

FLY  ZEN

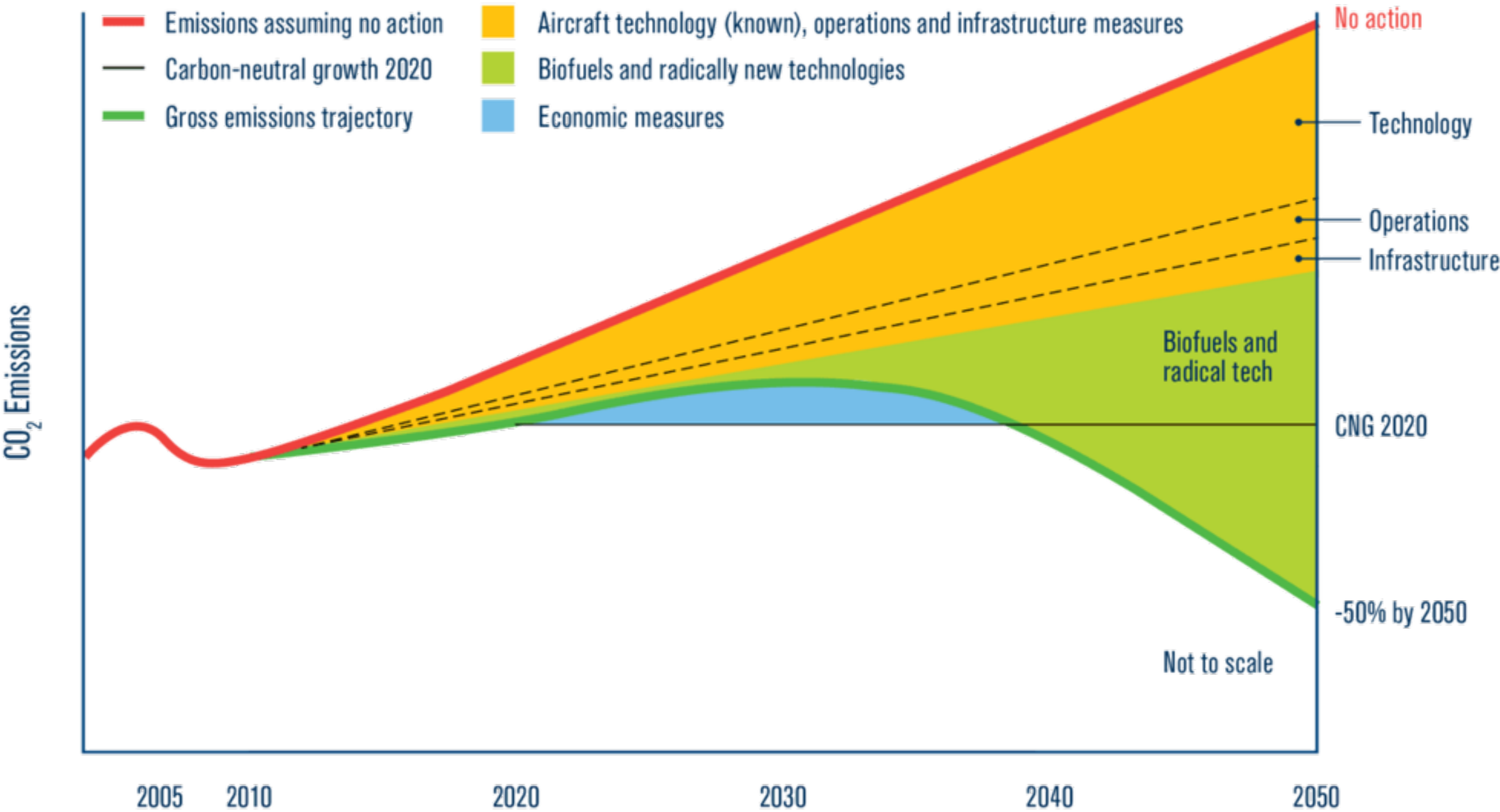
THE SUSTAINABLE FLIGHT CHALLENGE

THE PROBLEM

Aviation greenhouse gases (GHG) emissions are growing exponentially

Present trends point to a 70% increase in 2020 and up to 700% by 2050 with respect to 2005 levels*

Millennials and Z-generation consumers follow sustainability drivers for their purchases



*source: ICAO

THE SOLUTION

Flyzen establishes a new reference calculation based on the best international standards

Our algorithm calculates carbon emissions of flight routes precise to the single flight

The industry-first solution introducing the variable of sustainability to the online flight booking

We empower travellers to make an educated choice when choosing a flight

Flyzen addresses two Sustainable Development Goals set by the UN to protect our Planet



MARKET TRENDS

Skyscanner has recently begun by flagging flights by CO₂ emissions

easyJet	12:50 LTN	2h 12 Direct	16:00 BCN	7 deals from € 55	ECO
easyJet	11:35 LGW	2h 10 Direct	14:45 BCN	7 deals from € 60	ECO
IBERIA	09:10 LGW	2h 05 Direct	12:15 BCN	12 deals from € 65	
IBERIA	09:45 LGW	2h 05 Direct	12:50 BCN	12 deals from € 65	
IBERIA	14:40 LGW	2h 05 Direct	17:45 BCN	12 deals from € 65	


 **A marketing tool to drive the airline selling strategy**

Flyzen uses dynamic databases fully customisable based on airlines input. Data are always kept up to date and **immediately reflect any improvement** into the ranking

The sustainability variable has become a main market driver



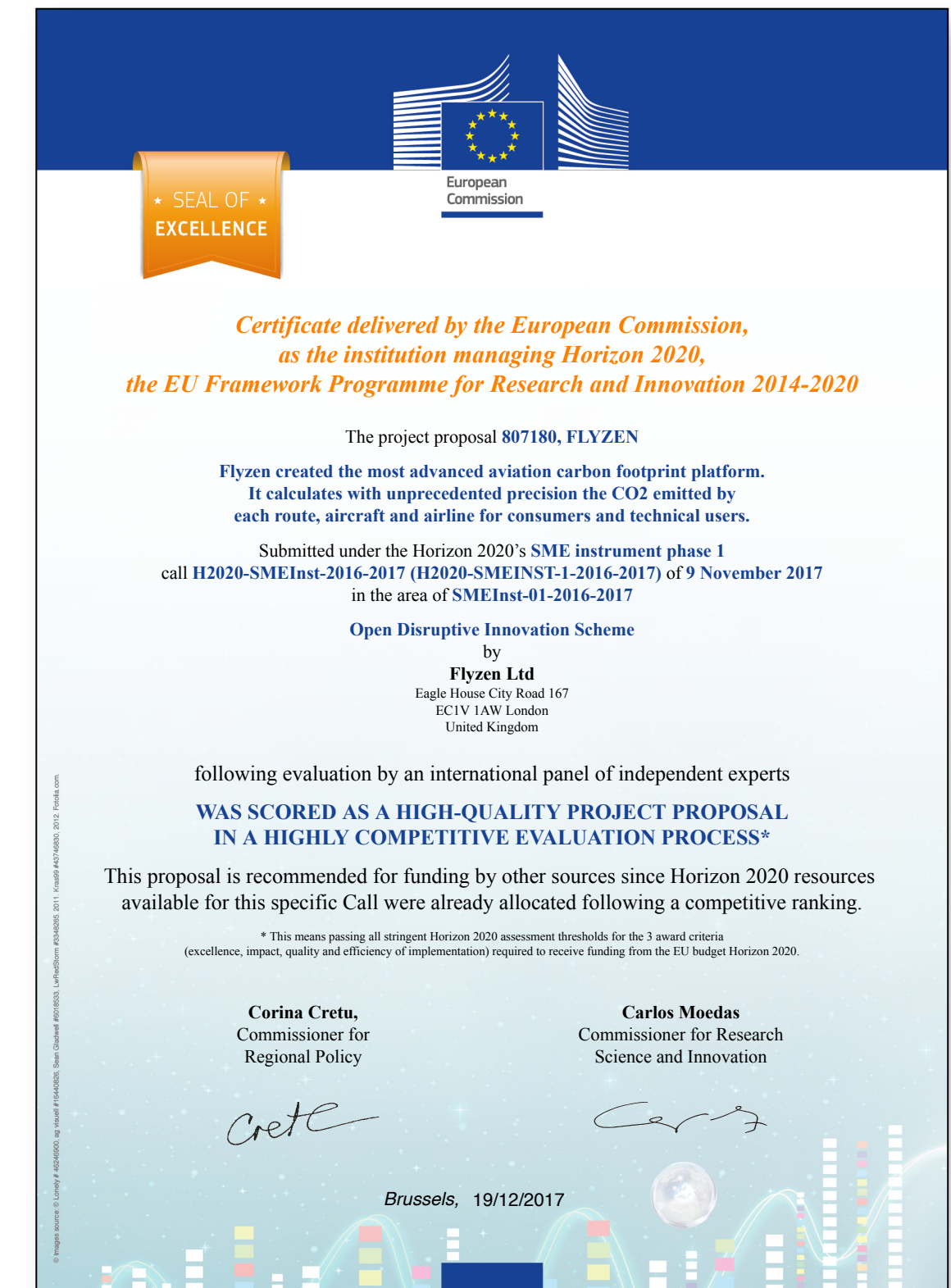
Since 2014 (industry first), Flyzen has been developing the most advanced algorithm to calculate the carbon footprint in aviation

- easy to implement with any online service
- API access with **actual numerical data** (kgCO₂/passenger)
- data provided can be used to log users savings and offer additional services (enterprise/consumer)
- Flyzen can provide support to create **custom services and labelling schemes**
- awarded in 2017 with the Seal of Excellence¹ by the European Union 

Main applications and benefits

- ✓ numerical data allow a **granular ranking** and a precise comparison with the baseline (Skyscanner only labels the least polluting flights)
- ✓ enterprise can keep track of the **CO₂ savings** with time for marketing & CSR communications purposes
- ✓ consumers are allowed to make a **conscious choice** in the fastest growing travel industry
- ✓ **databases are constantly updated** with the newest airliners (our database is presently more advanced than the Skyscanner solution)
- ✓ collaborations with several universities (Imperial, London South Bank, Nottingham...) and international research institutes will ensure a **continuous improvement** of the algorithm to keep a leading position in the market

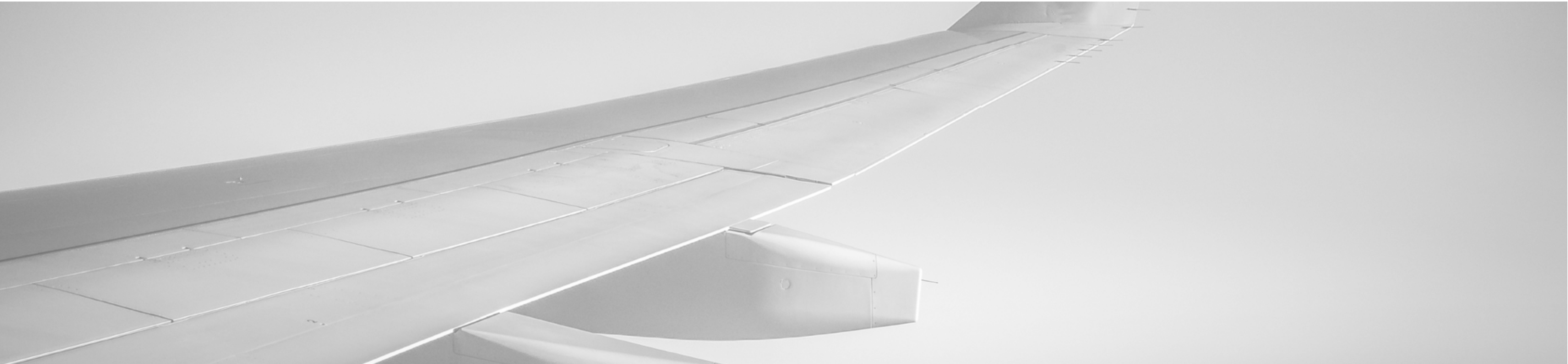
¹The Seal of Excellence is a quality label awarded to project proposals submitted to Horizon 2020 which succeeded a highly competitive evaluation process by independent experts. This quality label is a guarantee for investors to find high standard project proposals from European SMEs with growth potential.






FLYZEN API

Unified Access to Flyzen Emissions Engine via API

- ➔ *Flexible Integration*
- ➔ *Continuous enhancements*
- ➔ *Reliable and robust*
- ➔ *Up to date industry databases*
- ➔ *24/7, 365 days/year online*
- ➔ *Bespoke solutions*



Feature	 Flyzen API	 ICAO Carbon Calculator	 Other web calculators
<i>Basic calculation method</i>	✓	✓	✓
<i>kgCO₂ per passenger</i>	✓	✓	✓
<i>ICAO official database compliant</i>	✓	✓	✗
<i>GHG protocol guideline compliant</i>	✓	✓	-
<i>Advanced calculation method (ICAO Doc.9889)</i>	✓	✓	✗
<i>Fully customisable input data</i>	✓	✗	✗
<i>Comparing airline companies on each route/flight</i>	✓	✗	✗
<i>Mobile application</i>	✓ (future development)	✓	✓/✗
<i>Connection with the seat configuration database</i>	✓	✗	✗
<i>Specific load factor (estimate)</i>	✓	✗	✗
<i>Management tool for travel journey carbon reduction</i>	✓	✗	✗
<i>API access</i>	✓	✓	✗
<i>Meta searcher for flight options</i>	✓	✗	✗
<i>Data results granularity by journey phase (LTO, cruise, etc.)</i>	✓	✗	✗
<i>Carbon efficiency class ranking</i>	✓ (future development)	✗	✗

PRODUCT COMPARISON ANALYSIS /1

Flyzen Analysis



- ➔ Internationally recognised scientific methodology
- ➔ IPCC guidelines compliant
- ➔ ICAO regulation compliant (doc. 9889) compliant
- ➔ Maximum granularity of calculation (per flight route/airline)
- ➔ Scientific coherence verified in collaboration with Imperial College*

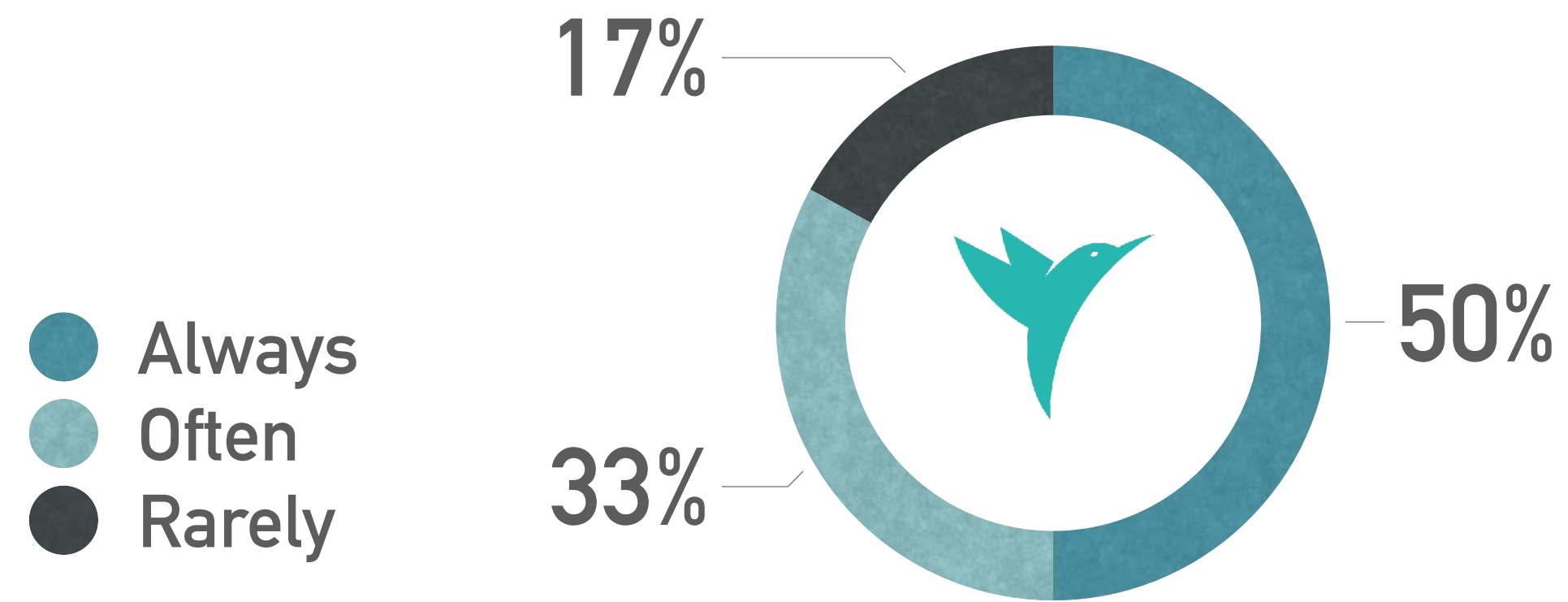
Airline	Operated by	Flight Number (leg)	Departure	Arrival	Competitor calculation (t of CO _{2eq})	Flyzen calculation (t of CO _{2eq})
EasyJet		5673	Tegel Airport - Berlin	Charles de Gaulle Airport - Paris	0,45 t	0,24 t
Air France	Joon	1135	Tegel Airport - Berlin	Charles de Gaulle Airport - Paris	0,46 t	0,35 t
Eurowings		8460	Tegel Airport - Berlin	Heathrow Airport - London	0,48 t	0,31 t
British Airways		983	Tegel Airport - Berlin	Heathrow Airport - London	0,98 t	0,34 t
Ryanair		146	Schönefeld Airport - Berlin	Stansted Airport - London	0,98 t	0,26 t
Lufthansa		7603	Frankfurt International Airport - Frankfurt	Newark International Airport - New York City	6,53 t	3,04 t
Delta Airlines		107	Frankfurt International Airport - Frankfurt	John F. Kennedy International Airport - New York City	6,53 t	3,30 t
United	Lufthansa	8841	Frankfurt International Airport - Frankfurt	John F. Kennedy International Airport - New York City	6,53 t	6,54 t

Same-route aircraft-tailored calculation

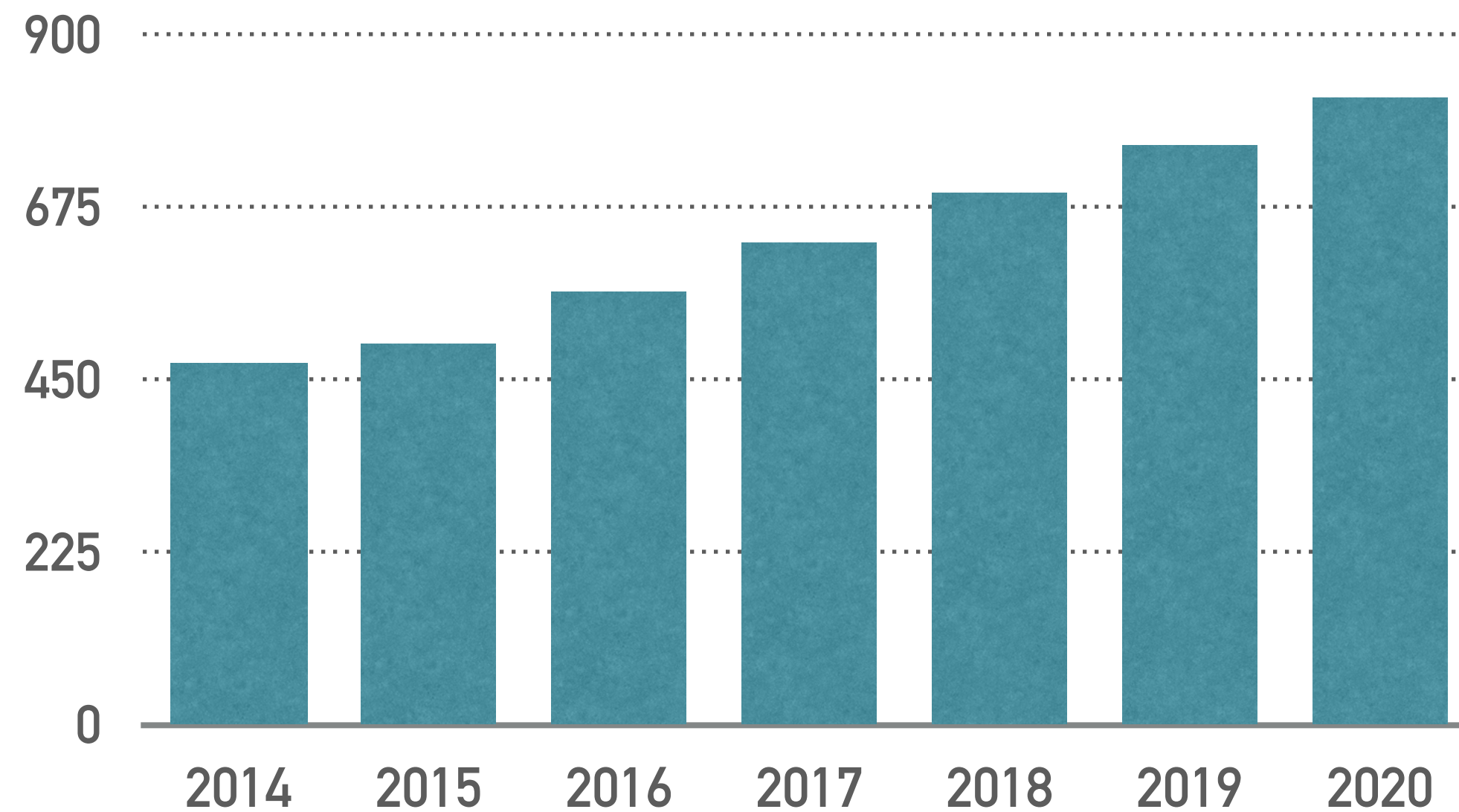
PRODUCT COMPARISON ANALYSIS /2

*Collaboration with Dr Marc Stettler, Senior Lecturer in Transport and the Environment in the Centre for Transport Studies at Imperial College London where he leads the Transport & Environment Laboratory.

Using of metasearches for flight booking



Online travel sales (billion \$)



MARKET ANALYSIS

Table 2: Top Five Metasearch Domains Worldwide by Traffic

Rank	Web domain	Estimated visits per month - January 2015	Most redirects
1.	Tripadvisor.com	68 million	Booking.com
2.	Skyscanner.net	48.4 million	Easyjet.com
3.	Tripadvisor.co.uk	23.9 million	Booking.com
4.	Kayak.com	20.5 million	Priceline.com
5.	Cheapoair.com	14 million	Bookingbuddy.com

Source: Similarweb, February 2015

Table 3: Top Three OTAs by Revenue

Rank	Company	Metasearch subsidiaries	2014 Revenue
1	Priceline Group (PCLN)	KAYAK	USD8.4 billion
2	Expedia, Inc (EXPE)	Trivago, Room 77	USD5.8 billion
3	Tripadvisor (TRIP)		USD1.2 billion

General figures:

- total turnover for all online travel bookings (incl. hotels, cars etc.) = 655 B\$
- 80% of the revenue for pass-through booking on meta-search platforms (from 3\$ to 20\$ per ticket sold)

GDS

global distribution system

"AMADEUS participated in a panel debate in the Hemicycle of the European Parliament to share our views on how to improve the competitiveness and sustainability of the European tourism industry."

ICAO and Amadeus partnership

Amadeus Global Report 2017

A business, financial and sustainability overview



amadeus

Carbon calculator
_ Legitimacy
_ Neutrality
_ Global reach

Travel industry reach
_ Contact with 2+ million travelers per day
_ Operating in 190+ countries

Improved industry environmental awareness

MEMBER OF Dow Jones Sustainability Indices
In Collaboration with RobecoSAM



TTG TRAVEL AWARDS 2017

ROBECOSAM Sustainability Award Gold Class 2018



_ DJSI² – Sustainability Leader in our sector (86 companies)

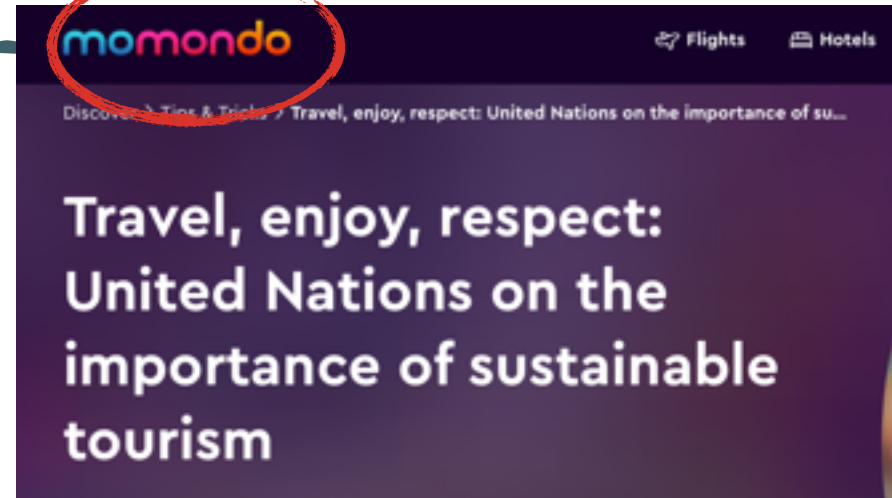
_ 16th Most Sustainable Corporation in the world (100 Most sustainable companies, Corporate Knights)
_ FTSE4Good³

_ CDP⁴
_ Travel Technology Company of the Year – TTG Travel Awards⁵
_ Best Innovation Award – Agifors

MetaSearcher

Ten tips for a greener holiday

March 23, 2010 by Skyscanner



Sustainability Vision

Here at Kayak Adventures, we are making great efforts to be sure our tours, and our business, are in harmony with the environment around us. We aim to inspire stewardship through the exploration of this beautiful area!

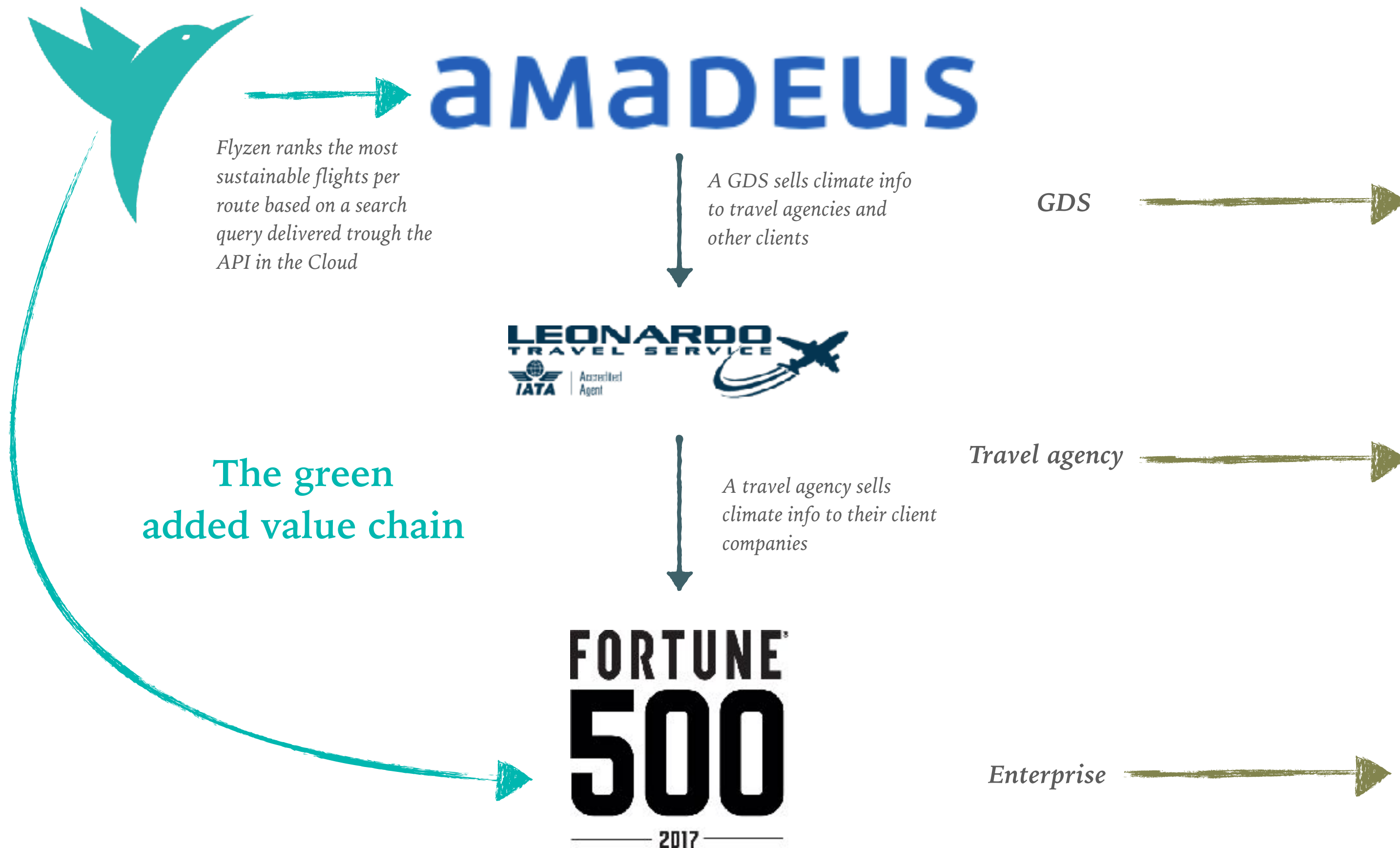
"eDreams ODIGEO recognises that businesses have a responsibility towards the environment. Although our core activities have a relatively low impact, by virtue of the fact that we are primarily an online business, we are nevertheless committed to finding ways in which we can reduce any environmental footprint we may leave."

OTA on line travel agency

SUSTAINABILITY CONTEXT

Cross sustainability marketing

With Flyzen, multiple subjects in the travel business will benefit* from the valuable information provided by our proprietary algorithm



Sustainability marketing campaign

GDSs use the Flyzen API as a new feature for their services and as a sustainability improvement in official communications on international schemes (CDP, GRI, CORSIA, etc.)

OTAs use the Flyzen API through the GDS tool in order to provide a sustainability driver and a strong added value to their service

Enterprises use the Flyzen API via the travel agency to mitigate their business travel footprint. Flyzen provides granular scientific data ready for corporate communications to stakeholders and shareholders, ideal to strengthen the brand identity

USE CASE/ ENTERPRISES

*Investors increasingly expect organisations to report on sustainability. Therefore, meeting the changing requirements of shareholders, investors, and wider business stakeholders is a vital consideration for businesses. When combined with other initiatives such as RE100, where businesses commit to 100% renewable energy supply, the message to the market about an organisation's credentials is clear.

Partnerships and brand reliability

Flyzen will be ready for specific partnerships with recognised NGOs in order to participate to their company protocol (e.g.: climate savers by WWF)



Flyzen ranks the most sustainable flights per route based on a search query delivered through the API in the Cloud.

**The green
added value chain**



WWF promotes Flyzen to calculate emissions and mitigate them through a conscious choice of consumption.

WWF endorses companies in the travel business who are using Flyzen APIs to rank the flights by CO₂ emissions. The final customers will be presented with the sustainable choice that they have been missing until now.

AMADEUS

Amadeus improves its sustainability position through the WWF endorsement.



FORTUNE 500 2017

Companies improve and communicate their sustainability commitment purchasing the most sustainable flights.

USE CASE/ EMPOWERING PARTNERSHIPS

Improve the sustainability positioning: meta-searcher



Flyzen ranks the most sustainable flights per route based on a search query delivered through the API in the Cloud.

Meta-searcher

1: The operator responds to the customer's query with the flight options ranked through a sustainability index powered by Flyzen APIs.

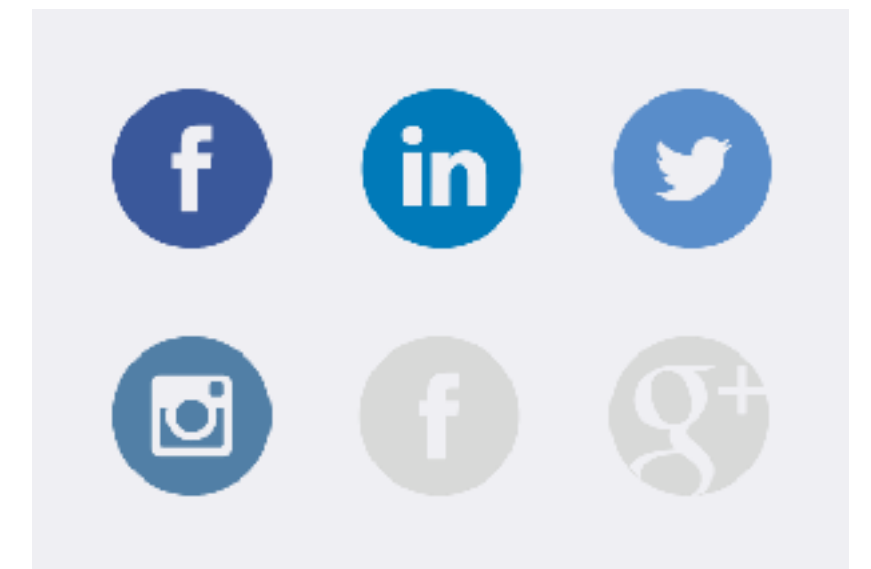
2: The operator elaborates a passenger behavioural profile for each flight and shows it to the passenger with infographics.

CONSUMER / COMPANY

1: Passengers /Companies choose a flight based on a sustainability ranking.

2: Passengers /Companies can share their sustainable achievements with their contact list and publicly on social networks for a viral public endorsement.

3: Passengers /Companies get the historical data of CO₂ savings from the user profile for specific green communications and intra-year comparisons.



The operator gains digital exposure, therefore increasing their web traffic and their customer base.

USE CASE/ SOCIAL EXPOSURE

As seen in the press:



MAIN MEDIA LINKS

- Which? magazine: <https://www.which.co.uk/news/2020/01/british-airways-emitting-more-carbon-than-rival-airlines/>
- CNN: <https://edition.cnn.com/travel/article/winter-aviation-covid-airlines/index.html>
- Quartz: <https://qz.com/1671617/how-much-does-your-flight-actually-hurt-the-planet/>

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