IDC TECHBRIEF

# IDC TechBrief: AI for Smart Signage in Hospitality and Travel

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## IDC TECHBRIEF FIGURE

### FIGURE 1

**AI for Smart Signage in Hospitality and Travel: Snapshot**

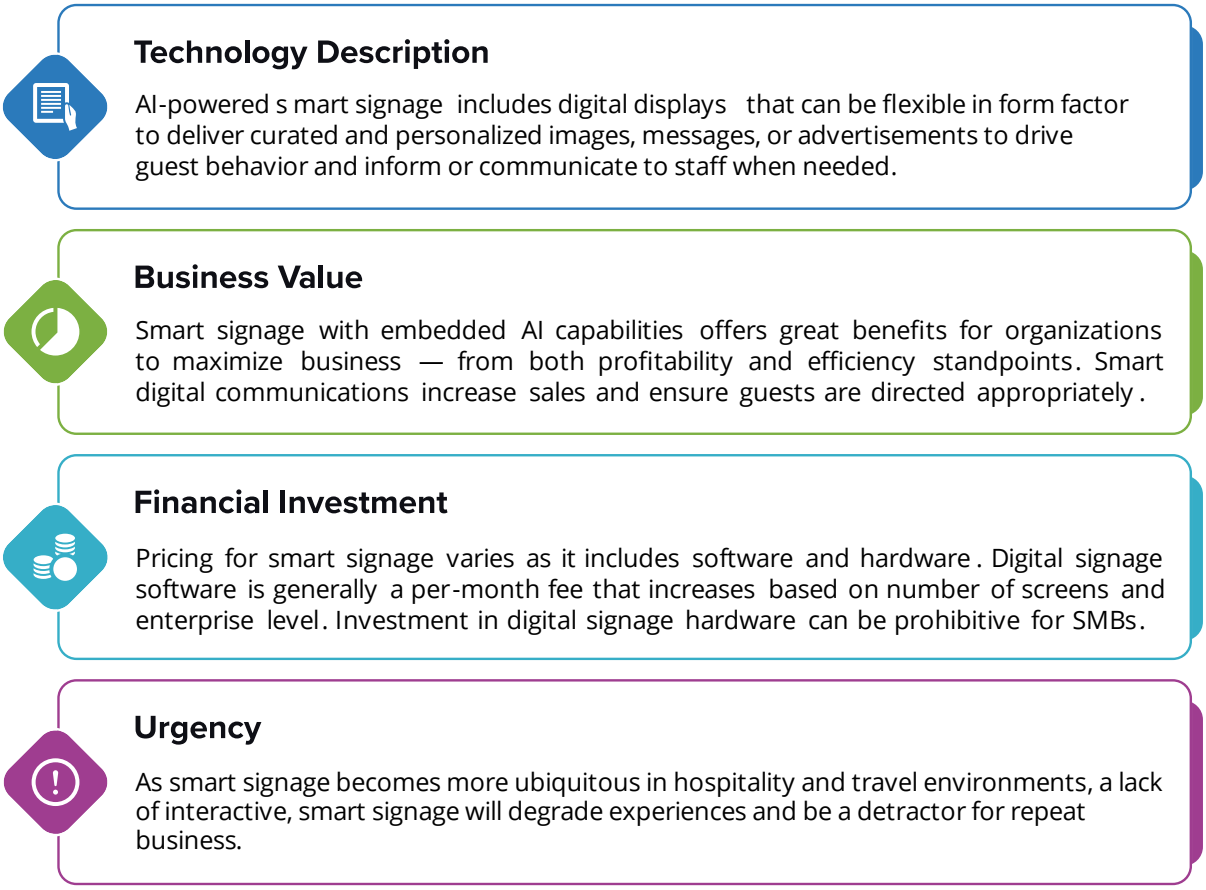
Source: IDC, 2024

September 2024, IDC #US49228723

## EXECUTIVE BUSINESS DESCRIPTION

### FIGURE 2

**AI for Smart Signage in Hospitality and Travel: Executive Description**




Source: IDC, 2024

Hospitality and travel organizations have been struggling to bridge the divide between the physical and digital worlds through each super-cycle. The advent of the internet, mobile, and cloud each sent ripples through hotels, restaurants, travel operators, and event/entertainment venues as each addressed the operational opportunities and challenges that emerged with each super-cycle with different use cases and levels of success. The trio of earlier super-cycles were made more complex by the nature of hospitality and travel being largely legacy system-based and tethered to long-held guest engagement strategies.

Acceptance and adoption of online, mobile, and cloud-based technologies coincided with increased digital signage rollouts, but early iterations were static digital displays and nonresponsive. The gap between physical and digital worlds is closing even more with the incipient super-cycle of artificial intelligence (AI).

AI applied to digital signage creates smart displays that can address many omni-channel challenges hospitality and travel operators face. High throughput areas like airports, hotel lobbies, casinos, and quick service restaurant (QSR) environments often require methods of quickly and effectively communicating important information to drive behavior or answer frequently asked questions, or relay messages. This is more difficult to do with beleaguered and limited staff and rapidly changing situations like fluctuating flight information, inventory, or crowd control information.

AI in smart signage offers solutions for the top 2 goals for digital transformation in hospitality and travel, which, according to IDC's May 2024 *Global Retail Survey,* are increasing operational efficiency (42%) and improving guest experience (39%). Furthermore, nearly a third of hospitality operators (32%) say that a lack of contextualized personalization across the guest journey is a major omni-channel challenge. Another 30% say that lack of content consistency across guest journey is a persistent struggle when trying to engage guests and travelers across online, mobile, and in-person environments.

The ability of smart signage with embedded AI enables brands to uplevel guest interactions without adding to employees' workloads. Responsive and interactive displays empower organizations to meet a trio of macro business objectives with a subset of more specific use cases.

## Maximizing a Brand's Performance

Brands want to engage with guests at the right moment in the right format. Dynamic and contextualized content enhances guest engagement with visual prompts and cues that can drive traffic and influence behavior in various environments from restaurants to hotels, airlines, convention centers, retail spaces, and entertainment venues. Specific use cases include:

- Personalizing experiences based on guest data and available operational metrics
- Dynamically shift messaging based on demand or occurrences that impact business and guest experience (This can mitigate other issues and improve both guest and employee experiences.)
- Gathering real-time feedback or interactions from guests and employees

- Driving desired actions of guests by communicating updates and offering alternatives (This can include promotion of LTOs, alerting of changes in offerings or availability of services, updates on property events, or closures.)
- Increase sales by promoting appropriate upselling or directing travelers to restaurants/retail operations of interest

## Embracing Digital First

Increasingly, guests will expect a level of digital modernity. Guests are comfortable with technology and increasingly anticipate that they will be able to interact with technology to solve issues throughout their journey — even if the role of that technology is simply to alert a human of an issue. Digital signage helps transform a first impression, presenting a modern feel to guests and employees while allowing a brand to extend its digital ecosystem with seamless, integrated, and innovative experiences. Specific use cases include:

- Smart displays can streamline service in environments like QSRs and offer value-added information or suggestions in higher-touch environments or meeting and convention spaces.
- The ability to dynamically update portions of screens gives operators the flexibility to address fast-changing circumstances while driving sales and increasing satisfaction by offering specific content based on time of day or other parameters to better engage with guests.

## Driving Efficiency

Smart signage offers the ability to streamline and personalize guest interactions, removing that from the demands of associates. Complementing digital signage with intuitive, smart content management and other artificial intelligence and machine learning capabilities will create a robust platform that can drive outcomes. Digital signage should be viewed as having an "always-there" associate that can be leveraged to inform and engage guests about everything from appropriate offerings to the location of various amenities and local attractions. Specific use cases include:

- Increase speed of service by allowing guests to access information as needed on their terms or immediately request information from a display that could potentially be sent to their own device.
- Offset labor challenges by having smart displays to act as concierge, pulling in generative AI (GenAI) capabilities with large language models

(LLMs) to disseminate information from across the property systems, guest systems, and outside data to provide appropriate response and instructions.

- Deliver accurate menu updates and other information in real time using digital displays, with sophisticated content management systems and digital asset management (DAM),.
- Enhance safety of guests and employees by communicating seamlessly and instantly across a property.

## ADOPTION VIEWPOINTS

**FIGURE 3**

**AI for Smart Signage in Hospitality and Travel: IDC's Adoption View**

| | | |
|---|---|---|
| IDC's Adoption Scenario Viewpoints | **Adoption** | Enterprise environments leverage smart signage as part of automation strategies to augment staff interaction with frictionless guest services. |
| | **User Profile** | Associates are freed from relaying information that can easily be shared and updated in real time, such as flight delays and updated menus. |
| What It Means for Business Executives | **Use Case** | Dynamic and branded content enhances guest engagement at the appropriate touch points with visual experiences that can drive traffic and sales. |
| | **Metrics** | Upselling and promotion of LTOs drive revenue; real-time communication of changes in offerings, services, or events increases efficiency and CSAT. |
| | **Customer Impact** | Successful smart signage rollouts impact guest and employee needs and will be flexible. Accessibility compliance must be considered. |

Source: IDC, 2024

Smart digital displays can address operational and marketing needs and therefore should be considered a cross-departmental investment. As part of a marketing strategy, smart signage is a conduit for the intelligence delivered by marketing analytics solutions, which 40% of hospitality and restaurant operators have invested in or committed budget in 2024, according to IDC's May 2024 *Global Retail Survey.* Brands are also investing in contextualized marketing (22%), optimized promotion and campaign development (30%), and digital content optimization (29%). The deliverables from these technologies can be communicated via multiple channels but will have great power and potential when leveraged in digital signage campaigns, particularly as more organizations identify as digital businesses. According to IDC's May 2024 *Future Enterprise Resiliency and Spending (FERS) Survey, Wave 5,* 77% of hospitality and travel organizations believe that they are digital businesses, while of that amount nearly half (48%) say they have a digital strategy and are in the process of transforming portions of the business.

The drive for digital is further illustrated by FERS data that indicates that overall, 60% of hospitality and travel operators say improving guest engagement and experience is the most important factor driving adoption of digital platforms. And the top benefit expected from digital platforms is improved operational efficiency (21%).

Putting a digital façade on hospitality and travel organizations with smart signage aligns with how airlines, hotels, restaurants, and other event/travel brands hope to create frictionless experiences for guests. In these industries, the benefits of driving throughput are great and making sure experiences are seamless is paramount to moving travelers where they need to be swiftly. Many major brands are announcing initiatives around improving speed of service that will involve the application or upgrading of smart signage and devices. One example is Alaska Airlines, which recently partnered with the Portland Airport and made technology and processes improvements to transform the airport experience and move guests more seamlessly through the lobby and into security in five minutes or less.

According to IDC's May 2024 *Global Retail Survey,* the most urgent operations challenge hospitality operators face is creating seamless/frictionless guest experiences (39%). To mitigate this challenge, hospitality operators have committed budgets in several key areas by 2026; first digitizing properties to gain access to data about guests, workers, and inventory (30%); location services including wayfinding (30%); biometrics for identity and/or payments (27%); and

contextualized on-property guest interactions based on location awareness and preferences (22%).

The importance of blending physical and digital experiences has become a normal part of operations and guest-facing experiences. In hospitality and travel ecosystems, hotel, restaurant, and travel operators are planning to prioritize this amalgamation in key areas — with a particular focus on customer experiences (52.4%) and customer support and issue resolution (48.7%), according to IDC's May 2024 *Future Enterprise Resiliency and Spending Survey, Wave 5.*

Smart signage blended with AI capabilities has greater capacity than its digital signage predecessor to deliver compelling content throughout venues and properties while influencing purchases and behaviors of guests. Key capabilities to consider for smart signage include:

- Integration to point-of-sale (POS) systems for food, beverage, and merchandise orders (Dynamic menu boards and signage can drive sales, spotlight promotional items, and engage customers at the point of purchase or personalize menu content for loyalty customers.)
- Ability to turn screens into interactive displays with touchscreens to provide wayfinding and mobile device interactions (This can enable guests to interact with venues in immersive, interactive ways.)
- Instant updates to menus and pricing across platforms through integrations with content management systems, POS, and inventory systems (Enabling dynamic pricing capabilities based on data and analytics that can evaluate footfall and other events happening at specific times can drive greater sales of items that brands may want to move.)
- Enable hyper-personalization with dynamic content that reacts to data events, voice and webcam triggers, and sensor data
- Wayfinding enables brands to connect with visitors using interactive touchscreens and assigned signage to inform and influence guests, fans, and travelers (Wayfinding can direct guests to where they need to go or suggest appropriate places of interest. Smart signage can also offer ways for guests to transfer information from the display to personal devices with QR codes.)
- Customize content based on conditional factors such as weather, crew, and overage/supply changes
- Smart signage with AI offers potential for travel brands to enable media networks (Travel companies, including hotel chains, airlines, and ride-sharing companies, are leveraging rich data from guests and connections

with other verticals to offer brands an opportunity for personalized, contextual advertising at scale to counteract the effects of the removal of cookies from websites.)

## Technology Road Map

As capabilities of digital technologies and AI enhance, there will be greater call for smart signage to solve more omni-channel challenges across hospitality and travel. Consider the top challenges faced by hospitality operators in omni-channel: improving guest data quality and visibility (36%), a lack of contextual personalization across guest journeys (32%), lack of consistency across journeys (30%), and multiple friction points (30%).

These struggles are driving hospitality organizations to advanced analytics solutions and to embed AI automation in enterprise solutions. More than half (58%) of hospitality operators according to IDC's May 2024 *Global Retail Survey* have either already implemented and plan to expand or plan to adopt AI-powered recommendations/offers for customer experience strategies by 2026. These capabilities will be inherent in smart signage to deliver upon expected KPIs.

## Adjacent Technology Impact

AI and automation investments are most immune to budget reductions, according to data from IDC's May 2024 *Future Enterprise Resiliency and Spending Survey,* with 30% saying this is an area that will not see spending cuts in the next year.

By layering on advanced technology, such as wireless sensors, cameras, and AI to displays, operators can customize, personalize, and automate the ordering and service experience. From quick service restaurants to grocery and convenience stores, smart signage displays are proven to speed up service, offset labor challenges and, ultimately, increase sales.

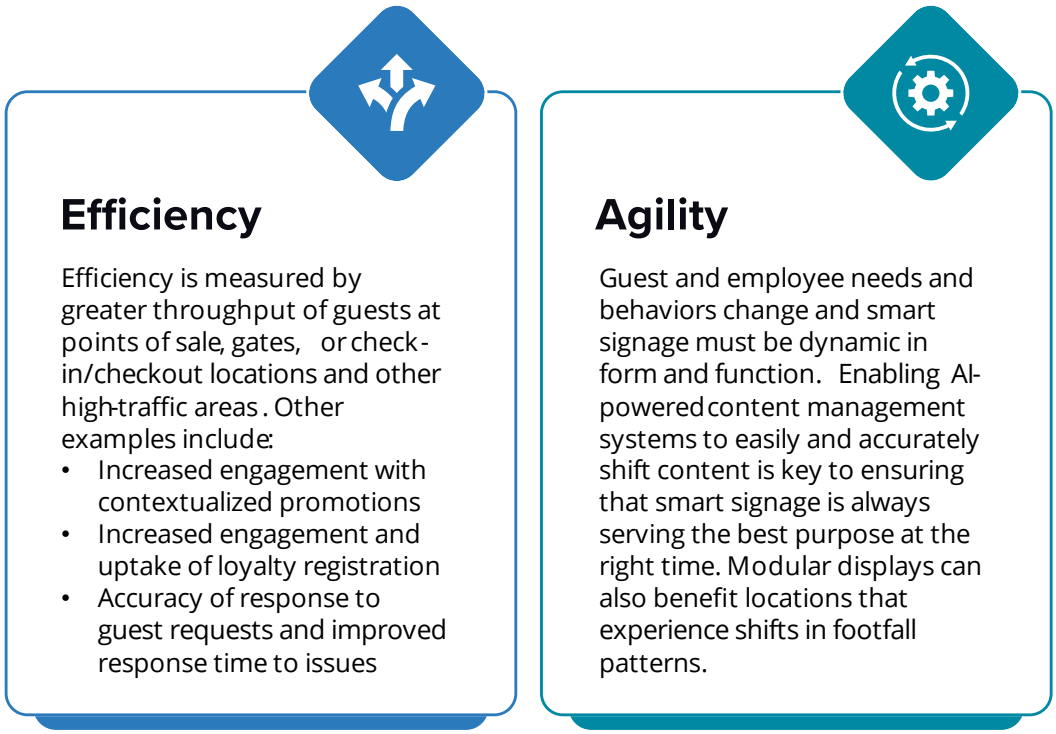
As GenAI continues to advance, IT consulting and implementation services firms are developing strategies along with technology partners on how to apply GenAI across business strategies and technology deployments. By integrating generative AI capabilities into services offerings, services providers can deliver on business outcomes and help drive revenue for hospitality brands by delivering solutions that align with clients' business objectives and identify new opportunities.

For brands that have invested in digital signage and high-end screens on properties, adding retail media networks can offer a way to drive greater ROI, enabling brands to connect travel data and turn dwell times into an opportunity. While travelers or guests are waiting in the lobby, wandering through a terminal or a theme park, an advertiser can display useful, targeted content — in context — on a screen. RMNs offer a targeted opportunity for media spend.

## METRICS THAT MATTER

**FIGURE 4**

**AI for Smart Signage in Hospitality and Travel: Metrics That Matter**




Note: IDC believes the metrics listed in Figure 4 are the best fit metrics to communicate value for this technology.

Source: IDC, 2024

## Communicate Using Metrics That Matter

Efficiency metrics will be determined by how well smart signage displays are able to create frictionless experiences for guests and travelers. Further to this,

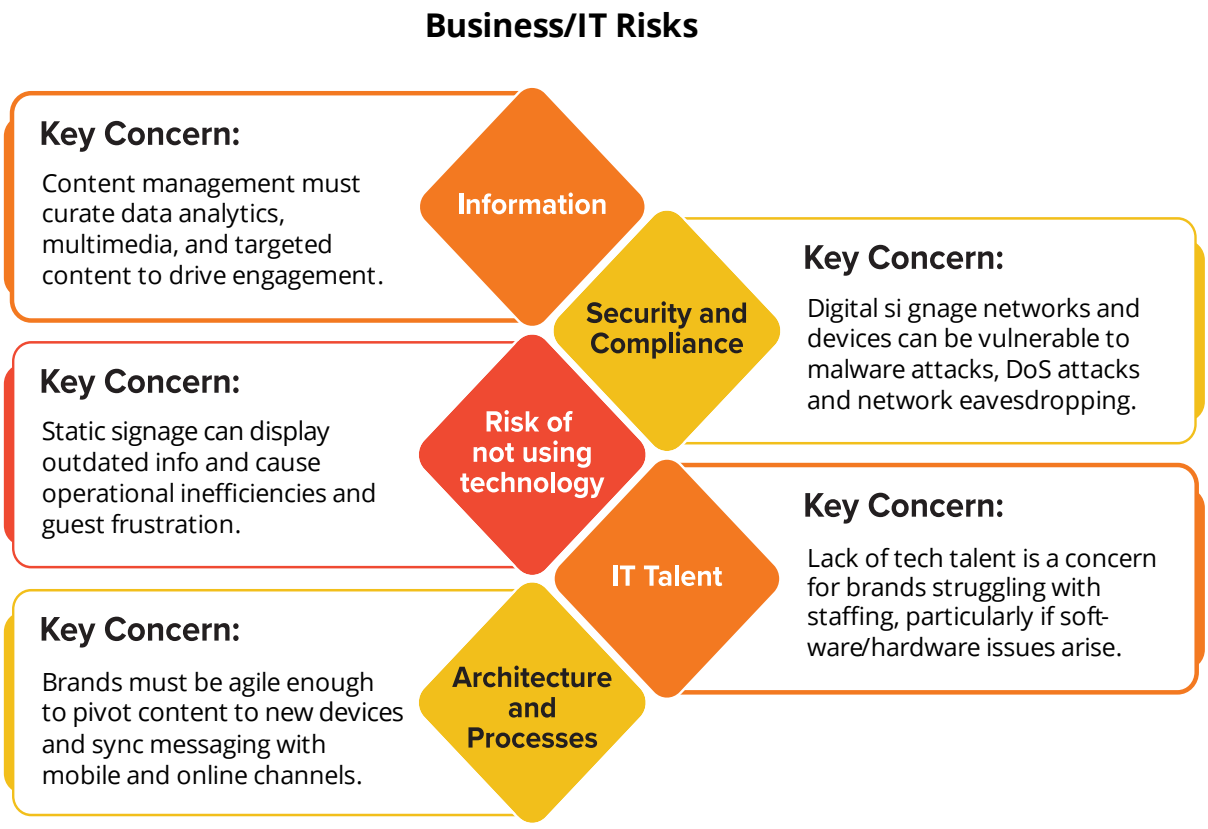
organizations must consider the cost of the investments and how that balances out with eliminating friction for guests — reducing complaints and other issues.

For agility, guests and employees have changing needs and this will require the ability to pivot solutions as needed. The embedding of AI should address the data side — as greater analytics will enable organizations to be more predictive. The agility of smart signage should also be reflected in growth of profitability, or new revenue opportunities, and an increase in customer satisfaction and loyalty.

## RISK PROFILE

**FIGURE 5**

**AI for Smart Signage in Hospitality and Travel: Risk Profile**




Source: IDC, 2024

## Critical Risk Assessment

Before deploying or updating smart signage, digital signage networks should be constantly evaluated for security risks and staff must be adequately trained. Digital signage networks can be vulnerable to malware attacks, network eavesdropping, and denial-of-service (DoS) attacks and many of these attacks can be successful due to employee error.

Initial costs of hardware and software required for digital signage can be expensive, which may be a barrier for small businesses.

Smart signage deployments can be used to refocus staff efforts, but should digital signage have technical issues, staff or support is needed to repair or replace. Smart signage should be user-friendly and able to be quickly updated and managed as hospitality and travel cites labor shortages as one of the greatest concerns and stumbling blocks preventing the effective use of technology.

Organizations must evaluate the placement of signage and its ability to operate 24 x 7 in any environment. Screens should be able to handle temperature fluctuations as well as certain levels of brightness, and considerations should be taken for placement to ensure visibility is optimal.

As smart signage embeds AI capabilities, businesses must navigate a complex regulatory landscape governing the use of AI technologies, including data protection regulations, environmental regulations, and industry-specific standards. Noncompliance with regulatory requirements could result in legal liabilities, fines, and regulatory sanctions, underscoring the need for thorough risk assessments and compliance frameworks.

In most hospitality environments — restaurants and hotels specifically — digital signage is used to promote the brand's own offerings and is not utilized for outside media; however, as the use of retail media networks expands, brands must evaluate what is appropriate for audiences and leverage AI and analytics to make those decisions. Advertisements are appropriate on some digital signage in hospitality and travel, when it's extremely high traffic areas, but organizations must be aware of crossing a line and negating the effectiveness of digital signage by diluting messages with less targeted messaging.

## Organizational Readiness Assessment

Conducting a comprehensive readiness assessment will help determine the organization's preparedness and identify any gaps or challenges that need to be

addressed before integrating smart signage into the operations. More than a third (39%) of hospitality operators cite a top external challenge as being able to scale business up and down and smart signage can help do this in several ways, but staff acceptance will be critical.

Network strength must be evaluated for how it will handle peak traffic times. In certain environments, when traffic spikes at specific times, brands must ensure that smart signage will stay connected and not degrade a guest's experience. Evaluate and discuss with network providers how sudden surges in activity will be handled and what strategies, such as content acceleration and caching technologies, are most appropriate.

## CRITICAL SUCCESS FACTORS

**FIGURE 6**

**AI for Smart Signage in Hospitality and Travel: Critical Success Factors**

| Critical Success Factor | Factor Business Success Priority |
|---|---|
| **Process** | Evaluate the appropriate locations for smart, dynamic signage as well as the operational or business need. Consider how to repurpose modular signage in other areas to drive engagement or shift messaging when needed. |
| **Technology** | A combination of technology is necessary with hardware and software platforms. Adding advanced analytics and AI-powered solutions including computer vision, biometrics, and IoT level up smart signage solutions. |
| **Business** | Support for smart signage can be gained by outlining business benefits, including reduced waste with less paper-based displays; driving profits with predictive and nuanced messaging to guests based on real-time data; sleeker, modern brand representation. |

Source: IDC, 2024

## SELECT PRODUCT LIST

### FIGURE 7

### AI for Smart Signage in Hospitality and Travel: Select Products

| Product | Why Product Made the List |
|---|---|
| **Navori Labs** | Navori digital signage enables businesses to deliver personalized experiences at scale. Navori's AI marketing analytics utilizes advanced computer vision capabilities to gather and analyze guest behavior data. |
| **OptiSigns** | OptiSigns offers digital signage, which allows brands to create and deploy content on any screen. Engage takes digital signage to a personalized level with interactive kiosks and AI-powered cameras. |
| **Adobe Experience Manager** | AI-assisted workflows speed productivity and scale content creation and delivery of personalized signage experiences based on behavioral and demographic guest data as well as internal metrics. |
| **Scala** | Scala products, including digital menu boards, promote guest engagement with technology including artificial intelligence, virtual reality, digital signs, mobile sensors, and computer vision technology. |
| **Stratacache** | The platform enables intelligent media strategies from dynamic menu boards, smart menu boards to live streaming and wayfinding, layering on advanced tech, such as wireless sensors, cameras, and AI. |
| **Uniguest** | Digital signage offerings include digital signage, digital menu boards, interactive kiosks, wayfinding, and video wall options that can be enhanced with engagement tools or voice and touch AI. |
| **Poppulo AI within Harmony** | Poppulo AI within Harmony offers content insights and AI suggestions while powering video walls, menu boards, wayfinding screens, and meeting room signs to engage both guests and employees. |

Note: This list is representative, and not an exhaustive list of all market participants.

Source: IDC, 2024

## LEARN MORE

## Related Research

- *IDC MarketScape: Worldwide Omni-Channel Guest Experience Services Providers for Hospitality, Dining, and Travel 2023 Vendor Assessment* (IDC #US49531823, December 2023)
- *AI and IoT Use Cases in Hospitality and Travel Influence Investment in Cloud Services* (IDC #US50798924, December 2023)
- *IDC FutureScape: Worldwide Hospitality, Dining, and Travel 2024 Predictions* (IDC #US49910823, October 2023)
- *IDC TechBrief: Robotic Process Automation in Hospitality and Travel* (IDC #US48650522, October 2023)
- *TCS Focuses on Digital-First Strategies for Travel and Hospitality Industry to Balance Innovation and Flexibility* (IDC #US51076223, August 2023)
- *IDC Survey Spotlight: Challenges in Hospitality and Dining Drive Increased Investment in Managed Services* (IDC #US49228623, August 2023)

## Synopsis

This IDC TechBrief discusses the growth of capabilities in digital signage as it evolves into AI-empowered smart signage. Hospitality and travel operators are keenly focused on driving operational efficiencies while still delivering personalized guest experiences and high levels of service. To meet the demands of high-throughput services, hospitality and travel brands are increasingly leveraging digital signage to relay information quickly and accurately but also offer a wow factor with personalized experiences.

"The next phase of digital signage is smart and responsive," says Dorothy Creamer, senior research manager, Hospitality and Travel Digital Transformation Strategies, IDC. "With AI becoming ubiquitous in our day-to-day lives, travelers expect experiences that are intuitive and contextualized. Guests want to be recognized and have curated experiences at every touch point along their journey. Finding the information they want and need as near real time as possible not only makes their experience better but it enables employees to focus energy where it may be needed."

## ABOUT IDC

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