersonal interactions—warm greetings, personalized recommendations, and attentive service—delivered through highly trained staff. However, the rise of digital technologies in the 21st century has significantly transformed this paradigm. With the spread

of mobile devices, artificial intelligence (AI), and data analytics, technology is no longer a support function but a core driver of guest satisfaction and operational excellence.

Today's luxury traveller expects seamless digital integration alongside human service. Post-pandemic, contactless services, mobile check-ins, and AI-driven personalization have shifted from being premium features to

standard expectations (Kaushal & Srivastava, 2021). Recent studies suggest that digital adoption enhances both efficiency and resilience in the hotel sector (Ali et al., 2022). Similarly, guest-facing technologies such as mobile apps and chatbots are increasingly associated with higher satisfaction levels, especially among younger, tech-savvy travelers (Singh et al., 2024). According to a Statista (2024) survey, over 70% of international travellers now prefer mobile check-in, demonstrating that digital transformation has become indispensable in luxury hospitality.

At the same time, personalization remains a critical determinant of guest loyalty. The use of customer relationship management (CRM) systems and hyper-personalization strategies allows hotels to anticipate guest needs and deliver tailored services, thereby enhancing loyalty and satisfaction (Rane et al., 2023). The integration of AI extends these capabilities further by enabling real-time responses through chatbots and virtual assistants, allowing staff to focus on higher-value interactions (Sharma & Srivastava, 2024). (Gretzel et al., 2015). The integration of artificial intelligence further extends these capabilities by enabling real-time responses through chatbots and virtual assistants. Nonetheless, scholars emphasize that hospitality is inherently human-centered. Buhalis et al. (2020) and Hoyer et al. (2020) both argue that the most successful hotels balance “high-tech” efficiency with “high-touch” empathy, ensuring that digital convenience does not replace but complements authentic service.

Within the Indian context, especially in Delhi NCR, this balance becomes even more significant. The region hosts a dense cluster of luxury hotels, catering to both international business travellers and domestic tourists. While leading brands have invested heavily in digital solutions, gaps remain in terms of staff training, system reliability, and aligning guest expectations. Understanding how both employees and guests perceive these technological shifts provides crucial insights for ensuring sustainable competitiveness in the Indian luxury hospitality sector.

#### Objectives:

- To examine the extent of technology adoption among employees in five-star hotels.
- To assess guest experiences and satisfaction levels with digital tools.
- To identify challenges faced by both employees and

guests in using hotel technologies.

- To evaluate preferences for hybrid service models that integrate technology with traditional hospitality.
- To contextualize the findings within global hospitality trends and propose strategies for sustainable adoption.

## Methodology

**Research Design:** The study employed a descriptive cross-sectional design to investigate the adoption and impact of modern technologies in guest relations. This design was suitable as it enabled the collection of data from both employees and guests at a single point in time, providing a snapshot of prevailing practices and perceptions. The research was quantitative in nature, relying on structured instruments to generate measurable data that could be statistically analyzed to identify trends.

**Locale:** The research was conducted in the Delhi National Capital Region (NCR), a metropolitan hub and one of India’s most prominent hospitality markets. Delhi NCR was purposively chosen because of its large number of five-star hotels representing both international chains and domestic luxury brands. The region attracts a heterogeneous guest base, including business executives, international tourists, and domestic leisure travelers, offering a representative setting to assess the role of technology in luxury hospitality.

**Sampling Design:** A non-probability sampling technique was adopted, combining purposive and convenience sampling. This ensured that only participants directly relevant to the study—employees of five-star hotels and guests who had recently stayed in such hotels—were included. The total sample consisted of 100 respondents, divided into two categories: Hotel employees (n=45): staff members and managers from multiple departments, including the front office, guest relations, operations, and housekeeping. Employees were chosen from different hierarchical levels to capture a comprehensive view of technology use in daily hotel functions. Hotel guests (n=55): individuals who had stayed in a five-star hotel in Delhi NCR within the last six months. The recency condition was important to ensure that their feedback reflected current experiences with hotel technologies.

**Tools and Technique:** Two structured questionnaires were designed—one for employees and one for guests. The

instruments were pre-tested for clarity and relevance before use. The employee questionnaire focused on frequency and type of technology used in guest interactions, training and confidence levels, efficiency gains, personalization, and challenges faced.

The guest questionnaire included items on ease of technology use, adoption of specific tools such as mobile check-in, communication preferences, and the perceived impact of technology on overall satisfaction. Both questionnaires primarily used close-ended questions, including multiple-choice items, dichotomous (Yes/No) responses, and Likert-scale ratings, enabling efficient collection of quantifiable data.

For employees, questionnaires were distributed through on-site visits to hotels, with prior consent obtained from management. For guests, data collection was carried out through a mixed approach, including online distribution (via email and social media platforms) and in-person administration in hotel lobbies and public spaces. Respondents were informed about the study's purpose, assured of confidentiality, and provided voluntary consent before participation.

**Data Analysis and Statistical Analysis:** Collected data was coded, organized, and entered into a digital database for analysis. The analysis was performed using descriptive statistics, including frequencies and percentages. The findings were presented through tables and graphical representations such as bar charts and pie charts to highlight adoption patterns, preferences, and satisfaction levels. This approach aligned with the descriptive nature of the research and enabled clear interpretation of both employee and guest perspectives.

## Results and Discussion

This section presents the core findings of the study, derived from the responses of 45 hotel employees and 55 hotel guests in the Delhi NCR region.

The sample represented a balanced and diverse cross-section of stakeholders. Among employees, males predominated (70%), reflecting the traditionally male-heavy composition of frontline hospitality roles in India, though female participation (30%) indicates gradual diversification. Guests were more evenly split, with 65% male and 34%

female respondents, plus 1% preferring not to disclose. Hotel representation was broad, covering five major brands in Delhi NCR, ensuring perspectives were not skewed toward a single property. Employees covered a range of roles, from entry-level associates to managers, which adds depth to understanding how technology is applied across hierarchical levels. Guests represented both business (55%) and leisure (45%) travellers, underscoring that findings reflect the perspectives of multiple market segments, not one-dimensional traveller types.

**Table 1: Sociodemographic Characteristics of Respondents (N = 100)**

| Characteristic     | Employees<br>(n = 45) | n (%)  | Guests<br>(n = 55)                      | n (%)                      |
|--------------------|-----------------------|--|---|----------------------------|
| Gender             | Male<br>Female        | 32 (71.1)<br>13 (28.9)   | Male<br>Female<br>Prefer not to say     | 36 (65)<br>18 (34)<br>1(1) |
| Job Role / Purpose |                       | Front Office Associates, Supervisors, Duty/Lobby Managers, Bell Desk Associates, Executive Housekeepers, F&B Associates, Cashiers, Chefs | Business Travelers<br>Leisure Travelers | 30 (54.5)<br>25 (45.5)     |

**Employee perspectives-The View from Behind the Desk:** Technology adoption and confidence-The data revealed a workforce that is highly dependent on technology in day-to-day guest interactions. A large majority (80%) of employees reported that they “always” used digital tools when engaging with guests, while 17.8% reported “often” and only 2.2% indicated “sometimes.” None reported rare or non-use, signifying the centrality of technology in five-star hospitality service delivery. When asked about the most common channels, 44% of employees cited email, followed closely by telephone at 40%. In contrast, mobile apps, social media, and messaging platforms together accounted for less than 5%, showing that hotels continue to prioritize communication channels that are secure, universally accessible, and professionally appropriate.

Every employee reported being confident in using technology for guest interactions, and 88.9 % confirmed receiving formal training. This indicates that systematic training programs remain critical in shaping staff preparedness. These findings resonate with Singh et al. (2021), who observed that structured training in Indian

hotels significantly boosts staff confidence in adopting new digital systems. The evidence positions Delhi NCR's luxury hotel employees as digitally literate professionals, leveraging technology as an enabler rather than a barrier. This reflects broader global trends where staff increasingly integrate CRM platforms and guest analytics tools into their daily workflows (Deloitte, 2022).

**Table 2: Employee Technology Usage and Confidence (n=45)**

| Indicator                               | Response (%) |
|---|--------------|
| Frequency of technology Use (Always)    | 36 (80)      |
| Frequency of Technology Use (Often)     | 8 (17.8)     |
| Frequency of Technology Use (Sometimes) | 1 (2.2)      |
| Confidence in Using Technology          | 45 (100)     |
| Received Formal Training                | 40 (88.9)    |
| No Formal Training                      | 5 (11.1)     |

**Impact on service quality and operational efficiency:** A striking 98% of employees agreed that technology enhanced their ability to deliver personalized service. CRM systems and analytics dashboards act as a “collective memory,” allowing staff to access guest histories, preferences, and feedback quickly. This capacity enables even newly assigned employees to provide customized experiences, reinforcing the importance of data-driven personalization. Similarly, 98% of respondents stated that technology improved efficiency in handling guest requests. Staff highlighted faster check-ins through kiosks, reduced paperwork via digital billing, and smoother interdepartmental coordination. For instance, requests placed via mobile apps are automatically routed to relevant departments, minimizing delays.

These outcomes echo earlier research by Buhalis and Law (2008), who identified efficiency as a key benefit of hospitality technology, and more recent findings by Deloitte (2022), which documented a 20–30% increase in operational productivity in hotels adopting integrated digital platforms.

**Challenges in technology Use:** Despite widespread adoption and high levels of confidence, employees reported that their daily use of technology was not without difficulties. A substantial 83% of hotel employees indicated experiencing challenges at some stage of their work, underscoring that digital transformation, while empowering, also brings operational stressors. The most frequently cited issue was system glitches and downtime, reported by 48.9% of employees. These interruptions were described as frustrating because they delayed guest service and forced staff to rely on manual workarounds. In a luxury hospitality context, even short delays can negatively affect service perceptions, making downtime one of the most critical risks. Previous studies have similarly highlighted that the reliability of technology is often a bigger determinant of employee satisfaction than the presence of advanced features (Hotel Tech Report, 2023).

Another 22.2% of employees pointed to the need for continuous training as a recurring challenge. With hotel technologies being updated frequently—ranging from property management systems to guest-facing apps—staff often found it difficult to stay fully up to date. While formal training was provided to most employees, many expressed that refreshers or hands-on practice sessions were insufficient. This aligns with Singh et al. (2021), who noted that lack of ongoing training leads to underutilization of digital tools in Indian hotels.

Concerns about over-reliance on technology were raised by 17.8% of respondents. Employees worried that an excessive focus on digital platforms might weaken the human element that traditionally defines luxury hospitality. For example, automated check-ins may improve efficiency, but they risk eroding the personal warmth of a face-to-face welcome. Finally, 11.1% of employees cited data privacy and cybersecurity vulnerabilities as a source of unease. Since hotels handle sensitive guest information—such as identification documents, payment details, and behavioral preferences—employees feared that breaches or mismanagement could damage guest trust. Such concerns are consistent with recent research highlighting cybersecurity as one of the most pressing risks in digitally integrated hotels (Buhalis et al., 2020).

**Table 3: Challenges in Technology Use (Employees, n=45)**

| Challenge                          | Response (%) |
|------------------------------------|--------------|
| System glitches / downtime         | 22 (48.9)    |
| Need for frequent training         | 10 (22.2)    |
| Over-reliance reducing human touch | 8 (17.8)     |
| Privacy & data security concerns   | 5 (11.1)     |

Taken together, these findings reveal an important paradox; while employees are confident and competent in using technology, they are also the group most exposed to its limitations. Unlike guests, who generally experience seamless front-end interactions, staff are required to troubleshoot, adapt, and maintain service standards even when systems fail. This “hidden labor” of managing technological shortcomings highlights the need for hotels to invest not only in advanced systems but also in reliable infrastructure, regular system maintenance, and comprehensive staff training programs.

While employees’ perspectives highlight the back-end challenges and competencies, the guest responses provide an equally crucial view of front-end service experiences.

#### **Guest perspectives- the experience from the suite:**

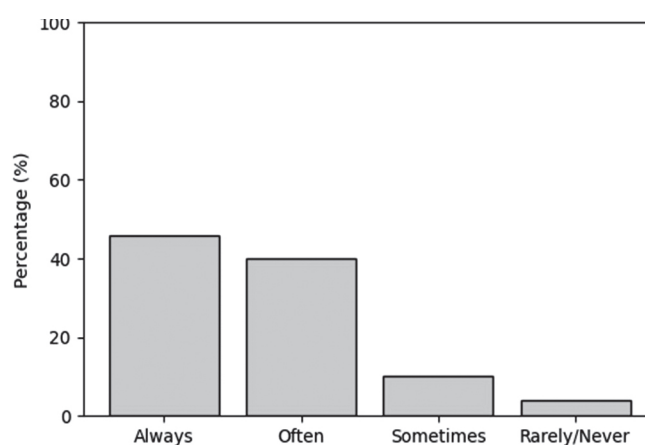
Technology adoption and usage: the responses of the 55 hotel guests indicated high engagement with hotel technologies. A combined 86% of guests reported using technology to interact with hotel staff either “always” (46%) or “often” (40%), while only 14% reported using it “sometimes” or “rarely.” This demonstrates that digital interaction has become normalized in the five-star hotel environment.

In terms of specific channels, the telephone remained the most widely used (48%), reflecting its accessibility and familiarity. However, hotel mobile applications (30%) emerged as the second most popular medium, suggesting a growing reliance on centralized platforms that integrate booking, service requests, and in-room controls. Email was used by 17% of guests, particularly for pre-arrival and post-stay communication, while a small fraction (5%) engaged with other digital platforms such as chatbots, WhatsApp, or SMS-based tools. Importantly, 72% of guests reported using mobile check-in, confirming the adoption of one of the industry’s most significant innovations in recent years.

Equally noteworthy was the perception of ease-of-use. All guests rated hotel technologies as either “very easy” (45%) or “somewhat easy” (55%) to use. This highlights the effectiveness of guest-centric interface design and aligns with findings from Statista (2024), which reported that 73% of global hotel guests now use mobile check-in and emphasize ease-of-use as a critical driver of adoption.

Overall, these results suggest that while traditional channels like telephones remain relevant, guest preferences are increasingly shifting toward hotel-specific digital platforms. This trend is consistent with global patterns in luxury hospitality, where mobile-first service delivery has been a cornerstone of digital transformation (Deloitte, 2022).

**Guest satisfaction and communication preferences:** A large majority (80.0%) of guests agreed technology enhanced their satisfaction, 92.7% valued the ability to communicate digitally with staff. Yet, when asked about preferred service models, only 18.2% preferred technology alone, while 20.0% preferred traditional face-to-face, and 61.8% preferred both. This hybrid preference confirms the “high-tech, high-touch” paradigm described by Verma & Gustafsson (2020) and reinforced by Ali et al. (2021), where digital convenience must be paired with authentic human hospitality. Such results are consistent with Hoyer et al. (2020), who argued that while technology enhances transactional efficiency, genuine satisfaction stems from empathy and personalization.



**Figure 1: Technology use Frequency among Guests.**

Despite this widespread acceptance, only 27% of guests reported encountering difficulties when using hotel



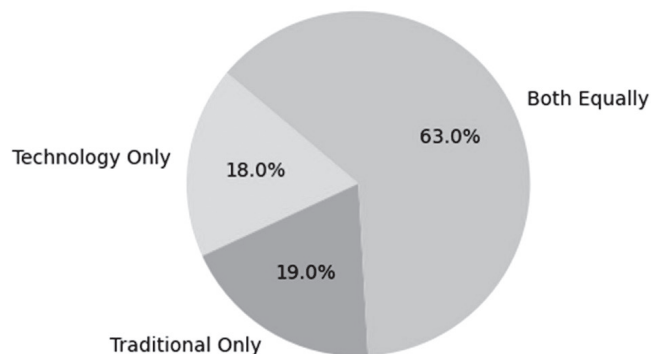
technologies. These were generally minor issues, such as temporary glitches or weak Wi-Fi connectivity. In contrast, employees reported far higher rates of challenges (83%), which indicates that hotel staff are effectively shielding guests from technical problems. This finding reflects international research showing that while digital adoption is seamless for most guests, employees frequently absorb the stress of troubleshooting back-end systems (Hotel Tech Report, 2023).

When asked about preferred modes of communication, the majority of guests (63%) indicated that they valued a hybrid model, combining both technology and traditional in-person service. Meanwhile, 18% preferred technology alone, and 19% preferred traditional methods exclusively. This overwhelming preference for hybrid communication underscores that luxury guests expect both efficiency and empathy. They value the ability to use digital channels for routine tasks such as check-in or service requests but continue to rely on human interactions for personalized recommendations or complex queries.

**Enduring value of the human touch:** Although digital platforms have become a central part of the guest experience, respondents emphasized that personal interaction continues to hold enduring value in luxury hospitality. When asked about preferred communication modes, only 18% of guests expressed a preference for technology alone, while 19% preferred exclusively traditional, in-person interactions. A clear majority of 63% indicated that they favored a hybrid model, combining both technological and face-to-face approaches. This pattern illustrates that while technology delivers efficiency and convenience, it cannot fully substitute the empathy, warmth, and nuanced understanding provided by human service.

Such findings reaffirm the principle of “high-tech, high-touch” service, where digital systems provide convenience but authentic hospitality continues to rely on human interaction. Recent scholarship highlights this duality: Hoyer et al. (2020) argue that while technology can streamline transactions, genuine guest satisfaction is rooted in emotional connection and personalized engagement. More recently, Ali et al. (2022) found that in the post-COVID era, luxury hotels that adopted hybrid service models—integrating mobile apps with staff-led personalization—reported higher guest loyalty and trust compared to those that relied on technology alone. For five-star hotels, the challenge is not merely digitization

but embedding technology in ways that empower employees to deliver richer, more memorable experiences. Ultimately, guests expect flexibility—the option to enjoy seamless app-based services for efficiency while also benefiting from the empathy and expertise of human staff for personalized recommendations.



**Figure 2:** Preferred Communication Method (tech/ traditional/hybrid)

**Synthesis of findings: A shared digital journey:** Integrating both perspectives reveals a shared embrace of digital transformation but with important divergences. Employees and guests overwhelmingly agreed that technology improves efficiency and satisfaction (98% vs. 80%). However, challenges were disproportionately reported by employees (82.2%) compared to guests (27.3%), confirming that staff absorb the burden of system failures.

Strategically, the 61.8% hybrid preference among guests underscores the need for hotels to pursue balance: investing in digital innovation while sustaining the human connection that defines luxury. This mirrors findings by Ali et al. (2022) and Hospitality Technology (2023), which noted that hybrid service models drive higher loyalty than technology-only models. At the same time, important contrasts were evident. Employees reported operational challenges at far higher levels (83%) compared to guests (27%), highlighting a divergence in technological experience. This discrepancy suggests that while guests generally perceive seamless service, employees are absorbing the hidden costs of managing glitches, system integration issues, and training requirements. Similar patterns have been observed in Deloitte’s (2022) analysis, which noted that digital transformation often increases back-end labor

intensity even as it improves front-end guest convenience. A key finding is the strong guest preference (63%) for a hybrid model, confirming that digital tools cannot replace human empathy and adaptability. This supports the ‘high-tech, high-touch’ paradigm, where long-term competitiveness depends on integrating technology and personal service.

Ultimately, the results show that in five-star hotels, technology does not replace human service but redefines it—driving efficiency and personalization while still relying on human warmth, empathy, and judgment that remain irreplaceable.

**Table 4: Guest Technology Usage and Preferences (n=55)**

| Indicator   | Response (%) |
|---|--------------|
| Frequency of technology use for staff interaction (always)        | 25 (45)      |
| Frequency of technology use (often)                               | 22 (40)      |
| Frequency of technology use (sometimes / rarely)                  | 8 (14.5)     |
| Use of mobile check-in (yes)                                      | 40 (72.7)    |
| Perceived impact of technology on overall satisfaction (positive) | 44 (80)      |
| Preferred communication (technology only)                         | 10 (18.2)    |
| Preferred communication (traditional methods only)                | 11 (20)      |
| Preferred communication (both equally)                            | 34 (61.8)    |

**Contextualizing findings in industry trends:** The results of this study align closely with broader global trends in hospitality’s digital transformation. For example, 72% of guests in this study reported using mobile check-in services, a figure that corresponds almost exactly with the global benchmark of 73% adoption reported by Statista (2024). Likewise, the finding that 80% of guests indicated technology enhanced their overall satisfaction mirrors a Hospitality Technology (2023) survey where 78% of international travelers affirmed that digital features such as mobile apps and smart-room controls improved their stay experience.

From the employee perspective, 98% of respondents in this study stated that technology enhanced efficiency in service delivery. This observation strongly resonates with Deloitte’s (2022) industry analysis, which found that hotels using integrated digital platforms experienced a 20–30% improvement in operational productivity and response times. Such parallels confirm that the digital integration witnessed in

Delhi NCR’s five-star hotels is not an isolated phenomenon, but part of a global convergence toward digitally enhanced hospitality.

Moreover, the study’s findings on personalization—where nearly all employees (98%) confirmed technology supports tailoring services to individual guests—are consistent with practices observed in international hotel chains. For instance, the Ritz-Carlton’s “Mystique” database leverages guest history across properties to deliver hyper-personalized services, while Taj Hotels’ command center in India consolidated mobile, cloud, and social media inputs, reducing guest response times from several days to just 15 minutes (Business Today, 2018). These industry cases substantiate the empirical insights of this research, underscoring that technology has become both the backbone of personalization and the engine of efficiency in modern luxury hospitality.

**Emerging risks and ethical considerations:** While the findings demonstrate overwhelmingly positive impacts of technology on service quality and guest satisfaction, they also highlight latent risks that deserve critical attention. The challenges reported by employees (83%) underscore the fragility of digital infrastructures, with issues such as system integration failures, software glitches, and downtime impeding smooth operations. These align with broader concerns in the sector: 65% of global hoteliers reported increasing investment in cloud-based platforms in 2023 (Hotel Tech Report, 2023) specifically to mitigate such challenges.

Beyond operational efficiency, the rapid adoption of technology also raises issues of privacy, security, and ethics. Guests’ growing reliance on hotel mobile apps and IoT-enabled devices entails the continuous collection of sensitive personal data, including identity documents, payment information, and behavioral preferences. Although only 27% of guests in this study reported experiencing difficulties, the potential for data misuse or breaches is significant if not managed responsibly. Scholars have stressed that digital hospitality must balance innovation with ethical safeguards, ensuring transparency in data usage, robust cybersecurity systems, and adequate staff training in digital responsibility.

Therefore, while technology clearly enhances the guest journey and empowers employees, its future sustainability

in the luxury hospitality sector depends on hotels' ability to combine digital innovation with ethical responsibility. The findings of this study emphasize the necessity of a dual focus: building seamless, guest-friendly systems while simultaneously embedding strong safeguards that protect guest trust and ensure compliance with evolving data privacy standards.

## Conclusion

This study investigated the impact of modern technology on guest relations in five-star hotels, focusing on the Delhi NCR region as a representative hub of India's luxury hospitality sector. By incorporating perspectives from both employees and guests, the research demonstrates how digital tools are reshaping service delivery while also highlighting the operational and ethical challenges that accompany technological integration.

The findings confirm that technology is now an indispensable part of hotel operations. Employees reported near-universal adoption of digital systems. Training initiatives have equipped staff with confidence, yet the recurring difficulties such as system downtime and the need for continuous retraining. This paradox illustrates that while technology empowers staff, it also exposes them to vulnerabilities that must be addressed through stronger infrastructure and support. Guests, meanwhile, embraced technology as a central component of their hotel experience. Yet, a hybrid model that combined digital convenience with personal interaction, reinforcing the principle that technology must complement rather than replace human hospitality. Placed in a global context, these findings mirror international benchmarks of mobile adoption and efficiency gains while also echoing concerns around system reliability, data privacy, and ethical use of guest information. The study emphasizes that future competitiveness in luxury hospitality will depend on achieving a sustainable balance: investing in robust digital systems and staff training, while preserving the warmth, empathy, and adaptability that remain the hallmark of human service.

In sum, technology is not replacing human connection in five-star hotels but redefining it. The path forward lies in harmonizing innovation with tradition—leveraging digital efficiency to enhance service delivery, while safeguarding the timeless human touch that underpins guest trust, satisfaction, and loyalty in the evolving digital era.

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