

Amadeus in the travel industry

CHAPTER 1

Global Report 2019

A business, financial and sustainability overview

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1.1 Travel industry market



Overall travel volumes

The contribution of travel and tourism to the world economy is estimated at USD 8.8 trillion, or more than 10% of the global GDP. This industry currently supports 319 million jobs – almost 1 in 10 globally.¹

For eight consecutive years, the travel and tourism sector has outpaced global economic growth. The direct contribution of travel and tourism to GDP in 2018 was USD 2.8 trillion (3.2% of GDP). This is forecast to rise by 3.6% in 2019.¹

From 2019 to 2029, the direct contribution of travel and tourism to GDP is expected to grow at an annual compound rate of 3.6%.¹

Air traffic measured in terms of Revenue Passenger Kilometer (RPK) is expected to grow at an average 4.3% p.a. in the next 20 years.² Hospitality is also growing at a healthy rate, with a 9% increase in number of rooms worldwide between 2014 and 2018.³

Regional development

Developments in the travel sector will be very uneven across different regions of the world.

Growth in the travel industry is particularly strong in Asia-Pacific, the Middle East and Africa, with travel and tourism direct GDP expected to grow at compound annual rates of 5.3%, 3.8% and 4.2% respectively. Latin America region is expected to grow at a compound annual rate of 3.1% during the same period.

² Source: <https://www.airbus.com/content/dam/corporate-topics/strategy/global-market-forecast/GMF-2019-2038-Airbus-Commercial-Aircraft-book.pdf>.

³ Source: <https://www.ihgplc.com/-/media/50F593528E2E447A86FDA7ED4D3DF3E2.ashx>.

¹ Source: World Travel & Tourism Council (June 2019). *Travel & Tourism Benchmarking Reports 2019*



On the other hand, Europe and North America are expected to grow at an annual rate of 2.3% and 2.6% respectively.¹

Looking at air traffic, the same picture emerges, with Asia-Pacific and the Middle East expected to grow at a compounded annual rate of 5.5% and Africa and Latin America at around 4.8% and 4.3% respectively, with more moderate growth of 3.3% and 3.0% for Europe and North America respectively.⁴

As a consequence of these regional growth differentials, the center of gravity in the travel world will shift from west to east, with Asia-Pacific being the major growth catalyst. By 2024 China will have displaced the US as the world's largest aviation market,⁵ driven by continued robust economic growth, an upsurge in middle-income households and an increase in first-time flyers. By 2030 three out of four of the largest aviation passenger markets will be in Asia. Indeed, out of 44,000 airplanes projected to be delivered over the next 20 years, 17,000 will be to Asian markets.⁶ This growth is supported by the increase in airports in the region: between 2012 and 2018, where the net number of new airports worldwide was 176, a full 165 of these were in the Asia-Pacific region.⁶ And looking forward, China is aiming to build 200 new airports by 2035,⁷ and India 100 by 2025.⁸

Amadeus is well positioned to capitalize on this Asia-Pacific growth. We have a wide local presence and a workforce of close to 4,300 people in the region,

representing 22% of our total workforce.⁹ We also have a strong market position in the distribution business and many important carriers as customers in our Airline IT business.

Trends with a potential to impact travel volumes

Expected travel volumes can be affected by geopolitical events, economic growth levels, capacity constraints, the evolution of multimodal travel, and sustainability issues.

Geopolitics

Geopolitical and security events in certain parts of the world are affecting travel significantly.

Political tensions and an increased level of protectionism are affecting travel negatively. Indeed, in 2018 the International Air Transport Association (IATA) projected significant differences in the growth of air travel over the next 20 years under a base case scenario ("Constant Policy": 3.5% growth p.a.) and two extreme scenarios ("Reverse Globalization": 2.4% p.a.; "Maximum Liberalization": 5.5% p.a.).⁹ In terms of number of passengers in 2037, this shows a difference of a factor of almost two between the best- and worst-case scenarios by the end of the period.

At the same time, threats of terrorism are leading to restrictions on travel, increased security and border control, and an increased administrative burden on the traveler. This, coupled with a reduced appetite for travel, can have a dampening effect on demand. But experience has shown that security issues tend to only affect specific countries or regions and are generally short-lived. In addition, Amadeus' high geographical diversification helps to limit the impact of such issues on our business. Technology has provided solutions for security issues in the past, and this is likely to continue, presenting a further

⁴ Source: <https://www.airbus.com/content/dam/corporate-topics/strategy/global-market-forecast/GMF-2019-2038-Airbus-Commercial-Aircraft-book.pdf>.

⁵ Source: <https://www.iata.org/contentassets/6faf144041864834820cc7963b2127ee/gaps-2019-plenary.pdf>.

⁶ Source: <https://www.boeing.com/resources/boeingdotcom/commercial/market/commercial-market-outlook/assets/downloads/cmo-sept-2019-report-final.pdf>.

⁷ Source: <https://simpleflying.com/china-to-build-250-new-airports>.

⁸ Source: <https://www.newindianexpress.com/nation/2019/oct/31/india-plans-to-open-100-new-airports-by-2024-to-revive-economic-growth-2054913.html>.

⁹ See "Amadeus people and culture," p. 62.

⁹ Source: <https://www.iata.org/pressroom/speeches/Pages/2018-10-24-01.aspx>.

Impact of COVID-19

At the time of this report going to print, the travel industry is being severely affected by the impact and spread of COVID-19, the coronavirus. It is difficult to predict how long this situation will last or what the consequences for the global economy will be, and we are monitoring the situation closely. We've established dedicated teams to ensure the well-being of our employees, as well as support for our customers. Some of the measures taken include the accelerated delivery of products and services that help our airline customers be in constant contact with travelers and travel agencies, using Amadeus' advertising space to regularly provide updates. Our technical support teams remain available to help our customers keep servicing travelers, and our technology solutions enable replacing face-to-face interactions with virtual solutions wherever this is required, e.g. in work-from-home situations. We are taking necessary precautionary measures to reduce costs and protect our financial position and to ensure business continuity through this crisis, and to be able to resume activities as quickly as possible when the situation is normalized.

opportunity for large travel IT providers with the required scale and reach such as Amadeus.

Economic growth

Economic growth levels have a significant impact on travel industry growth. For example, the 20-year median growth rate of air passengers in terms of passenger kilometers flown is just above 2 times that of the global GDP,¹⁰ although this multiplier varies substantially over time and from one region to another. So future economic recessions or upturns will have a strong impact on travel volumes.

Capacity constraints

The increase in travel is leading to strains on travel infrastructure, and in particular on airports. In 2019, 204 airports were designated Level 3 slot-coordinated facilities, meaning that they do not have the runway, ramp or gate capacity to handle all of the flights that carriers would like to operate.¹¹ At the same time, despite the strong investments in airports, long-term demand in Europe is expected to exceed capacity.¹² Likewise, pilot shortages could be a large challenge for the industry.¹³ As technology can facilitate more efficient use of these scarce resources, the industry will need to invest in IT systems.

Multimodal travel

Multimodal travel means using different modes of transport for a particular itinerary. It is gaining ground not just because there's an increasing demand for seamless door-to-door travel, but also because governmental agencies and transport authorities are seeing an opportunity to reduce carbon emissions as well as alleviate congestion and pollution. The extent to which travel supply chains can integrate multimodal transport services into a one-search, one-ticket, one-click purchase could boost future travel volumes.

¹⁰ Source: <https://www.iata.org/en/iata-repository/publications/economic-reports/air-travel-gdp-multiplier-falls-sharply-back-to-its-20-year-median/>.

¹¹ Source: <https://www.iata.org/en/iata-repository/pressroom/media-kit/slots-gmd2019/>.

¹² Source: <https://www.iata.org/contentassets/6faf144041864834820cc7963b2127ee/gaps-2019-plenary.pdf>.

¹³ Source: <https://www.cnbc.com/2019/06/17/boeing-ceo-says-global-pilot-shortage-is-one-of-the-biggest-challenges.html>.

The European Union declaration of 2018 as the Year of Multimodality¹⁴ is a clear illustration of policy intent to support "one-stop shop" technology that can enable the sale of multimodal travel. Amadeus' strong presence in travel positions us well to synchronize solutions with this emerging trend.

In fact, Amadeus has been working with the European Commission on multimodality projects for some years now. Among other projects, we've been involved in Shift 2 Rail and All Ways Travelling. As a facilitator of connectivity, Amadeus is in a unique position to make multimodality a reality, which we are committed to.

Sustainability

The travel and tourism sector faces issues such as overcrowded destinations, income inequalities and human-induced climate variability. The climate issue in particular has received much more attention over recent years. Social movements like "flight-shaming" have attracted unprecedented attention, and the industry needs to respond with facts and action. We expect a more specific and strict legal framework on these and other issues to emerge, which could have a negative impact on travel.

In regards to aviation, however, the industry is determined to grow sustainably, committing to cutting net emissions to half the 2005 levels by 2050.¹⁵ As such, many airlines have taken an active role in addressing this issue. For example, EasyJet have announced that they will offset the emissions of all of their flights.¹⁶ And technology from IT companies such as Amadeus can contribute to the more efficient use of infrastructure and energy. ↪

The need for technology to support the evolution of the travel industry

The evolution and growth of the industry is highly dependent on technology.

For travel providers to succeed in today's world, a strong focus is required not only on cost efficiencies but also on revenue

¹⁴ Source: https://ec.europa.eu/transport/themes/logistics-and-multimodal-transport/2018-year-multimodality_en.

¹⁵ Source: <https://www.boeing.com/resources/boeingdotcom/commercial/market/commercial-market-outlook/assets/downloads/cmo-sept-2019-report-final.pdf>.

¹⁶ Source: <https://www.easyjet.com/en/sustainability>.

↪ See "Environmental benefits of Amadeus solutions," p. 101.

maximization, as well as brand and customer loyalty. In this context, technology also plays an important role in enhancing a wide variety of core operations for travel providers. Amadeus has IT offerings for, among others, airlines, hotels and airports. ↪ ¹

The travel ecosystem consists of countless providers – airlines, hotels, railways, car rental companies, destination services providers, etc. – as well as countless travel sellers. Technology is powering the ecosystem by connecting all these different travel providers, allowing travelers to search for and book the optimal journey, consisting perhaps of several travel services (e.g. air, hotel and car). Amadeus plays an important role in powering this ecosystem via our distribution business, which connects travel providers with travel sellers all over the world. ↪ ²

The inconveniences sometimes linked to travel can be a significant impediment in the evolution of the travel industry. However, recent and emerging technologies could help all actors deliver a more frictionless experience. For example:

- Travelers' journeys have different physical checkpoints all along the trip. Typically, repetitive ID checks create frustration on the traveler side, as well as cost increases, inefficiency and revenue losses on the airline and airport side. Providing a digital identity tightly linked to the user's physical identity can enable a more seamless and personalized processing of the traveler while increasing security in travel touchpoints. Amadeus is exploring solutions and technologies to simplify the traveler's identification throughout the entire journey. This involves a unique and certified digital identity controlled by the traveler, who can then also benefit from hyper-personalized services.
- The use of artificial intelligence makes it possible to fine-tune search results based on the traveler's explicit and implicit preferences to create highly personalized and contextual offers for their next flight, hotel room or car rental. Artificial intelligence can also improve travel actors' operations by predicting the unexpected and pro-actively proposing relevant solutions in case something goes wrong. The potential annual efficiency gains from artificial intelligence are significant and could reach USD 400 billion for the travel industry alone.¹⁷ Amadeus is researching new artificial intelligence technologies to enhance the travel experience.

- The Internet of Things – and more generally, connecting objects, data, processes and people – is expected to become a major technology trend. Amadeus is working on use cases for the travel industry, like asset tracking (e.g. tracking of luggage).
- Other emerging technologies like FPGA,¹⁸ augmented/virtual reality and robotics also have the potential to impact our industry.

Amadeus is supporting travel industry growth with significant investment in technology. Amadeus has spent 17.7% of revenues on R&D in 2019 (€988 million) and it is ranked as the second-largest R&D investor in the software industry in Europe.¹⁹

1.2 Amadeus profile



At the heart of travel

Travel fulfills our need to explore the world – to see new places, meet new people and be near to what's important to us. Travel powers progress – it builds economies, broadens cultures and creates connections between societies. The travel industry is dynamic, powerful and fast-moving. And it is one of the world's largest business sectors.

Technology has always been critical to developing global travel and increasing scale and access. Travelers today expect to be continuously connected. Mobile devices, artificial intelligence and data analytics are giving people more ideas, options and control over their journey, and they expect personalized experiences. To keep up with these changes, the industry must continue to innovate, and in a way that is sustainable and responsible.

Amadeus sits at the crossroads of travel and technology. We're passionate in our pursuit of better technology to make better journeys. We connect travelers to the journeys they want, and we power the solutions that keep the world of travel moving.

↪ ¹ See "Business lines," p. 20.

↪ ² See "Distribution," p. 22.

¹⁷ Source: <https://www.mckinsey.com/featured-insights/artificial-intelligence/notes-from-the-ai-frontier-applications-and-value-of-deep-learning>.

¹⁸ Field-programmable gate array: a type of hardware that promises to accelerate computationally intensive applications such as artificial intelligence.

¹⁹ Source: <https://iri.jrc.ec.europa.eu/scoreboard/2019-eu-industrial-rd-investment-scoreboard>.

Who we are

Amadeus is a technology company dedicated to the world's travel industry. We have a truly global team of more than 19,000 professionals from over 145 nationalities serving customers in more than 190 countries. We're committed to helping global travel make a positive impact on communities around the world.

We've built a commercial and operational network all over the globe, which is key for our value proposition. Our corporate headquarters are in Madrid, Spain; our main research and product development center is located in Nice, France; and our core operations are run from our site near Munich, Germany.

We operate under a highly resilient, transaction-based business model linked to global travel volumes. We're a publicly listed company and part of the Spanish IBEX 35 Index, which includes the biggest, most liquid companies in the Spanish stock market, and the EURO STOXX 50 Index, comprising 50 of the largest and most liquid stocks in the eurozone.

What we do

Amadeus offers cutting-edge technology solutions that help travel industry stakeholders succeed. We connect travel players and make personalized journeys happen.

We invest hundreds of millions of euros each year in research and development. We design our solutions around our customers' needs as well as their customers' needs. At all stages of the travel experience – from inspiration to shopping, booking, on-trip and post-trip – our solutions help deliver better service to travelers.

We help travel providers package and deliver their content across both direct and indirect channels. Our customer management solutions help them manage and enhance the customer experience, from first contact to check-out and beyond.

For airlines, this means improving passenger processing capabilities. We've developed solutions to facilitate that flights take off on time, every bag is tracked and every disruption is dealt with as effectively as possible.

For corporations, this means providing staff with improved self-booking and duty of care solutions. We offer solutions built to automate processes and handle all essential mid- and back-office tasks – hassle-free. These give corporate travel and finance managers greater control across all travel programs. Our dedicated finance and accounting tools can also help our corporate customers with managing travel information and making strategic travel decisions.

We also provide solutions to help the hospitality sector manage properties and resources more efficiently. Our technology and insight helps our customers develop tailored content and promotions than enhance the guest experience. We also help optimize the delivery of that experience so that guests' loyalty increases. We offer analytics and intelligence solutions built to help anticipate trends, adapt to market shifts and monitor performance. This means travelers get more than just a great travel experience – they get one designed to meet their individual preferences, needs and expectations.

We also offer industry-leading consultancy services to help transform travel businesses for the better.

Sales & marketing

- Direct & indirect distribution
- Traffic acquisition & conversion
- Point of sale & payment
- Revenue management
- Digital retail & merchandizing

Operations

- Flight operations
- Airport operations
- Hospitality operations
- Property & resource management

Analytics & intelligence

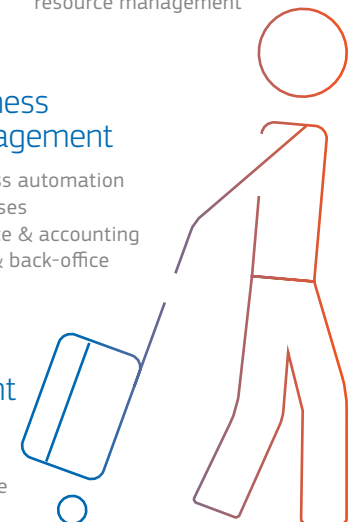
- Personalization
- Market insight
- Data integration
- Consulting services

Business management

- Process automation
- Expenses
- Finance & accounting
- Mid- & back-office

Customer, guest & traveler management

- Customer experience
- Passenger processing
- Corporate booking & duty of care
- Loyalty & awards



Amadeus' presence in the world



● Headquarters

Sites marked only with a dot in the map represent smaller Amadeus sites, branches, companies non-wholly owned by Amadeus and distributors.

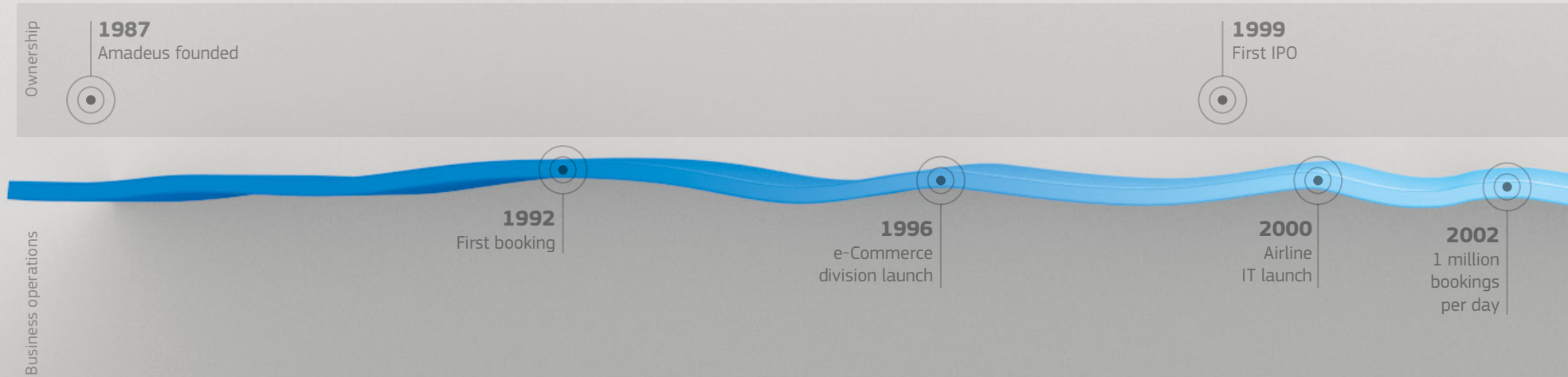
We have

100+ offices

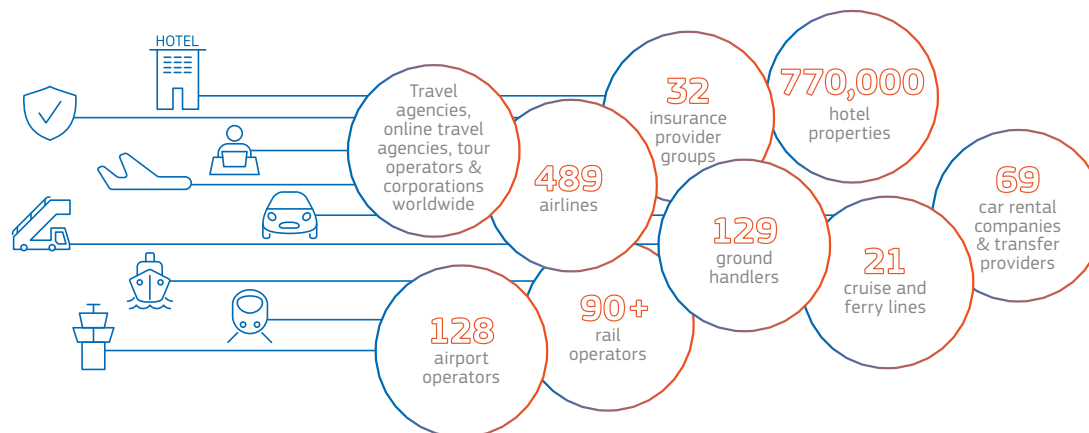
around the world and operate in

190+ markets

Our history and key milestones



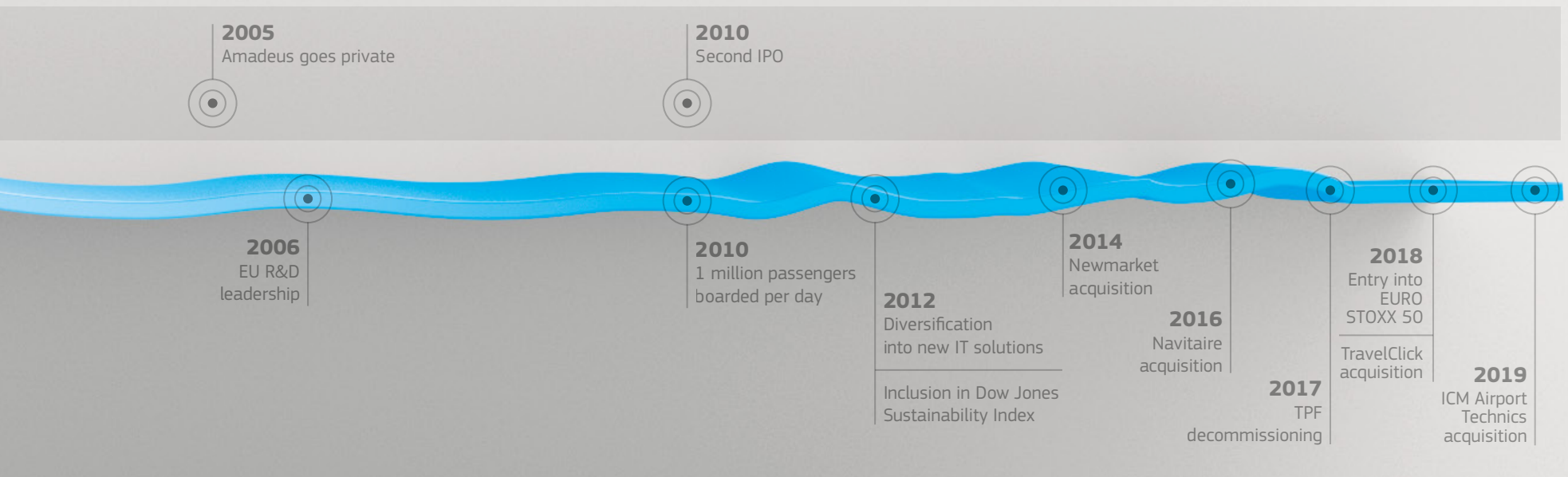
Our customers



The customers we serve

We build technology solutions that serve every part of the global travel ecosystem: airlines and airports, hotels and railways, search engines, travel agencies, tour operators, and other travel players. We help them run their business and improve the travel experience all over the world. And we continue to innovate, bringing more products and services to market as quickly as possible, so we can deliver on customer expectations and respond to industry challenges.

Amadeus sits at the heart of every journey. Connecting travel providers, buyers and sellers, we process 20 bookings every single second – that's more than 1.8 million bookings a day.



Where we've come from – our history and key milestones

Amadeus was formed in 1987 by our four founding airlines: Air France, Iberia, Lufthansa and SAS. From our origins supporting airline distribution and then IT, we gradually expanded our capabilities to serve customers across the entire travel industry. Fast-forward three decades, and Amadeus has become one of the world's largest technology providers for travel and tourism.

Over the years, we've broadened our scope, launching our Airline IT business in 2000 and building on that with the acquisition of Navitaire in 2016 to broaden our offerings for low-cost carriers.

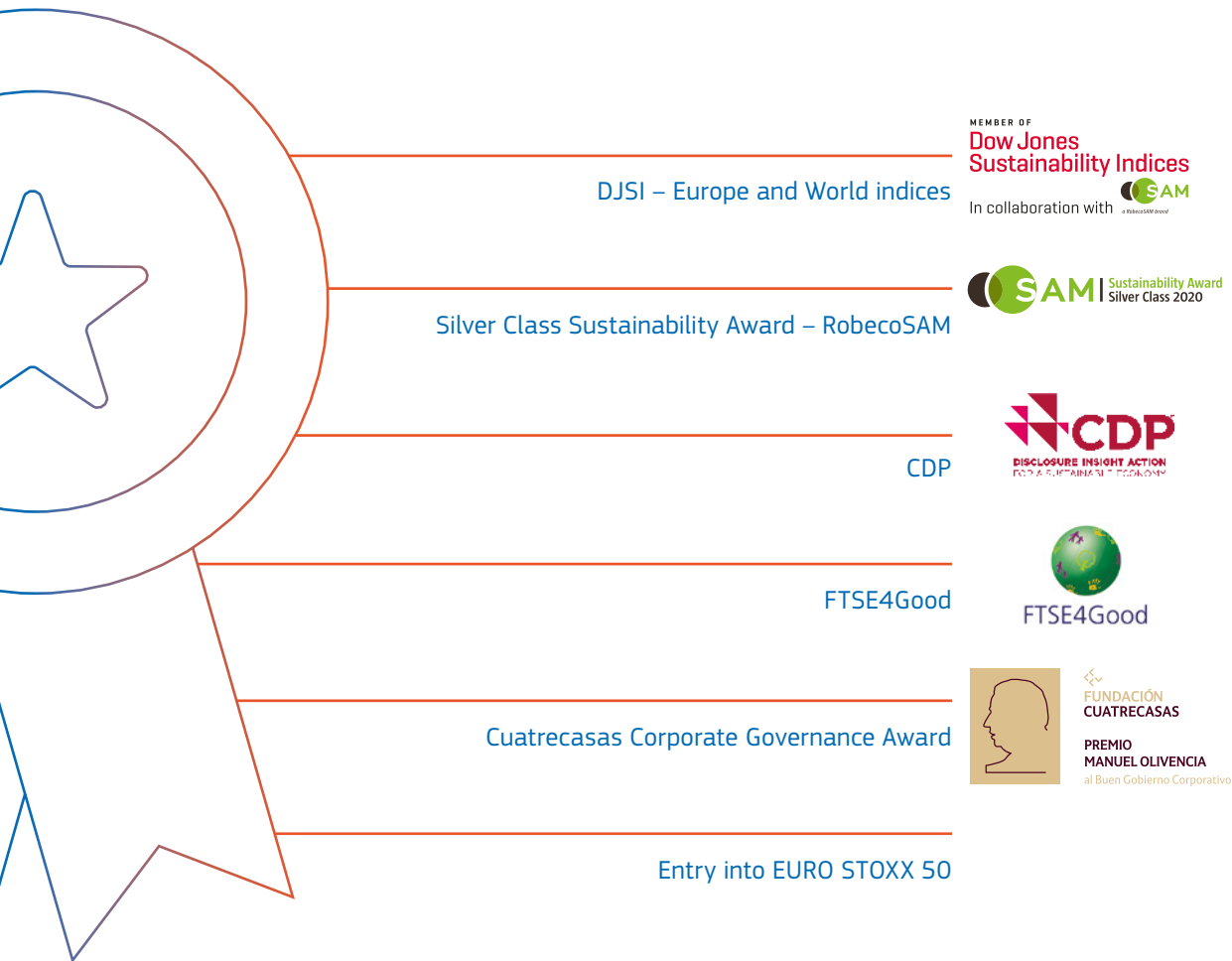
We accelerated our move into the hotel IT sector with the acquisition of Newmarket in 2014. Our acquisition of TravelClick in 2018 confirmed our strong commitment to the hospitality industry, broadening our product portfolio, know-how and global presence. In a highly fragmented market, Amadeus now has the people and the technology to help all hoteliers rise to the challenge of delivering a great experience for their guests.

We've also expanded our portfolio to include merchandizing, revenue management, travel intelligence and travel expense management, harnessing the potential of cloud computing, mobile applications and big data for our customers.

Throughout our history, investment in research and development has been integral to our growth.

Recognition and awards

We are committed to investing in innovation and collaboration, developing talent, promoting sustainable business practices, advancing the travel industry and giving back to society. In 2019 respected organizations all over the globe recognized our efforts and achievements in these areas.*



* For a full list of our awards, please visit: www.amadeus.com/awards.

Where we're going

Since 1987, we've been a leader in the evolution of the travel industry. And we're always looking for ways to keep our customers and partners at the forefront of the latest trends, so they can provide travelers with a consistent, personalized experience throughout their journey. We retain our unique vision, determination and commitment to working more closely than ever with our customers, existing and new, to shape the future of travel together.

Today's travelers want a more personalized way to travel. They want to search for experiences that are unique to them. They also expect their journeys to be one single, smooth experience – from thinking of where to go, to getting to their destination, to arriving back home. At Amadeus, we believe that this desire for connectivity will continue to grow – across all modes of transport, experiences and devices. And travelers will also want their travel providers to make a positive impact on society and the environment, both locally and globally.

We're investing in these opportunities and exploring new models that will drive our own and our customers' growth, experimenting with technologies that'll make travel more rewarding for all of us. We're working in a more agile way. We're making processes leaner. We're building new and better ways to collaborate. And we're using new structures and systems to catalyze cooperation across teams, functions and geographies – within Amadeus and with our customers.



Mr. Tazón, Chairman of the Board, receives the Manuel Olivencia Award from the Cuatrecasas Foundation. It acknowledges the best corporate governance practices by Spanish listed companies. The Spanish Minister of Economic Affairs and Digital Transformation attended the award ceremony, which was held at the Madrid Stock Exchange Palace.

Amadeus' Executive Committee

**Christophe
Bousquet**
Senior Vice President,
Airlines R&D

**Francisco
Pérez-Lozao**
Senior Vice
President, Hospitality

**Tomas López
Fernebrand**
Senior Vice President,
General Counsel &
Corporate Secretary

**Stefan
Ropers**
Senior Vice President,
Strategic Growth
Businesses

**Decius
Valmorbida**
Senior Vice President,
Travel Channels

**Denis
Lacroix**
Senior Vice President,
Core Shared Services
R&D

**Wolfgang
Krips**
Senior Vice President,
Corporate Strategy

**Julia
Sattel**
Senior Vice
President, Airlines

**Ana
de Pro**
Chief Financial
Officer

**Luis
Maroto**
President & CEO

**Sabine
Hansen Peck**
Senior Vice President,
People, Culture,
Communication
& Branding

**Sylvain
Roy**
Senior Vice President,
Technology Platforms
and Engineering

