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## Hospitality Technology Trends for 2024 and Beyond

A stay in a hotel today looks quite a bit different than it did just a few short years ago. Thread counts and folded-towel animals are no longer the marker of comfort and experience—modern travelers are seeking hospitality experiences that are connected, personalized, and seamless from booking to stay to checkout.

Alongside changing guest expectations, factors like labor shortages, pent-up demand, an intense focus on sustainability, and a need for operational streamlining, have caused a transformative shift across the hospitality industry.

Amid the disruption and opportunity, technology has emerged as a powerful catalyst, enabling hospitality providers to transform experiences, optimize workforce management, drive sustainable practices, and unlock newfound operational efficiencies.

**In this trends report, we will explore the emerging technologies reshaping the hospitality sector across multiple fronts:**



### **Cutting-Edge Guest Experiences**

Discover how data analytics, artificial intelligence (AI), and unified digital platforms are eliminating friction before, during, and after guest stays through personalization, intelligent services, and seamless digital experiences.



### **Elevating the Guest Room**

Uncover the transformative potential of smart room technologies, using robust guest profiles and Internet of Things (IoT) ecosystems to tailor in-room environments and deliver highly personalized, connected experiences.



### **Improving Employee Experiences**

Learn how workforce optimization tools, wearables, virtual reality and mobile training platforms are enhancing staff productivity, safety, and professional development in the face of historic labor shortages.



### **Enabling the Smart Hotel**

Explore the pivotal role of IoT in automating operational tasks, optimizing energy efficiency, and empowering data-driven decision-making for a seamless and sustainable hotel experience.



### **Robust Cybersecurity**

Understand the evolving threat landscape and the critical security strategies required to safeguard networks, data, and connected systems from bad actors in an increasingly digital environment.

Through the narrative, we'll spotlight the strategic importance of robust networking capabilities in enabling each of these transformative hospitality technology trends. By harnessing the power of innovation, hospitality leaders can future-proof their operations and deliver unparalleled guest experiences that foster loyalty and longstanding success.

# Technology to Enhance Experience Before, During, and After a Stay

In a hospitality market defined by guest experience, delivering seamless and personalized journeys is a prerequisite to cultivate loyalty and create differentiation. Technology is enabling a paradigm shift, allowing hotels to elevate experiences across all touchpoints - from the initial dreaming and booking phase to check-out and post-stay engagement.



## Personalization Powered by Data Analytics

Standing out amid a sea of options requires understanding and anticipating individual preferences. Data analytics serves as a linchpin, empowering hospitality providers to create rich, unified guest profiles that encapsulate past stays, preferences, purchase behaviors and more. Leveraging these insights, hotels can deploy sophisticated personalization engines to customize offerings, messaging and recommendations for a truly individualized experience. Rich personalization also feeds into and enhances loyalty programming, which has become a driving force in bookings.



## Unified Digital Experiences

Guests use their phones to book their stay, navigate the world around them, and stay in touch with work and family. It only follows that mobile phones should also serve as the hub of their hotel experience. Many hotels are meeting this demand through unified digital platforms and branded apps that serve as a one-stop-shop for guests from browsing and booking to checkout. During their hotel stay, apps can double as room keys as well as a medium for guests to order room service, request turndown service, and interact with staff.



## Artificial Intelligence for Augmented Service

Artificial intelligence—particularly generative AI—is fundamentally shifting how hospitality brands interact with and cater to their guests. AI-powered chatbots and virtual concierges are enhancing communication, responding to queries with context-specific recommendations while alleviating staff workloads. Meanwhile, machine learning algorithms are capable of analyzing historical data and guest profiles to make targeted suggestions for everything from spa appointments and restaurant reservations to local area attractions tailored to each guest's unique preferences.



## Contactless Is the New Normal

Contactless and self-service service options have become ubiquitous as guests increasingly seek convenience and control over their own experiences. Hospitality leaders are able to cater to these preferences through mobile check-in, contactless payments, mobile room keys, QR code menus, and mobile concierge services. Contactless solutions reduce friction by giving guests more autonomy to access services on their own terms, while alleviating staff workloads. Seamless, low-touch experiences enhanced by mobile, biometrics and IoT are rapidly becoming an industry standard that guests have come to anticipate.

# Elevating Connected Experiences in the Guest Room

While hotel operators are transforming the journey before and after a stay, perhaps no area has greater potential for an elevated experience than the guest room itself. The rise of the Internet of Things (IoT) has opened up new possibilities for creating intelligent room environments that can profoundly enhance comfort and connectivity.

## Smart Room Personalization

The synthesis of robust guest profiles and IoT ecosystems allows for unprecedented personalization within the room itself. Leveraging data on preferences for temperature, lighting, entertainment and more, environmental settings can be automatically adjusted even before the guest arrives. Once on premises, they can effortlessly control the room environment through mobile apps, voice commands or predictive automations.

IoT platforms can integrate data from occupancy sensors, staff wearables, and other smart devices to adapt experiences based on real-time needs and behaviors. For instance, a room could sense when a guest awakens and automatically open drapes, adjust lighting and start their preferred morning news program via in-room cable. This level of attentiveness cultivates comfort and connectivity rivaling even the most sophisticated smart home experiences.

## Next-Generation Entertainment and Connectivity

Gone are the days when guest room entertainment consisted of a basic cable package on an outdated TV. The hospitality industry is rapidly adopting advanced IP-based video solutions that provide access to an array of streaming apps, games, high-definition content and more, often centralized in best-of-breed programming offerings with voice-powered remote capabilities. Major brands have already begun outfitting rooms with smart TVs that can sync with guests' streaming subscriptions and mobile devices for the ultimate personalization.

Powering these rich in-room entertainment experiences requires robust high-speed WiFi and network connectivity. Hospitality providers must have the bandwidth and low-latency performance to support an array of connected devices and bandwidth-heavy services.



# Improving Employee Experiences and Stabilizing the Workforce

While guest experience transformation has taken center stage, the hospitality industry is also leveraging technology to navigate an equally pressing challenge—a labor crisis. The leisure and hospitality industries are experiencing the **worst quit rates** of any sector, so solutions that optimize workforce productivity, enhance safety, streamline training, and foster an attractive workplace have quickly become central, strategic imperatives.

## Workforce Optimization and Safety

IoT technologies are playing a pivotal role in addressing these needs head-on. Wearable devices and sensors can track staff locations and movement patterns, allowing managers to evaluate workloads, identify bottlenecks and reallocate resources for greater efficiency. This software-enabled workforce optimization helps do more with less while helping to prevent employee burnout.

Wearables also have immense potential to enhance staff safety—a core focus given industry pacts like the “5-Star Promise” adopted by major hotel brands. By detecting falls or providing a remote panic button staff members can press at any time, these solutions improve incident response times while creating a framework for physical security.

## Training and Development in the Digital Era

As hotel operations evolve and become more digitally enabled, operators must ensure that staff are continually trained on all applicable technology. Luckily, emerging technology is also providing new paths to workforce development. Virtual and augmented reality is revolutionizing hospitality training, enabling experiential learning in immersive simulated environments. From perfecting check-in procedures to handling high-pressure scenarios, VR allows trainers to create limitless scenarios. Mobile training platforms are also gaining traction, leveraging microlearning and gamification for streamlined content delivery.

## Technology as a Means to Attract and Retain Talent

Beyond optimizing workflows and upskilling staff, adopting cutting-edge workforce enablement tools positions hotels as attractive employers amidst the labor crisis. Offering opportunities to work with leading-edge technologies like AI, IoT, wearables, and more can help organizations stand out in competitive hiring markets.

These same solutions also foster digital dexterity—with employees able to quickly adapt to new tools for peak productivity. In an industry being reshaped by tech innovation, investing in a future-ready workforce supported by modern solutions is paramount for long-term success and resilience.



62%

of hotels say they are increasing their use of virtual reality in training

90%

respondents from both sectors say they deliver some training via mobile phone

Source: Deloitte, *Toward Travel's Frictionless Frontline: Integrating Technology and Workforce*

# Enabling the Smart Hotel through IoT

As the Internet of Things proliferates across guest rooms and the workforce, it is also transforming the back office, bringing new efficiency to core hotel operations and property management. IoT technologies are bridging the divide between physical spaces and digital capabilities, allowing hospitality leaders to create truly intelligent environments.

## Connecting the Dots for Operational Efficiency

By outfitting properties with a network of connected sensors and devices, hospitality providers gain unprecedented visibility into their operations. IoT platform integrations allow these sensors to communicate machine data and automate numerous tasks:

- RFID asset tracking can monitor the real-time location of critical equipment like transportation vehicles or luggage carts.
- Temperature and moisture sensors in food storage can trigger alerts for preventative maintenance to avoid spoilage.
- Occupancy and traffic sensors illuminate underutilized areas to reduce energy usage.
- Predictive analytics identify potential issues before they occur, dispatching housekeeping or maintenance proactively.

This connected intelligence streamlines operations, optimizes staff utilization, reduces costs from waste and inefficiency, and elevates the overall guest experience.

## Sustainability through Smart Building Technologies

Global tourism is responsible for 10% of the world's carbon emissions, and environmental sustainability is an increasing priority for hospitality companies and their guests. IoT and smart building management systems are key enablers in this domain. Connected devices can automatically control lighting, heating/cooling and water usage based on occupancy patterns. Integrated platforms consolidate this data to provide visibility into energy consumption metrics. Hotels can thereby make informed decisions to help reduce their environmental footprint without compromising guest comfort.

Guests are

**40%**

more likely to leave a positive review when issues are resolved quickly

Source: Deloitte, *Next-gen Hotel Guests Have Checked In*



**76%**

of guests say they want to travel more sustainably

Source: Booking.com *Sustainable Travel Report 2023*

## Robust Connectivity as the Backbone of the Smart Hotel

Realizing the full potential of IoT requires an underlying networking infrastructure capable of reliably connecting and managing thousands of devices across a property or multi-site portfolio. High-bandwidth Internet, reliable WiFi, and advanced software-defined wide area networking (SD-WAN) establish this resilient foundation.

SD-WAN is particularly powerful for multi-site/multi-cloud environments, providing centralized management capabilities while intelligently routing traffic across multiple links for peak performance. This increased visibility, control and optimization is critical as IoT adoption scales.

## Data-Driven Hospitality through Analytics

By capturing and analyzing the wealth of data flowing from connected hotel environments, leaders can apply predictive analytics and machine learning models to gain actionable business insights. Detailed intelligence on energy usage patterns, inventory forecasts, occupancy trends and more empowers data-driven decisions that elevate operating margins, guest satisfaction and brand reputation.

The sheer amount of data involved necessitates implementing robust data management strategies and computing capabilities. But the potential is astounding—converting raw information into a competitive advantage for delivering unmatched efficiency and experiences.



# Cybersecurity to Safeguard Connected Hospitality

As technology increasingly permeates hospitality operations, the industry's attack surface is exponentially expanding. The proliferation of connected devices, digital platforms, and valuable consumer data makes robust cybersecurity an existential necessity for hotels looking to maintain guest trust and brand reputation.

## The Evolving Threat Landscape

The risk factors facing hotels are mounting rapidly. Threat actors are growing more sophisticated, aided by machine learning and AI. Nation-state affiliated hacking groups have begun targeting the hospitality sector. And the sheer volume of potential entry points—from guest WiFi to operational IoT ecosystems—provides ample opportunities for infiltration. And almost one-third—**31% of hotel providers**—have reported a breach.

The implications of just a single attack can be severe. Penalties for data breaches in the hotel industry have climbed into the tens of millions, while each successful attack further erodes brand trust and affinity. In an industry centered around guest experiences, that loss of trust can be catastrophic.

## Securing Data and Operations

Hospitality providers must contend with security on two fronts - safeguarding the sensitive personal data of guests while also securing back-end systems and operational data that power the property. A comprehensive, multi-layered approach to cybersecurity best practices is required:

### Secure Network Access

Next-generation firewalls, software-defined perimeters, and zero-trust network access protocols help protect hospitality networks from unauthorized access.

### IoT Security

IoT-dedicated security protocols and tools help safeguard connected devices from being used as attack vectors.

### Advanced or Managed Threat Detection

Security analytics scour network traffic and endpoint activities for evidence of malicious behaviors and potential compromises.

### 24/7 Monitoring

Managed security services with round-the-clock monitoring and incident response for vigilance.

### Data Security

Cloud-based security solutions with DDoS mitigation, data encryption, PKI infrastructure and centralized key management help protect data at rest and in transit.

Hospitality businesses already grappling with labor shortages should look towards managed security solutions that augment limited in-house teams. Automating tasks like patching, updating policies, and conducting audits reduces vulnerabilities.

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**31%**

**of hotel providers have reported a data breach**

**90%**

**of such attacks surround guest information**

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**Source:** CoStar, *Cyber Security Is Awakening as Key Concern for Hoteliers*



## The Role of Network Infrastructure

While security tools are essential, they must be supported by robust, high-performance network infrastructures designed for the modern hospitality environment. SD-WAN solutions provide connectivity with security for IoT and cloud ecosystems, while enabling consistent policy enforcement across distributed locations. Industry-leading hospitality providers work with trusted partners that combine network services, security and IoT management to help protect from the core to the edge.

As hospitality's digital transformation accelerates, so too must the prioritization and investments into rigorous networking and cybersecurity programs. Securing data, systems and reputation is not only an IT imperative, but a prerequisite for success in the experience economy. Guests prioritize providers that can deliver exceptional services.

## The Future of Hospitality Will Come through Technology-Enabled Experiences

The hospitality landscape is being reshaped by converging forces—labor deficits, sustainability priorities, heightened guest expectations, and an appetite for innovation. In this new experience economy, technology has become the great equalizer, allowing businesses to transcend constraints and redefine the possibilities.

However, these transformational opportunities depend on robust technology foundations. High-speed internet connectivity, WiFi, advanced networking, and rigorous security frameworks are the backbone required to connect IoT ecosystems, enable real-time data insights, help safeguard digital platforms and ultimately power innovation at scale.

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