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The Next Service Era: Hospitality Boosting Through Automation and Digitalization

Operations

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Hospitality is undergoing a fundamental transformation - driven not only by digitalization and artificial intelligence, but by a new understanding of what human-centered service means in a tech-enabled world. Based on insights from the FutureHotel Innovation Network at Fraunhofer IAO, this article explores how hotels are shifting from standardized procedures toward more adaptive, emotionally intelligent service models. Automation is not replacing humans - it's freeing them to do what they do best: create genuine, meaningful guest experiences. In this new era, technology doesn't undermine hospitality's human core; it enables its renaissance.

Based on research from the FutureHotel Innovation Network.

Hospitality service, long known as “a people’s business,” is entering a transformative phase – one that’s powered by technology and digitalization. As Artificial Intelligence (AI) and automation gain momentum across the industry, we’re not only looking at faster check-ins and smarter booking tools, but also at a fundamental shift in how service in hospitality is conceived, delivered, and experienced.

This shift brings with it a growing unease: the widespread fear that front-line employees could be replaced by machines, and that hotels may turn into cold, impersonal spaces where efficiency trumps empathy. The idea of a fully automated, staffless hotel may seem efficient on paper, but it also risks stripping away the warmth and human touch that define true hospitality. This is a valid concern and one the industry must address head-on.

While we will undoubtedly see the rise of fully automated, staffless hotels – particularly in the budget segment – these should be understood more precisely as technology products: functional, self-contained solutions driven by operational efficiency. These differ fundamentally from the service-centered hotel products that define our industry’s core, where human-centered service remains essential to the guest experience.

In these settings, the challenge for the future hotel is not to remove humans from the equation, but to remove the robotic tasks from human roles – allowing people to focus on what they do best: creating emotional connections, offering genuine care, and enriching the guest experience in ways that no machine can replicate. Paradoxically, it is this integration of technology that is making the industry more human.

At Fraunhofer IAO, we’ve explored this transformation in depth through our long-standing FutureHotel Innovation Network – a future lab and think tank that’s been driving innovation since 2008. Our latest research, presented in studies like “FutureHotel – AI Application Potential Along Hotel User Journeys and its Business Opportunities,” “FutureHotel – Employee Profiles” and “FutureHotel – 360 Hotel Service Ecosystem” clearly shows that we are on the cusp of a new era in hospitality.

Traditional Standard Operating Procedures (SOPs) are becoming outdated. The rigid frameworks that once structured service interactions no longer meet the demands of today’s evolving guest expectations. AI systems – including generative AI and agentic solutions (i.e., AI that can make autonomous,

goal-directed decisions) – are increasingly taking over repetitive, rule-based tasks. In the future, we will experience not only the rise of virtual AI solutions, but also the growing presence of physical AI in the form of robots and smart devices taking on logistical, operational, and interactive tasks within hotel environments. From autonomous room service delivery to robotic housekeeping assistants and multilingual reception units, these technologies will support staff and improve operational efficiency.

As a result, human employees will be freed from repetitive tasks and able to focus on empathy, creativity, and meaningful guest and community interactions. This does not mean removing people from the process; rather, it’s about empowering them to do what humans do best: engage guests through empathy and emotional intelligence. This is why hospitality is about to experience a renaissance – not in spite of automation, but because of it.

In the future, the true DNA of hotel service – defined as the unique way a brand translates hospitality into human experience – will become one of the most decisive quality criteria and a key differentiator in an increasingly tech-driven and competitive market. But what will this service actually look like? How can we enable employees to communicate authentically with guests while still representing the hotel brand’s values and guidelines? How can employee education and service design be transformed to align with this new understanding of hospitality? These questions will become central to the work of employers and educational institutions in developing a future-ready, skilled workforce.

Simultaneously, the very role of the hotel is evolving. Hotels are no longer merely places to sleep or temporary shelters for travelers. They are increasingly seen as transformation hubs – spaces for growth, collaboration, and meaningful experiences. More and more, hotels will integrate into the fabric of local communities, offering not just accommodation but also co-living, co-working, gardening, wellness, arts, and care services. They will host events, support community development, and provide spaces that invite both locals and guests to engage and connect. This transformation calls for staff with the right mindset and skillset to elevate hotels into multi-use platforms that provide new services, business models, and revenue streams.

What’s emerging is a new spectrum of hospitality. Subscription-based models will offer ongoing access to hotel spaces and services – transforming guests into members. Digital-first services will open up new revenue streams, from virtual coaching to curated online experiences. Community-driven business models will allow hotels to monetize local engagement, co-working offerings, and hosted workshops or retreats. Even physical assets will be used more flexibly, as hotels adopt adaptive-use strategies that blur the lines between accommodation, event spaces, and local service hubs. For today’s hoteliers, this transformation requires strategic foresight, backed by ecosystems of partners and collaborators.

This moment presents a unique opportunity to redefine what hospitality stands for. The challenge is not whether hotels will adapt – but how imaginatively and strategically they will shape the next era. And the time to begin is now.





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