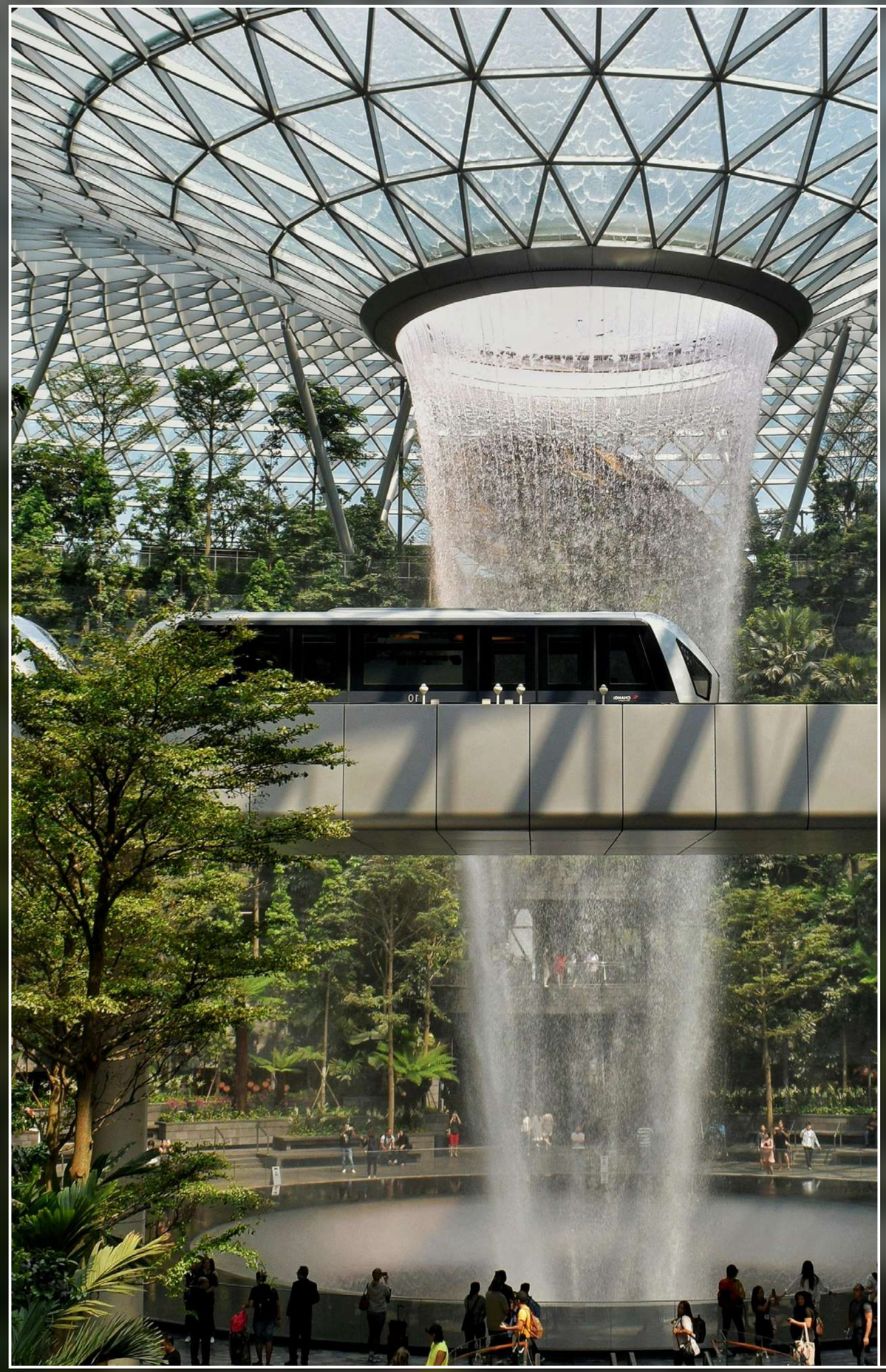
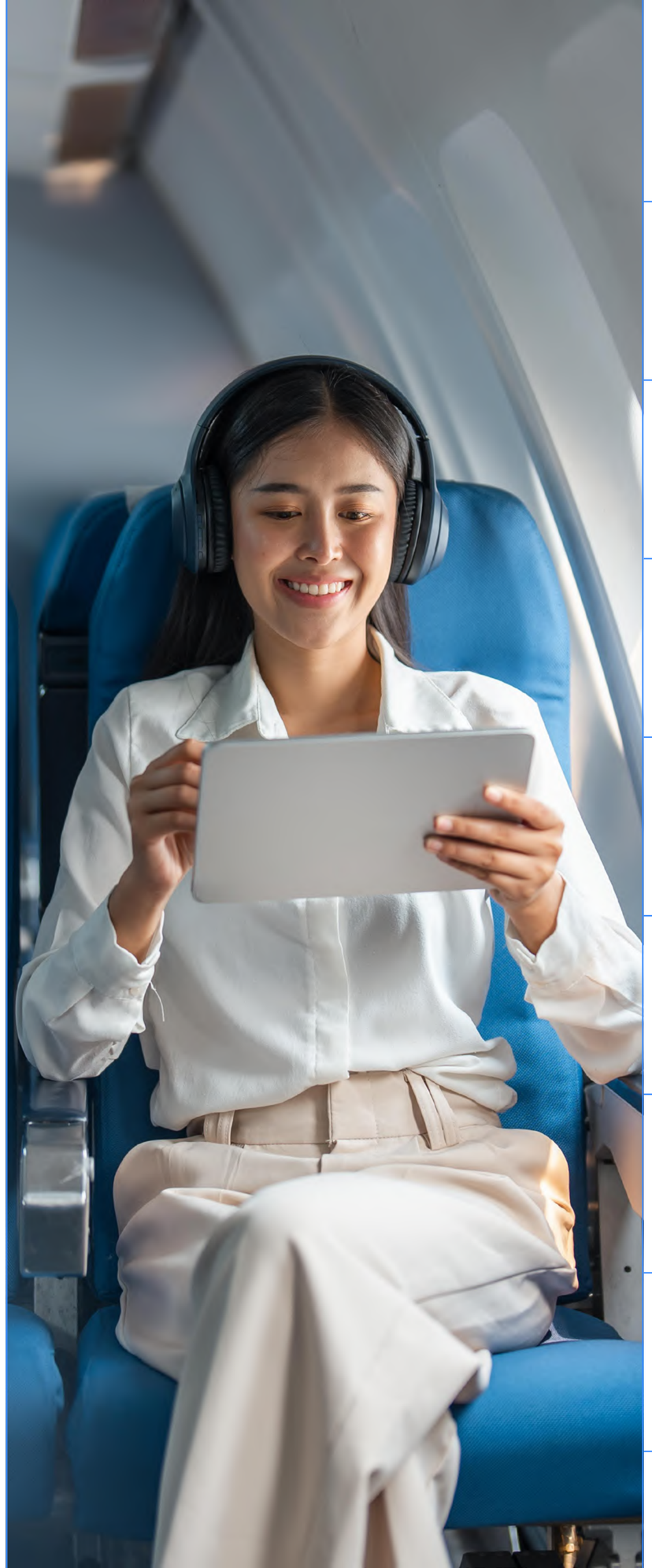


Transforming operational efficiency in the travel industry with AI and Agentic flows

June 2025

The views expressed in this report represent a combination of perspectives from Amadeus and Microsoft.

amadeus | Microsoft



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Foreword

On 30th November 2022 Open AI released ChatGPT to the public as a ‘research preview’, demonstrating the potential of generative AI to the world at scale. Since then, everything in the world of business technology has changed.

Generative AI is one of those technology advances that come along only once every few decades. A truly transformative enabling technology that promises a step-change in automation and productivity, which could deliver economic benefits on a scale like the internet itself.

More recently, the potential of AI agents or ‘Agentic AI’ has been highlighted. These agents harness generative AI models to make their reasoning capabilities more accessible to humans. Importantly, as the name ‘agent’ suggests, they can be designed to have ‘agency’, not just finding information but reasoning and taking action too. They can act with autonomy, proactively solving problems while adapting to changes in their environment.

Yet like all previous technology step-changes, this new capability is disruptive. Benefitting from this change requires organizations to do things differently. From how we organize data to how we build business applications, design user experiences and how organizations work together. Not to mention the need to ensure we humans have the skills and knowledge to harness these new systems.

Travel is a case in point. Due to the importance of unstructured information, our industry is part of a group of sectors, alongside e-Commerce, manufacturing and finance, that have the greatest potential to positively transform with AI agents and all the associated enablers, like modern data platforms.

From finding the optimum trip to organizing operations at an airport, many of the ‘problems’ we seek to solve in travel have similar characteristics. They require analysis of vast amounts of often unstructured data, which is often siloed and hard to access. They then require intelligent decision making based on that analysis, resulting in an action – perhaps booking a flight or assigning an aircraft to a particular gate. Downstream systems and stakeholders must then be updated.

AI agents can augment human experts to automate this type of work. They can flexibly access data and apply increasingly advanced reasoning to recommend the best course of action. Importantly, they can also take that action and automatically update the required systems.

That’s why we view generative AI as a genuine ‘once-in-a-generation’ breakthrough. By mimicking human capabilities to ‘use’ our existing applications, by obtaining greater contextual understanding about our needs, by communicating with humans or other agents, and by undertaking actions, it is increasingly clear that agents will augment and complete a wide variety of tasks.

Indeed, at Amadeus and Microsoft we are closely collaborating and working with our customers to build agentic systems. Several AI agents have already been designed across Amadeus’ existing portfolio, leveraging Microsoft 365 Copilot and its AI stack, supporting travel companies to automate and improve productivity. Initial results are hugely positive but there’s a shared belief we have only begun to scratch the surface of what’s possible.

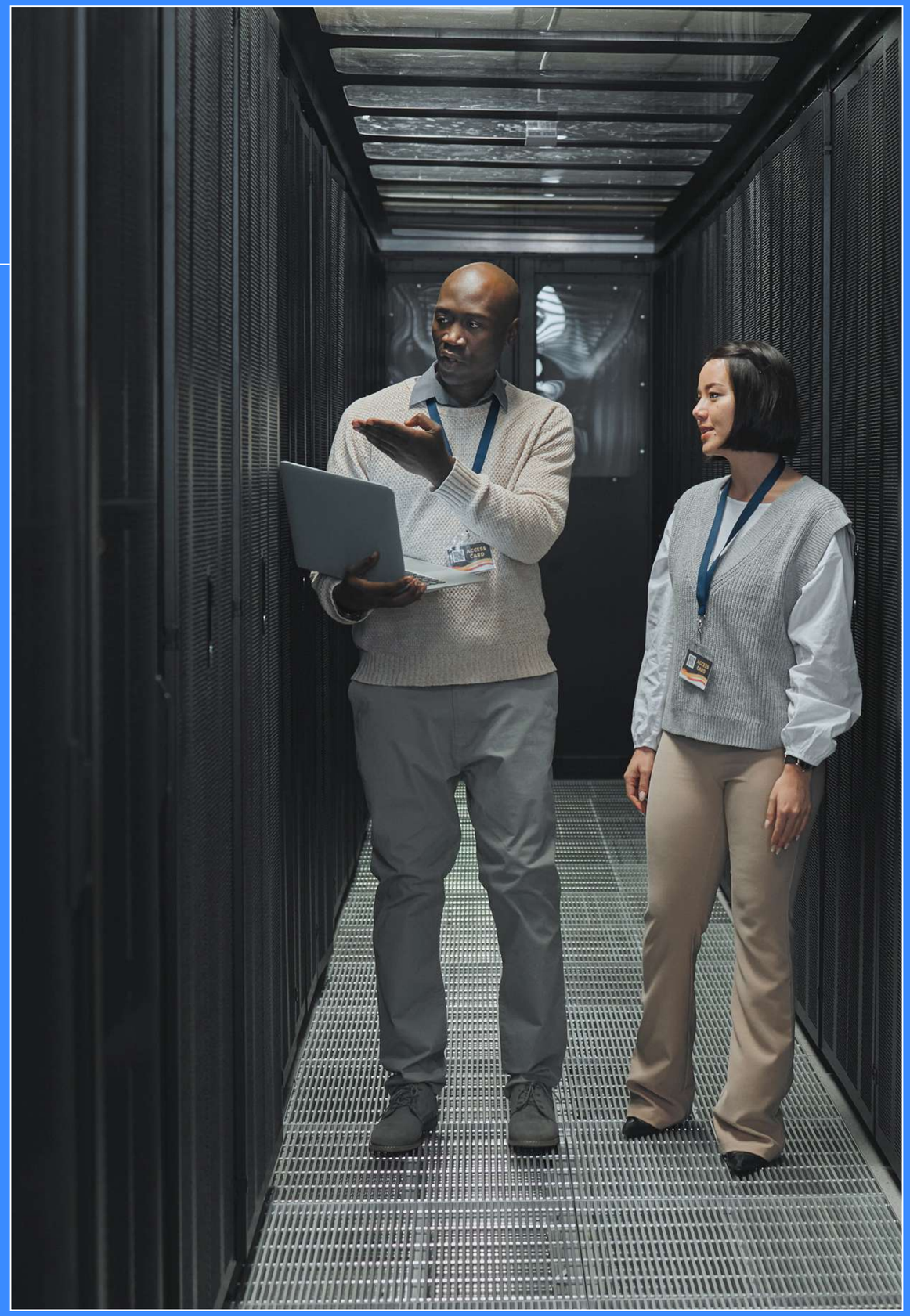
Corine de Bilbao,
CEO & CVP, Microsoft France

Wolfgang Krips,
SVP Corporate Strategy, Amadeus

Introduction

This report focuses explicitly on the potential of AI agents to enhance productivity and business efficiency across the travel industry because that's where Amadeus and Microsoft envisage AI agents will deliver most impact in the short to medium term. Due to Amadeus' transition to the public cloud and work to make its data more easily accessible through a new 'data mesh', the foundations are already in place to begin deploying AI agents.

The report has been jointly created by Amadeus and Microsoft, two companies working in close partnership to ensure the travel industry can benefit from the very latest advances in technology. Indeed Amadeus and Microsoft have been working closely together since 2021 when the companies entered into a strategic partnership.



Core to this partnership is the phased migration of all Amadeus systems and workloads to the Microsoft Azure public cloud, bringing new levels of flexibility, agility and innovation. Given the huge scale of Amadeus' operations, which process more than 100,000 transactions per second during peak times, this cloud migration is one of the largest ever undertaken.

As outlined in a previous report **'Journey to Cloud Planet'**, the move to the public cloud provides extremely resilient, high performance cloud infrastructure on a global basis, so Amadeus' solutions compute closer to the travel company that's using them.

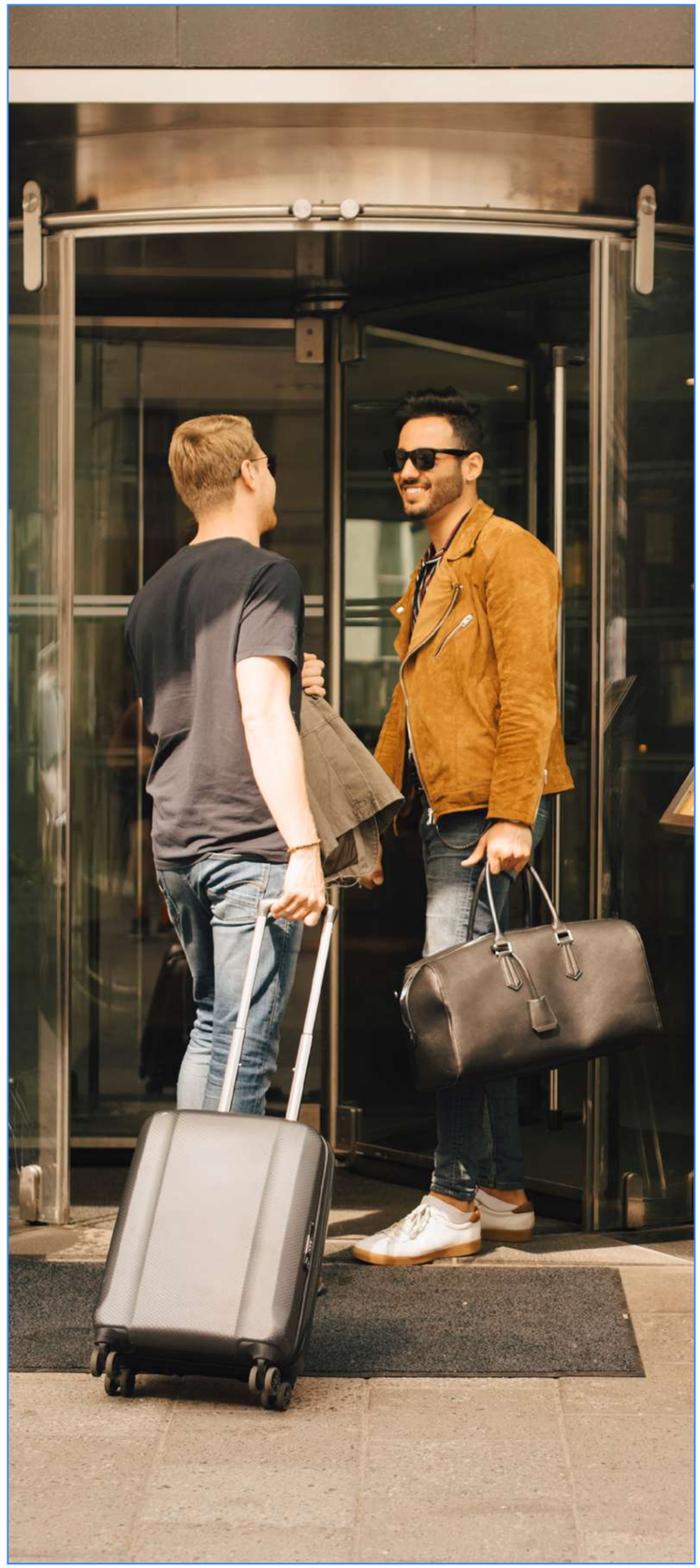
The move to the cloud also included a complete overhaul of how Amadeus manages data with the introduction of the travel industry's first 'data mesh'. Effectively 'a network of data', a central node enables a governance framework to be used to ensure that any data is processed in a secure, compliant and accountable manner that can be trusted. Different data sets are sub-nodes on the network and powered by Azure data technology.

One of the main reasons Amadeus invested in the data mesh was to create a trusted industry data source, prepared for an AI-driven future. The data mesh means that one area of the industry is able to work with data insights from another area, e.g. an airline could create a personalized offer for a traveler, with their permission, that draws on insights gained from a hotelier's data.

This fundamental capability is key to delivering a more joined up traveler experience across the entire trip, which we explored in the recent **'Delivering Traveler Value'** report. However, accessible and well-governed data and insights can take us much further by providing the foundation for developing effective agentic AI systems.

With the ability to take on increasingly complex tasks, AI agents promise to transform every area of the travel industry. From simplifying access to business intelligence insights in hospitality, to helping operations managers access the information they need more easily, and supporting travel agents in responding to emails from travelers. AI agents acting as a co-pilot for people across the industry are already here. By taking on a wide variety of basic tasks AI agents can play a key role in addressing the travel industry's chronic labour shortage, freeing people to focus on more strategic activities.

Looking further ahead, this report will also explore the potential for multi-agent systems, where groups of AI agents collaborate to transform complex areas of the industry, like aviation operations.



What are AI agents?

Agents harness the power of machine learning and generative AI. However, rather than simply providing relevant information on demand like a web interface to ChatGPT, agents can work alongside an employee or even on behalf of a team or company. Agents can complete a wide range of tasks, from responding to questions to more complicated or multistep assignments. What sets them apart from all-purpose web interfaces à la ChatGPT is that they can be tailored to have particular expertise.

For example, a travel seller could deploy an agent that has a detailed understanding of a destination and is able to answer questions from colleagues or travelers on what to expect and what can be experienced. This agent could then provide tailored recommendations and, with the user's permission, even book the trip automatically on their behalf.

Although research into agents has been on-going for several decades, it is the combination with LLMs that mean agents now have the semantic understanding and reasoning capabilities that make them truly useful.

"ChatGPT and LLMs have really changed the landscape. Previously you'd need six months of AI development to answer a question, and now you can do it over the weekend because the foundation models already have a solid understanding of the world. Agents can tap into that capability."

Sandy Gupta
VP Global Software Ecosystems, Microsoft

AI designed to perform a task

Simple ↑

Generation

Generate summaries, images, audio, and more with an AI model and inputs

Retrieval

Retrieve information from grounding data, reason, summarize, and answer user questions

Action

Take actions to automate workflows, and replace repetitive tasks for users

↓ Advanced

Tasks can vary in level of complexity and capabilities depending on your need

In the travel industry, agents hold significant promise in taking automation to the next level, helping to free employees to focus on more strategic work, while improving human productivity by helping us to take better decisions more quickly. Agents can be designed to undertake many day-to-day tasks and to augment the work humans undertake, empowering us to achieve more.

AI agents can be created with varying levels of capability, from basic agents that retrieve information more quickly and answer questions, to agents that have agency to undertake a specific task, through to fully autonomous agents that learn and plan dynamically.

Microsoft offers a comprehensive platform designed to support the growing needs of organizations. It combines AI-infused business applications (CRM and ERP) and Microsoft prebuilt agents (for sales, service, client service needs and much more) with a secure, governed environment that enables the development of custom agents tailored to each client's specific requirements.

Those AI agent development solutions include Agent Builder in M365 Copilot, Copilot Studio and AI Foundry.

- **Agent Builder in Microsoft 365 Copilot** enables knowledge workers to create task-focused agents directly in apps like Outlook and Teams—no coding needed.
- **Copilot Studio** lets business users and IT teams create custom copilots with low-code tools.
- **AI Foundry** targets developers and data scientists building advanced, scalable agents.

Microsoft 365 + Copilot Studio

Making information workers more productive

Copilot Studio

Transforming enterprise business processes

Copilot Studio + Azure AI Foundry

Building custom AI solutions

Creating data ecosystems

While the travel industry consists of separate, typically siloed organizations like travel sellers, airlines, airports, ground transport providers and hotels, a traveler's journey is really one overall experience delivered by these players. For the true potential of AI to be realised across travel, the industry's data must be fit for purpose with the potential for data insights to be shared and useable across different industry domains.

This is why Amadeus is working with Microsoft to apply modern data platforms in travel. Data management technology is witnessing significant innovation, with new approaches like Microsoft Fabric making it much easier for data to be made available, when and where it's needed. This unified data platform supports cross-company collaboration without needing to copy or move it. This simplifies data exchange, reduces duplication, and ensures everyone works from the same, up-to-date information.

One of the historic challenges to data availability between organizations has always been security and governance. If a dataset was shared with a partner then it was practically impossible to ensure security and manage access controls.

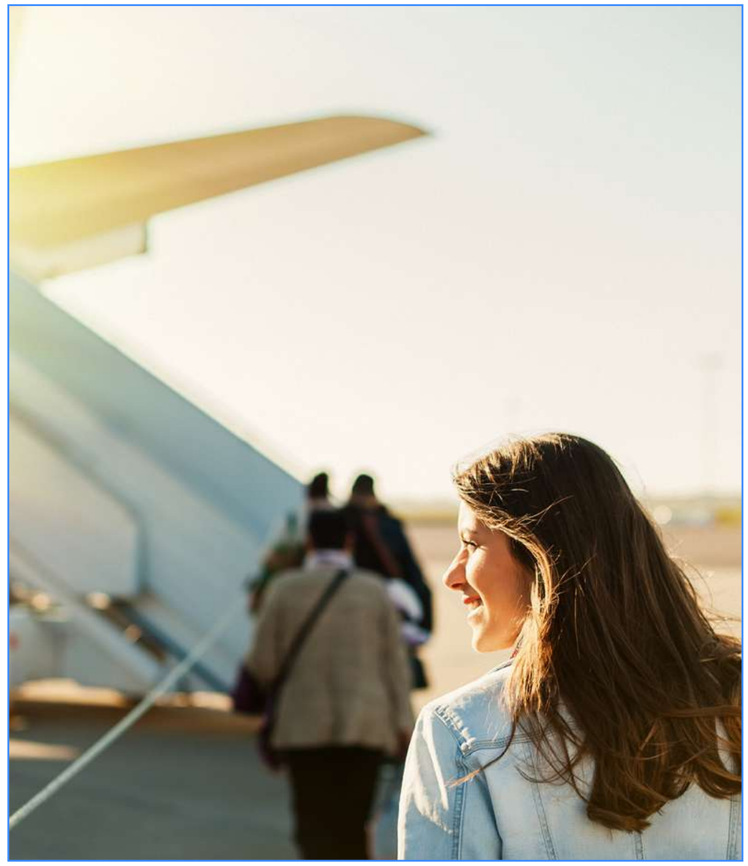
Fortunately, cutting edge approaches to data management have removed this barrier. For example, Microsoft Fabric allows data pipelines to be established so that data held in a data lake can be made available to analytics or AI agents with security, access controls and governance standards enforced.

Also key to AI agents delivering value across the travel industry is ensuring they can access the high quality data they need to undertake specific tasks, like supporting a travel agent to understand complex airline fare rules. In a dynamic sector like travel, agents also need to understand ‘what’s going on’. To achieve that, agents need access to streams of ‘event’ data from underlying business systems that collect and record these events e.g. passenger A has now checked-in and is in the terminal.

Ensuring AI agents can access, learn from and process, specific industry data is how the travel industry will unlock value in the coming years.

The Amadeus AirOps Data Exchange is discussed in the ‘Aviation Operations’ section of this report. It provides a practical example of the business value that is beginning to be generated from this approach by making data sharing between airlines, airports, ground handlers and others possible.

Throughout this report, ‘reference architecture’ diagrams have been included which visualize how Amadeus and Microsoft are combining their assets to deliver an accessible and connected data foundation that enables travel companies to practically apply AI.



“Before you’re ready for the Agentic future, first you need to be in the cloud. Then you need a modern data architecture that supports clear data domains, so data can be made available. Then you need solid governance on top. Only then are you ready to provide access to the models in a controlled way. Nobody was talking about Agentic when we began the data mesh project, but it turns out to be the perfect foundation.”

Joel Singer
Head of Data Engineering, Amadeus

“The additional reasoning capabilities of agents are creating new AI use cases on an exponential scale. We see this across all industries, with some high value manufacturers already rolling out thousands of agents. I have absolutely no doubt we will see similar take-up across the travel industry.”

Dayan Rodriguez
Corporate VP, Manufacturing & Mobility, Microsoft

Transforming travel planning

The move to an agentic web has the potential to flip today's internet search model on its head.

Today, travel companies provide us with trip recommendations based on search parameters we specify, like date and budget, as well as our browsing and purchase history to present a large range of options. Personalization exists but is limited by a significant lack of context, and context is everything when it comes to planning a trip.

Through natural language chat or by 'living' on a person's own device to remember their prior choices, AI agents can infer far greater context about the needs of a traveler. The AI agent acts in a similar way to a human personal assistant, intimately understanding context like when you need to be back home, whether your favourite band is playing at your destination and which evening during your business trip is free for potential leisure activities.

Amadeus, Microsoft and Accenture have collaborated on an AI Assistant which will be available to users of the Amadeus Cytric Easy corporate travel management tool. Users can chat to the agent in natural language through Microsoft Teams, replacing traditional sequential search with a conversational interface to plan and book relevant business trips more easily, receiving personalized results based on user context.

Over the coming years, Amadeus foresees AI agents representing the traveler communicating with agents representing travel providers and travel sellers, to negotiate and organize trips more effectively.

"An AI agent can interact with the traveler in much the same way as a human personal assistant would, using similar sentiment analysis and reasoning logic to return recommendations that better meet the traveler's needs. This really flips today's internet search model on its head and means it's going to be possible to return highly relevant recommendations, rather than a page of search results."

Wolfgang Krips
SVP Corporate Strategy, Amadeus

“When empowered with our personal context, AI agents can use their semantic understanding to generate deeply relevant experiences. As we continue our advances in AI, we’ll be able to create magical user experiences, for example, by having agents deliver superbly curated trip recommendations.”

Monica Ugwi
GM for Cloud, Industries and Manufacturing, Microsoft

“At Cytric, we’ve been pioneers in investing early in GenAI technology. We’re thrilled that Microsoft is now piloting our GenAI Assistant, enabling everyone to benefit from the support of a personal agent.”

Mark Cullen
Chief Commercial Officer, Amadeus Cytric

Part 1

Transforming travel seller operations

In addition to the potential for AI agents to provide exciting new planning options they can also enhance travel agency operations, delivering new levels of productivity.

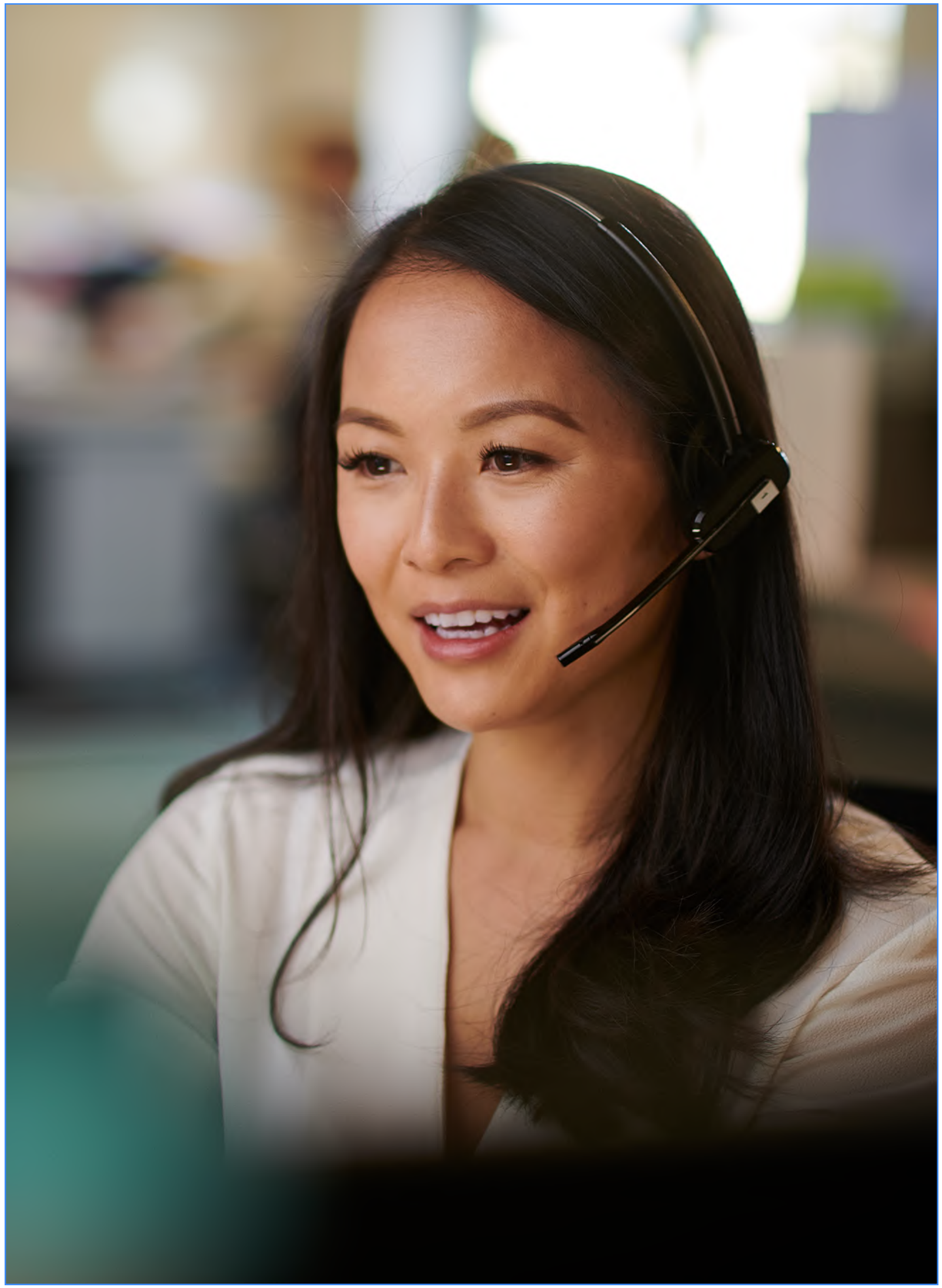
Harnessing AI in this way is particularly important given that many experienced travel agents left the industry over recent years, leading to a skills crunch. With many travel sellers operating on razor thin margins, operational efficiency is critical to remaining competitive.

While Robotic Process Automation (RPA) has been around for years, helping to automate routine, rule-based tasks, it's limited in what it can do. Generative AI brings a different level of capability. It can understand unstructured data, like text, and apply reasoning to more complex problems. Integrating advanced AI with RPA is enabling true end-to-end automation of repetitive tasks. An AI agent can now read an unstructured customer email, interpret the request, pull data from legacy systems via RPA, and then draft a personalized response or update a booking automatically – something earlier rule-based bots couldn't.

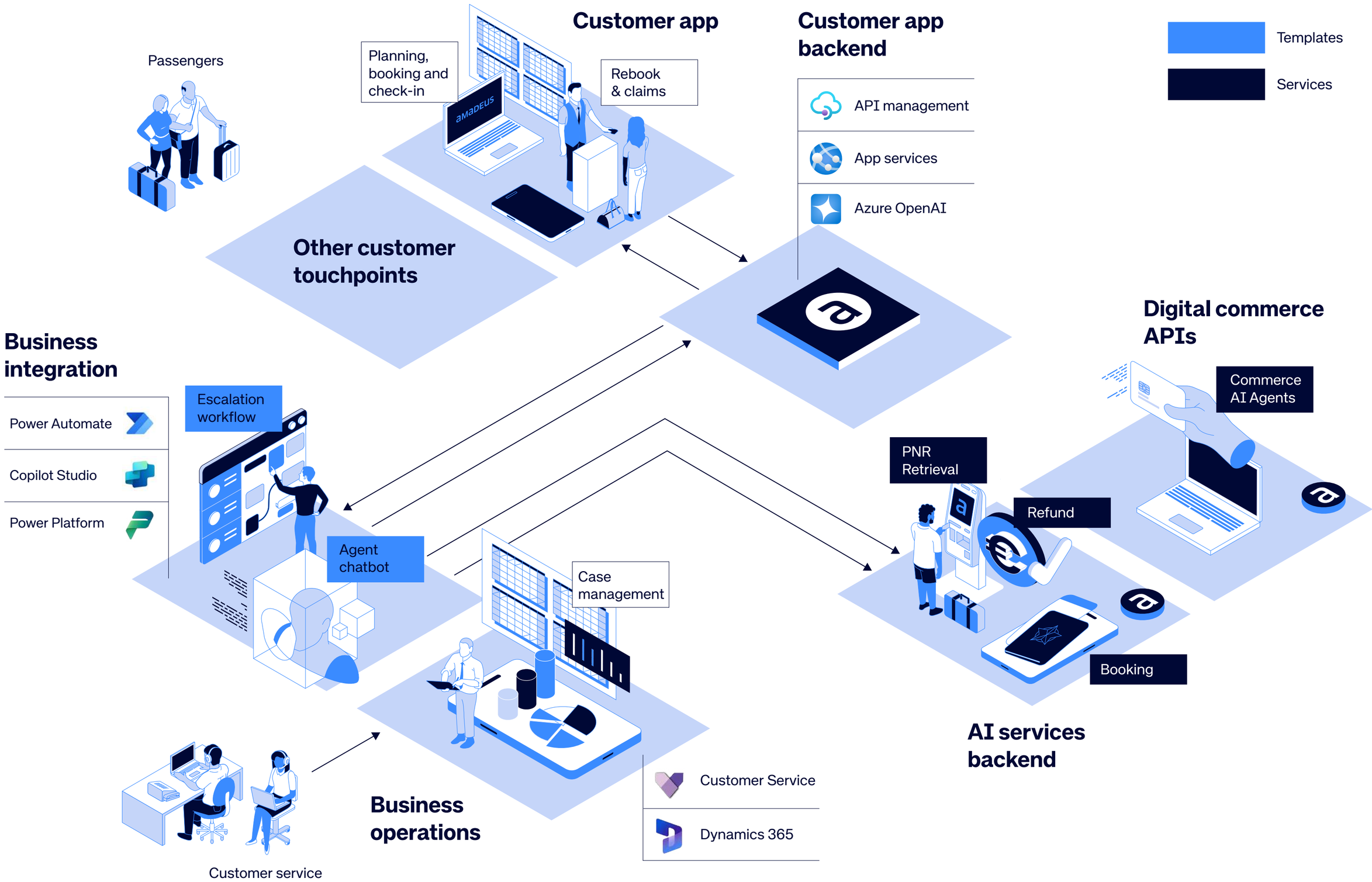
"The initial agents we've created within Selling Platform all focus on making life easier for human agents. They're productivity boosters, removing the complexity and drudgery of day-to-day tasks so travel agents can spend more time serving customers. The human touch will always be important in travel planning and we're using AI to maximize time for that."

Stephanie Madee
VP Product Management, Travel Sellers, Amadeus

Using Microsoft Copilot Studio and Azure AI Foundry, Amadeus has already trained and deployed several productivity boosting AI agents for travel sellers.



Example: Agent productivity concept



The world’s number one airline fare rules expert

A first AI Agent has been trained as an expert advisor on airline fare rules. One of the most common and time-consuming requests travel agents deal with are traveler queries on their air purchase. Answering simple questions like ‘How much will it cost to change my ticket?’ and ‘What’s the latest date I can make a change?’ can take upwards of 10 minutes, given fare rules vary across airlines and by fare class. The addition of new, specific, fare rules associated to New Distribution Capability (NDC) content has increased complexity even further.

Now, travel agents can answer such questions in an instant by chatting with an AI agent directly through Amadeus Selling Platform Connect, the front-end interface to the Amadeus Travel Platform. The AI agent has been trained on both airline fare rules relating to both EDIFACT and NDC content, using data from ATPCO, PDF documents direct from airlines, airline B2B portals and Amadeus so it is able to return highly relevant results that replace the need for travel agents to phone airlines.

“At Amadeus we’re excited about the potential of Agentic systems. We already have early examples live in production, these agents act as co-pilots, assisting employees to be more productive. In the future, we’ll see fully Agentic systems emerge, where agents cooperate with each other to undertake entire tasks.”

Fredrik Odeen
Innovation Program Director, Amadeus

Answer any question about a booking in an instant

A second AI agent performs a similar function but this time it helps travel agents to quickly answer questions relating to a booking. Today, travel bookings use the Passenger Name Record (PNR) as a source of information on the traveler's entitlements as well as history for the booking.

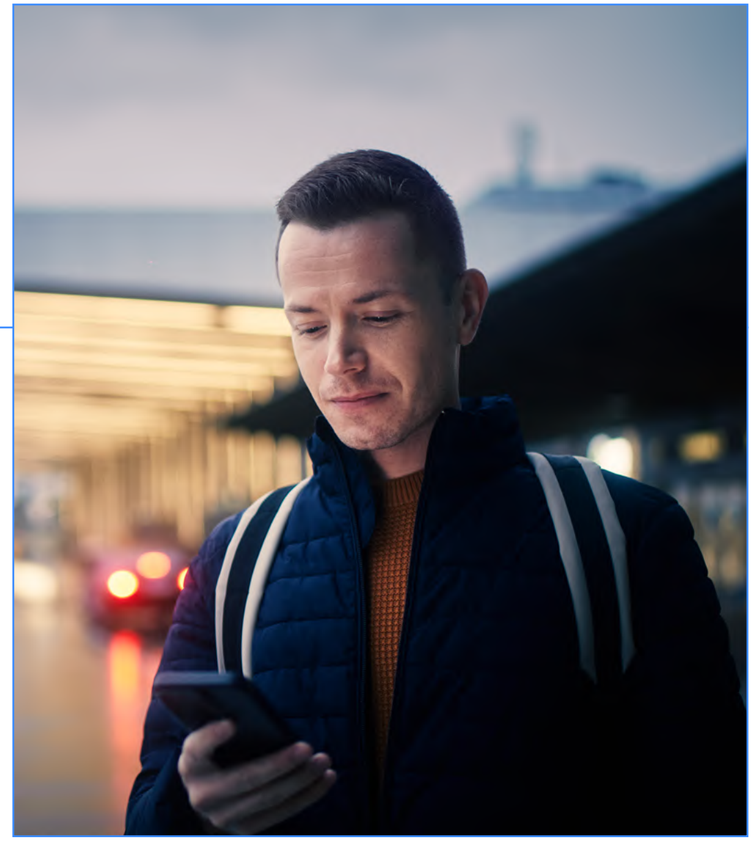
PNRs are a historic data standard often consisting of several pages of cryptic information. Reviewing a PNR to find the information you need is both complex and time consuming, particularly for travel agents that have recently entered the industry. Yet in order to provide a high level of service, travel agents must frequently consult PNRs to understand the history of a booking, perhaps to answer a question like 'when was the flight or hotel rebooked?' or 'which travel agent performed the changes to this booking?'.

That's why Amadeus has developed a new AI Agent that acts as a specialist PNR guide, helping travel agents to get the information they need more quickly. For example, it's now possible to understand which travel agent performed a change to a booking with the AI agent returning the person's name and their office ID in an instant. This type of information retrieval can save perhaps 10 to 20 minutes each time an agent refers to a PNR.

An assistant that monitors your inbox

The third AI agent launched for travel sellers focuses on improving productivity by screening and automatically replying to emails from travelers. Today it's common for travelers to contact their travel agent by email to specify the type of trip they're keen to arrange, however these initial emails frequently omit the information needed to begin planning. For example, an email might not specify the number of travelers, the preferred duration of a trip or the ideal departure airport.

This AI agent has been specifically designed to play the role of an assistant that reads each email and checks all necessary information has been provided. The AI agent can analyze the email text to detect the traveler's intent and any information that's missing. It then creates an email reply, which is reviewed by the travel agent, before being sent to the traveler. By automating this task human agents can spend more time consulting with clients and upselling.



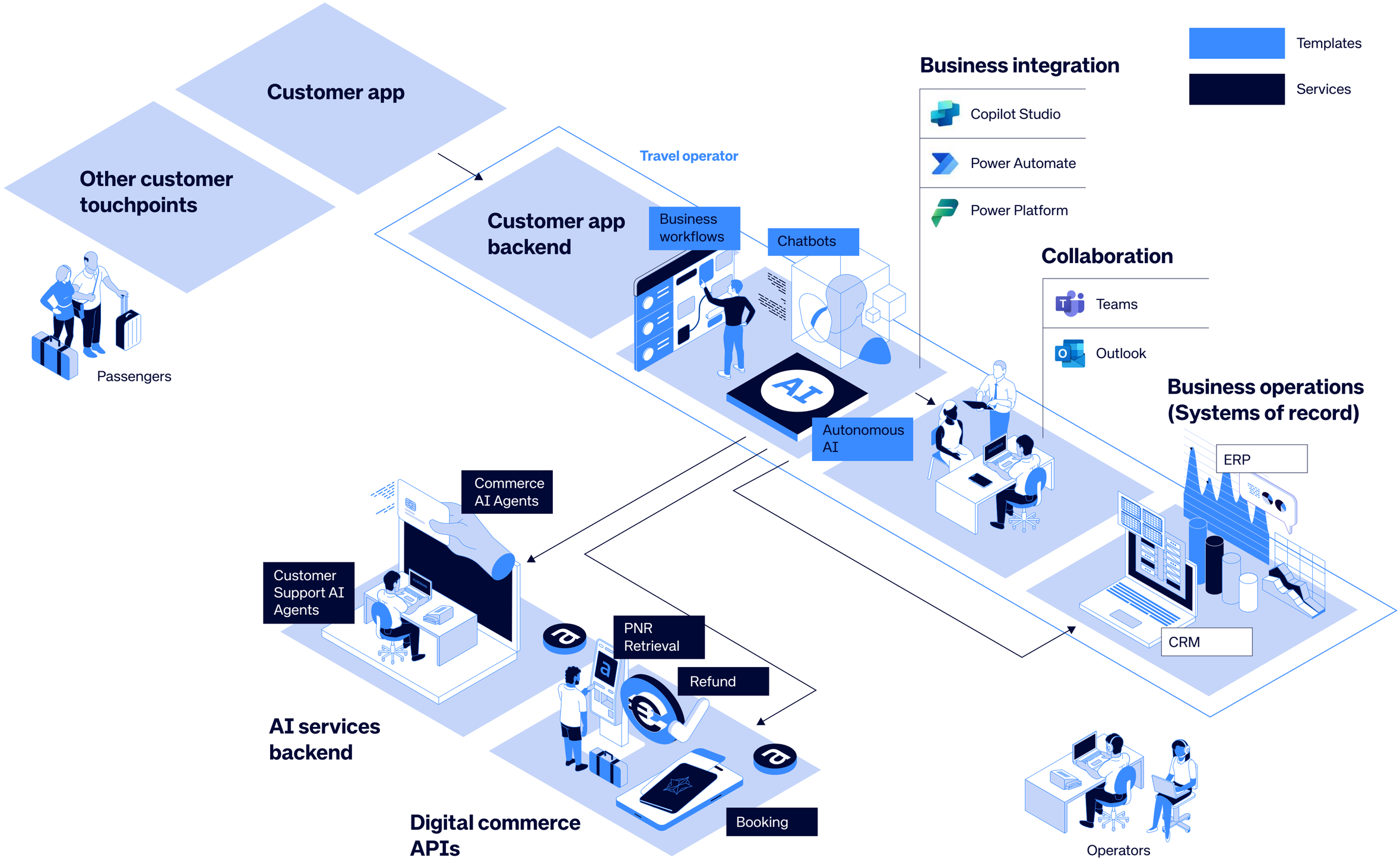
Cross and up sell specialist

Work is progressing on an AI agent that provides cross and up sell recommendations, making it easier to add ancillary services and grow the overall basket size. This agent monitors offers created for the traveler and can prompt the human agent to offer relevant extras.

For example, if a premium economy flight has been offered the agent might notice that if the traveler departs two hours later they could fly in business class for only a minor price increase. During a phone interaction, the human agent would receive this prompt through Selling Platform Connect.

Similarly, this agent can continually monitor flight and hotel prices to ensure the best possible rates and value are always offered. Imagine a family holiday package has been booked for a traveler on a half-board basis. A couple of days later the hotel updates their availability and the AI agent is able to identify a similar package, but this time with a family room with a seaview, for a similar price. This new option can be automatically offered to the traveler and rebooked by the AI agent, ensuring maximum value and fostering loyalty.

General B2B2C Concept



Every Amadeus user is an expert user

Being a travel agent involves searching, comparing, booking and changing travel plans. For travel sellers that run on Amadeus technology, these functions are typically completed in Selling Platform Connect, using a graphical interface.

From time-to-time even experienced travel agents may need help or advice on how to complete a task, perhaps issuing a refund or adding a gluten-free meal for a flight. Amanda is Amadeus' support chatbot. Travel agents can chat with Amanda for advice and answers, with links provided to relevant support articles.

Amanda is currently being upgraded with generative AI, significantly enhancing the quality of support she will provide. This upgrade means Amanda will always be working in the background as users interact with Selling Platform Connect, she will understand when a user is having trouble and pro-actively offer support there and then using a pop-up.

Transforming aviation operations

At the beating heart of the travel industry are airports and the multiple different stakeholders that work together to ensure efficient flight operations. With more than 100 different tasks that must take place to effectively ‘turn around’ an aircraft, typically performed by around 70 different organizations, aviation operations is a hugely complex area of the industry.

Typical tasks include planning resources for the ‘day of operation’ and assigning aircraft to take-off slots in a way that maximizes capacity. Applying AI in this part of the industry promises to transform operational efficiency.

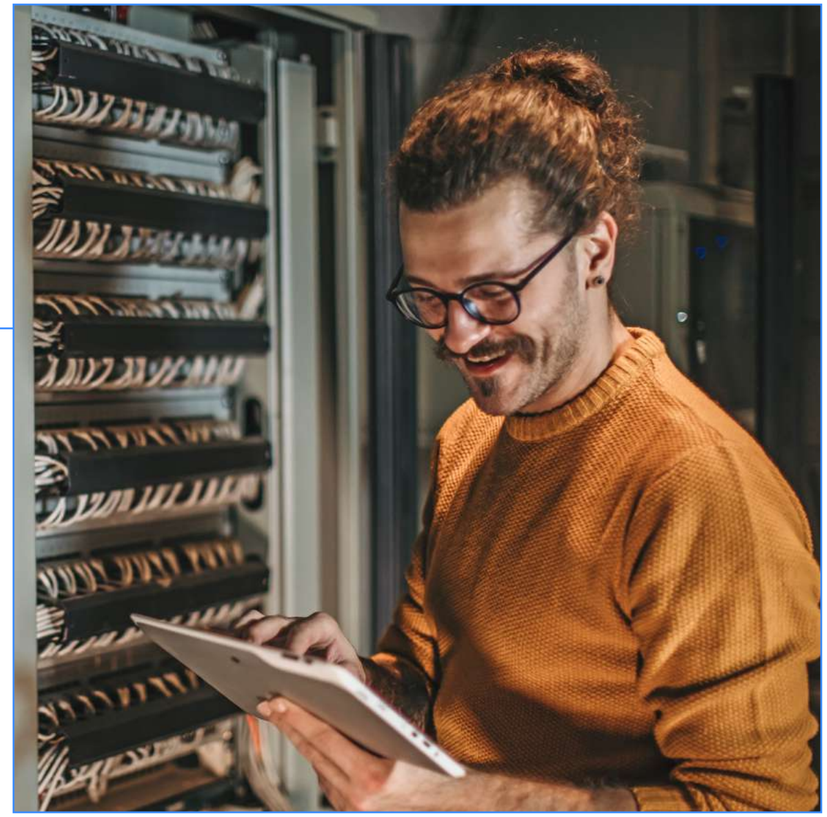
Preparing for AI with modern data platforms

Challenges faced in this area include antiquated systems, with processes still involving pen and paper, as well as communications conducted with walkie talkies. This is compounded by a historic reluctance for different stakeholders to make data available to other organizations. For example, most airports are still unaware how many passengers and bags will arrive on a given flight, despite this information being known well in advance of departure.

Amadeus' AirOps business is working to improve this situation by creating a data platform where different stakeholders can make data available whilst retaining ownership of the data. This data, and the insights it yields, can then be made available to other stakeholders to enhance the traveler experience and improve operations.

The AirOps Data Exchange enables seamless data collaboration between different companies, like airlines, airports and their operational partners. Through real-time event data streams, organizations can maintain shared situational awareness and respond quickly when important events occur.

A simple example would include an airline picking up an alert when a given passenger has dropped their bag at an Auto Bag Drop unit or when crossing the pre-security touchpoint, helping the airline understand whether the passenger will make it to the gate before flight closure.



"Helping stakeholders at the airport to share information is the missing ingredient that allows the industry to 'connect the dots'. There are hundreds of companies involved in the provision of your journey experience and today they can't exchange information well enough. At Amadeus AirOps we're solving this problem by delivering a data exchange platform enabling large and fast data, leveraging AI to optimize operations across the board and creating the foundation for agentic AI"

Rudy Daniello
EVP, AirOps, Amadeus

“Microsoft believes that everyone benefits when data is shared. For instance, when I arrive at the terminal, the airport and its retail partners should know my preferred brands and offer relevant discounts. Although airlines possess this information, revenue-sharing models can enable all stakeholders to provide better and more personalized services. We are working to align the broader travel industry by creating shared agents that can seamlessly interoperate with one another, orchestrating tasks across various vendors, clouds, and data silos.”

Julie Shainock
Global MD, Travel, Transport and Logistics, Microsoft

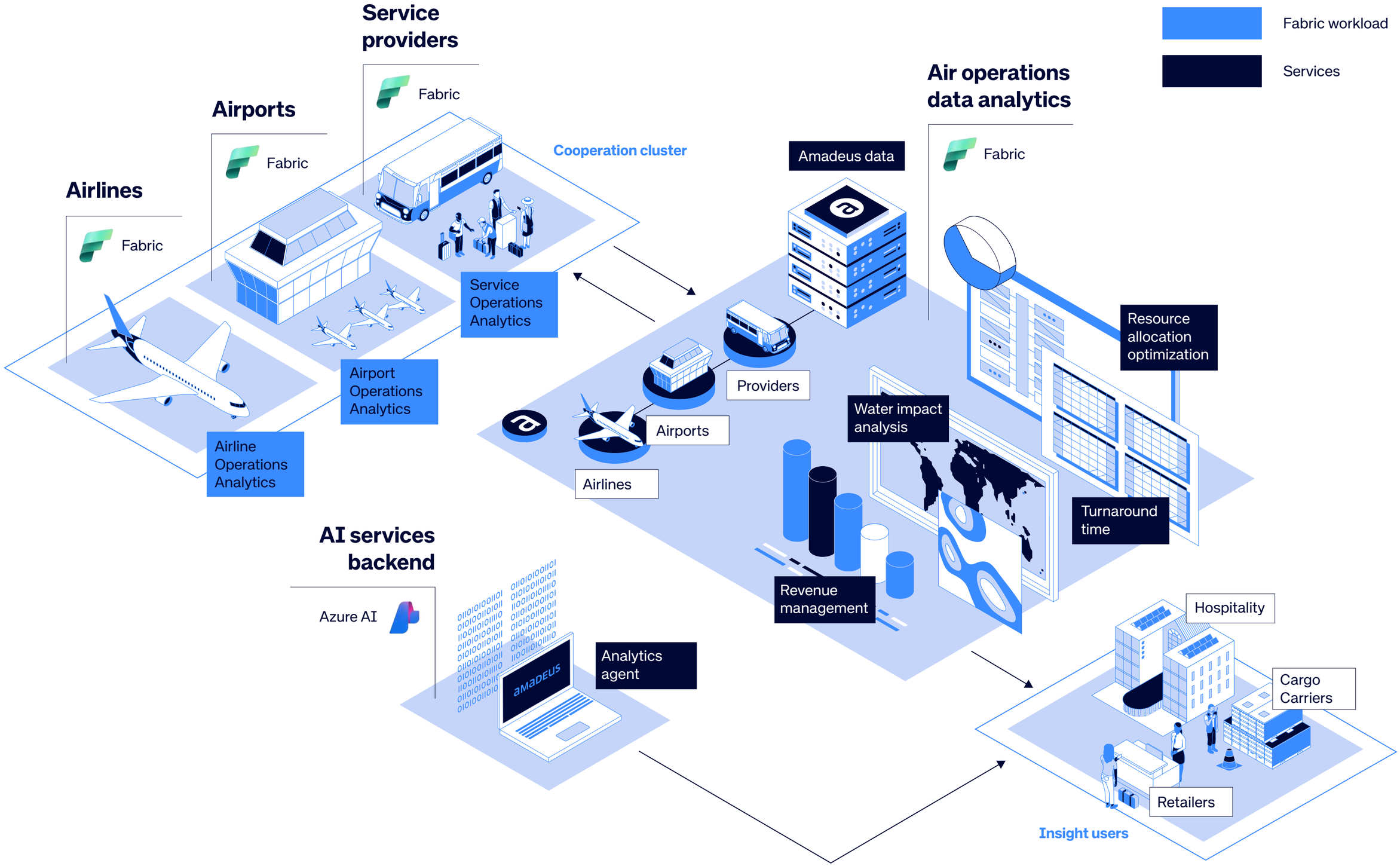
The data platform and data exchange are already being used to connect different Amadeus applications at the terminal. With connectivity between baggage reconciliation and flight management systems instances of baggage mishandling decrease, but more interestingly, the last known position of the passenger’s bag is made available to the airline.

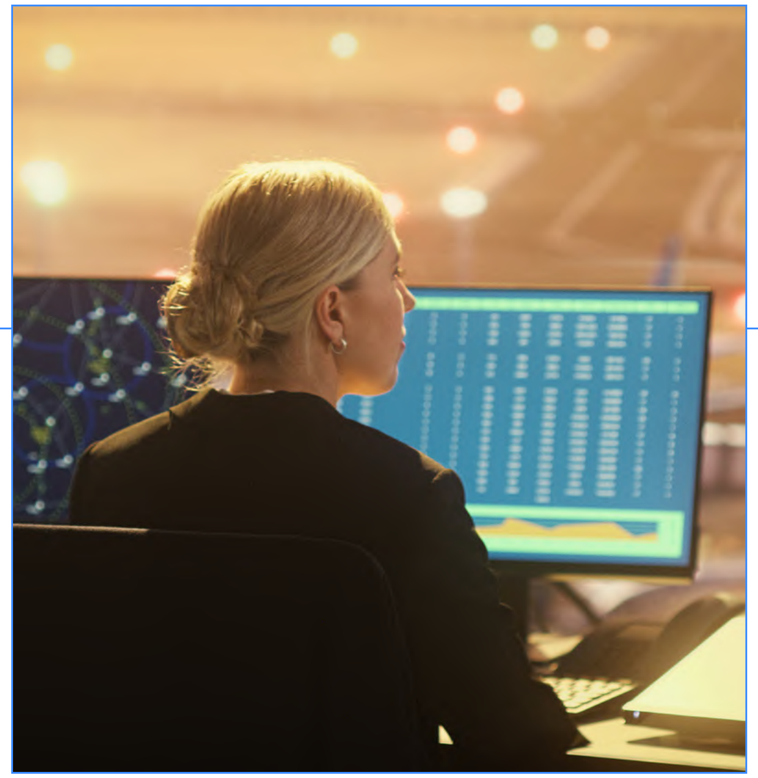
This insight means the airline knows if the passenger’s bag hasn’t been loaded on their flight. On arrival, a digital message is provided to apologize and explain the plan for reuniting the passenger with their bag, avoiding the need to queue at the lost & found desk. Modern data platforms are enabling this improvement today.

When more stakeholders begin providing event data to the platform, more interesting use cases become possible. Imagine if taxi, rail and local transport providers contributed events about when and how many passengers they planned to transport to the terminal. That insight would allow airports to better plan resource availability and for airlines to know if a passenger is going to miss a flight, so they can be reaccommodated.

Similarly, airlines know when disruption has occurred and how many passengers are likely to require overnight accommodation or a taxi. Such events could trigger offers from hotels and transport providers.

B2B Insights (e.g. AirOps Data Exchange)

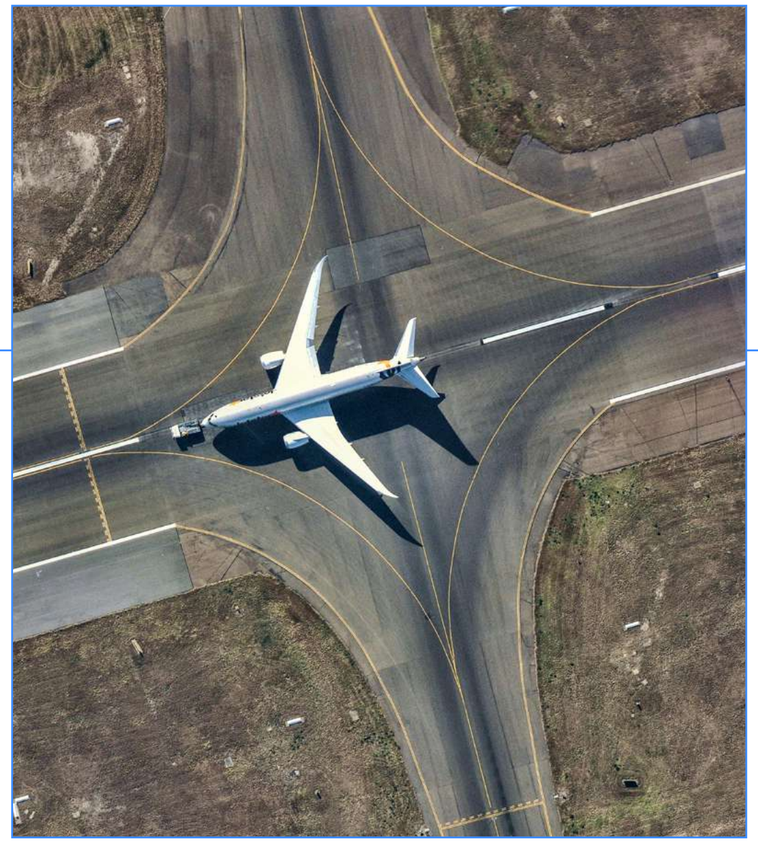




The role of AI in aviation operations

Artificial intelligence is already used extensively in aviation operations for complex optimization tasks like effectively queuing aircraft for take-off to maximize runway capacity, or for allocating arriving aircraft to the optimal gate so passengers can make connections.

Computer vision, a field of artificial intelligence that uses machine learning and neural networks to teach computers and systems to derive meaningful information from digital images, videos and other visual inputs—and to make recommendations or take actions, is also used at the terminal. It's particularly well-suited to fast-moving airport environments where physical assets, passengers and bags need to be identified automatically.



Using computer vision for automated airside asset management

Amadeus is actively exploring the use of computer vision to better manage airside assets like vehicles and baggage carts on the apron and runway. Cameras backed by machine learning intelligence can automatically identify different airside assets and feed their location back to operational teams and digital twin models of the airport's operation.

This improves asset utilization and contributes to improved safety across operations e.g. warning if a baggage cart has been left in a dangerous location. There is potential for cameras to be mounted in static locations or on small autonomous vehicles that can provide full airside coverage. The system is able to send alerts when anomalies are found so they can be pro-actively managed.

In the future, it may be possible to combine insights originating from such computer vision deployments with AI agents to support greater automation.

Gaining a single view and optimizing operations with AI

Amadeus recently launched its Airport Virtual Operations Centre (Virtual APOC), which enables a broad range of stakeholders like airlines, airports, border control, and service providers from ground access, terminal and airside operations to co-operate in a fully digitalized airport operations center.

The solution is designed as an app for Microsoft Teams, bringing involved parties together to better manage day-to-day operations around a single plan, whilst making it easier for the aviation industry to respond more quickly during disruption. Importantly, airport stakeholders benefit from Microsoft Azure Machine Learning capabilities that simulate the impact of potential plans so they can be continually fine-tuned.

The innovation answers the industry's call for better ways to collaborate by providing a single, comprehensive view of the health of an airport's operations, unified communication channels within Teams that replace ad hoc emails and phone calls, and event-driven alerts that proactively prompt stakeholders to act on recommendations. These capabilities combined make it easier to take informed decisions that deliver improved responsiveness and better operational outcomes.

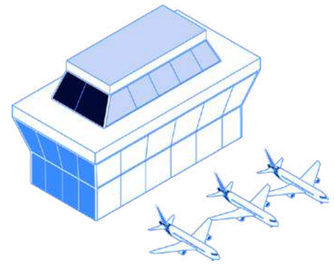
APOC brings together a reliable foundation of information upon which AI can be deployed. For example, predictive capabilities give airports a better understanding of constraint points such as check-in and security, lounges, and boarding gates. AI can detect anomalies, predict potential risks, and provide early warnings to airport operational teams using data flows from within and outside the airport to offer powerful forecasts. This enables airports to plan ahead and optimize resources, such as adding or moving kiosks, to deliver the best passenger experience across multiple touchpoints.

For example, the algorithm can use public transport information from highways and rail lines to accurately forecast the demand for passenger services so staffing and resourcing levels can be adjusted.

The potential of AI agents in aviation operations

With Amadeus' Airport Insights product bringing together a clear foundation of operational data from passenger touchpoints like check-in and bag drop, flight data and third party data streams, like weather and public transport, and Amadeus APOC leveraging this data to manage critical events in real-time - teams across operations are already empowered to act based on data-driven decisions.

Industry Reference Architecture for Airports



AI-enhanced experiences

Customer apps

Passengers

- Security line optimization
- Live information
- Retail and restaurant offers

Terminal management

Terminal manager

- Traffic
- Security
- Comfort

Airside operations

Airside operator

- Baggage handling
- Safety
- Plane refueling

Maintenance

Technicians

- Quality checks and inspections
- Repair and maintenance
- Certification

User-facing applications

Applications

- API management
- App services
- Azure OpenAI

Business integration

- Copilot Studio
- Power Apps
- Power Automate

Power Platform

Business operations

- Finance and Operations
- Customer Service
- Customer Insights

Dynamics 365

Collaboration

- Teams
- Sharepoint
- Outlook

Data storage and analytics

Data and analytics

- PowerBi
- Data Warehouse
- Real Time Analytics
- OneLake
- Data Factory

Fabric

Business data

Customers

Personnel

Finance and Operations

Assets

Tasks

Dataverse

Data ingestion and integration

Messaging

- Event Grid
- Event Hubs
- Functions

3PP business operations integration

Partner integration

Existing data systems

- Building management systems
- Security and surveillance
- Ground operations
- Baggage handling

- Automated border control
- Check-in (CUPPS, CUSS)
- Passenger processing system (PPS)
- Boarding gate reader (BGR)
- Resource management

- Amadeus (e.g. ACUS, AODB, PPS, BRS, RMS)

- SmartKargo
- THALES
- Honeywell

IT operations and security

- Entra ID
- Log Analytics
- Service Monitor
- Defender for Cloud
- Defender for IoT
- Private Link

Introducing Amadeus GARV

The name GARV has its roots in the Sanskrit and Dravidian language and means “pride”. It’s the first AI agent developed on top of Amadeus’ AirOps data foundation. The agent allows non-technical users to ask questions of this operational data using natural language – avoiding the need to build queries.

GARV operates with intent, reasoning through problems, making decisions, and learning from experience. This agent represents the next evolution in airline and airport operations technology—an AI companion that understands the intent behind prompts and provides contextual, actionable insights.

For example, if the airport manager wants to understand expected passenger demand a week ahead, as it compares to the staff rota, to understand the potential for a capacity crunch, they can receive that insight in an instant using chat.

You can ask GARV to “Analyze passenger processing times per passenger by different airlines in March” and it will return highly accurate results for each airline, so teams can identify outliers. It can also explain why certain airlines are outliers, making it easier to conduct root cause analysis, fix the underlying issue and improve airport capacity.

When you consider the number of staff at an airport that could all benefit from being able to ask such questions from their mobile, within Microsoft Teams, the ability to make AI a co-pilot for day-to-day operations becomes clear.

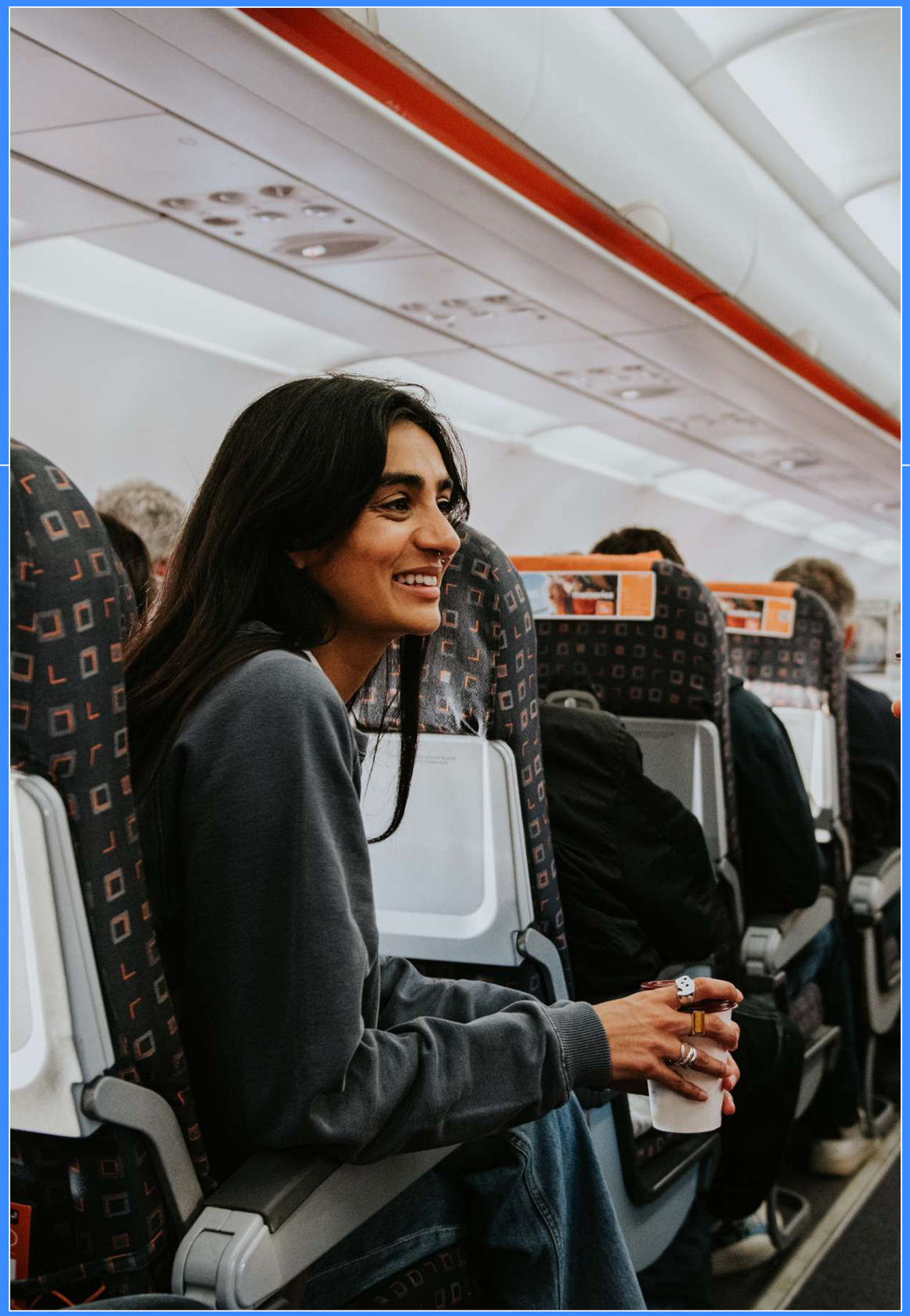
“I do see AI agents playing a role in aviation operations in the future. Today we have optimization tools that allocate gates and runway slots. But in a complex, interconnected, airport ecosystem we can expect that AI agents could be attached to key assets. That they could communicate to optimize the overall running of the system. It could offer a real step change in productivity.”

Jérôme Bousrez
Head of Engineering, AirOps, Amadeus

Looking ahead, there are exciting options for further automation using agents. While it is expected that a human will need to be in the loop in this mission critical area of the industry, agents could be deployed to take automated actions.

For example, in the event of bad weather additional flights could be diverted to an airport. Gatwick commonly provides this for Heathrow, and Australia’s new airport in Western Sydney is expected to do so for Sydney’s existing hub. In such a scenario, agents could react to the additional demand by interfacing with airline, passenger processing and Air Traffic Control systems to negotiate new landing slots and intelligently re-allocate gates and turn on additional Auto Bag Drop Units to accommodate the additional flights. It is likely the suggested plan of action would first be presented to and reviewed by the operations team, before AI agents are given permission to implement the recommendations.

AI agents like GARV can be thought of as an airline or airport’s operations buddy, acting as a trusted advisor to augment human decision making rather than replacing it. By combining GARV with human insight, airline and airport operators can make smarter decisions faster — transforming the way their teams operate in today’s dynamic operations environment.



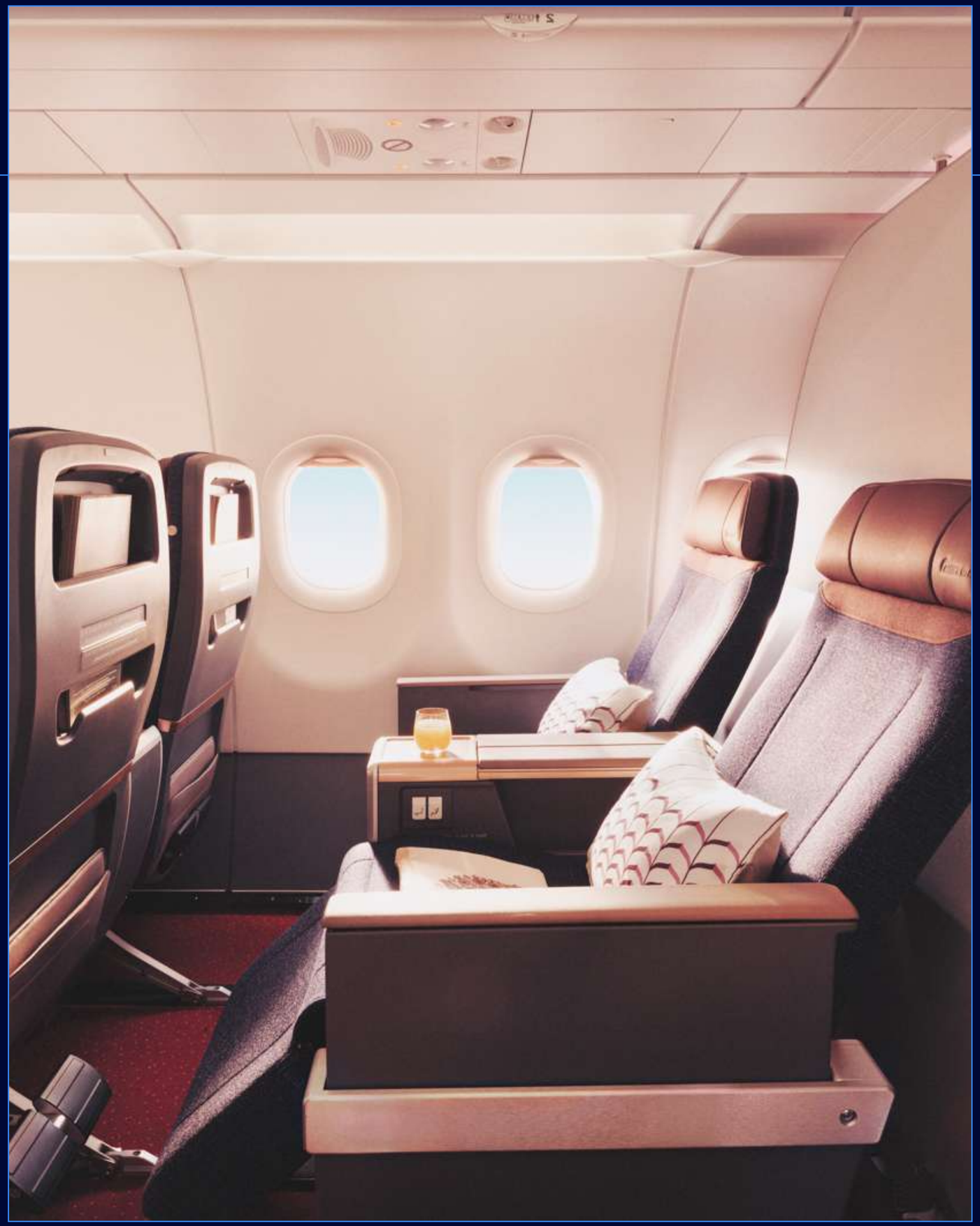
Transforming Airlines with Agentic AI

The airline industry is experiencing a transformative shift, driven by the demands for agility, smarter decision-making, and tools that address complex operations. As airlines adopt modern retailing practices and digital transformation, the surge in data volume and velocity is challenging analysts, planners, and operational teams to work with greater speed and precision.

Amadeus and Microsoft are pioneering innovation projects that leverage Agentic AI to support this transformation. These initiatives integrate intelligent AI agents into crucial airline workflows, empowering human expertise, simplifying complexity, and enabling faster, more confident decision-making. A key focus area is Revenue Management, alongside Contact Centres and Amadeus Nevio, a unique end-to-end portfolio of flexible, modular, and future-proofed retailing solutions that leverage the latest advances in AI technology and the Azure cloud.

Within Amadeus's Revenue Management System (RMS), we are advancing on an Agentic AI Assistant to aid revenue analysts in decision-making. This AI-based system introduces a collaborative paradigm, enhancing productivity and reducing operational complexity.

By embedding this and similar agents into airline workflows, Amadeus and Microsoft aim to redefine airline operations, increase transparency, and unlock new possibilities for efficiency and innovation.



Air India case study

After transferring from government ownership back to the TATA Group, Air India is currently undergoing a major transformation program. The airline has worked with Amadeus and Microsoft to deliver some of the industry's most advanced generative AI use cases.

In 2023 an AI agent was launched to handle passenger queries to relieve demand on the call centre, answering questions on everything from baggage to check-in and fare questions. The agent has handled more than seven million queries since its introduction, resolving 97% of all queries, with only 3% needing to be transferred to an agent.

In January this year, Air India introduced AI.g, powered by Azure Open AI for search and recommendations on its website. The service allows travelers to search for flight options in natural language. Integration with the airline's data platform means results incorporate known traveler preferences for specific ancillaries, delivering highly personalized results that drive conversion.

The airline is now using GPT-4 to analyse vast amounts of unstructured data from social channels, CRM and its contact centre to understand what really matters to its passengers. A task that would have been cost-prohibitive before generative AI. Insights are being used to further refine Air India's product and the service it provides.

An AI agent has been developed to allow revenue management analysts to chat with its revenue management system. Analysts can gain rapid answers to questions that previously required analysis in a 55,000 row Excel file, in an instant.

Analysts can ask questions like →

"Which routes should we focus on to grow revenues?" and "Which fare families are most relevant on specific routes?".

On the operations side, an agent exists that can answer questions like →

"How is our On Time Performance trending?" and "Which stations are underperforming?".

The next step in Air India's journey involves exploring agentic services, with agents that can complete tasks like assessing a request for a refund on medical grounds and document verification when passengers request a name change.

The potential for AI agents to simplify almost every area of business in the airline industry is huge. Amadeus and Microsoft are working with the industry to explore productivity improvements in customer support, maintenance, ground operations and crew management.

Industry Reference Architecture for Airlines

AI-enhanced experiences

Customer apps

Passengers

- Planning, booking and check-in
- Rebook and claims
- Arrival and transport

Check-in and gate operations

Ground staff

- Check-in handling
- Stand-by
- Claims

Crew coordination

Pilots and crew members

- Scheduling, coordination and communication
- Expense management
- Briefing and checklists

Customer support

Customer service

- Cancellation and rebooking
- Refunds and claims
- Lost baggage management

Maintenance

Technicians

- Quality checks and inspections
- Repair and maintenance
- Certification

User-facing applications

Applications

- API management
- App services
- Azure OpenAI

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Power Platform

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3PP business operations integration

Partner integration

Existing data systems

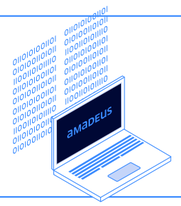
- Airline systems
- Air-frames
- Airport operations

- Check-in (CUPPS, CUSS)
- Resource management
- Passenger tracking
- Ground operations

- Amadeus (e.g. Altea, RMS - Revenue Management System, FMS - Flight Management System)

- SmartKargo
- Satavia / GE

IT operations and security



- Entra ID
- Log Analytics
- Service Monitor
- Defender for Cloud
- Defender for IoT
- Private Link

Transforming hospitality operations

Following several years of record demand and rising rates the industry is now adjusting to a plateau in prices, which places a greater focus on how hospitality companies can operate more efficiently. Combined with fragmented systems and data across the sector, there are significant opportunities to enhance efficiency by unifying areas like revenue management, sales, marketing and operations.

One of the most effective ways to drive operational efficiency and business performance is through data-informed decision making. The concept isn't new in hospitality, with Amadeus' Agency360® and Demand360® travel intelligence (TI) solutions already in use at major chains.

Agency360®

provides a comprehensive view into a hotel's travel agency sales performance relative to the market.

Demand360®

provides a 12-month forward-looking view of rate and demand data based on insight from 44,000 hotels and 35m short-term rental properties.

Both solutions empower data analysts, commercial and revenue management teams to create powerful data visualizations that answer key questions to improve decision making.

Amadeus and Microsoft have worked together to launch 'Amadeus Advisor', the first of several AI agents designed to enhance the value hospitality companies can gain from data analytics. Amadeus Advisor is already live and in-use by Agency360® customers today, and it's being implemented in Demand360® too.

Democratizing data analytics

Traditional Business Intelligence (BI) workflows see business leaders brief teams of analysts on the key business questions they need to answer. Analytics experts then ask questions of data by building queries in the BI tool, often using specialist language like Structured Query Language (SQL). The results are typically presented in a report, which is circulated back to the business to inform decision making. The process can be slow and places strain on analyst resources which are typically limited.

Rather than a General Manager needing to send a question down the chain and wait a week for a report, they can simply ask the agent and get an instant response in the form of a data visualization and precise text-based answer. Several hospitality companies involved in early access trials of the agent have commented that this capability not only improves time-to-insight but also saves analysts approximately a day each week.

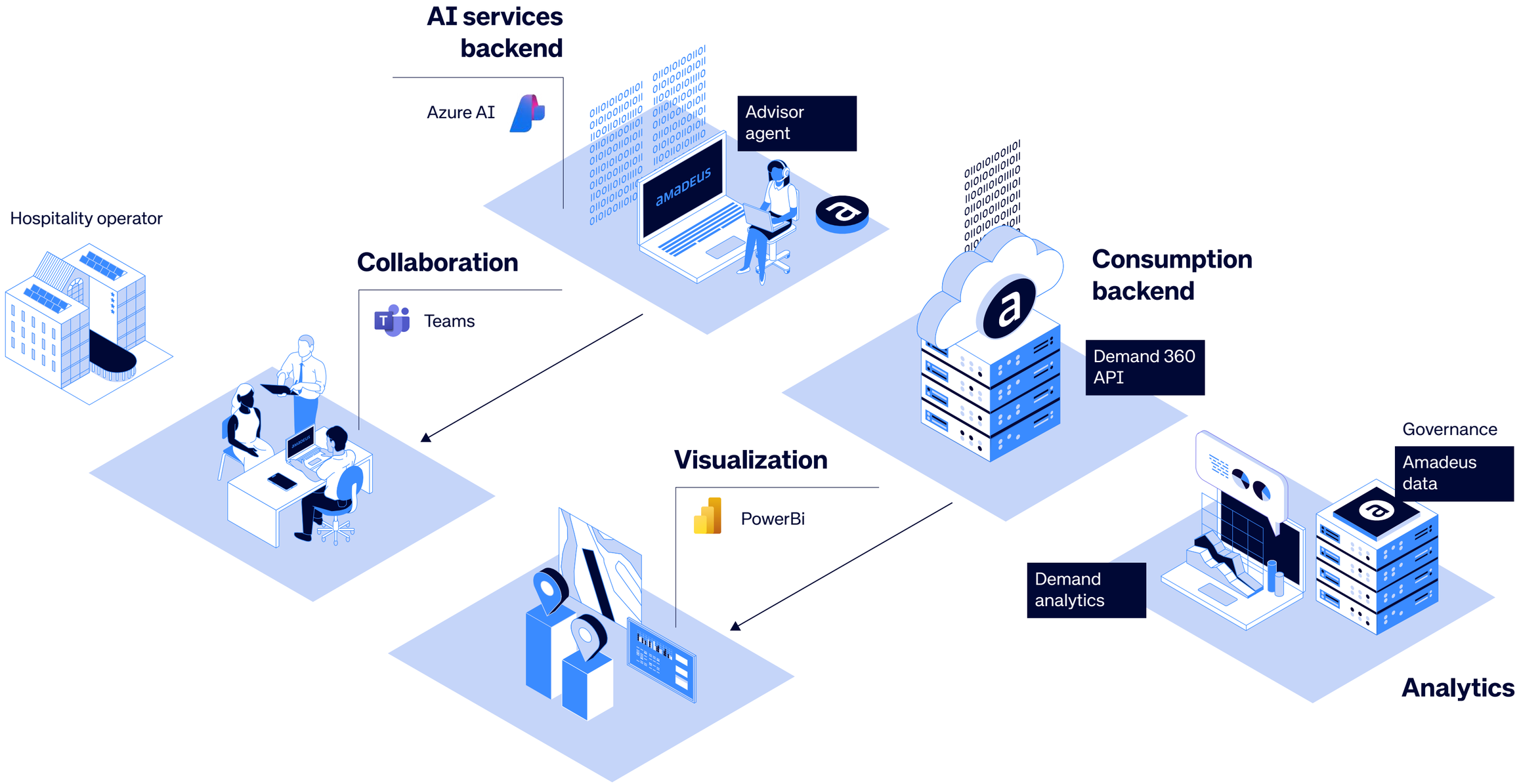
For example, a General Manager might ask “How does our revenue performance compare to these two brands over the past six months?” or “Which agencies have reduced their bookings with us over the past six months?”. Subsequent data visualizations can inform onward actions, like a focused sales push to specific agencies or running a new marketing campaign.

Currently live in the Travel Intelligence Portal, the agent will soon be made available natively within Microsoft Teams, meaning anyone can ‘chat with their data’ from their mobile.

“The introduction of an AI agent within Agency360 turns the traditional BI model on its head by allowing anyone to ask questions of the company’s data in natural language. You don’t need to be an analyst, you don’t need to wait, the agent is ready to respond to questions just like one of your team.”

Katie Moro
VP Data Partnerships, Hospitality, Amadeus

Example: Understanding demand



Expanding agents to new data sources

Amadeus provides the hospitality industry's most comprehensive data portfolio, with historical and forward-looking insights into hotel occupancy rates, flight search and air traffic, alternative accommodation bookings and more.

These diverse datasets support hospitality companies in driving profitable demand and strategic decision making, with the potential for agents to draw on multiple data sources when responding to questions.

For example, a Chief Commercial Officer might be interested in understanding how their property's on-the-books occupancy data compares to forward looking airline bookings into the city, helping them understand if they're currently capturing demand effectively.

Amadeus plans to introduce individual AI agents for each of its data products, helping travel companies to gain more value from data by answering queries more easily and more quickly. It is also anticipated that agents will draw on multiple data sources when responding to queries, unlocking new levels of insight. You can ask this agent to build you a dashboard showing how your property's forward-looking occupancy compares to the average of your top three competitors. Then you can ask it "based on this chart, what are the top three questions we should discuss in this afternoon's meeting?".

Similarly, in the future, Amadeus travel intelligence products will also be made available to Copilot agents in tools like Microsoft 365, allowing people to easily request a chart when creating a PowerPoint slide deck.

“By enriching M365 Copilot with travel & hospitality specific AI agents, employees in this industry will now have access to a next-gen AI assistant that can alleviate digital debt while boosting productivity, unleashing creativity, and freeing up time for more high-value work”

Nicolas Chevillotte
Innovation Program Director, Microsoft

The agentic future: automating commercial strategies

While initial agents focus on democratizing data analysis and improving day-to-day productivity there is a significant opportunity to add full agentic automation on top of these capabilities.

For example, an agent could continuously monitor changes in travel patterns and demand. If it identifies growth in demand over a specific period, perhaps in relation to a sporting event, the agent could initiate a digital marketing campaign. Agents could also interact with revenue management systems, helping to close the loop and ensure revenue strategies are constantly adjusted based on the latest data insights.

Conclusion

This report has sought to outline how AI agents and the modern data platforms that support them are transforming the travel industry and delivering significant productivity improvements. However, it is also important to consider the bigger picture.

The changes currently taking place aren't just another evolution. They aren't iterative. The combination of LLMs, AI agents and new approaches to data represent a fundamental change to how we develop and interact with technology.

There is potential for an 'AI divide' to emerge, where organizations that can access and apply these new tools have the potential to deliver products and services far more efficiently than those that can't.

AI agents will also change how work gets done, introducing entirely new workflows and changing the nature of many people's daily working lives. They will remove much of the 'digital drudgery', freeing people to focus on higher value tasks.

The industry is preparing for **multi-agent systems** where different AI agents collaborate to handle complex, cross-department workflows. Amadeus and Microsoft envision scenarios like an airport disruption being managed by a *team* of agents – one recalculates flight schedules, another finds hotel rooms for affected passengers, and another informs customers – all coordinating their actions.

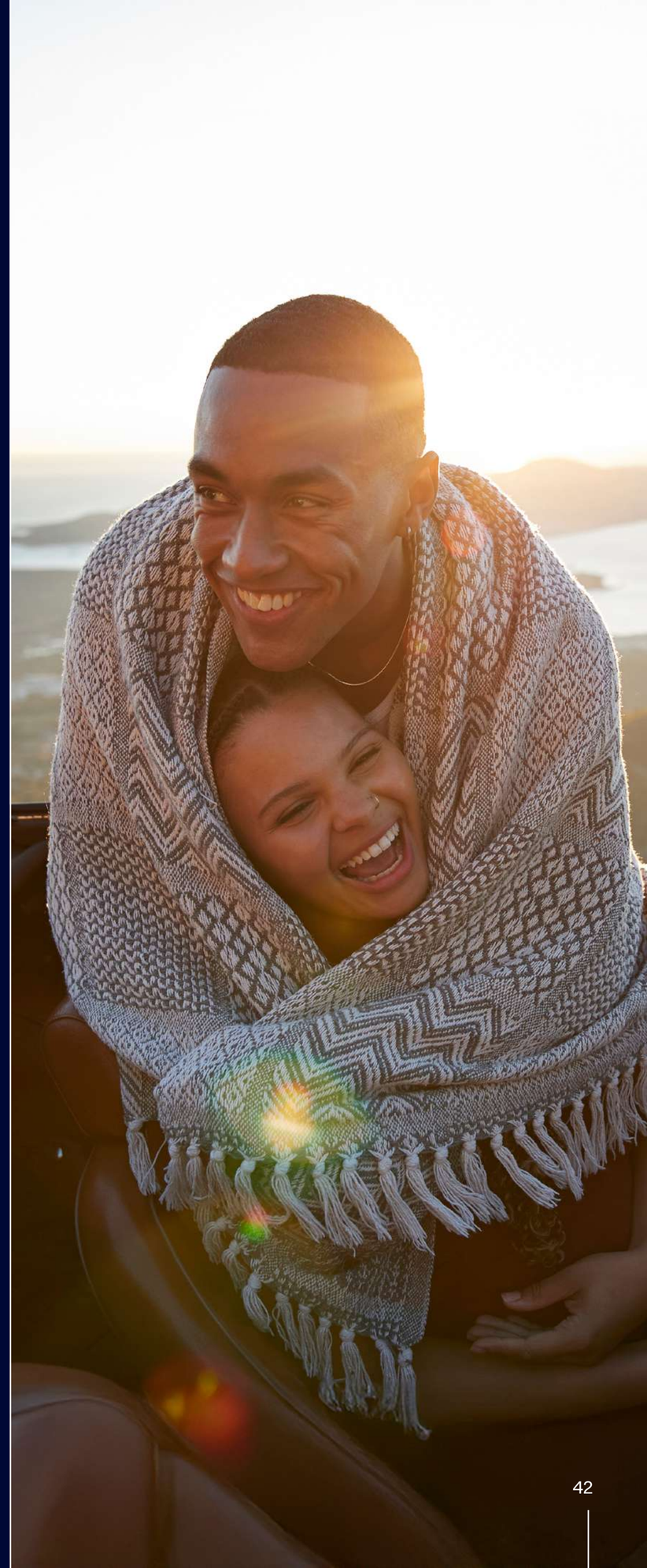
For an industry like travel, where demand has grown reliably year-on-year but pressure on margins is significant, AI agents represent a bright future where technology can support a more efficient industry.

AI agents are uniquely well suited to the travel industry. With complex processes that often run on unstructured text data, housed in multiple different systems, across multiple different organizations, AI agents can help our industry perform a technology 'leapfrog'.

The world is rapidly heading towards a future with billions of AI agents that work together and with humans to get things done.

At first glance, creating and working with agents is straightforward. Satya Nadella, Microsoft's CEO has compared the creation of an AI agent to building a new Excel Worksheet – anyone can do it in a few minutes.

Yet travel businesses that seek to benefit will need to consider how they re-skill teams to work alongside agents. How any decisions or actions undertaken by AI can be traced to ensure safety as well as defining a framework for AI ethics at their organization.



“The young don’t want to call a contact centre. They’re comfortable with chat, and they prefer automation. So, we can expect many travelers will welcome AI agents solving their problems. Once that genie is out of the bottle we can expect an explosion of agents in travel.”

Eric Chaniot
GM AI Industry Solutions, Microsoft

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