

State of Artificial Intelligence in Travel

01. Hospitality, Business Travel, OTAs

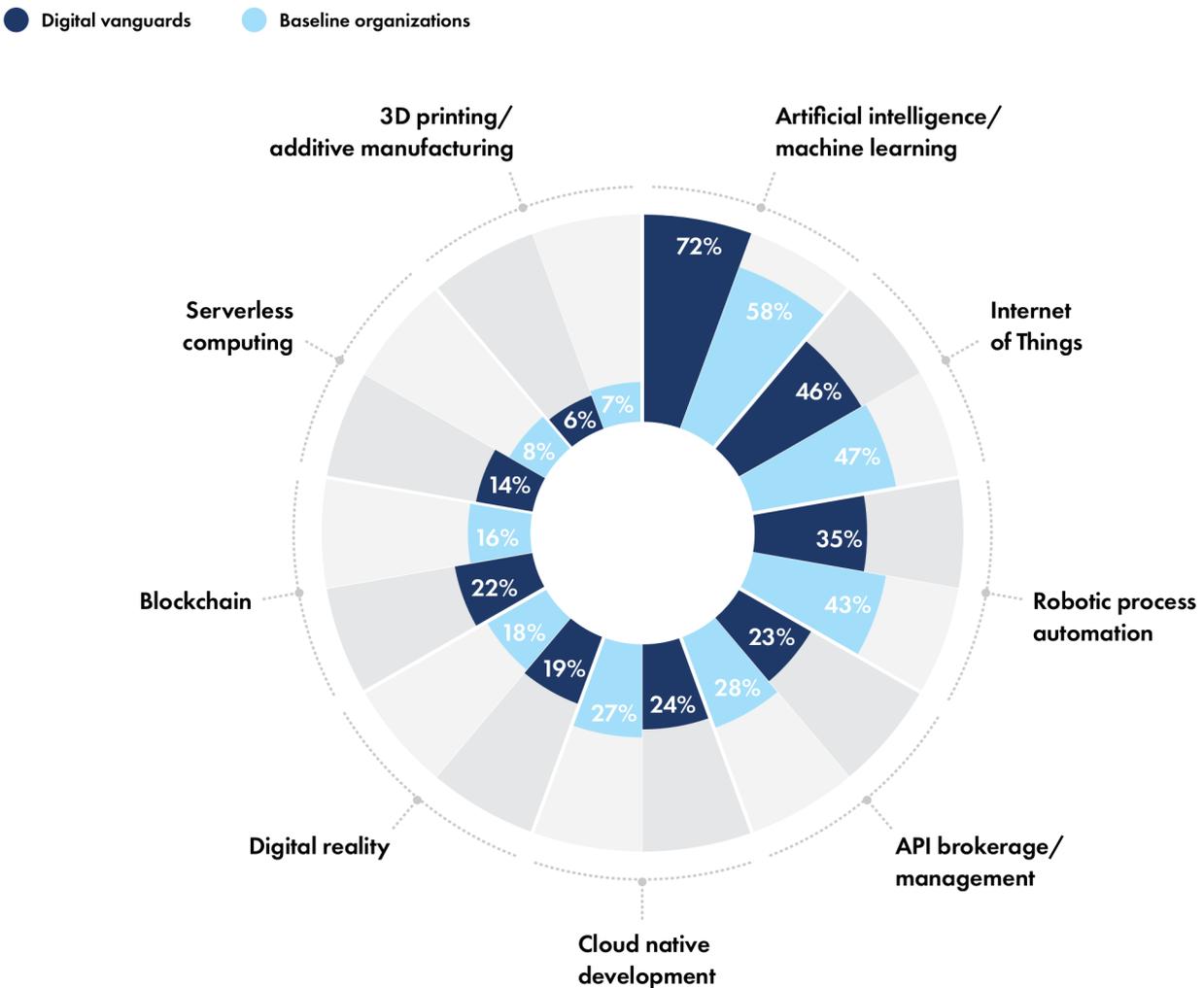
▣ DataArt

AI in travel life cycle and vertical segments / Using AI in the hospitality landscape to enhance hotel reputation, drive revenue and elevate the customer experience to the next level / Travel management companies intend to invest in chatbot technologies / OTAs are using AI to offer travelers deeper personalization and more automated customer service during the search, shop and buy process / Conclusions.

Intro

Artificial intelligence has taken the world by storm. It was available in the '70s and '80s, but the cost of applying it to business travel was prohibitive until recently. As the technology matures, businesses are beginning to include artificial intelligence in their strategic investment roadmaps. According to Gartner's [2019 CIO Agenda](#) survey, **fourteen percent of global CIOs have already deployed AI and 48% will during 2020**. Artificial intelligence has become an essential business technology and the market is expected to be worth trillions of dollars in the near future.

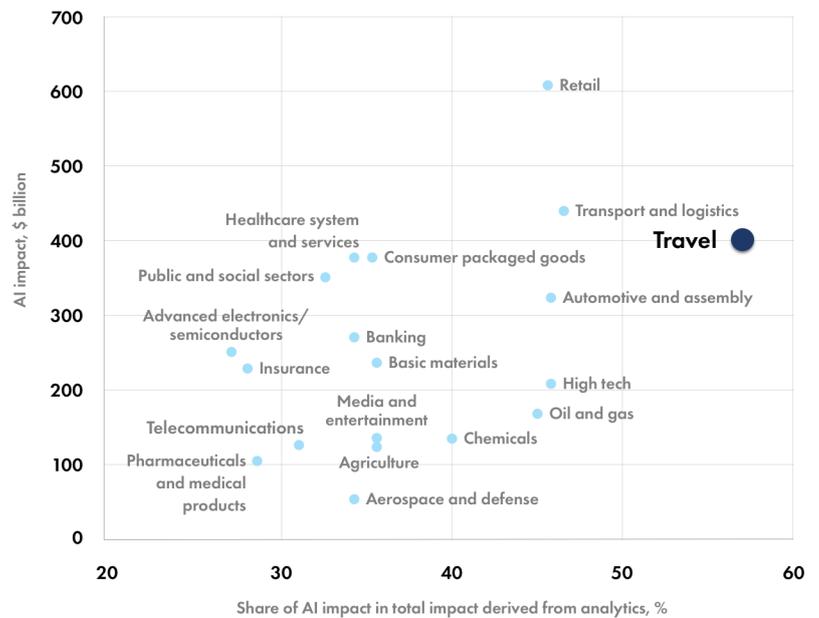
CIOs in digital vanguard organizations plan to pursue AI and machine learning far more aggressively than those in baseline organizations, perhaps because they have a solid foundation to allow them to increase the impact of these emerging technologies.



AI, Internet of Things (IoT), and robotic process automation (RPA) are at the top of CIOs' emerging technologies wish list

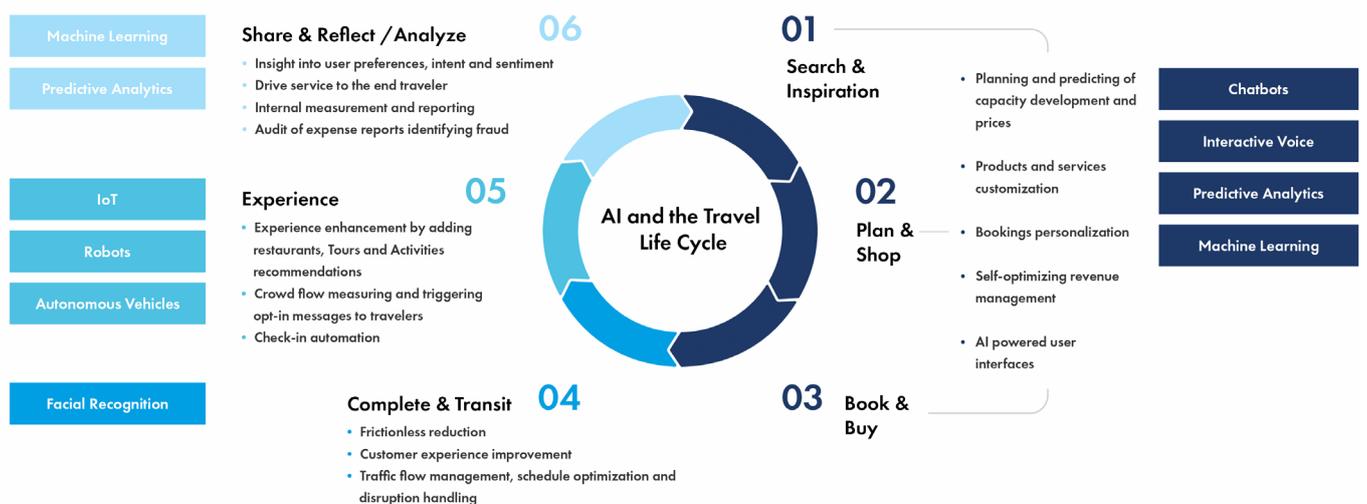
Although Artificial Intelligence has been around for decades, over the past few years we have witnessed a dramatic increase in the use of AI techniques in all industries, including travel. Which AI capabilities are used in the various segments of the travel life-cycle? What sectors offer the greatest promise for AI? How will these sectors benefit from the technology?

A recent study conducted by [McKinsey & Company](#) looked at how AI would impact major industries. **In the travel industry, AI has the potential to create \$400 billion in value.**



AI Impact on travel

Today, AI is touching the traveler directly and powering advanced analytics in backend travel processes, from the ideas and images in online searches to the pricing of accommodations to experiences in-destination. Let's see how AI is used at different stages of the travel life cycle.



Travel Life Cycle

AI use in various travel segments. There is no segment of the global travel industry that has not been touched by AI.



Airlines



Rail



Cruise



GDS



Ground



Lodging



OTAs



Tours and Activities



Corporate



TMCs



Groups and Meetings

In this report, we will cover several segments: Hospitality, Business Travel, OTAs and Tours & Activities.

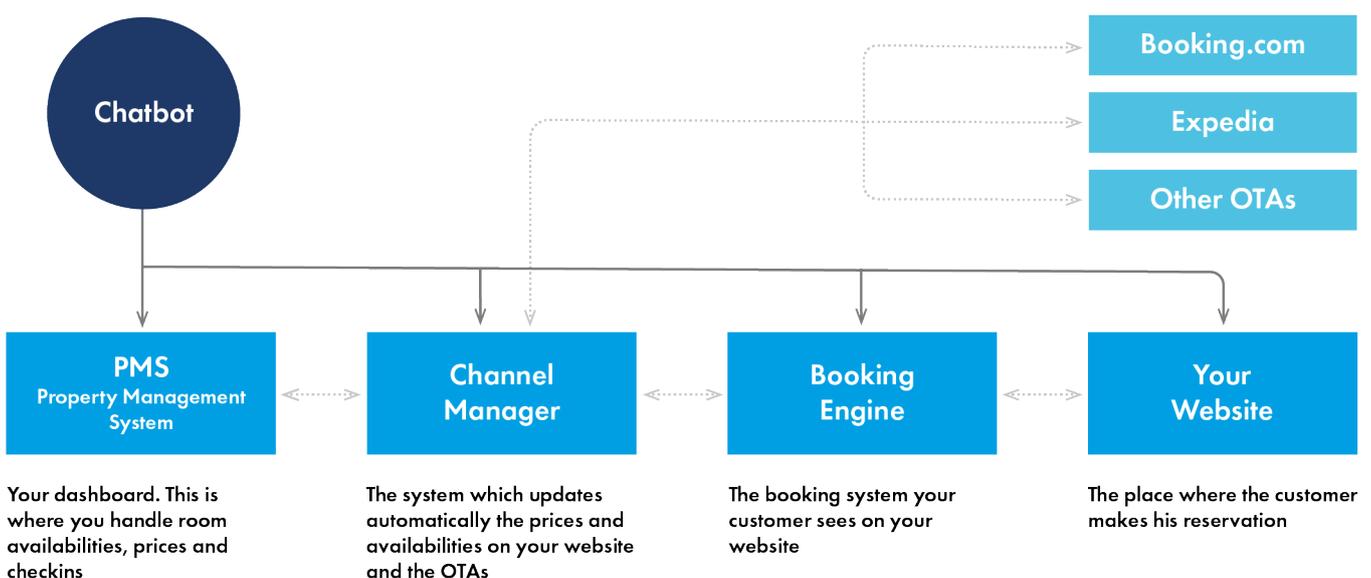
Hospitality

In the hospitality industry, Artificial Intelligence is expected to cause a massive paradigm shift. **AI has entered the traditional hospitality landscape with a promise to enhance hotel reputation, drive revenue and elevate the customer experience to the next level.** Thirty percent of hospitality businesses use artificial intelligence to augment at least one of their primary sales processes and most customer personalization is done using AI. Because of this potential, hoteliers need to ask themselves what's missing from their current AI strategy, and what changes have to be made to maximize their current efforts and improve guest satisfaction. Let's take a look at the areas of hospitality in which AI offers the most potential.

Chatbots

It's obvious that chatbots in hospitality are changing the way booking inquiries are processed. Conversational bots could replace the front desk staff that handles booking-related queries. These intelligent chatbots are programmed to create simulated conversation (text/voice) in native languages, enabling controlled, concise and efficient interactions between humans and machines.

AI chatbots have been utilized on social media platforms, allowing customers to ask questions and obtain almost instantaneous responses, 24 hours a day, seven days a week. This is invaluable to hotels because it provides the type of response times that are almost impossible to maintain with human-to-human interaction.



In addition to deploying common techniques such as AI powered chatbots for customer service, the hospitality industry is using AI for occupancy and rate optimization. AI is also being used to analyze information from sensors used for food and beverage. The goal is to enhance the prevention of contamination and monitor temperature control.

Edwardian Hotels has its own virtual concierge known as "Edward," and the Cosmopolitan Las Vegas has "Rose," a chatbot with a quirky and flirty personality. In addition, Amazon and IBM have recently launched their own hospitality-specific assistants, both of which have the potential to revolutionize the guest experience.

IBM's Watson Assistant for Hospitality may prove particularly attractive as the hotel retains the guest data (unlike with Amazon Alexa). IBM's product can also be white-labeled, so a hotel can use the technology to power their own uniquely-named chatbot.

As well as personalizing the guest experience, chatbots and voice assistants such as Watson present opportunities for upselling in two important ways: tailored recommendations can alert guests to hotel services they'll most likely want, and transactions become friction-free when they're completed with a simple voice request.

Check-in with facial recognition

It's not only airlines that delight customers with self-service capabilities. Hotels also could benefit from facial recognition check-in. This technology allows guests to skip lines at the front desk and complete registration forms. Marriott International is testing facial recognition check-in machines in two hotels – Hangzhou Marriott Hotel Qianjiang and Sanya Marriott Hotel Dadonghai Bay. The enhancement, which was introduced in July 2018, is a result of collaboration with Alibaba's Fliggy travel service platform. With these

terminals, a check-in that usually takes three minutes or more can be done in less than one. Facial recognition kiosks are easy to use. Travelers scan their ID, take a photo, and provide their contact information. The machine verifies their identity and reservation information and issues a room key. Marriott is testing self-serve kiosks at the Moxy brand so far that enables guests to swipe their credit card prompting the kiosk to dispense the key to their room.

Smart rooms with voice-control systems

Following the trend of automation and hyper-personalization, hotels give guests the ability to adapt room amenities according to their preferences. Hotels literally make guest voices heard by upgrading rooms with voice-control systems. The Aloft Santa Clara hotel in San Jose created book voice-activated rooms equipped with an iPad running a custom Aloft app. It gives guests entirely new ways to interact with their room. Guests can use Siri to turn on colored lighting, play a music video on YouTube, start a movie on Netflix, or set the desired temperature.

The InterContinental Hotels Group also recently introduced AI-powered smart rooms at its hotels in China. Together with Baidu, a local technology solution provider, IHG provides an innovative guest experience. A control system,

powered by Baidu's DuerOS AI platform, makes it possible to control room amenities like the thermostat, lighting system, or TV. The IHG management plans to equip 100 AI-powered suites across key destinations within the country.

Also, AccorHotels has debuted a new "Smart Room" concept designed to improve guest room accessibility. The smart room is equipped with features that meet the needs not just of guests with reduced mobility, but all travelers.

One of the biggest advantages for hoteliers in creating a smart hotel is the reduced costs associated with the concept. This is due to improvements to sustainability and energy efficiency within the hotel rooms.

Operational analytics

Hotel software systems work without a second-long break generating all types of guest and operational data. Whether someone books a room or orders a Caesar salad in a restaurant, a housekeeper alerts management about a lack of cleaning supplies or an event manager reserves a conference room, a property management system captures this data.

InterContinental Hotel Group (IHG) is a hospitality company that provides 799,923 rooms in 5,367 hotels across 15 brands. The hotel group plans to increase its global presence with almost 2,000 hotels in the pipeline. IHG is developing technological capabilities to be able to process

a constantly-increasing body of operational data. More than 1000 hotels worldwide are currently using the cloud-based guest reservations system IHG Concerto.

The company co-developed the system with Amadeus to increase revenue and gather more data for decision-making. Concerto allows hoteliers to drive direct bookings by providing personalized offers based on past reservations and suggesting a wider set of booking options (i.e. search by room type, open dates, or budget.) Currently, the hotel chain is trialing an attribute-based booking centered on a bed type. The platform supports multiple languages and

provides access to its IHG Rewards Club loyalty program data in real time. Radisson Hotel Group also takes the data-driven approach to maintaining its marketing, communication, and brand

strategy. The hotel group tracks market trends and analyzes customer behavior to meet their expectations.

Reputation Management

While robotic butlers and in-room voice assistants have some very obvious advantages at the front end of hospitality, artificial intelligence can also deliver major benefits behind the scenes. AI is being utilized within the hotel industry in data analysis as well as in pure customer service. The technology can be used to sort through large amounts of data and draw important conclusions about customers or potential customers. Using AI in this way saves hotel staff endless hours of studying customer surveys and feedback. But it can also identify meaningful information and correlations within data that a human might simply miss.

By providing in-depth insights from thousands of reviews, AI is helping brands such as the Dorchester Collection build deeper customer profiles and track general trends across an extensive portfolio. With the ability to review data so quickly, hotels can access the most up-to-date customer sentiments in virtually no time at all. The Metis platform analyzes digital customer

feedback, sifting through thousands of reviews in many languages. It then produces a 30-minute interactive video that summarizes its findings for hotel staff. Meanwhile, AccorHotels has led a €5 million round in Travelsify, a content analytics platform that uses artificial intelligence. The system uses AI to analyze the content in posts to help brands understand the attributes - what Travelsify calls DNA descriptors. Another example of using AI to "humanize" a review community is TripAdvisor, which uses machine learning - which powers AI - to "derive meaning" from TripAdvisor's massive data sets.

Sentiment analysis helps determine where users are in the planning cycle as well as what types of reviews they're looking for: Someone narrowing down a selection of 10 hotels, for example, likely won't need to read full reviews for each property, however a traveler ready to make a purchase might want more information.

Revenue Management (RM)

Data science allows hotels to predict demand and patterns of customer behavior more accurately using dynamic pricing automation. That's

why global chains such as Marriott International and AccorHotels have data scientists and analysts on board. These specialists develop and

deploy pricing models using data about hotels and their competitors.

Now hotels can rely on RM solutions in controlling their revenue. Such software defines the optimal room rate in real-time using machine learning. These RM systems automatically consolidate and analyze large amounts of internal and external data from multiple sources to detect patterns and anomalies. One such solution, the OTA Insight platform, for example, is used by Carlson Rezidor, AccorHotels, Fusion Hotels and Resorts, Sydell Group, Hilton, Crowne Plaza, and others.

On the backend, IDEaS Revenue Solutions has also unveiled the first voice-based interface

designed for a revenue management platform. IDEaS G3 RMS voice-interaction technology will allow all business stakeholders to access real-time data and performance metrics through smart speaker devices.

Sabre Corporation launched SynXis Analytics Cloud, which is a platform that uses AI to help maximize hotel revenue. The platform identifies opportunities for revenue and guest experience improvement and helps hoteliers avoid lost revenue by analyzing data from operations, finances, room-stay production, ancillaries, and rate-room-channel configurations to deliver targeted actionable insights.

Business Travel

In corporate travel, AI integrates into processes at all points of the travel cycle. The use of chat and voice can improve booking and customer service. Predictive analytics and machine learning are driving travel cost optimization and expense management. AI helps provide more personalized services while reducing expenditures on customer services. Business traveler trip rationalization and traveler data analytics remain key areas of focus in the managed travel segment.

Mobile Travel Assistants/ Bots/ Conversational interfaces

According to TMC Trends research by MTT, 43% of travel management companies intend to invest in chatbot technologies.

Chatbot-enabled personal travel assistants are definitely a hotspot for managed business travel innovation. TripActions, 30SecondsToFly, HelloGbye, Hello Hipmunk and others are disrupting the industry with innovative AI-based solutions. However, chatbot-enabled personal travel assistants still need fulfillment partners in the background - TMCs.

Concur bought Hipmunk in 2016, but Concur, a traditional online corporate booking tool, has yet to capitalize on Hipmunk's AI technol-

ogies for Concur Hipmunk, its new solution designed to help small businesses capture unmanaged travelers. Credit card giant American Express acquired travel-oriented chatbot provider Mezi in January 2018 and is folding it into its proprietary AskAmex travel tool for card-holders. TripActions received \$51 million in Series B funding last month and is looking to build infrastructure technology that will unleash the real power of AI for managed travel. Indeed, even with the excitement in the mobile travel assistant space, there's a lot of work to be done—and traveler expectations are high.

Anticipating disruptions

The ability to forecast travel disruptions such as weather patterns or airports and routes with delays can help travel managers address customer concerns. Technology can anticipate disruptions

and reroute the traveler – often without the traveler aware of the change. This technology will continue to become more efficient.

Expense and total cost management

Areas where expense management workflow automation can help managed travel are:

- Predicting travel budgets based on performance, industry forecasts and future staffing levels
- Using AI to auto-audit certain processes and flag irregular expenses or suspicious patterns

for managers. Catching violations a human cannot

- Analyzing historical expense submission data to identify unusual patterns and recurring bad behavior
- Real-time claim evaluation and identification of claims requiring further investigation

Policy improvements

Meanwhile, corporate travel managers struggle with employees selecting options outside of travel booking policies. An AI solution could reconcile personal priorities with corporate travel policies.

AI technology can drive policy improvements. Data collected from AI reviews of expense reports could affirm that certain violations are based on rational behavior, allowing the

company to update its travel policy, for example allowing ride-sharing suppliers like Uber.

SAP Concur is working on an AI feature, Dynamic Policy, that incorporates a company's travel policy, data from SAP's Leonardo intelligence innovation system and other systems to automatically adjust the policy within Concur as needed.

OTAs

OTAs are using AI to offer travelers deeper personalization and more automated customer service during the search, shop and buy process. By implementing tools that help customers find the right products, AI is driving greater efficiency. AI is also essential for algorithms behind OTAs' chatbot and voice tools. AI is also used for predictive fare analysis by many online travel companies.

Chatbots/ AI Virtual Assistants

Phocuswright: A survey of 18,500 people from more than 25 countries revealed that 80% of holidaymakers prefer to self-serve to get the information they need. However, 50% of consumers do not care whether they deal with a real person or an automated system as long as their questions are answered. The assistant can handle queries on issues like payment, transport, arrival and departure times, date changes and internet availability.

Booking.com's Booking Assistant chatbot is designed to respond to a range of frequently asked questions, including those related to payment, transportation, arrival/departure time,

cancellation requests, and other. Booking has stated that its Booking Assistant now resolves more than half of queries in less than five minutes. Kayak also uses chatbots. Passengers not only get information on flight delays, they can also get answers to more personal questions like "what are fun things to do in Italy?"

Expedia's messenger bot can help users with managing trips, as well as flight and hotel search, redirecting to the Expedia website for booking. Expedia has also launched an Amazon Alexa skill that travelers can use to get personalized information, including flight status, car rental and loyalty information.

Trip planning

According to a [survey by Booking.com](#), nearly one third of travelers would be comfortable letting a computer plan their next trip based on information from their travel history. Using AI, OTAs are now able to create tailored recommendations based around a host of unique preferences. TUI Group and AI-powered trip-planning service

Utrip created a personalized trip planning service. This sophisticated online tool asks travelers to rate their preferences in sightseeing, food and drinks, shopping etc. Extra filters such as "Traveling With," "Trip Style," and "Trip Purpose" offer further improvement.

Conclusions

1

Front-end & back-end

AI is clearly impacting every stage of the travel live cycle and being used to deliver real value to the travel organization. On the front-end, AI is touching the traveler directly and powering advanced analytics in backend travel processes from the ideas and images in online searches to the pricing of accommodation to experiences in-destination.

2

AI in hospitality impacts operational dynamics

The hospitality industry seems to be benefiting from AI the most. The technology is causing a massive paradigm shift. With a slight advantage on the customer facing side, it is changing booking inquiry processing, improving self-service capabilities, allowing hyper-personalization in-room options and more. Meanwhile, behind the scenes AI also delivers major benefits: machine learning and predictive analytics help hoteliers to close intelligence gaps and allow hotels to predict customer demand and behavior patterns.

3

Business travel: diving deeper into data

In corporate travel, AI predictive analytics and machine learning mainly drive travel cost optimization, expense management, and policy improvements.

4

Online travel agencies: the age of hyper-personalization

Meanwhile, OTA's market leaders set the bar high in leveraging assistant chatbots to process frequent requests and offer deep personalisation.

5

Trusted technology partner

Understanding what AI can and cannot do as well as the areas of implementation during the travel life cycle are essential to avoid overpromising and under delivering on AI initiatives.

Talented technology teams and technology partners are the critical components in capitalizing on cutting edge technology. Data scientists and digital-savvy IT leaders can bring AI supported travel vision to life.