Global Report 2024

amadeus

Chapter 07

Fostering environmental sustainability

The PDF version of this report is designed to be accessible to all users.

It's compliant with Level AA of the current European standard EN 301 549, the Web Content Accessibility Guidelines (WCAG 2.1) and the PDF/UA standard.

Chapter
07

Fostering environmental sustainability

In this chapter

- Environmental efficiency of Amadeus operations 110
- Environmental sustainability value proposition 118
- Collaboration in industry environmental initiatives 121
- Amadeus' sustainability credentials 122

GRI 3-3 (Climate change mitigation & energy) | GRI 3-3 (Water) | GRI 303-1 | GRI 303-2 | GRI 3-3 (Circular economy)

At Amadeus, we're involved in the travel experience of millions of travelers daily. We're a relevant technology provider in the travel and tourism industry and we acknowledge our responsibility to contribute to its sustainability. Our environmental strategy, which forms part of our broader ESG Ambition, is based on three pillars:

1. **Responsibility,** addressing the environmental efficiency of our operations
2. **Commitment to our customers,** supporting our customers with our sustainability value proposition
3. **Collaboration** with industry stakeholders in joint sustainability initiatives

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

In June 2024 Amadeus' near-term and net-zero emission reduction targets were validated by the Science Based Targets initiative (SBTi)[1]. This means our targets are aligned with the objectives of the Paris Agreement on climate change.

[1] The Science Based Targets initiative (SBTi) is a partnership between CDP (formerly Carbon Disclosure Project), the United Nations Global Compact, the World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). Among other initiatives, the SBTi provides technical assistance and expert resources to companies who set science-based targets in line with the latest climate science.

Environmental efficiency of Amadeus operations

The first step in addressing environmental sustainability is understanding and measuring the environmental impact of our operations and reducing it as much as possible.

We've been monitoring the environmental impact of Amadeus' operations since 2009 through our Environmental Management System (EMS).

Amadeus' Environmental Management System (EMS)

Amadeus' Environmental Management System (EMS) is the tool we use to measure, report, plan and continuously improve our environmental performance, as well as identify best practices. We regularly update its scope and improve its accuracy to align with external reporting standards and adapt to new requirements.

GRI 3-3 (Water) | GRI 303-1 | GRI 303-2 | GRI 3-3 (Circular economy) | GRI 3-3 (Climate change mitigation & energy)

Environmental elements included in the EMS

Amadeus' EMS includes five elements. They were selected considering the relevance of each item, our capacity to influence performance and the expectations from stakeholders regarding reporting transparency. The elements are listed below ranked by relevance. Energy use and CO_2 emissions are by far the most material topics for Amadeus.

1. **Energy use:** We measure electricity consumption, which is the most important element of our energy use, as well as natural gas and diesel consumption.

2. **CO_2 emissions:** We follow the Greenhouse Gas Protocol (GHGP)[2] standards to report CO_2eq[3] emissions.

3. **Water use:** The use of water at Amadeus is divided into three categories: general use at office buildings, irrigation of green spaces and cooling of IT equipment.

4. **Waste generation:** We generate waste at our premises from kitchens and general office use. The recycling and waste management companies providing services to Amadeus are the main sources of information for reporting waste.

5. **Paper consumption:** We use badge-based printing devices to calculate the amount of paper we use. These automated systems permit precise monitoring.

The five elements are evaluated in absolute and efficiency terms, taking into account (1) number of employees, (2) number of travel transactions processed and (3) revenue generated. These indicators have been monitored since 2009, allowing us to use historical data records to analyze trends and define targets.

[2] The Greenhouse Gas Protocol (GHGP) is the most widely used international accounting tool for governments and businesses to understand, quantify and manage greenhouse gas emissions. The GHGP classifies emissions into three scopes. Scope 1: direct greenhouse gas emissions from sources owned by the company; Scope 2: indirect greenhouse gas emissions from electricity use; and Scope 3: emissions released by third parties as a consequence of the use of their services, such as emissions from travel providers for business travel.

[3] CO_2eq or CO_2 equivalent is a standard measurement for the climate effects of various greenhouse gases that have different warming effects and retention time in the atmosphere. The amounts of other gases are converted into the equivalent global warming potential of CO_2.

Geographical scope of the EMS

Amadeus has close to 100 offices worldwide. Some of these are small. Consequently, it's inefficient to directly measure and report their impact. We've instead adopted a pragmatic approach by directly measuring the impact of 14 of our largest sites, which represent 68% of the total Amadeus workforce worldwide. We then estimate the impact of the remaining sites based on the average consumption factors of the 14 sites. This methodology was implemented and validated externally in 2018, broadening the scope of our reporting to 100%.

The 14 sites included in the direct reporting of the EMS are: Bad Homburg (Germany), Bangkok (Thailand), Bengaluru (India), Erding (Germany), London (UK), Madrid (Spain), Manila (Philippines), Miami (US), Nice (France), Paris (France), Portsmouth (US), San José (Costa Rica), Singapore and Sydney (Australia).

GRI 3-3 (Climate change mitigation & energy)

Environmental targets and action plan

Since the creation of the Amadeus EMS, we've maintained a continuous improvement policy. We set annual absolute and intensity targets, taking as reference our performance the year before to ensure continuous improvement.

See p. 178, "Tables related to environmental sustainability."

In 2024 the Science Based Targets initiative (SBTi) validated Amadeus' near-term and net-zero emission reduction targets.

Amadeus near-term and net-zero targets validated by the SBTi (base year 2022)

By 2028

25%

Reach of suppliers' emissions with SBTi targets

By 2030

42%

Reduction in absolute Scope 1 and 2 GHG emissions

25%

Reduction in absolute Scope 3 GHG emissions

100%

Active sourcing of renewable electricity

By 2050

90%

Reduction in absolute Scope 1, 2, and 3 GHG emissions

Additionally, Amadeus maintains its short-term goal of carbon neutrality[4] by 2025, which follows a formal commitment made in 2017 to carbon-neutral growth by joining the UN Climate Neutral Now pledge. This target is independent from Amadeus' science-based targets validated by the SBTi.

Some of the main initiatives to reach our targets include:

- Increasing active sourcing of renewable electricity using Guarantees of Origin[5] (GOs) of renewable energy or equivalent market-based mechanisms to progressively cover the electricity consumption of all our offices worldwide. In the base year 2022 the proportion of renewable electricity was 63% thanks to the use of GOs for all the electricity used at our Data Center in Germany. With these measures we'll avoid 100% of our Scope 2 market-based GHG emissions by 2030.

- Implementing energy efficiency measures, including replacing equipment, improving building insulation, and other activities aimed at reducing the consumption of electricity, natural gas, diesel and refrigerants.

  Environmental efficiency at our Data Center is granted by industry-specific certifications like EN 50600,[6] and we monitor performance with standard metrics like the Power Usage Effectiveness (PUE).[7] Over the last six years the PUE of

[4] The carbon neutrality objective refers to our Scope 1 and 2 emissions, and does not include Scope 3 emissions. Carbon offsetting is included among the actions to reach carbon neutrality.

[5] A Guarantee of Origin is an EU green label that guarantees that electricity has been produced from renewable sources. Guarantees of Origin are traded as a commodity.

[6] EN 50600 is a European standard for data centers that provides specifications for the planning, construction and operation of data centers. The requirements of EN 50600 focus primarily on physical security and availability.

[7] Power Usage Effectiveness (PUE) is a common metric used to measure the energy efficiency of data centers. PUE is determined by dividing the total amount of power entering a data center by the power used by the computing equipment within it. The closer to 1 the PUE, the more efficient the data center is.

GRI 3-3 (Climate change mitigation & energy)

our Data Center has declined from 1.34 in 2018 to 1.30 in 2024. According to the Uptime Institute, the global average PUE for 2024 was 1.56.[8]

See p. 73, “Green IT and energy efficiency.”

Our largest site, in Nice, embarked on Project Helios in 2023, with the objective to reduce energy consumption and increase self-production of renewable energy.

Employee engagement and commitment have been essential in this project, which has implemented actions related to heating, ventilation, air-conditioning equipment replacement for increased efficiency, double-glazing window installation, roof insulation improvement in buildings where significant heat loss was identified through thermal imaging and transition to LED lighting in car parking. In addition, geostorage drilling works are ongoing and should result, upon completion, in a reduction of 65% of energy consumption for heating and air conditioning.

[8] Uptime Institute (July 2024). Uptime Institute Global Data Center Survey 2024.

- Engaging with suppliers. To decarbonize Amadeus’ supplier-related activities, which make up over half of our Scope 3 emissions, we monitor emissions from suppliers and engage with them when required to ensure alignment in relation to carbon emission reduction targets.

- Offsetting Scope 1 and 2 emissions (market-based) that couldn’t be avoided to achieve carbon neutrality by 2025. In this respect, we're using Certified Emission Reductions (CERs) from UN Clean Development Mechanism (CMD) projects. We don't consider carbon offsets in relation to SBTi targets.

- Implementing sustainable software engineering initiatives, which foster continuous improvement in the use of energy and hardware through a systematic process of engaging with our developers, measuring performance, identifying areas for improvement and driving change.

See p. 117, "Green IT initiative."

In addition, we're migrating our data-processing activities to the cloud. This'll entail access to the most advanced data center infrastructure and efficient use of computing resources through an improved alignment of data-processing demand and capacity. Consequently, we expect to improve energy efficiency per transaction processed.

GRI 305-1 | GRI 305-2 | GRI 305-3 | GRI 305-4 | GRI 305-5 | GRI 3-3 (Climate change mitigation & energy)

Environmental performance

GHG emissions[1,2] (figures in tCO_2eq)	2022	2023	2024
Scope 1 GHG emissions			
Gross Scope 1 GHG emissions	2,148	2,082	1,827
Scope 2 GHG emissions			
Gross location-based Scope 2 GHG emissions	33,099	35,257	37,192
Gross market-based Scope 2 GHG emissions	11,378	13,339	13,677
Scope 3 GHG emissions			
Total gross indirect (Scope 3) GHG emissions	**173,588**	**181,485**	**193,961**
1 Purchased goods and services	141,412	136,301	139,948
2 Capital goods	7,215	18,119	21,492
3 Fuel and energy-related activities (not included in Scope 1 or Scope 2)	7,317	7,725	8,684
4 Upstream transportation and distribution	52	33	43
5 Waste generated in operations	122	22	50
6 Business travel	10,531	11,940	15,707
7 Employee commuting	6,498	6,926	5,852
Total Scope 3 upstream emissions	**173,147**	**181,066**	**191,776**
15 Investments	441	420	2,185
Total Scope 3 downstream emissions	**441**	**420**	**2,185**

[1] 2022 and 2023 figures have been restated as Amadeus revisited its CO_2 emissions inventory calculations in order to validate our carbon emission reduction targets with the SBTi. In 2022, Scope 1 emissions increased by 44% and Scope 3 emissions decreased by 24%, mainly due to the removal of Category 8 emissions (refrigerant gas emissions accounted under scope 1) and Category 11 (downstream emissions related to the use of software are outside the minimum boundary and should be separated from the mandatory reporting). For the same reason, 2023 Scope 1 emissions increased by 46% and Scope 3 emissions decreased by 23% versus the figures previously reported.

[2] The seven greenhouse gases have been included when relevant. Amadeus emissions inventory considers CO_2, CH_4, N_2O and HFCs, while PFC, SF_6 and NF_3 gases are excluded as they are insignificant due to Amadeus business activity.

GHG emissions per net revenue	2022	2023	2024
Scope 1 GHG emissions			
Gross per net revenue (tCO_2eq/€ million)	0.48	0.38	0.30
Scope 2 GHG emissions			
Gross market-based GHG emissions per net revenue (tCO_2eq/€ million)	2.54	2.45	2.23
Scope 3 GHG emissions			
Gross per net revenue (tCO_2eq/€ million)	38.70	33.35	31.58
Net revenue			
Net revenue (€ million)	4,486	5,441	6,142

In 2024, our absolute Scope 1 emissions decreased by 12% from the previous year.

Our Scope 2 location-based emissions increased by 5%, while the increase of Scope 2 marked-based emissions was 3% during the same period. This increase is mainly due to double-digit growth in Amadeus activities (revenue growth of 13%) and workforce (12% increase in average full-time equivalents (FTEs) versus previous year).

Carbon efficiency has improved, as emissions per revenue have continuously declined in the last two years at the three emission scopes.

GRI 302-1 | GRI 302-3 | GRI 302-4 | GRI 305-5 | GRI 3-3 (Climate change mitigation & energy)

Carbon offset	2022	2023	2024
Carbon offset (tCO_2e)	11,460	17,491	27,779

Amadeus' purchase of Certified Emissions Reductions (CERs)[9] was used for two purposes:

- To compensate for the Scope 1 and 2 emissions that couldn't be avoided, to reach carbon neutrality by 2025[10] (12,072 CERs in 2024).
- To compensate for the emissions from business travel (15,707 CERs in 2024).

Since 2019 we purchase GOs of renewable energy covering all the electricity used at our Data Center and offices in southern Germany. In 2024 our offices in London and Manila also became 100% powered by renewable electricity.

See more environmental data in p. 178, "Tables related to environmental sustainability."

Electricity consumption*	2022	2023	2024
Electricity consumption at office buildings	41,623	39,527	42,660
Electricity consumption at our Data Center	63,977	63,895	61,665
Total electricity consumption	**105,600**	**103,422**	**104,325**
Electricity consumption at offices per FTE	2,456	2,121	2,042
Renewable electricity active sourcing	**63,977**	**63,895**	**65,630**
% of renewable electricity active sourcing over total electricity consumption	**62%**	**63%**	**63%**

* All figures in MWh unless otherwise indicated

[9] Amadeus purchased CERs from a UN CDM project. The project information can be found on the UN's CDM website under Project 7939: Binwa-IV Hydro Electric Project.

[10] It's important to note that these offsets aren't counted as progress toward Amadeus' science-based targets.

GRI 302-4 | GRI 305-5 | GRI 3-3 (Climate change mitigation & energy) | GRI 3-3 (Water) | GRI 303-1 | GRI 303-2 | GRI 3-3 (Circular economy) | GRI 306-2

Energy efficiency and CO_2 emissions

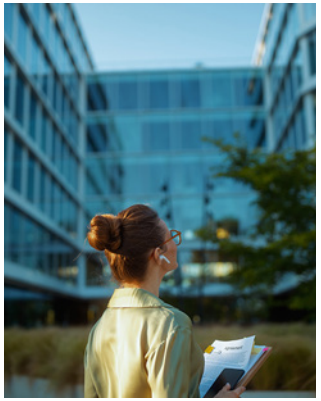
- Using switches connected to movement detection control systems.
- Reducing the time lights remain on after movement detection. Replacing incandescent bulbs with LEDs.
- Using renewable energy in sites like our Data Center in Germany (through the use of Guarantees of Origin) and our offices in London and Manila.
- Thorough planning of areas covered by specific light switches.
- Automatically switching off lights at certain hours.
- Renovating our office buildings to make them more energy-efficient.
- Implementing photovoltaic cells on roofs.
- At our London site, the LED lighting system regulates the intensity of artificial light according to the natural light available, and the photovoltaic panels on the roof have produced close to 60.6 MWh in 2024.
- Measures implemented at our Erding site to reduce gas consumption include the upgrade of the solar energy system for water heating, and the renewal of the gas burners and control system for heating.
- Using shared transport facilities at our largest sites like Bengaluru, with an estimated reduction of 600+ tons of CO_2 annually. Our offices in Nice provide a shuttle service between the main sites to reduce our CO_2 footprint and traffic congestion.
- Purchasing carbon-neutral products and services from vendors.
- Launching of awareness campaigns to promote frugal consumption of energy.
- Installing a new Digital Addressable Lighting Interface (DALI) system to optimize lighting control at our premises in Nice.
- Improving thermal insulation, renovating energy recovery air handling units, and installing heat pumps on the roof in Nice.
- Facilitating commuting in non-fossil fuel transport modes in London, implementing bike storage for staff, and installing electric bike charging points.
- Launching initiatives to reduce the impact of business travel, including offsetting 100% of emissions from flights using Certified Emission Reductions (CERs) from the Clean Development Mechanism (CDM); purchasing of limited amounts of sustainable aviation fuel (SAF) in partnership with airline programs and encouraging frugality in travel, e.g. by sharing transfers among employees.

Waste generation and circular economy

- Globally implementing badge-based printing systems that reduce paper used. This is the most successful initiative to reduce paper overall.
- Setting all printer defaults to black-and-white, double-sided printing.
- Using recycled paper when possible.
- Sending used paper for recycling.
- Broadly implementing electronic signatures for contracts, significantly reducing paper copies printed and courier usage.
- Carrying out global marketing efforts to reduce paper use in advertising, using digital means instead.
- Implementing a proper infrastructure to promote classification of waste.
- Replacing individual workstation bins with common area bins to reduce waste.
- Communication campaigns to raise awareness among employees to minimize waste and the use of plastic.
- Eliminating the use of plastic as much as possible. Replacing single-use plastic and paper cups with reusable glass or ceramic mugs, incentivized at sites like London or Madrid through discounts.
- Reusing obsolete PC screens and other electronic equipment. Through the Buyback Program, employees have the opportunity to buy for private usage their end-of-life corporate devices, including laptops, smartphones, and tablets, at a significantly discounted price.
- Working with vendors that collect waste to improve its measurement and management.
- Donating and recycling office furniture and electronic equipment.

Water use

- Implementing motion sensor taps, water flow regulators and aerators in bathrooms to optimize consumption.
- Using drip irrigation systems and plants with low water consumption.
- Using water-efficient dishwashers in kitchens.
- Implementing leak detection units to reduce water loss.
- Using advanced condenser systems to avoid water waste in the cooling system due to condensation.
- Installing waterless urinals in our London offices, with an estimated annual water saving of over 2,100 m^3.
- Renovating water pumps, improving energy efficiency with estimated savings of 1,000 m^3 of water and 70 MWh at our Nice site.



GRI 302-4

Green IT initiative

Our Green IT initiative, launched in 2022, has grown significantly. It aims to make green software principles central to our engineering practices, optimizing energy and carbon efficiency. Our efforts focus on four areas: (1) raising sustainability awareness within the Amadeus engineering community, (2) engaging our workforce with actionable green software guidelines, (3) implementing tools and metrics to measure carbon emissions and the impact of green IT practices and (4) promoting actions to optimize efficiency.

Green IT highlights in 2024

- 1,800 members of the engineering community attended Climate Fresk[1] training workshops in 2024. Since its launch, 5,000 engineers have participated in Climate Fresk training workshops. This represents approximately 50% of the engineering staff.
- Rollout of our Green Software Practitioner training, with 300 engineers trained.
- Participation in the Digital Cleanup Day (formerly the Cyber World CleanUp Day), with awareness campaigns about the environmental footprint of digital and a callout to all employees to proceed to a digital cleanup of their digital workplace.
- CARMEN (Amadeus' Software Carbon Measurement Engine) has been deployed across our systems. This engine is based on the Software Carbon Intensity specification from the Green Software Foundation[2]. It'll enable us to know the carbon efficiency of our software applications based on real-time telemetry about the energy consumption and carbon intensity of the electricity grid.
- CO_2 impact measurement of our IT solutions is now integrated in our financial operations dashboards for every applicationin the cloud and software delivery life cycle. It provides visibility to identify optimization action plans and check their results.
- Continuation of our collaboration with the Green Software Foundation, with active participation in its Impact Engine Framework open-source project.
- Creation of the Amadeus GreenLab. This practical two-day hands-on training helps our engineers better understand the environmental impact of IT, how to measure it and how to reduce it. A pilot has been rolled out in a French engineering school with graduating students.
- Launch of the second edition of our Green IT campaign to encourage and promote energy efficiency optimization projects. This campaign acts as a cultural trigger to put forward good practices and inspire the engineering community. Among the projects selected for implementation, the first module of our Carbon Aware Scheduling capabilities has been delivered.

"In 2024, Green IT has tangibly grown its cultural influence, engaging 50% of the engineering community through workshops like Climate Fresk. We achieved a key milestone in minimizing our software carbon impact thanks to the delivery of the first version of our Software Carbon Measurement Engine (CARMEN), leveraging the Green Software Foundation framework."

Virginie Corraze
Associate Director, Engineering Sustainability, Toolchain Product Management & Dev Relations, Amadeus

[1] Climate Fresk workshops are three-hour collaborative educative workshops that invite participants to think about the causes and consequences of climate change. Climate Fresk is an NGO that promotes climate education and shared understanding of the climate change challenge.

[2] The Green Software Foundation (GSF) was created by Microsoft, GitHub, Accenture and other technology companies to explore the science of green software and build a trusted ecosystem of standards, tooling and best practices for green software.

GRI 3-3 (Climate change mitigation & energy)

Environmental sustainability value proposition

Amadeus invested €1,365 million in R&D in 2024, accounting for over 22% of our revenues. We develop technology solutions that improve the operational and environmental efficiency of our customers, for example by helping them to reduce fuel used per passenger flown. In our distribution platforms, we offer detailed carbon emission data, empowering travelers to make travel choices with lower impact.

In 2024, we launched the Amadeus Travel Impact Suite, which supports travel sellers and providers by providing information on the environmental impact of the entire traveler journey. The Travel Impact Suite also grants travelers the opportunity to compensate negative impacts of travel, facilitating contributions to projects that benefit local communities and the environment.

Built on three key pillars—Inform, Mitigate, and Compensate—the Travel Impact Suite provides solutions that enable travel sellers to prioritize more sustainable practices.

Under the “Inform” pillar, we've introduced two new products. First, the Travel Impact Data Hub aggregates emissions data from various sources for travel activities covering flights, hotels, rail and cars, enabling travel sellers to convey and manage consistent information about the environmental impact of travel options. To power the solution, Amadeus is leveraging new as well as long-standing relationships with ACRISS, Greentripper, Greenview, the International Civil Aviation Organization (ICAO) and Travalyst. And second, the Travel Impact Explorer lets travel sellers check the environmental impact of a specific travel activity or of a whole trip using the Travel Impact Data Hub.

The deep integration of the travel impact data within our systems sets Amadeus apart, offering travel information, options and data on the environmental of fights, rail, hotels, and cars within the Amadeus Travel Platform.

The Amadeus Travel Impact Suite is complemented by our Travel Impact Booster, which lets travelers and corporations support carbon reduction projects. These are provided by partners like Chooose and CarbonClick. This new content is accessible via APIs and other touchpoints.

Amadeus’ corporate booking tool, Cytric, continuously enriches its offering by including travel-related carbon emissions, streamlining expenses, and promoting more inclusive and conscious travel.

Through LIFT—one of Amadeus’ innovation frameworks—we’ve introduced a dedicated track to support our new ESG Ambition and develop ESG-related ideas. Amadeus employees are encouraged to propose ideas that foster positive impact on people, places and the planet.

In 2024, Amadeus partnered with Lilium, a leading electric aircraft manufacturer and pioneer in Regional Air Mobility (RAM), to support the development of its POWER-ON Aftermarket Services portfolio. Lilium is decarbonizing aviation and is a leader in the Advanced Air Mobility (AAM) space. Electric aircraft that take off and land vertically (eVTOL) can operate without runways, introducing a new mode of transportation for regional travel. As part of Lilium’s POWER-ON portfolio, we will integrate our range of technologies, such as passenger check-in and biometric solutions, into Lilium’s suite of digital solutions, to ensure the efficient and smooth operation of the Lilium jet.

We embrace a holistic approach, with the ambition to provide environmental improvements at the five stages of the travel cycle:

1. **Inspiration pre-departure:** Using advanced algorithms that estimate demand and analyze the risk of disruptions, Amadeus Sky Suite helps airlines make fundamental decisions related to airline networks, flight frequencies and equipment, reducing the use of resources (fuel, aircraft, airport infrastructure, etc.) per passenger flown. In addition, information on estimated CO_2 emissions per passenger flight, hotel room, car rental and air trip is included in most of Amadeus’ distribution platforms and is available through APIs.

2. **Booking:** During the booking phase, most Amadeus solutions offer the possibility of obtaining CO_2 emission estimations for different itineraries. Travelers can then incorporate CO_2 emissions as an additional element into their booking decision-making process, together with traditional parameters like schedules, availability and fares. Our corporate booking tool, Cytric, offers sustainability features including sustainability policies from corporations, helping travelers make informed choices by comparing, for example, air and rail options, filtering by carbon emissions.

GRI 3-3 (Climate change mitigation & energy)

3. **Pre-trip:** Amadeus Sequence Manager permits improved planning of aircraft movements at airports' runways and provides a sophisticated aircraft slot assignment, helping airports and airlines reduce their environmental impact by minimizing the amount of time aircraft spend taxiing on the runway. Amadeus Airport Cloud Use Service (ACUS) helps reduce energy consumption at airport buildings by reducing the amount of IT infrastructure required at airports. Amadeus' partner Volantio enables airlines to increase aircraft load factors, better matching demand to an airline's existing flight capacity by moving passengers from peak flights to off-peak ones. Volantio helps to reduce carbon emissions for each passenger flown.

4. **On-trip:** Amadeus Altéa Departure Control – Flight Management helps airlines accurately estimate the fuel needed for a specific flight, using sophisticated algorithms and historic data. The precise estimation of the aircraft's weight before the fuel is loaded (zero-fuel weight) permits significant savings in fuel burn, emissions and economic costs. Amadeus Flight Operations Controller helps airlines make rapid decisions in moments of operational disruption. It enables them to improve operational efficiency and customer service while minimizing negative environmental impact by finding optimum solutions for each disruption.

5. **Post-trip:** There's increased demand from corporations for solutions that help measure travel-related emissions. Some of Amadeus' solutions, like our corporate booking tool Cytric, make it possible to obtain post-trip CO_2 emissions reports aggregated by various criteria like geography, department or time. Amadeus Delphi is a solution that can help hotels tackle food waste by providing enhanced communication and streamlined operations across departments. Specifically, it focuses on accurate forecasting, real-time updates and management of Banquet Event Orders, and precise meal planning, thereby minimizing excess food production. Amadeus HotSOS provides hotels with a service optimization solution that offers real-time dashboards, scheduled equipment, preventive maintenance orders, scalable inspection and reduced emissions through more efficient use of resources like paper.

Environmental benefits of Amadeus solutions at the five stages of the travel cycle*

Inspiration

- **Travel Impact Suite**
  Provides CO_2 data on the environmental impact of travel along the journey
- **Sky Suite**
  Reduces fuel consumption by helping select the most appropriate fleet and create optimized network and schedules

Booking

- **Cytric**
  Corporate booking tool that allows the selection of travel options with lower CO_2 emissions

Pre-trip

- **Sequence Manager**
  Helps airports reduce waiting times at the runway by optimizing aircraft start-up times, minimizing fuel consumption

On-trip

- **Flight Operations Controller**
  Reduces fuel consumption by optimizing operations and minimizing delays
- **Altéa Departure Control-Flight Management**
  Reduces fuel consumption through accurate load control and optimized flight balance

Post-trip

- **Delphi**
  Enables accurate documentation of guest preferences and real-time updates to catering plans for hotels to minimize overproduction, reduce waste and achieve operational inefficiencies
- **HotSOS**
  Provides service optimization for hotels to schedule preventative maintenance tasks, extending equipment lifespan and minimizing waste
- **Cytric insights**
  Facilitates CO_2 reporting

* Some solutions span several stages of the journey.

GRI 3-3 (Climate change mitigation & energy)

Research from Amadeus and Accenture estimates that selected IT solutions reduced CO_2 emissions by 50,000 metric tons in 2023

Amadeus and Accenture collaborated on the research report "*The Power of Digital: IT Solutions and Their Role in Aviation's Path to Net Zero*" published in December 2024. The report evaluates the impact potential of IT solutions currently available to support airlines and airports as they navigate their path to reducing the carbon emissions of the aviation industry.

The report identifies several key levers to support the decarbonization of aviation, including fleet renewal, sustainable aviation Fuel (SAF), new aircraft technologies, and operational efficiency improvements.

The IT solutions lever can help airlines and airports accelerate their journey in the transition to net zero by providing operational efficiency improvements that decrease fuel burn and lower costs.

The report contains two case studies to assess the current and potential impact of the following Amadeus IT solutions:

- Amadeus Airport Sequence Manager, which optimizes flight departures
- Amadeus Altéa Departure Control – Flight Management, which accurately estimates aircraft fuel requirements

The analysis estimates that, in 2023, the IT solutions explored in the case studies delivered a potential annual saving of the equivalent of 50,000 metric tons of CO_2 emissions.

It then extrapolates the findings to a global scale, suggesting that if all applicable airlines and airports implemented these IT solutions, the aviation industry could achieve a reduction of approximately 5.7 million metric tons of CO_2 emissions annually. This reduction is equivalent to 0.6% of global aviation emissions in 2023, or 10,000 flights from London Heathrow to John F. Kennedy International Airport.

> **"While IT solutions alone cannot fully decarbonize aviation, they offer a near-term opportunity to improve operational efficiency and reduce carbon emissions. As the industry continues to evolve, Amadeus will support its customers in driving sustainable change through technology."**
>
> **Olivier Girault**
> Head of Solutions, Sustainability Office, Amadeus

Collaboration in industry environmental initiatives

Medium–low impact

Travel industry sustainability is a global imperative that requires united efforts from all industry stakeholders. That's why the third pillar of our ESG Ambition is dedicated to collaborative projects. By working together, we can tackle the immense sustainability challenges that no single entity can address alone. Below we review some of the main initiatives we're engaged in.

In order to raise awareness of aviation carbon emissions, and to support the use of a common methodology to estimate carbon emissions per passenger, Amadeus and ICAO, since 2009, have a long-term agreement in place whereby Amadeus uses ICAO's carbon calculator on our distribution platforms, providing travelers with information about GHG emissions released during their trips. ICAO's carbon calculator brings the benefits of global reach, commercial impartiality and legitimacy to represent the aviation industry.

ICAO and Amadeus
Improved environmental awareness in the industry

Carbon calculator

- Legitimacy
- Neutrality
- Global reach

Travel industry reach

- Contact with 2M+ travelers per day
- Operating in 190+ countries

In October 2022 Amadeus joined the Travalyst coalition. A not-for-profit made up of some of the biggest travel and technology companies globally, Travalyst delivers consistent, credible and easy-to-understand sustainability information across multiple platforms for both travel providers and consumers. In 2024, Amadeus launched the Travel Impact Suite, which includes the information of Travalyst's Travel Impact Model.

We also participate in industry events to increase our collaboration with industry partners to identify potential projects to work on together, learn from best practices implemented by our peers and participate in the building of global industry sustainability trends.

Early in 2024, Amadeus joined the World Sustainable Hospitality Alliance to bring our travel expertise to the table in the quest to support a more prosperous and responsible hospitality sector. Amadeus is the first global travel tech company to join the industry body.

Amadeus joins the World Sustainable Hospitality Alliance. From left to right: Hervé Prezet, Vice President Platform & Industry expertise, Amadeus; Glenn Mandziuk, CEO, World Sustainable Hospitality Alliance; Agnes Pierce, Director, Global Head of Sustainability—Hospitality, Amadeus; Olivier Girault, Head of Sustainability Solutions, Amadeus.

Travalyst fifth anniversary, New York. From right to left: Prince Harry, Duke of Sussex; Dr. Sally Uren OBE, Chief Executive, Forum for the Future; Aditi Mohapatra, Vice President of Global Social Impact & Sustainability, Expedia Group; Lucas Bobes, Group Environmental Officer, Amadeus; Gianni Marostica, Managing Director, Global Business Development, Google.

Amadeus' sustainability credentials

Sustainability indices provide feedback on our performance and help us identify areas for improvement. They're also a valuable benchmark in assessing how Amadeus compares to other companies and industries on sustainability performance.

See p. 30, "Recognition and awards."

For the 13th consecutive year, Amadeus has been included in the Dow Jones Best-in-Class Indices (formerly called Dow Jones Sustainability Indices)[11] both in the World and Europe categories. Dow Jones Best-in-Class Indices evaluates sustainability performance very comprehensively, including economic and ESG dimensions.

In the latest available results of CDP Climate Change, Amadeus obtained a score of B (2023 score, announced in 2024).

In 2024, Amadeus was awarded with the EcoVadis Bronze Medal. EcoVadis is a globally recognized sustainability rating tool that rates businesses' sustainability.

Amadeus has also been included for the 11th consecutive year in the FTSE4Good Sustainability Index. The FTSE4Good Index Series includes companies that reflect strong ESG risk management practices.

In 2024, Amadeus was recognized by Sustainalytics as an ESG Industry Top Rated company.

The *Financial Times*, in its issue of April 25, 2024, included Amadeus in its list of Europe's Climate Leaders 2024.

We believe that transparent and clear non financial information reporting is a necessary step toward a more sustainable future, and we've reinforced our commitment in this direction.

[11] Renamed in February 2025.