

IATA
WINGS OF CHANGE
EUROPE

Host Airline

LUFTHANSA GROUP





Master of ceremony

Bill Morrison

Author, trainer, consultant

Sandler



THANK YOU TO OUR SPONSORS

Host Airline & Gala Dinner Sponsor

**LUFTHANSA
GROUP**

Partner



POLSKA AGENCJA ŻEGLUGI POWIETRZNEJ
POLISH AIR NAVIGATION SERVICES AGENCY
www.pansa.pl

Gold Sponsors

AIRBUS amadeus



APP IN THE AIR

SITA

Silver Sponsor

BER FLUGHAFEN
BERLIN
BRANDENBURG

Bronze Sponsor





WIFI

- ▣ Network: **Hyatt Network**
- ▣ Password: **WOCE19**

Social Media

- ▣ Please use **#WOCE19** to share your posts, tweets, etc.



Slido

- ▣ Access www.slido.com on your mobile, tablet or laptop
- ▣ Join the meeting by entering: **#WOCE19**
- ▣ Access the "Questions" tab

A strategic roadmap for Aviation

Carsten Spohr

Chairman of the Executive Board &
CEO / Chair of the Board of
Governors

Lufthansa Group / IATA



Welcome Address

Steffen Bilger

Parliamentary State Secretary

**Federal Ministry of Transport and
Digital Infrastructure, Germany**



The new European Commission's vision for a sustainable air transport industry

Filip Cornelis

Director for Aviation (DG Move
Directorate E)

European Commission



Sustainable Growth, the only way forward

Alexandre de Juniac

Director General and CEO

IATA



IATA Wings of Change Europe, Berlin, 19-20 November 2019



What role for Europe in an ever more global and shifting economy?

Brian Pearce

Chief Economist

IATA



Challenges for European air transport

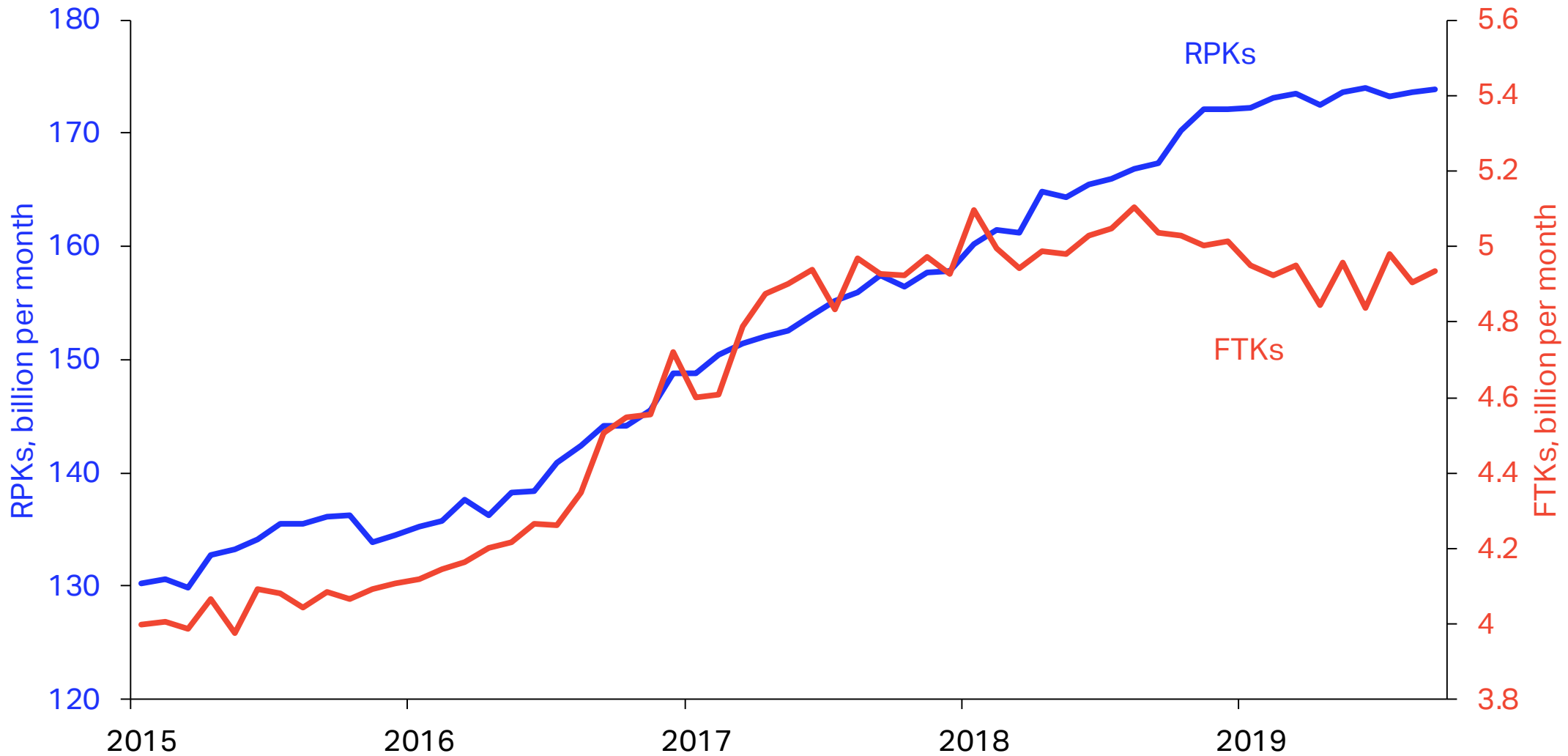
Brian Pearce
Chief Economist

19th November 2019



Europe's air cargo is shrinking and travel is stalling

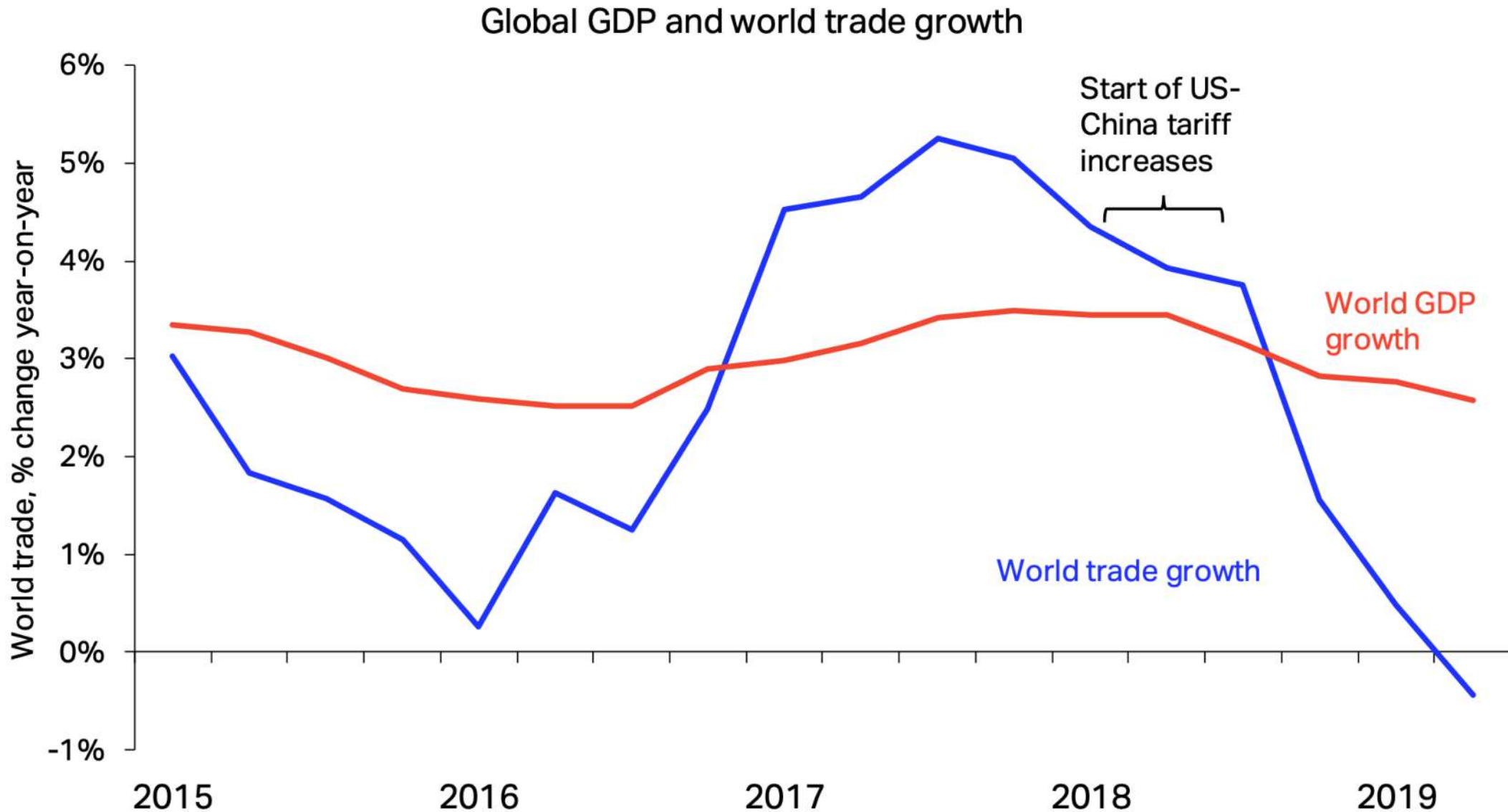
RPKs and FTKs carried by European airlines, billion per month, seasonally adjusted



Source: IATA Economics using data from IATA Statistics



The trade war is causing serious damage

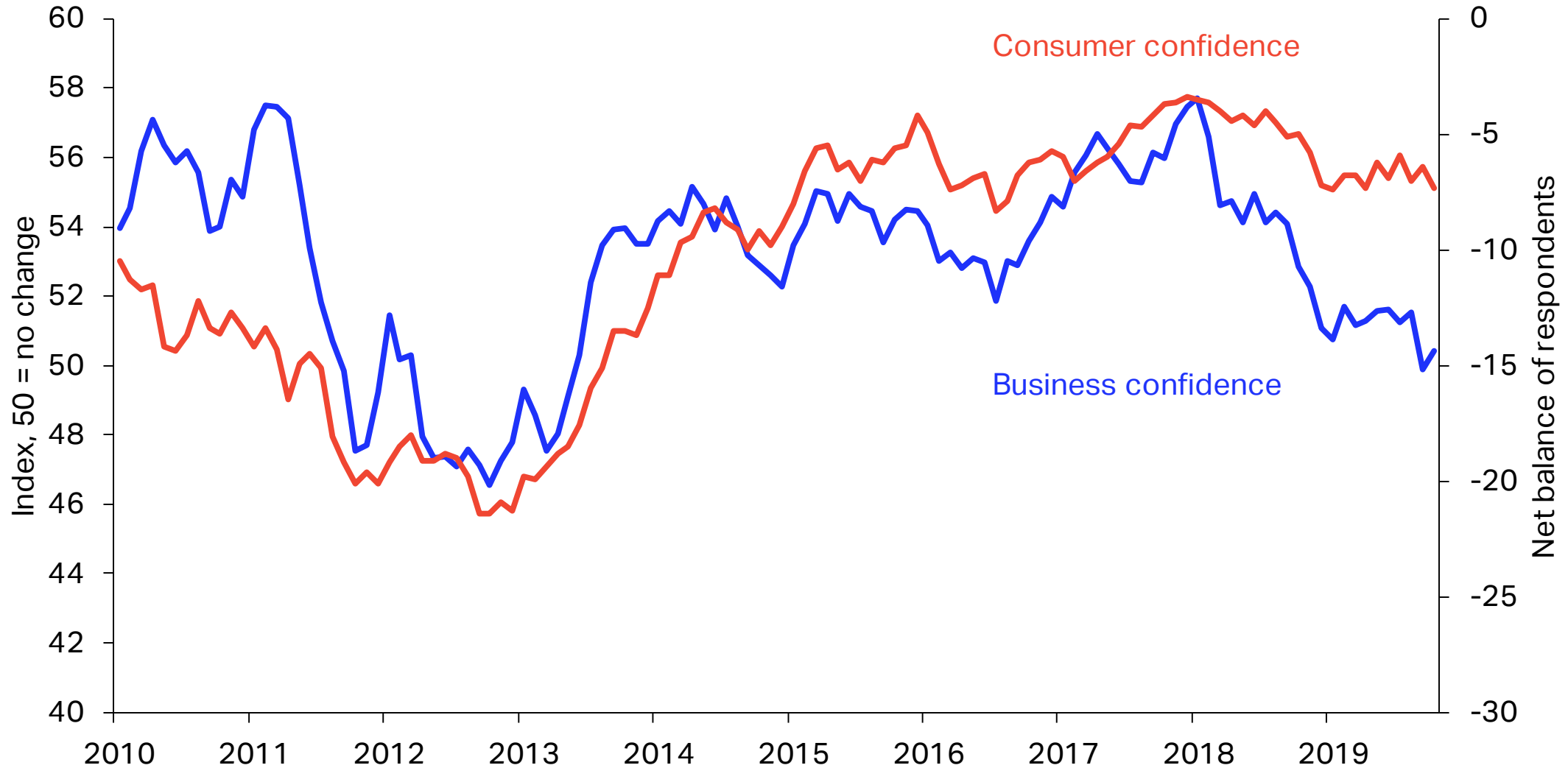


Source: IATA Economics using data from Netherlands CPB and Oxford Economics

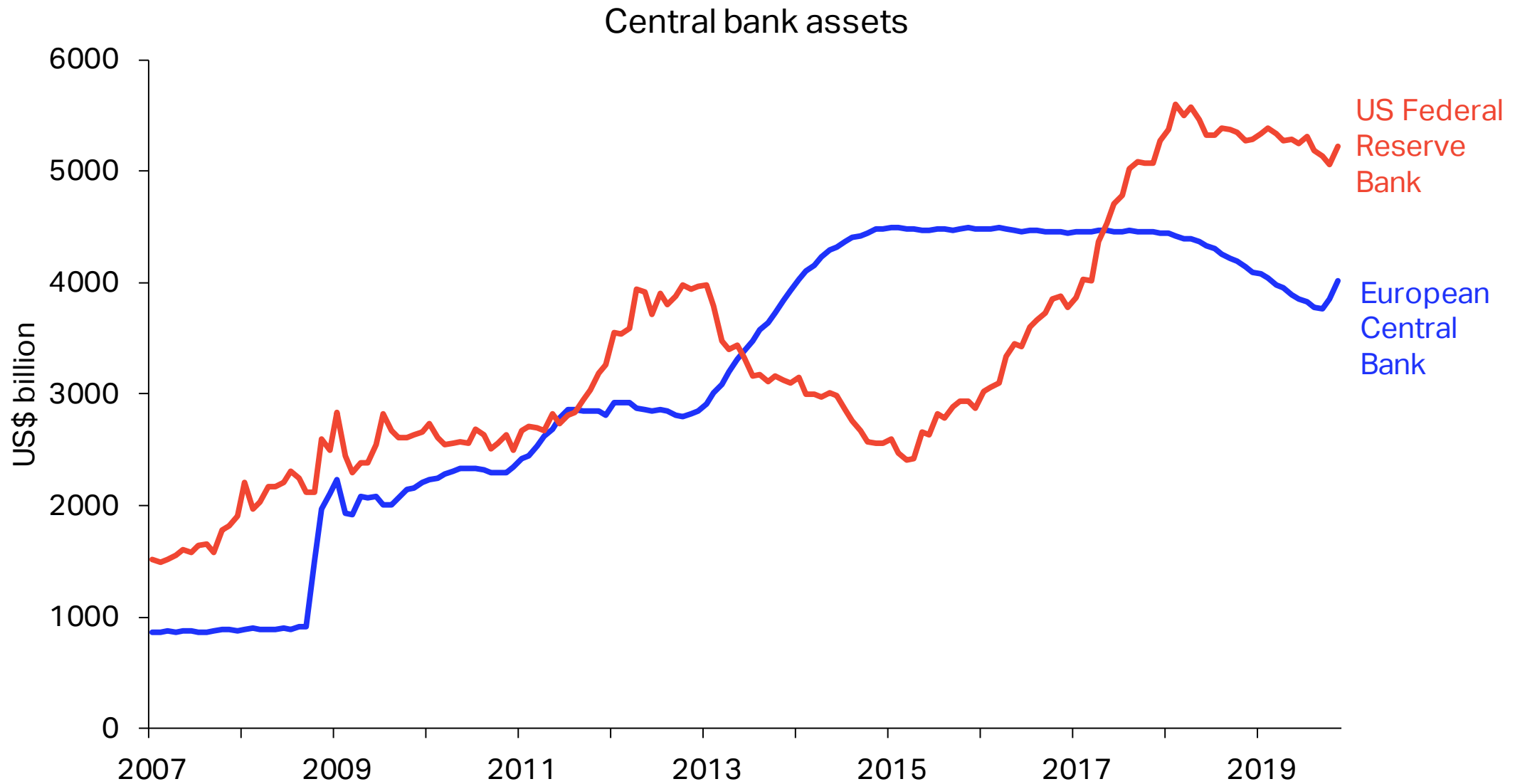


European business and consumers less confident

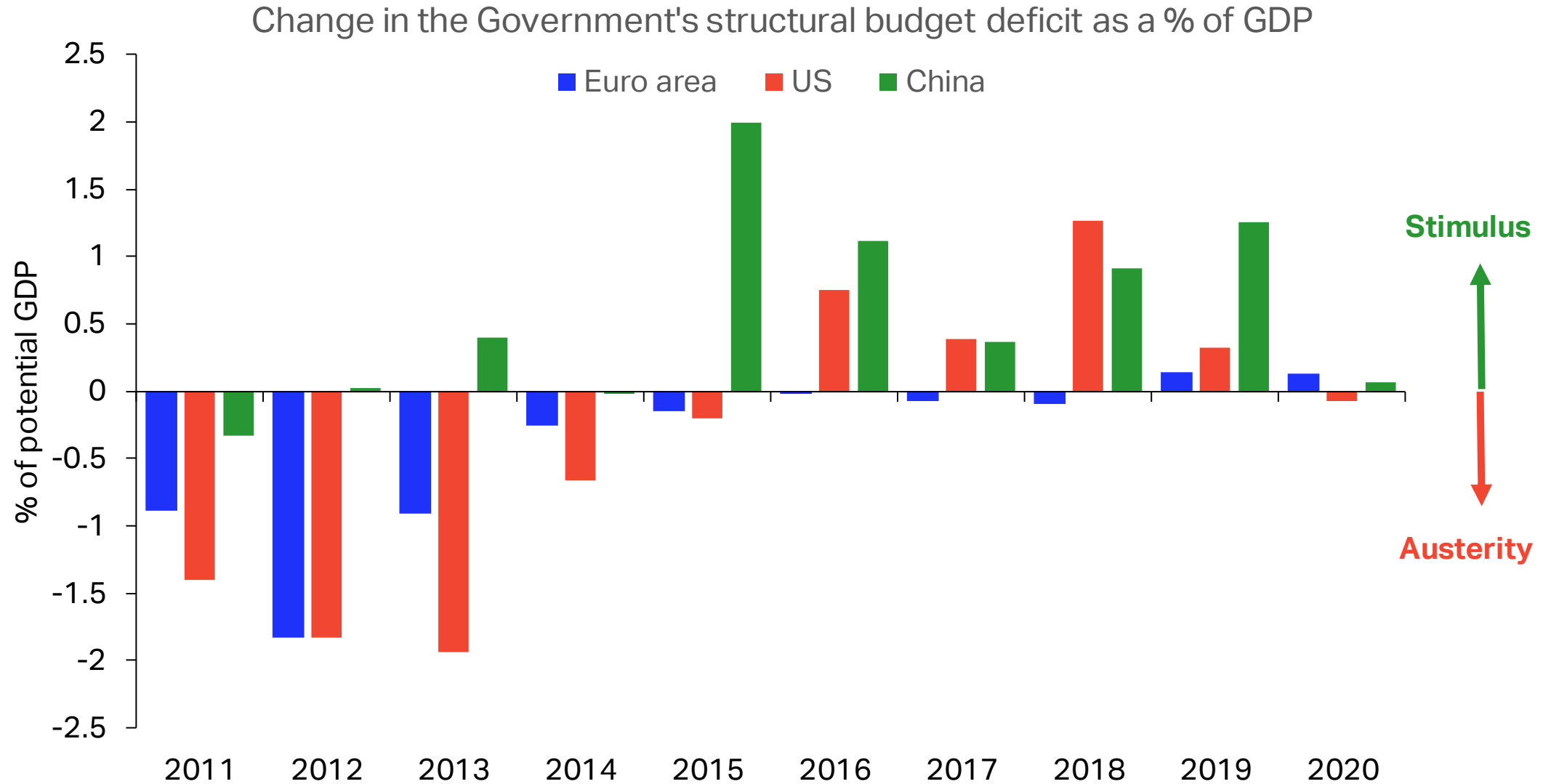
EU28 business and consumer confidence



Central bank extraordinary support resumes

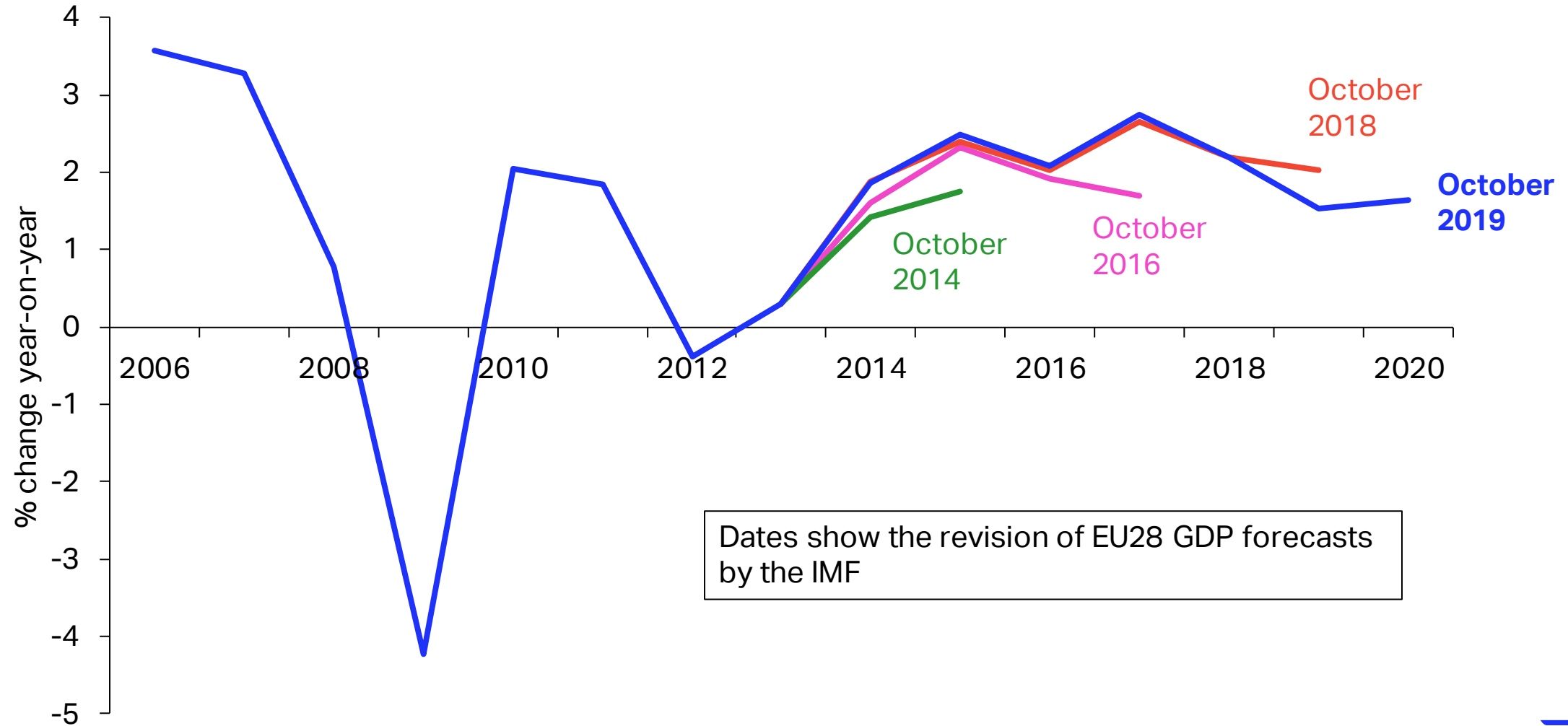


But no support from fiscal policy



Economic growth forecasts could well be cut

IMF forecasts of EU28 economic growth

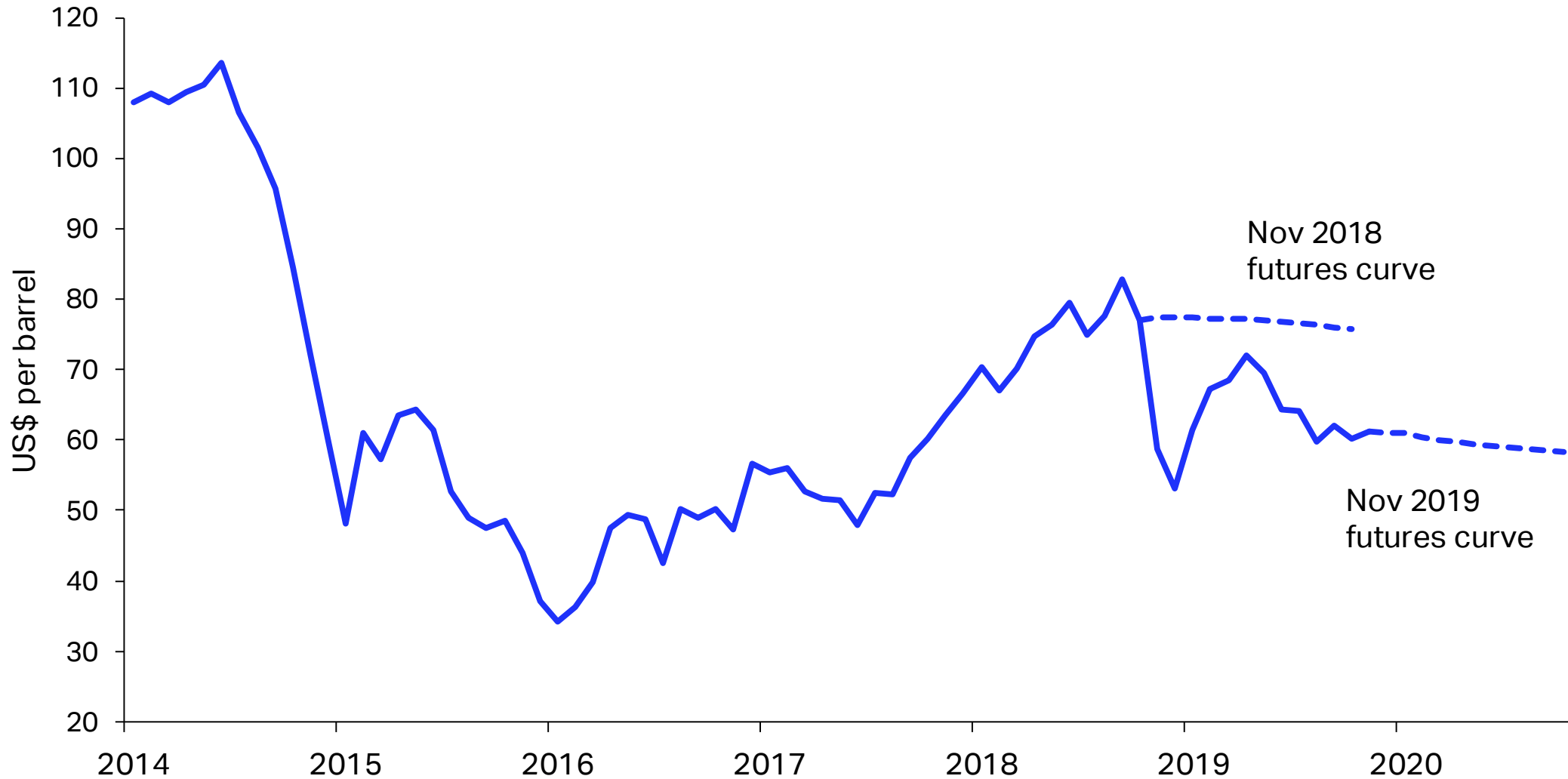


Dates show the revision of EU28 GDP forecasts by the IMF



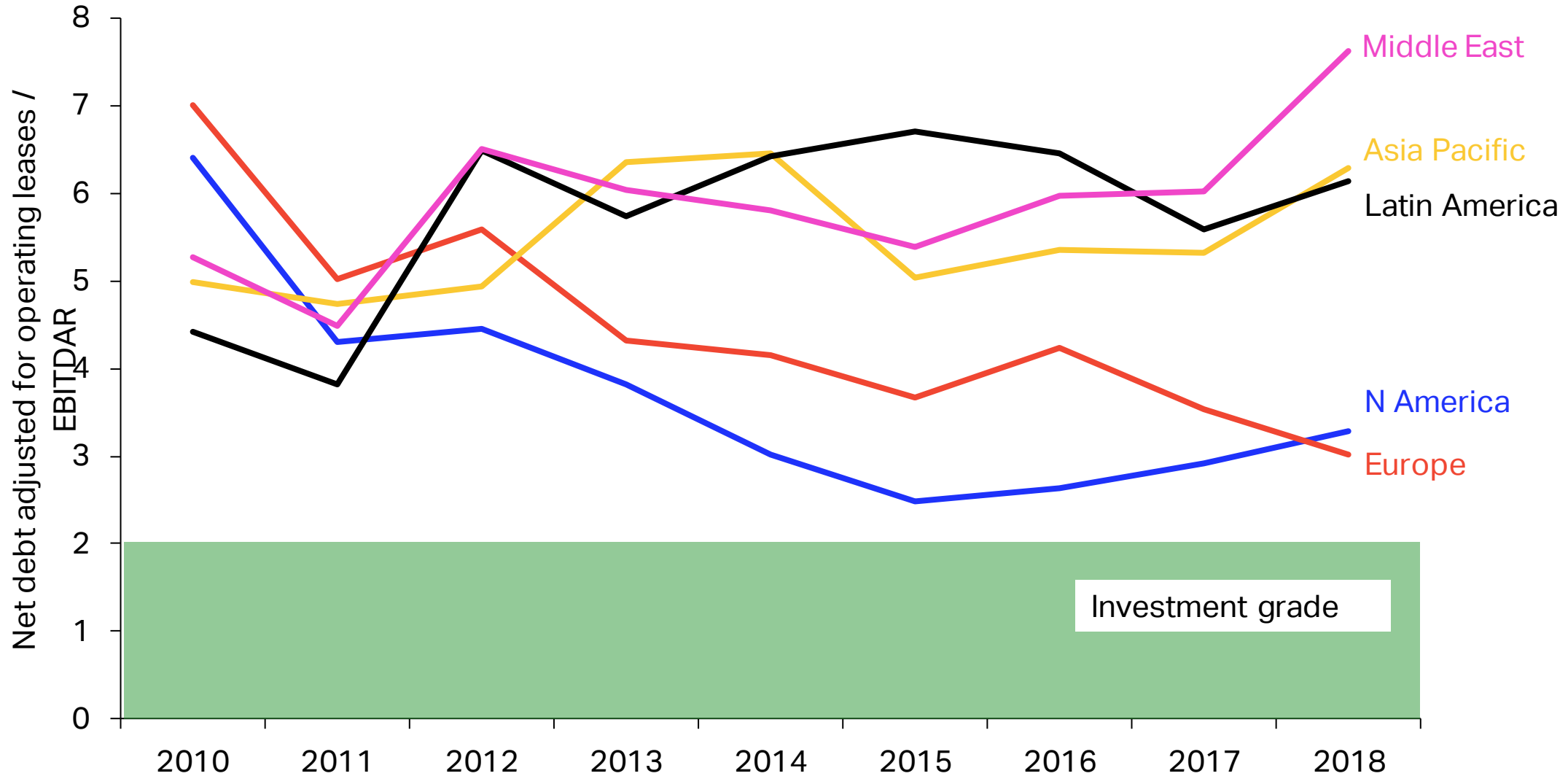
The weak economy should keep oil prices low

Brent crude oil price and oil future curve



Airlines will need strong balance sheets

Net debt as a ratio of EBITDA

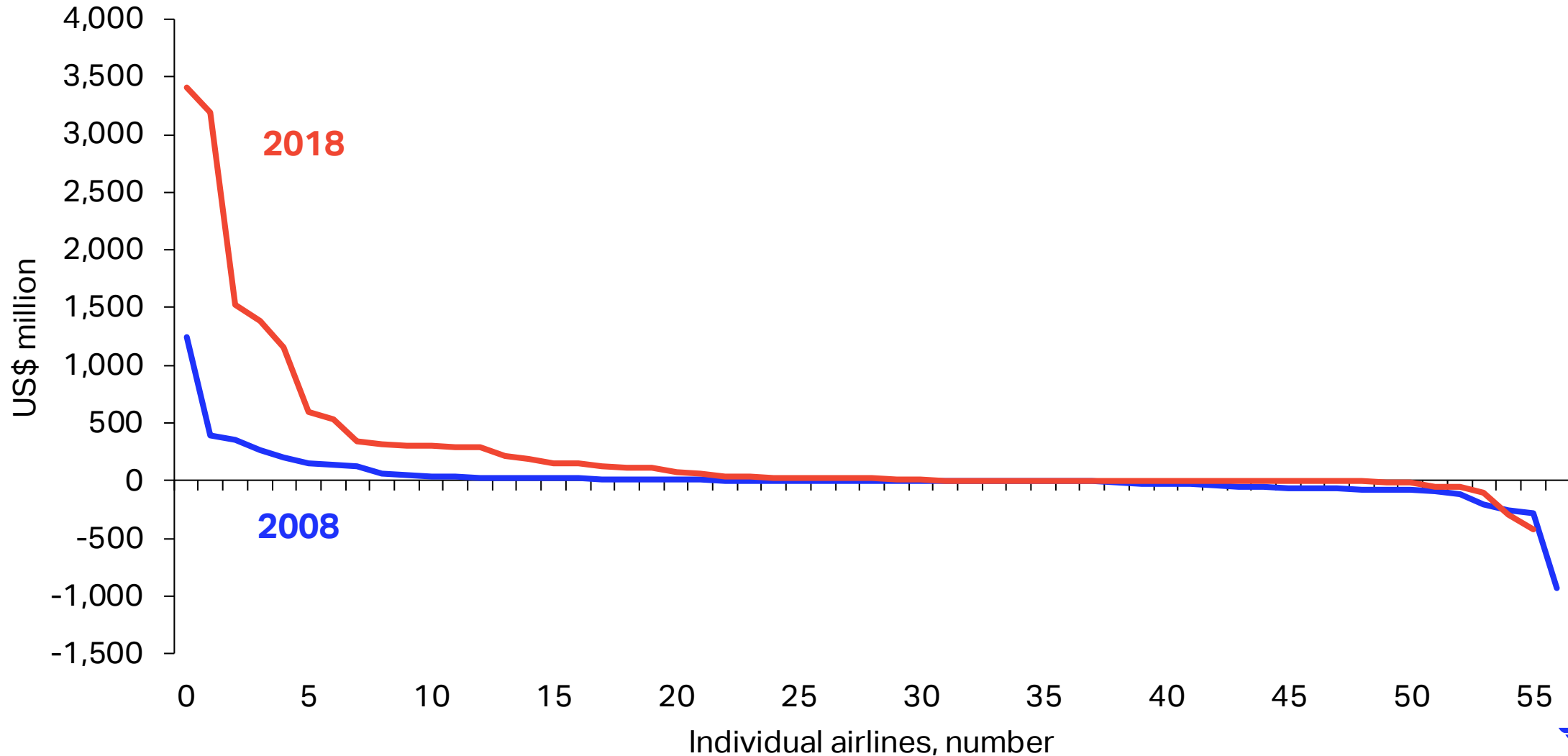


Source: IATA Economics using data from The Airline Analyst



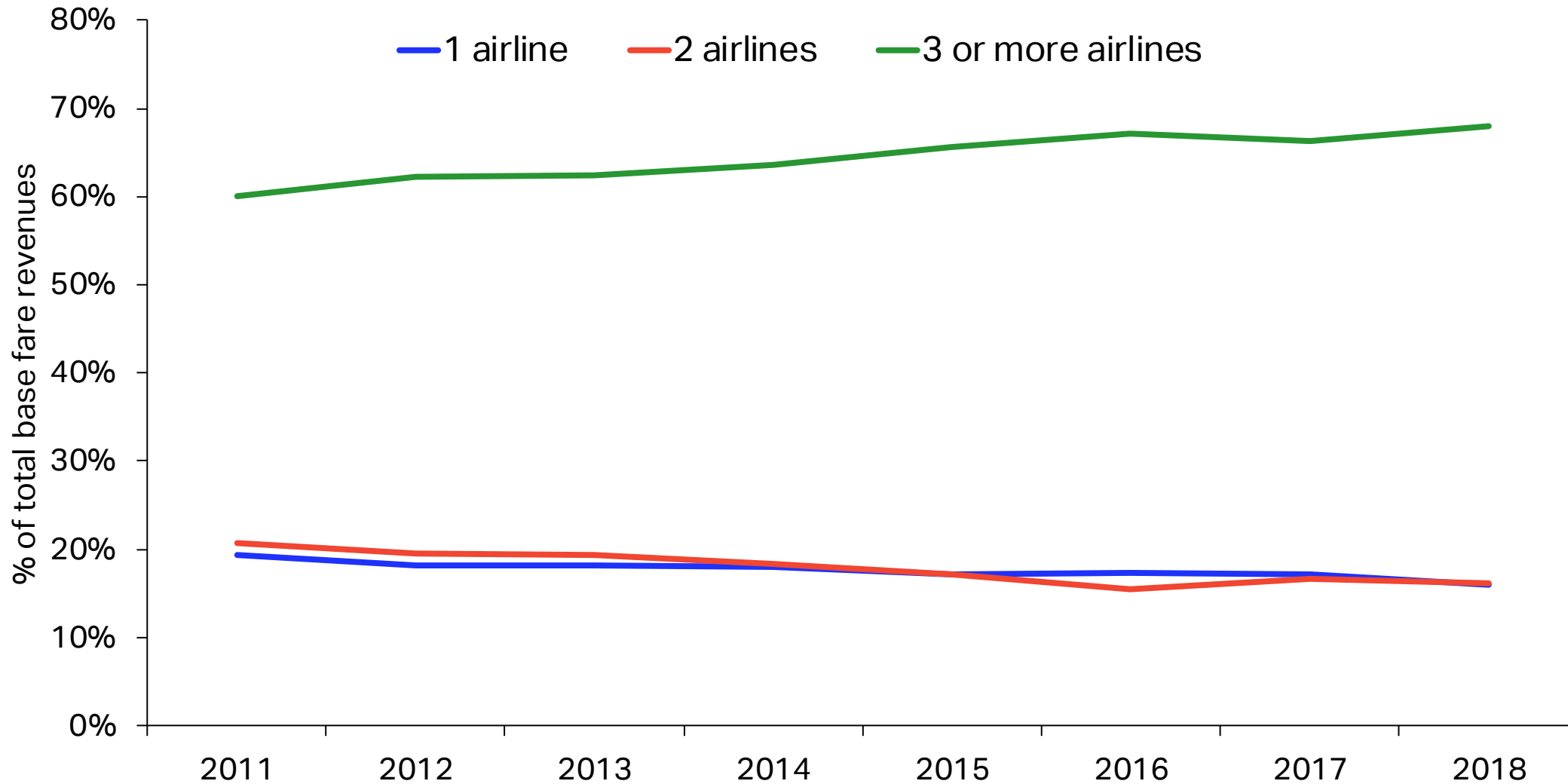
Long tail of weaker airlines in Europe

EBIT for individual European airlines, \$ million, 2008 versus 2018



Competition remains strong

Revenue share of intra-EU routes served by 1, 2, 3 or more airlines

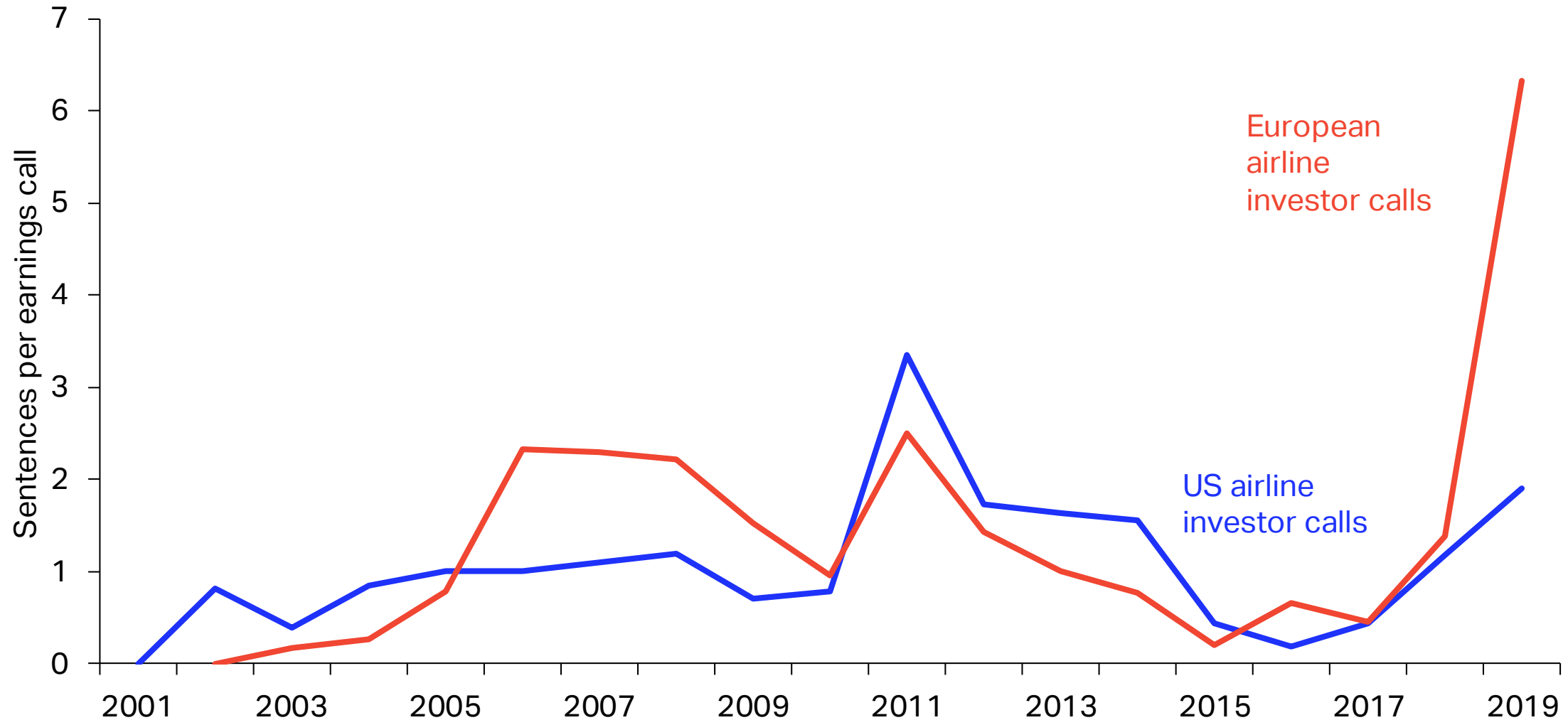


Source: IATA Economics using data from DDS



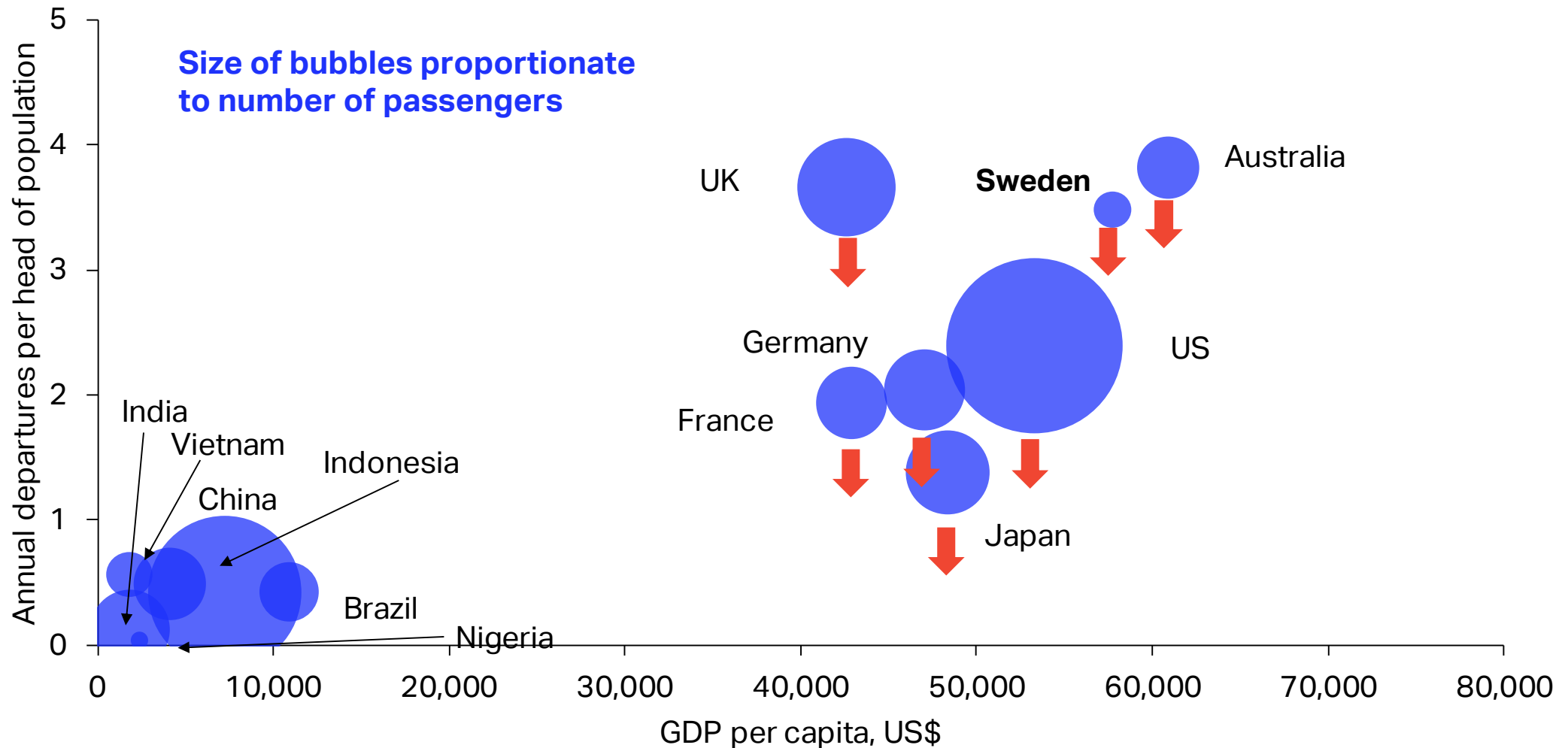
Climate change one of the key structural challenges

Frequency climate issue discussed at earnings calls with investors



Will 'Flygskam' change Business as Usual?

Passenger departures per head of population vs living standards



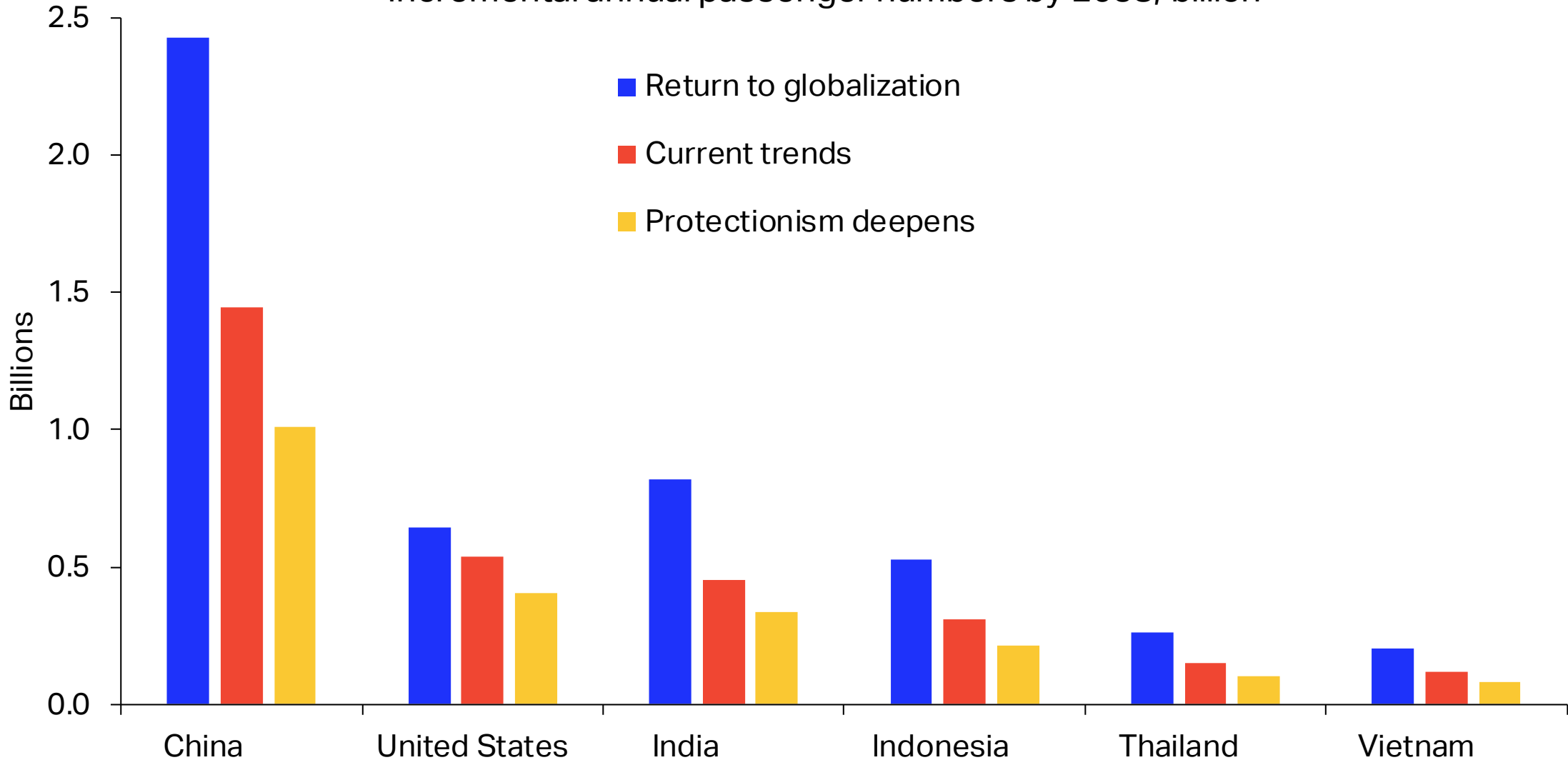
Aviation centre of gravity shifting away from Europe



Source: IATA/Tourism Economics Air Passenger Forecasts, October 2019

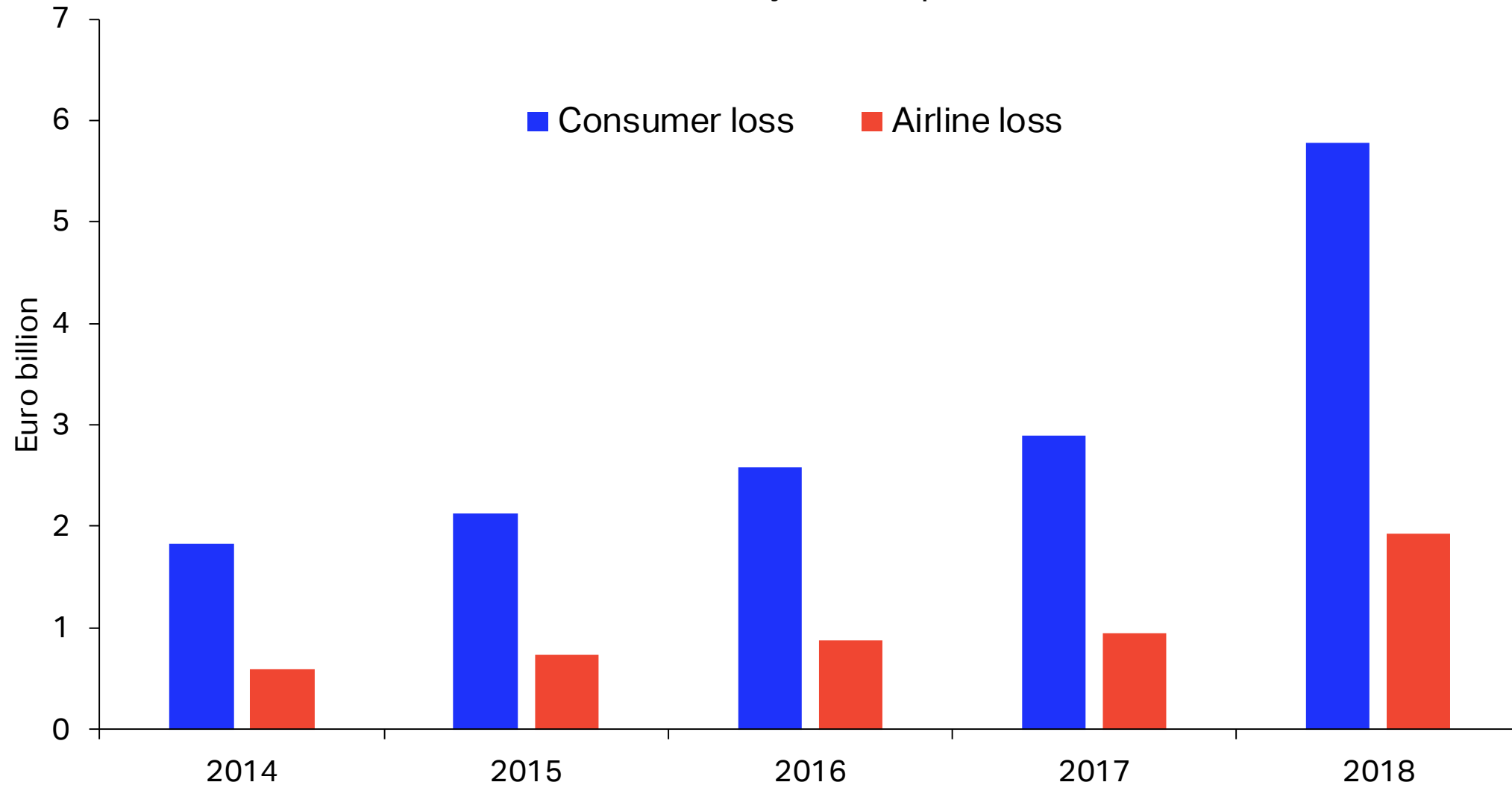
Emerging market passenger flows grow rapidly

Incremental annual passenger numbers by 2038, billion



Need to eliminate costly and wasteful congestion

Cost of en-route ATFM delays in Europe, Euro billions

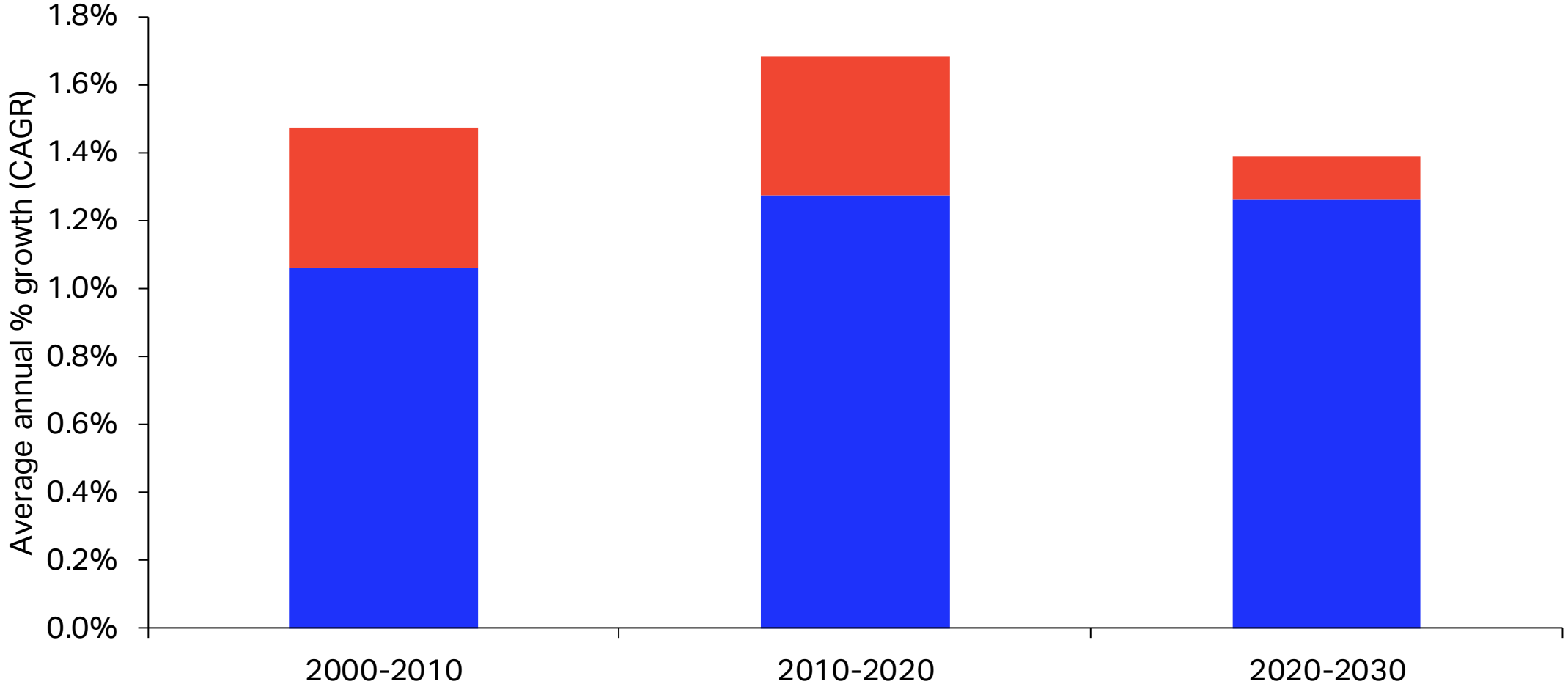


Source: IATA Economics using airline losses estimated by PRC and average value for Eurocontrol value of time for passengers

Productivity vital given Europe's poor demographics

Average GDP growth in Europe and its components

■ GDP/capita growth ■ Population growth



Source: IATA Economics using data from Oxford Economics, November 2019 forecast



This is aviation's critical role for Europe

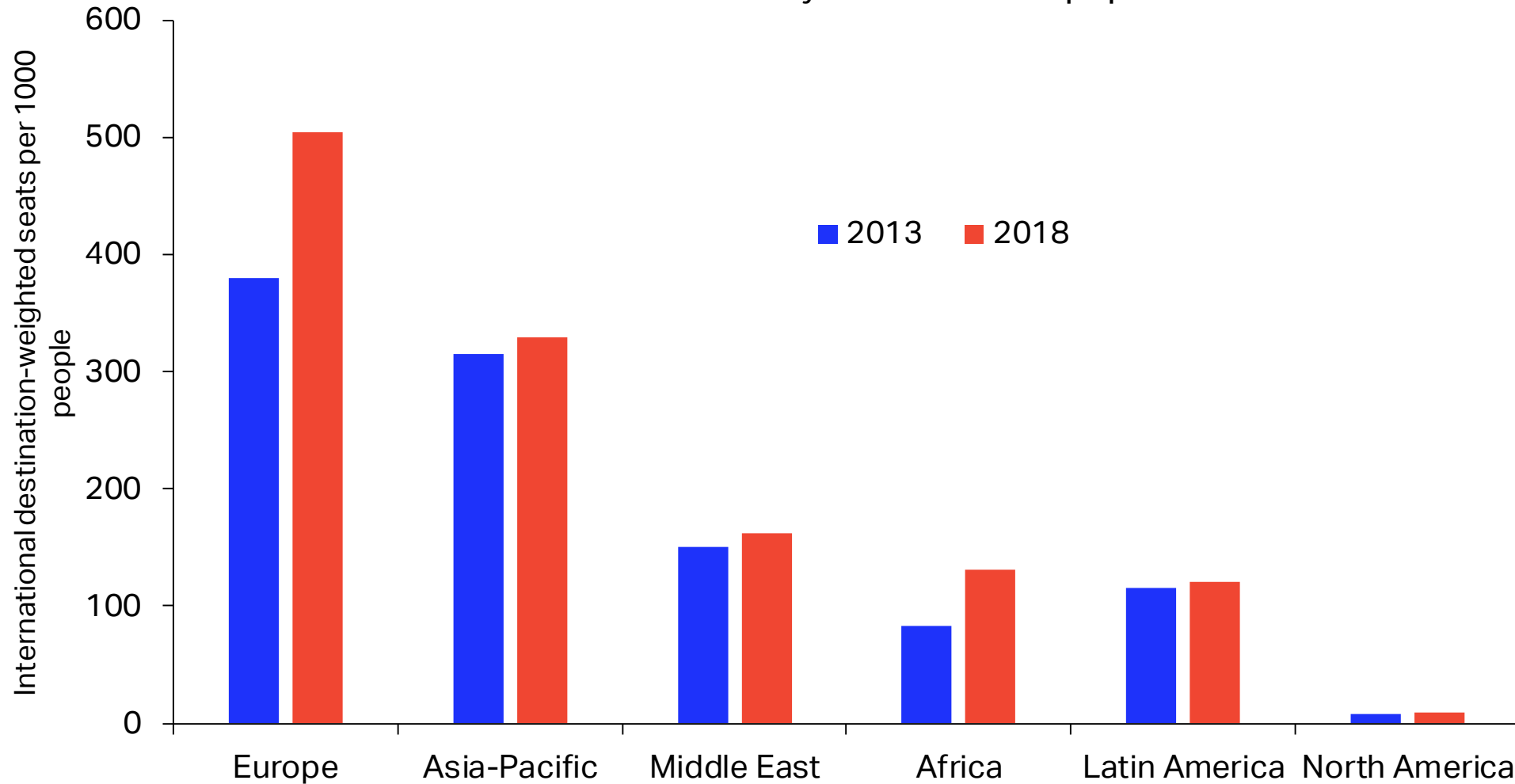


Source: SRS Analyser, November 2019, Europe to all airports, scheduled flights



Airlines connect Europe better than other regions

International connectivity relative to the population size



Generating key ingredients for economic success

Facilitating flows of:

- Investment
- Trade
- Skilled labour
- Competition
- Innovation
- Tourism

Boosting European productivity

(i.e. doing more with less)

Thank you

economics@iata.org

www.iata.org/economics



NETWORKING COFFEE BREAK



Largescale electric aircraft – myth or reality?

Andreas Kloeckner

Coordinator Electric Flying Program
Strategy Aeronautics

DLR

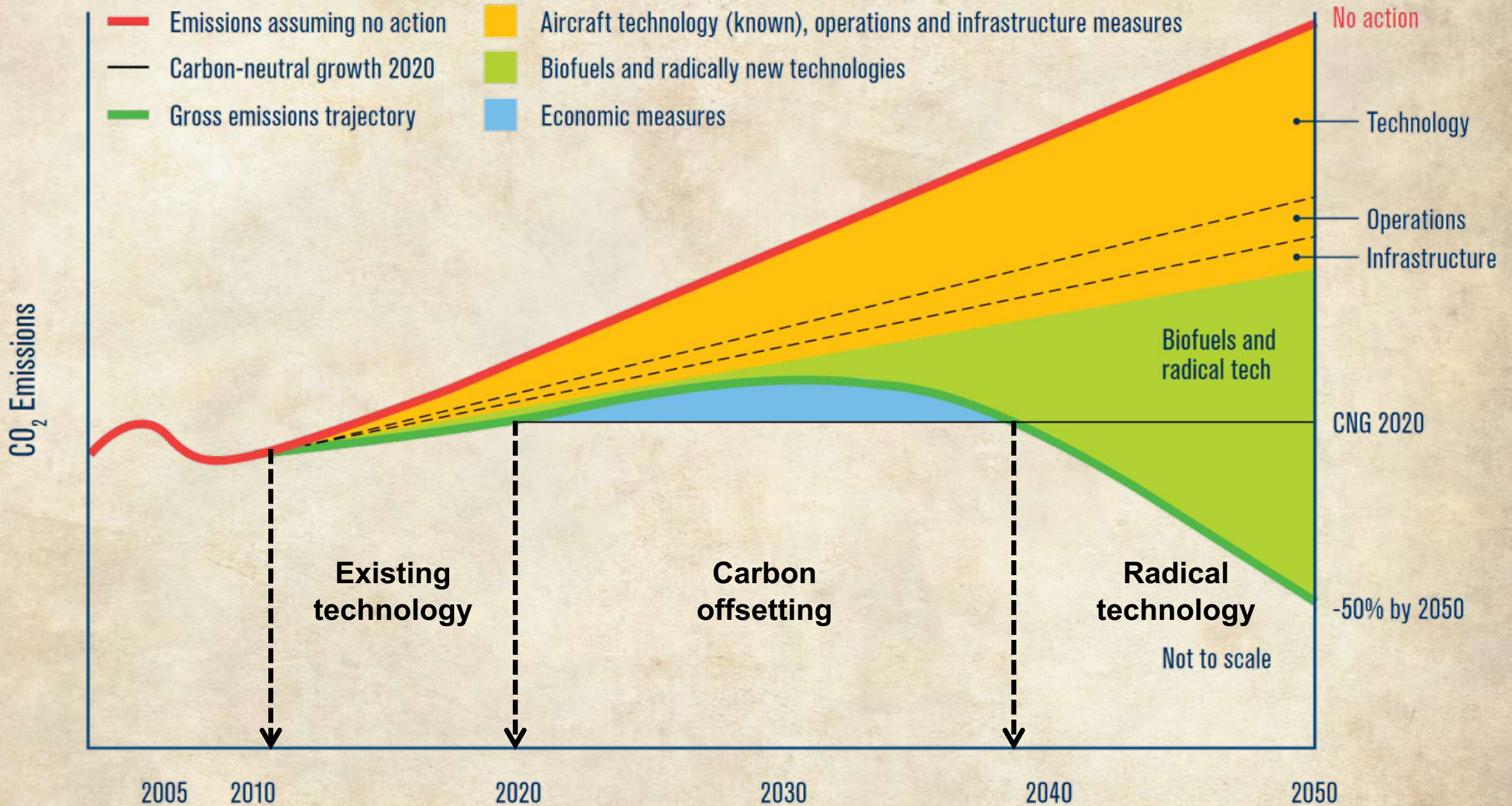




NASA



DLR



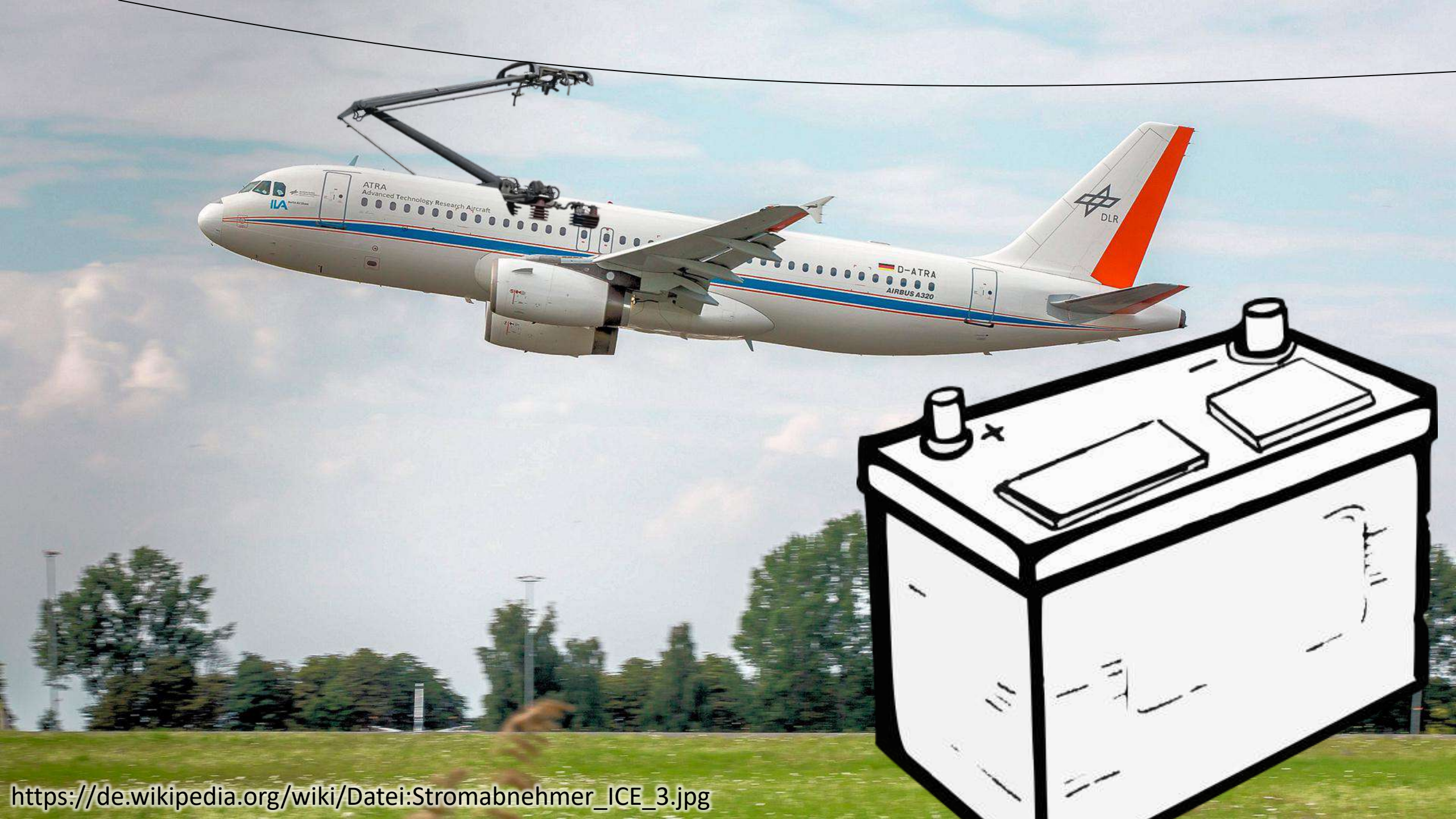


[wiki/File:Marbore_2_gas_turbine_cutaway_02.JPG](https://en.wikipedia.org/wiki/File:Marbore_2_gas_turbine_cutaway_02.JPG)

[wiki/Drehstrom-Asynchronmaschine](https://en.wikipedia.org/wiki/Drehstrom-Asynchronmaschine)



NASA













Contact: **German Aerospace Center (DLR e.V.)**



Programme Strategy Aeronautics
D-51147 Köln-Porz

Dr.-Ing. Andreas KLÖCKNER

Andreas.Kloeckner@dlr.de



IATA Diversity & Inclusion **25 by 2025**

An industry pledge to work towards shifting key Diversity & Inclusion Metrics across the industry by 25 %, or up to a minimum of 25% by 2025.

Results will be shared annually at the AGM

A forum to share best practices and ideas for the airline to use and implement.



25by2025

Wings Of Change Signatories



Airline CEOs on the spot – interviews



Barbara Scherle

Journalist and
German TV
Anchor



Benjamin Smith

Chief Executive
Officer
Air France-KLM



Oana Petrescu

Director General
Blue Air



Bjørn Kjos

President and
Founder
Norwegian Air
Shuttle



Carsten Spohr

Chairman of the
Executive Board &
CEO / Chair of the
Board of Governors
Lufthansa Group /
IATA

Airline CEOs on the spot – interviews



Barbara Scherle

Journalist and
German TV Anchor



Benjamin Smith

Chief Executive
Officer

Air France-KLM

Airline CEOs on the spot – interviews



Barbara Scherle

Journalist and
German TV Anchor



Oana Petrescu

Director General
Blue Air

Airline CEOs on the spot – interviews



Barbara Scherle

Journalist and
German TV Anchor



Bjørn Kjos

President and Founder
Norwegian Air Shuttle

Airline CEOs on the spot – interviews



Barbara Scherle

Journalist and
German TV Anchor



Carsten Spohr

Chairman of the Executive Board &
CEO / Chair of the Board of Governors

Lufthansa Group / IATA



ANNOUNCEMENT



NETWORKING LUNCH

SPONSORED BY



Environment, a sine qua non condition to aviation sustainability – Fire-side chats



Anita Mendiratta

Founder & Managing
Director

ANITA MENDIRATTA IAG
& Associates



Jonathon Counsell

Group Head of
Sustainability

IAG



Ricardo Entz

COO

XO Airbus
Demonstrators



Maurice Georges

Director

DSNA



Maarten van Dijk

CEO

SkyNRG

Tim Johnson

Director

Aviation Environment
Federation



David Antonioli

CEO

Verra





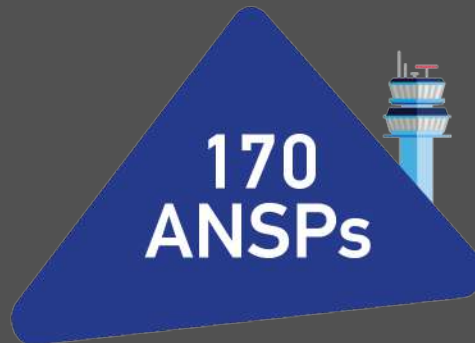
IATA
WINGS OF CHANGE
EUROPE

ENVIRONMENT: A Sine Qua Non Condition to Aviation Sustainability

NOVEMBER 19TH 2019

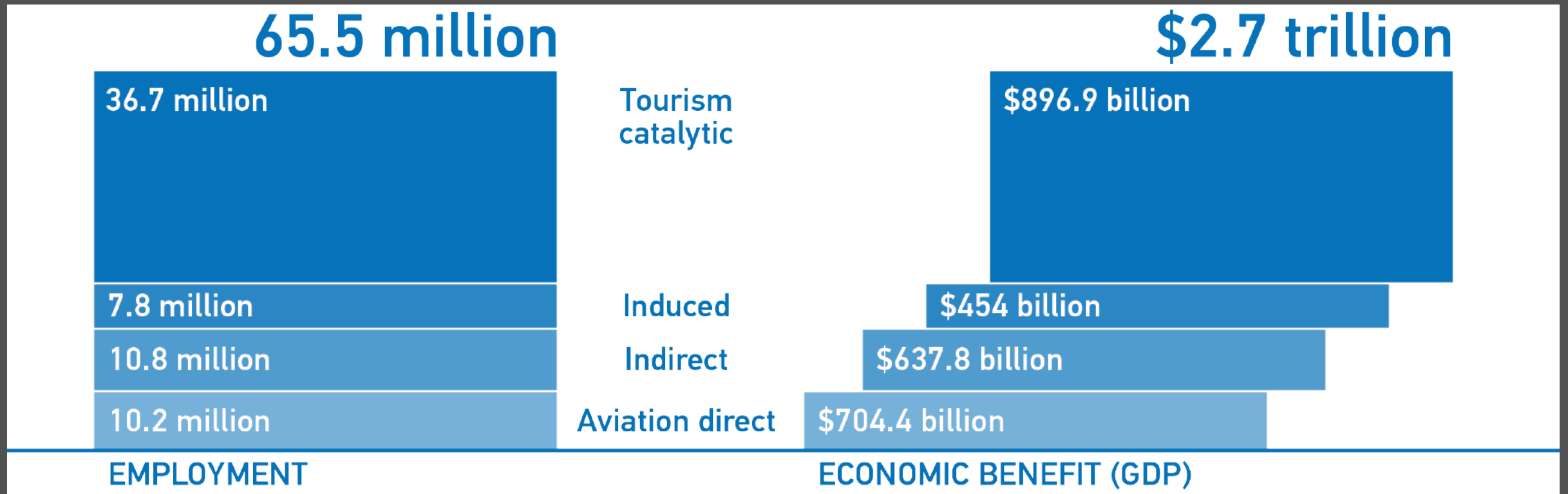
Berlin

THE SCOPE OF GLOBAL AVIATION

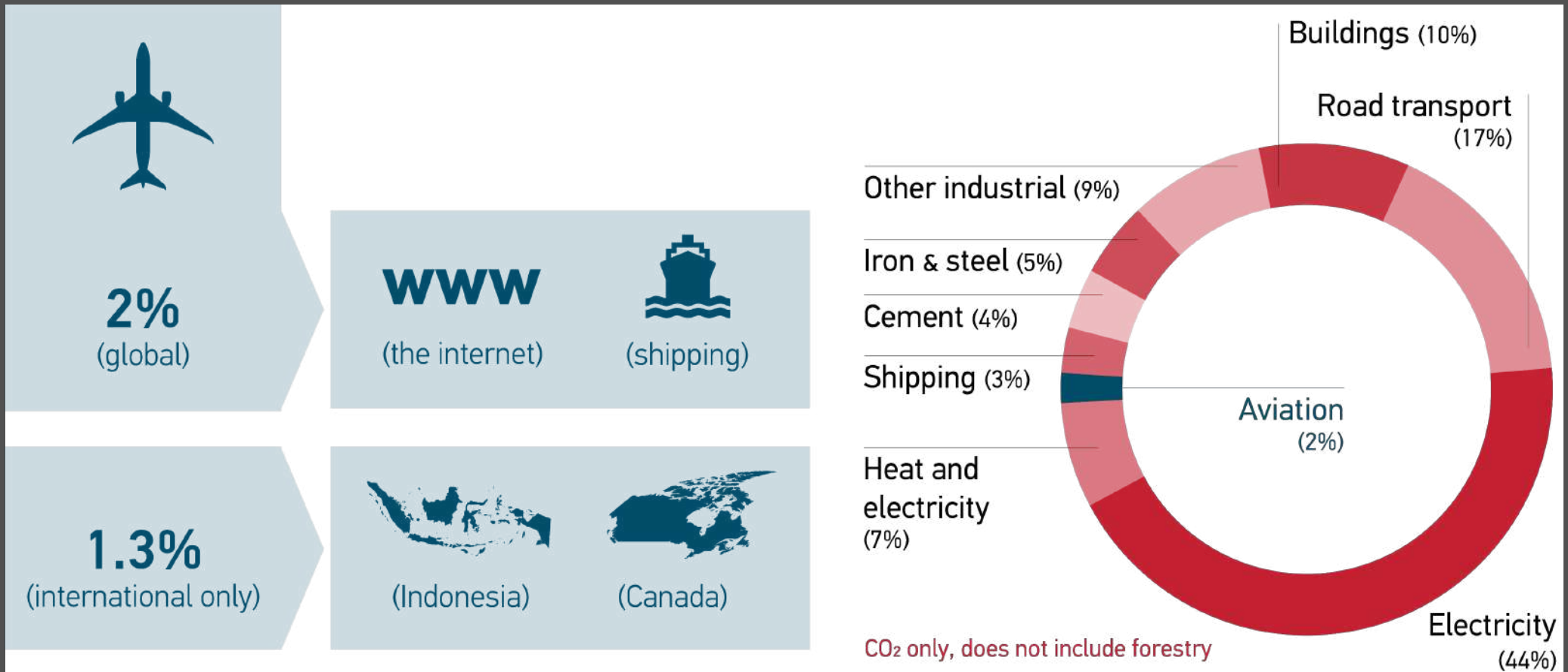




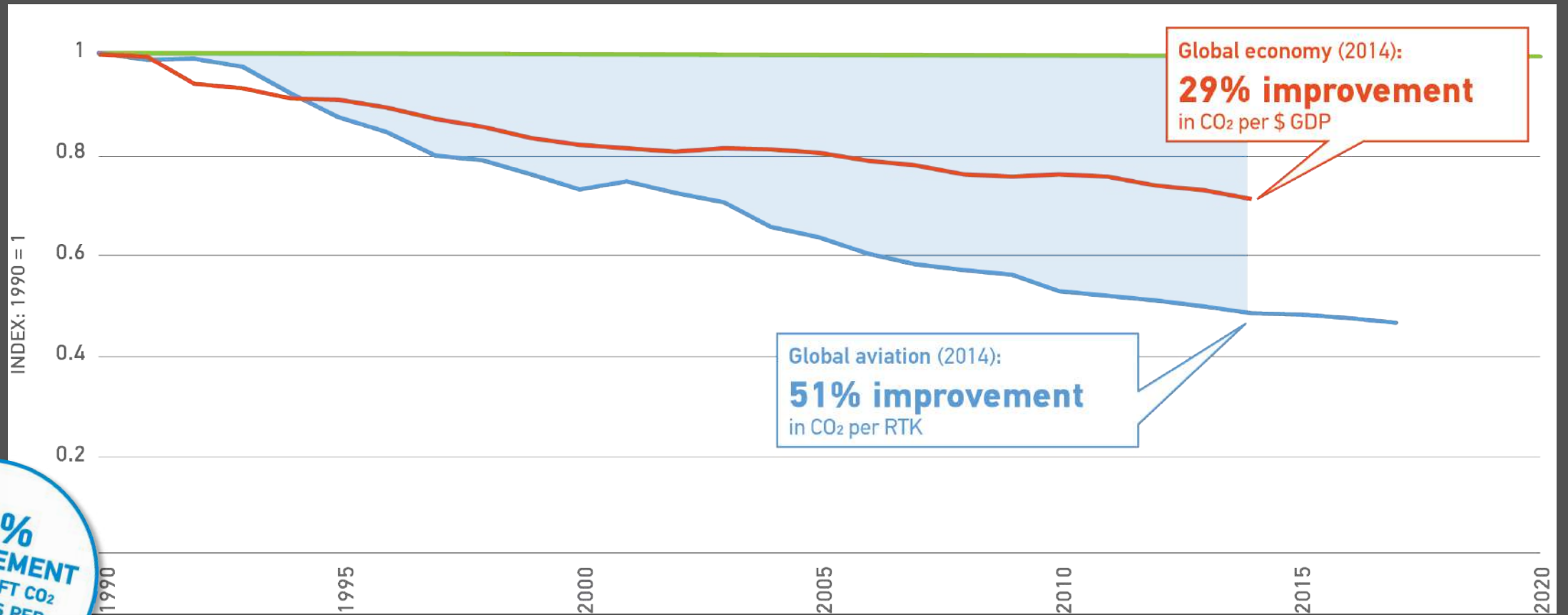
OUR GLOBAL SUPPORT FOR EMPLOYMENT & ECONOMIC ACTIVITY



AVIATION IN CONTEXT



AVIATION TRACK RECORD ON IMPROVING EFFICIENCY



80% IMPROVEMENT
IN AIRCRAFT CO₂
EMISSIONS PER
SEAT SINCE 1950s

IATA and World Resources Institute data

SETTING THE STRATEGIC DIRECTION

GOAL 1

PRE-2020 AMBITION

1.5% ANNUAL
AVERAGE FUEL
EFFICIENCY
IMPROVEMENT
FROM 2009 TO
2020.

T O I

GOAL 2

IN LINE WITH THE NEXT
UNFCCC COMMITMENT PERIOD

STABILISE NET
AVIATION CO₂
EMISSIONS AT
2020 LEVELS
WITH CARBON-
NEUTRAL
GROWTH.

T O I + M

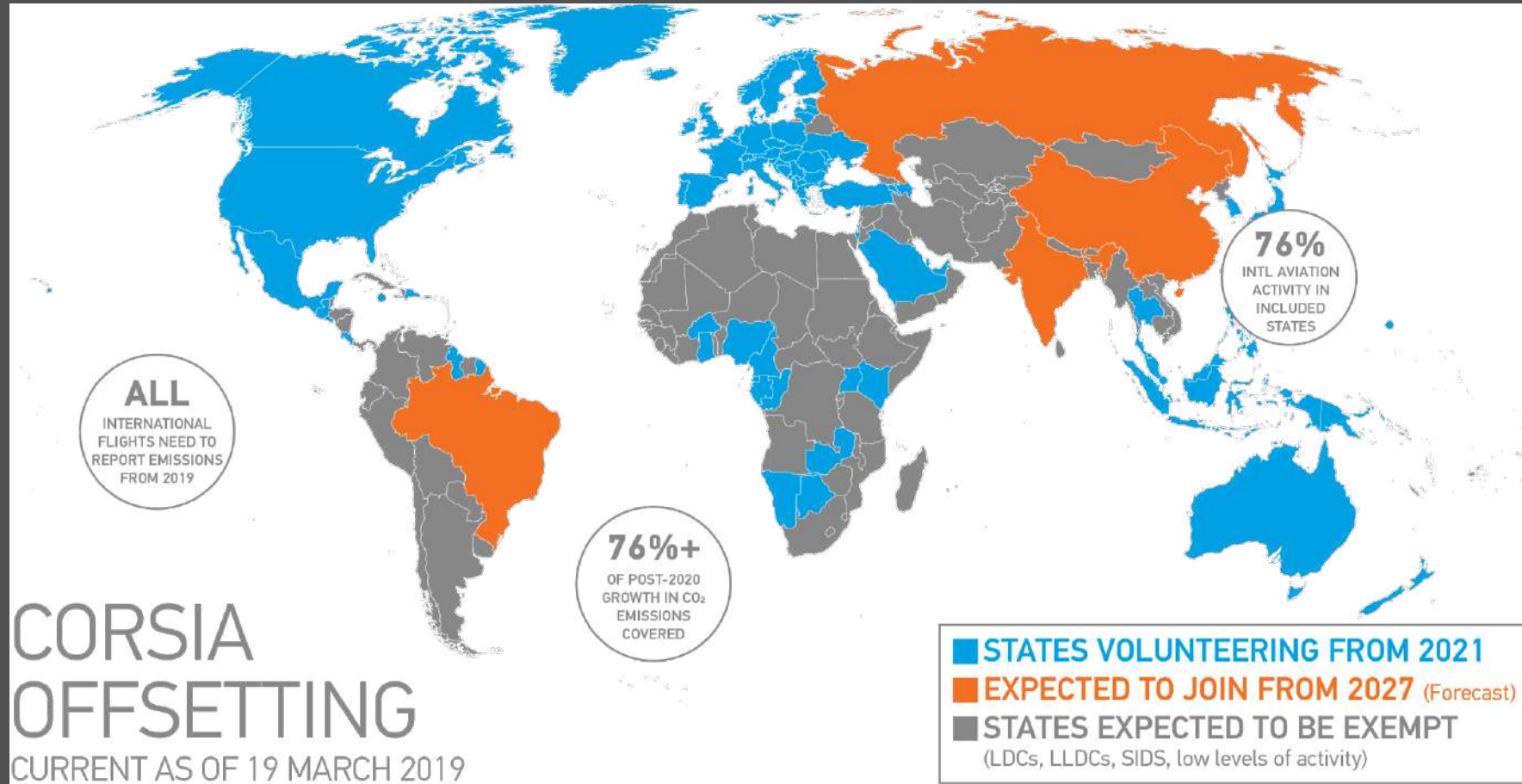
GOAL 3

ON THE 2°C PATHWAY

REDUCE
AVIATION'S NET
CO₂ EMISSIONS
TO 50% OF WHAT
THEY WERE IN
2005, BY 2050.

T O I

CORSIA: STATES INCL. IN FIRST (VOLUNTARY) PHASES

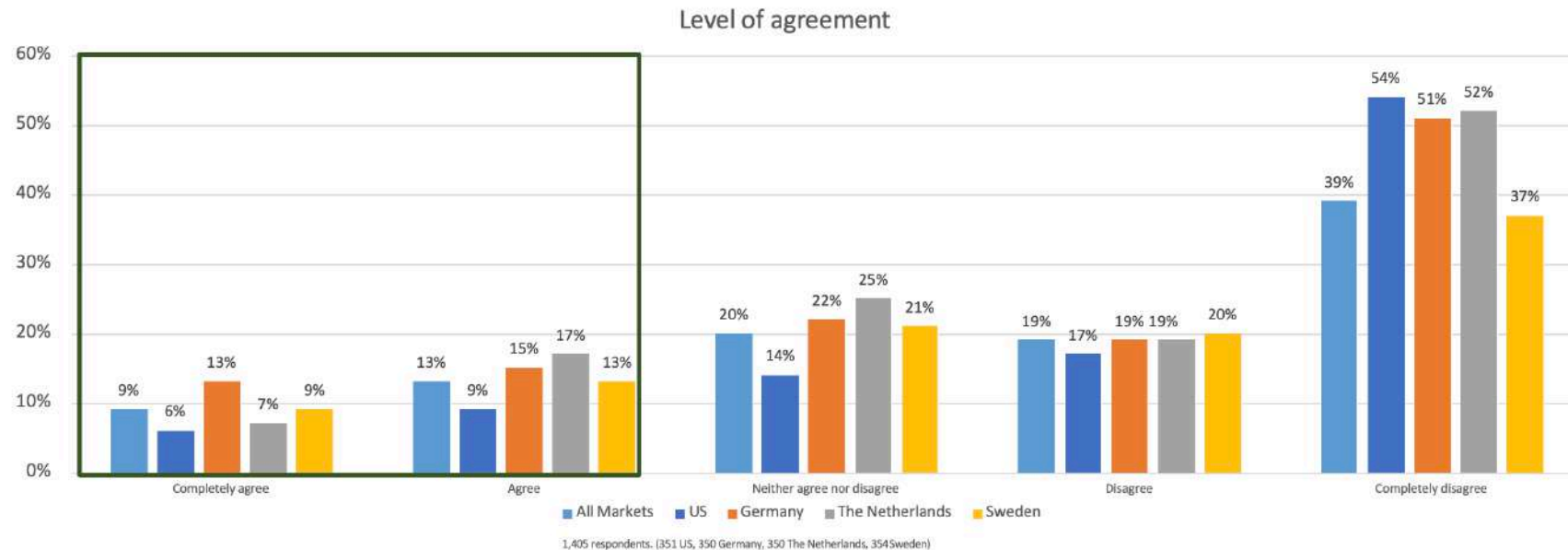




IATA RESEARCH - 2019: 'WHAT THE PUBLIC IS TELLING US'

ENVIRONMENTAL CONCERNS ARE NOT DETERRING TRAVELLERS FROM FLYING AT PRESENT

Statement: In the past I have chosen not to fly because of environmental concerns (e.g. carbon emissions)



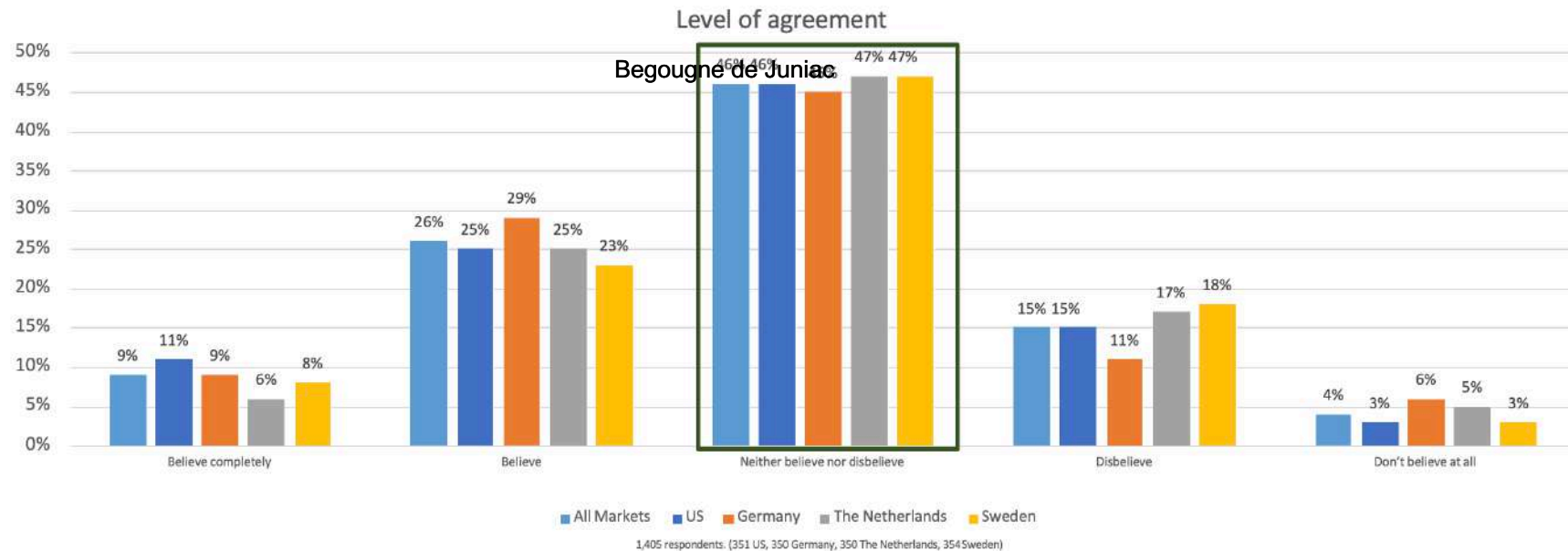
Q6a: In the past I have chosen not to fly because of environmental concerns (e.g. carbon emissions)



IATA RESEARCH - 2019: 'WHAT THE PUBLIC IS TELLING US'

FLYERS ARE UNSURE ABOUT WHETHER THE INDUSTRY HAS BEEN MAKING STRONG EFFORTS TO MEET ITS ENVIRONMENTAL GOALS

Statement: The industry has been taking impressive collaborative efforts to meet these goals, with representatives from airlines, airports, air traffic management and the manufacturing sector all taking part in the process



Environment, a sine qua non condition to aviation sustainability – Fire-side chats



Anita Mendiratta

Founder & Managing
Director

**ANITA MENDIRATTA
& Associates**



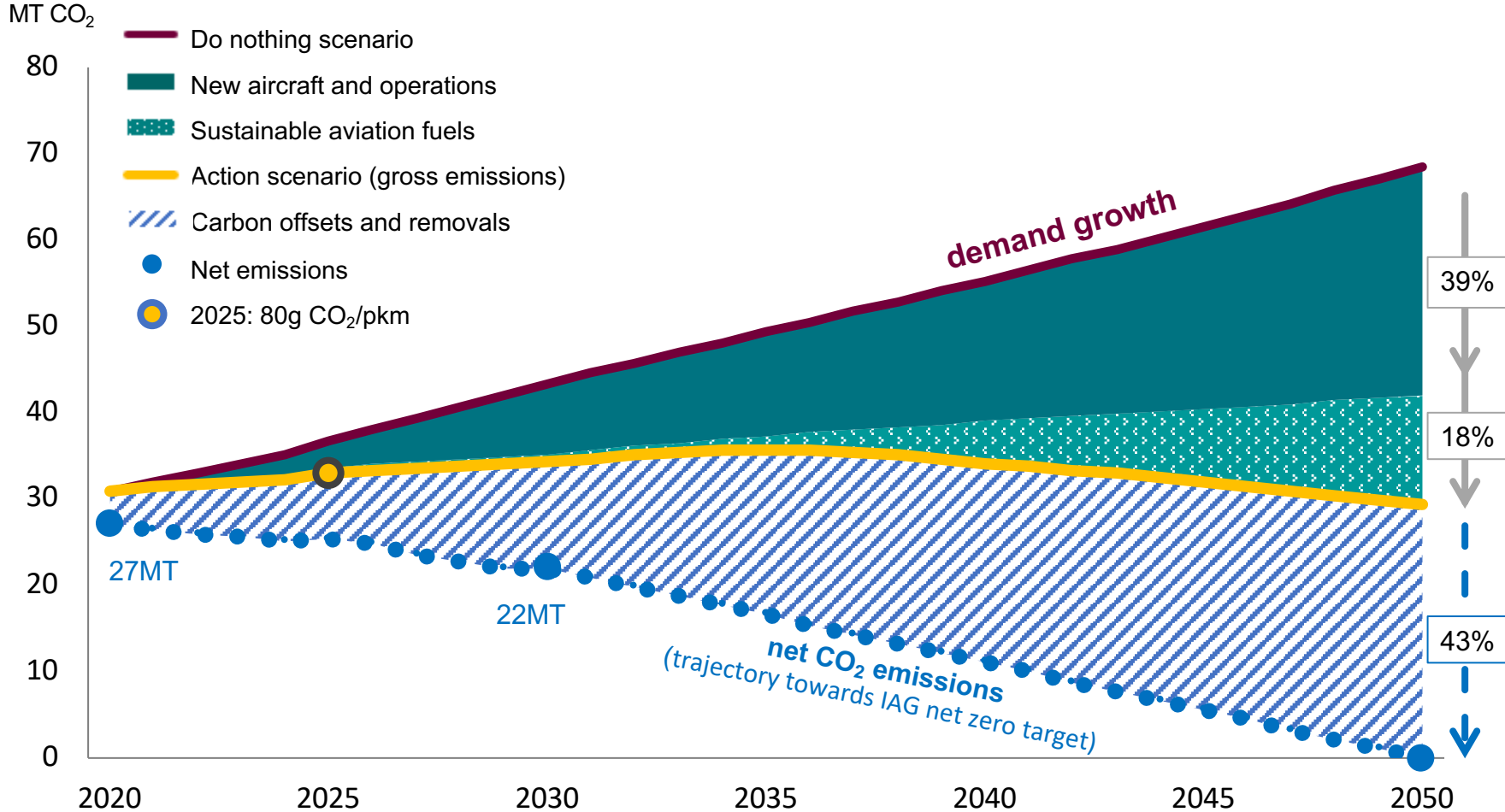
Jonathon Counsell

Group Head of
Sustainability

IAG

IAG pathway to net zero CO₂ by 2050

We will proactively work with partners to ensure successful delivery our 2050 goal



4Cs for Combatting Climate Change

1. Climate Science
2. Convince your CEO
3. Commit to targets
4. Create incentives

Environment, a sine qua non condition to aviation sustainability – Fire-side chats



Anita Mendiratta

Founder & Managing
Director

**ANITA MENDIRATTA
& Associates**



Ricardo Entz

COO

XO Airbus Demonstrators

Environment, a sine qua non condition to aviation sustainability – Fire-side chats



Anita Mendiratta

Founder & Managing
Director

**ANITA MENDIRATTA
& Associates**



Maurice Georges

Director

DSNA

Environment, a sine qua non condition to aviation sustainability – Fire-side chats



Anita Mendiratta

Founder & Managing
Director

**ANITA MENDIRATTA
& Associates**



Maarten van Dijk

CEO

SkyNRG

Environment, a sine qua non condition to aviation sustainability – Fire-side chats



Anita Mendiratta

Founder & Managing
Director

**ANITA MENDIRATTA
& Associates**



Tim Johnson

Director

**Aviation Environment
Federation**

Environment, a sine qua non condition to aviation sustainability – Fire-side chats



Anita Mendiratta
Founder & Managing
Director
**ANITA MENDIRATTA
& Associates**



David Antonioli
CEO
Verra

Environment, a sine qua non condition to aviation sustainability – Fire-side chats



Anita Mendiratta

Founder & Managing
Director

ANITA MENDIRATTA IAG
& Associates



Jonathon Counsell

Group Head of
Sustainability

IAG



Ricardo Entz

COO

XO Airbus
Demonstrators



Maurice Georges

Director

DSNA



Maarten van Dijk

CEO

SkyNRG

Tim Johnson

Director

Aviation Environment
Federation



David Antonioli

CEO

Verra

Capacity – Accommodating growth today & tomorrow



Sylviane Lust

Director General
AIRE



Eamonn Brennan

Director General
Eurocontrol



Dick Benschop

President & CEO
Royal Schiphol
Group



Tanja Grobotek

Director Europe
Affairs
CANSO



Janusz Janiszewski

President
PANSO



Rafał Milczarski

CEO
LOT

Supporting
European
Aviation



IATA Wings of Change

Capacity – Accommodating growth today & tomorrow

Eamonn Brennan
Director General

19 November 2019



Our story begins.....



Single European Sky I (2004)

Creating Regulatory framework



To modernise European ATC and deal with....

Fragmentation

Capacity / Delays

Cost

...our story continued...

Single European Sky II (2008)

Performance
Scheme

NM Function

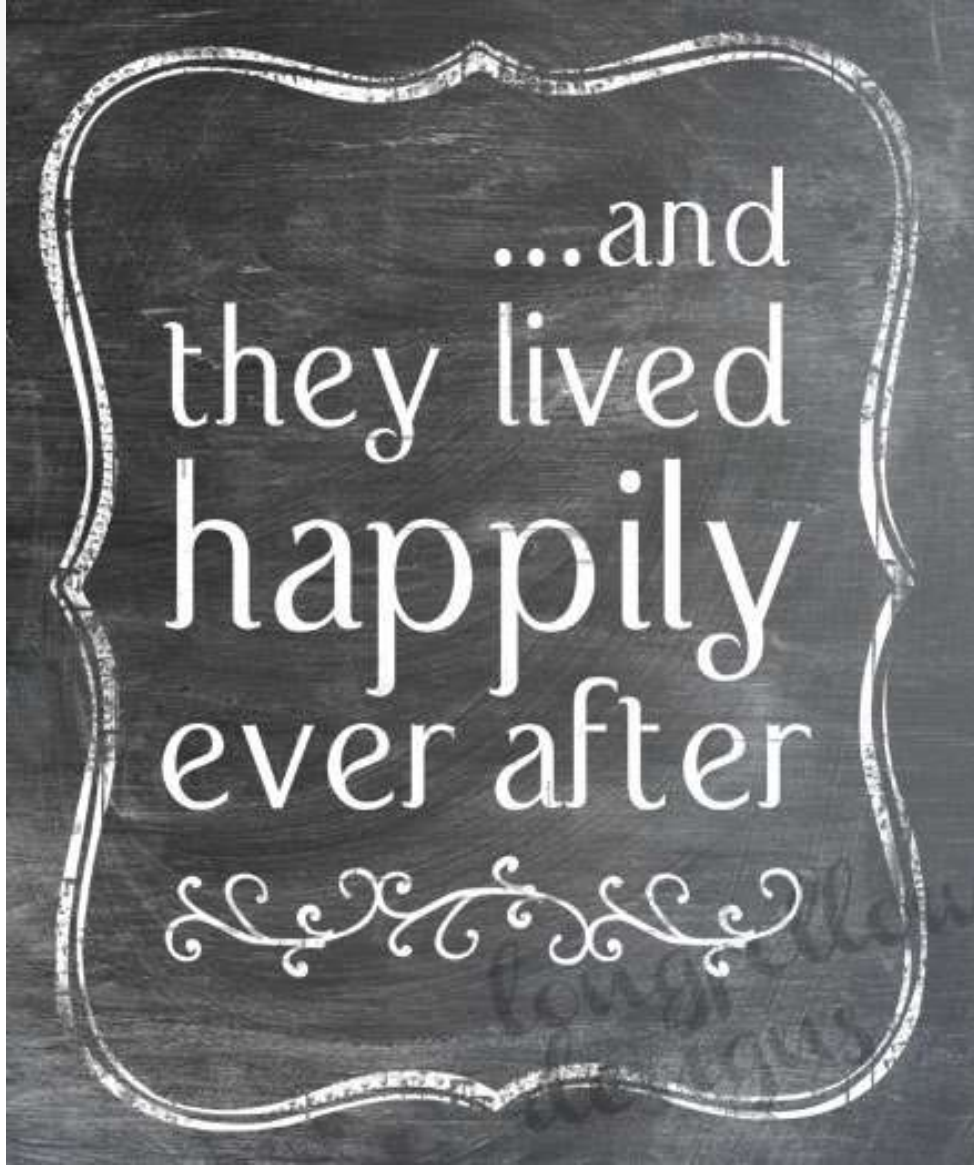


To modernise European ATC and
deal with....

Fragmentation

Capacity / Delays

Cost



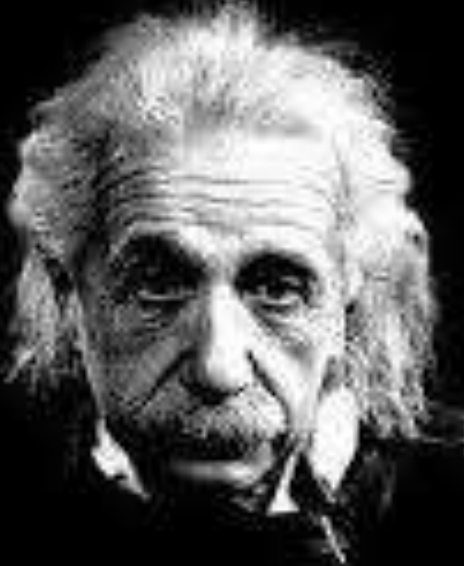
...and
they lived
happily
ever after

...*BUT*....our story still continues....

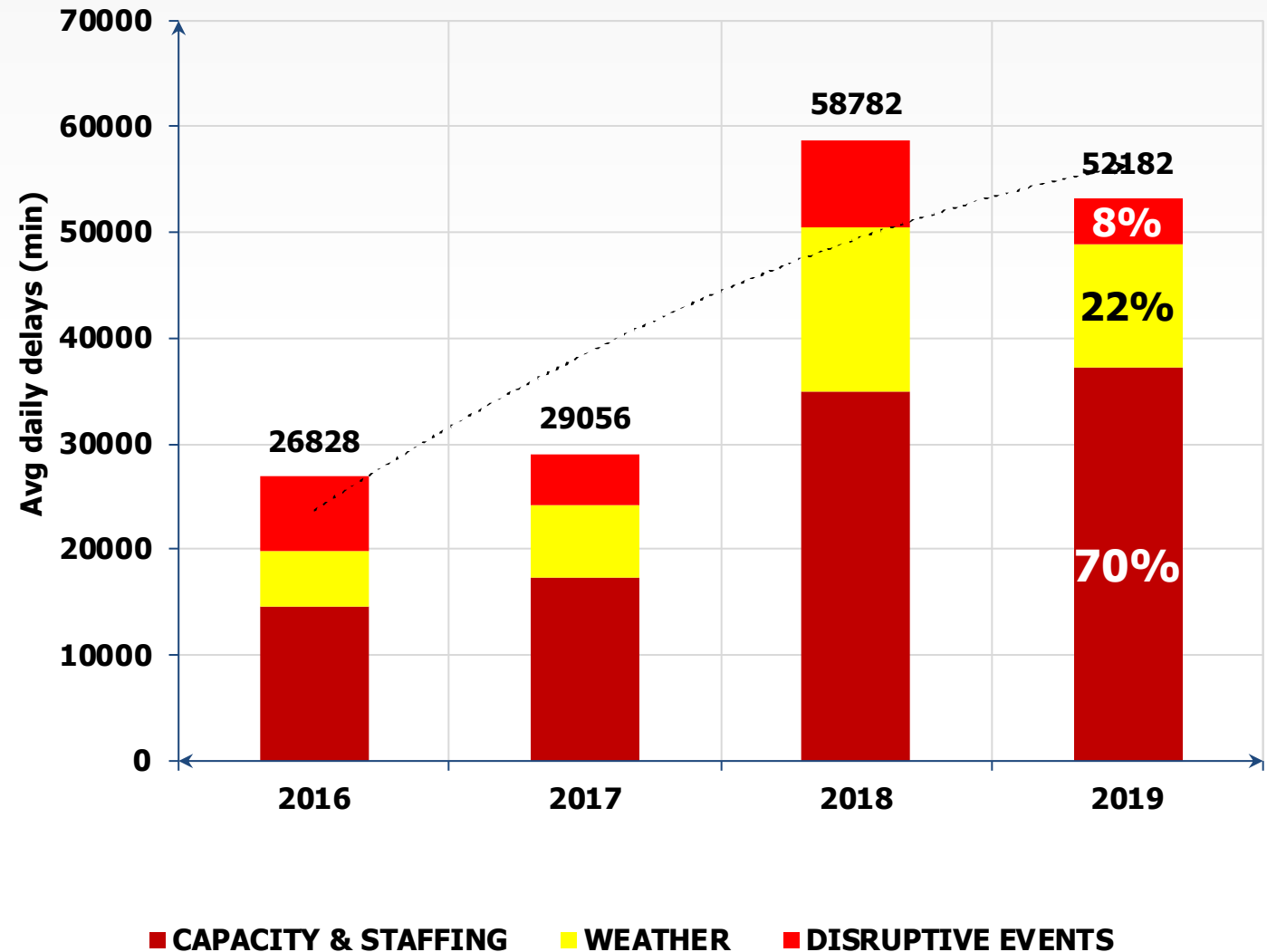
84% worse than 2017

**STILL IN CRISIS
SITUATION**

"WE CANNOT
SOLVE OUR
PROBLEMS
WITH THE SAME
THINKING WE
USED WHEN WE
CREATED THEM"



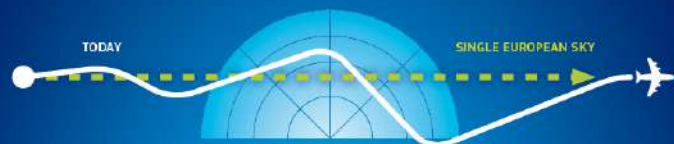
Year-to-date Network en route delays





INNOVATION AND DIGITAL TECHNOLOGIES SESAR and the Air Traffic Management modernisation

Developing new technologies for a better management of Europe's airspace and contributing to the Single European Sky goals.



MANAGING MORE EFFECTIVELY INCREASING TRAFFIC
CONTRIBUTING TO



SESAR JOINT UNDERTAKING



INVESTMENTS

from the Connecting Europe Facility (CEF) for SESAR projects

2014 - 2035

€2.5 bn ⇒



App. €30 bn overall investment expected to create growth & 300,000 jobs

SES Success



Performance Scheme – cost stability

SESAR

Network Management

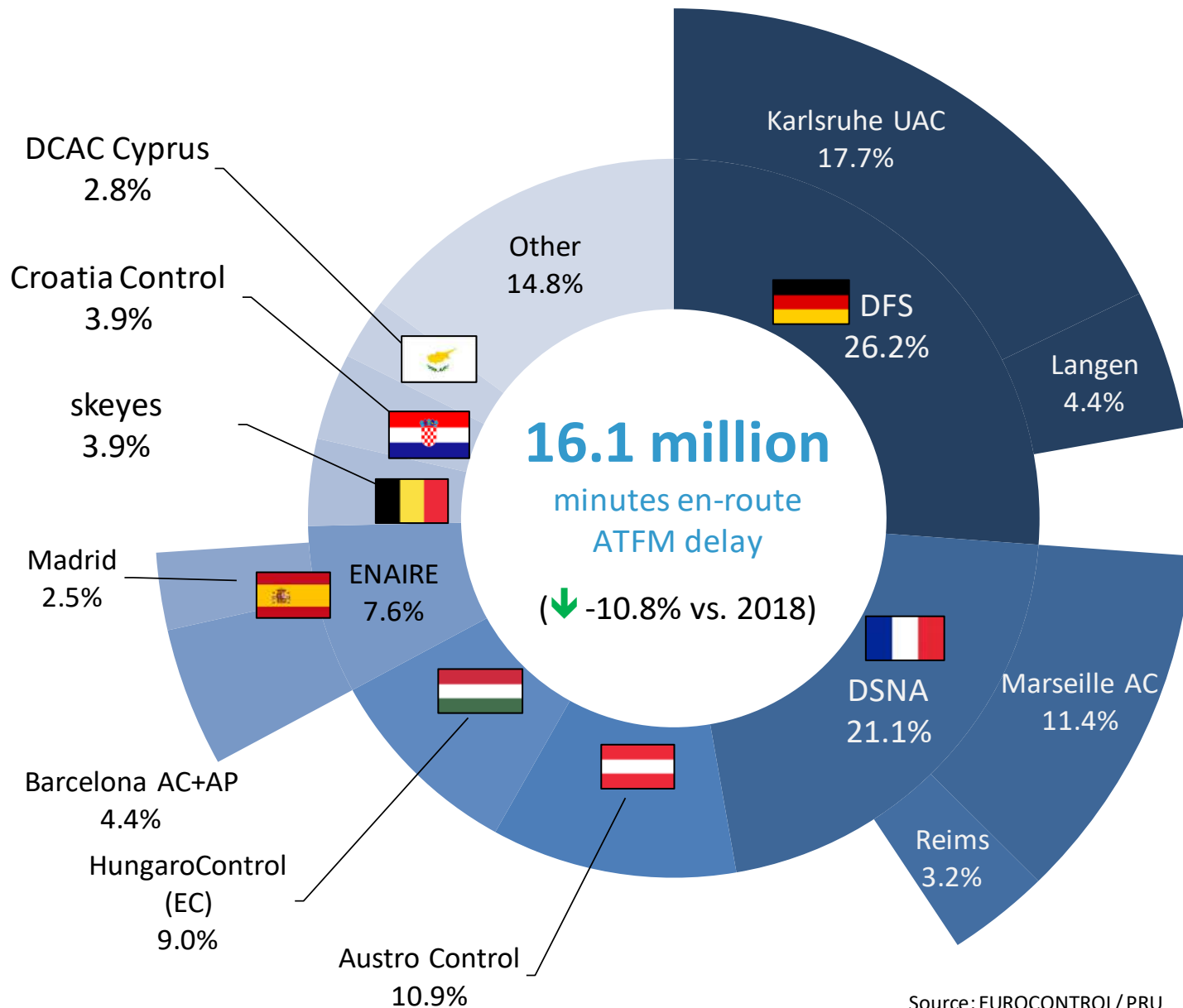
EASA Oversight

Industrial partnerships

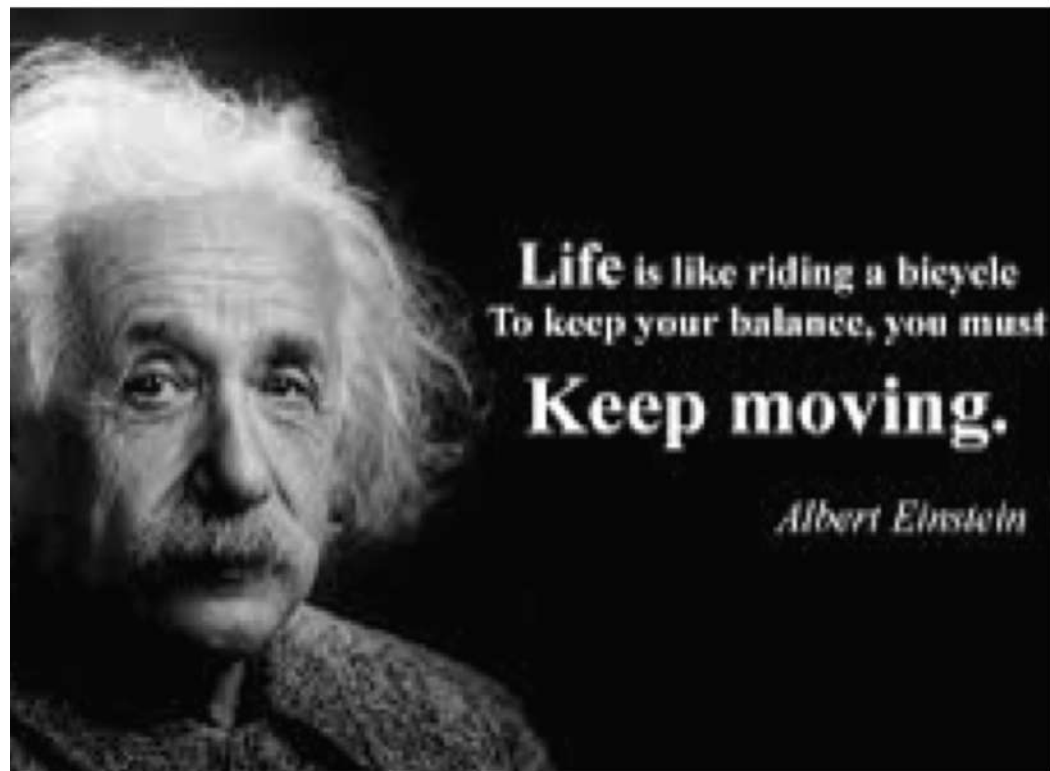
Operational Stakeholders



Share of total en-route ATFM delay(%) January-October 2019



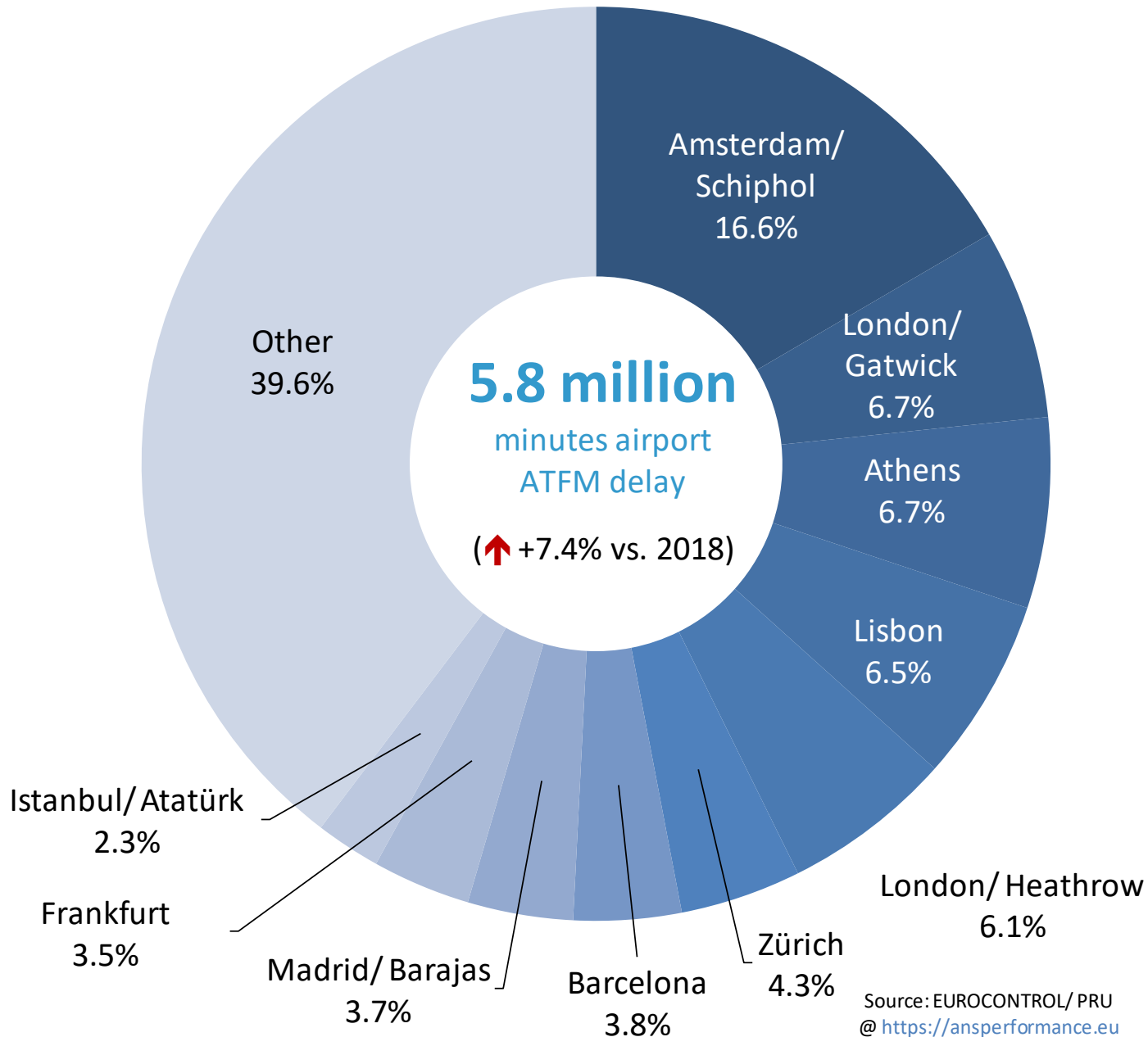
2019 - Improved Predictability
But **NOT** Long-term Solution



Source: EUROCONTROL/PRU
@ <https://ansperformance.eu>

Share of total airport ATFM delay(%)

January-October 2019



...and the airports?

27% of the Delay Problem

IFR TRAFFIC IN EUROPE





"Insanity: doing the same thing over and over again and expecting different results."

- Albert Einstein

Are ANSP Business's or Government Utilities ?

They are very **safe**

They **talk like business's** – customers

They make **very good returns** (average 22%)

They provide a **service**

Staff - positive service ethos

• **So what's the problem ?**

Nearly all **Government controlled**:

- States appoint Boards
- States get Dividends
- States own the shares
- States regulate (NSAs etc)

• **What happens if you don't perform ?**

- When things get tough:
 - **Question the assumptions**
 - Blame Europe!

Ownership V Independence
How does it work in reality?

If the facts don't fit the theory, change the facts

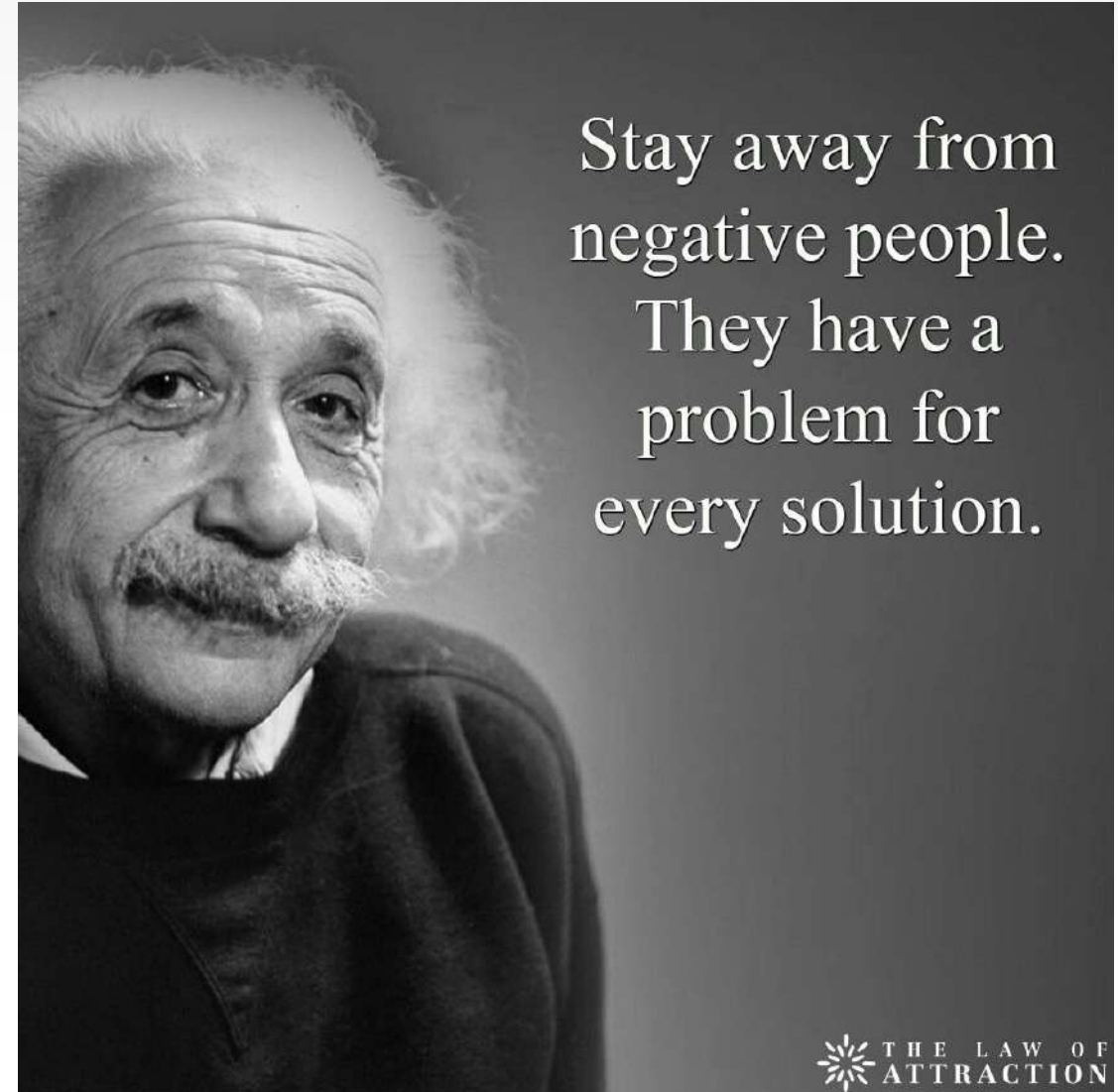


We have a great Opportunity Now
– to help our citizens and the environment

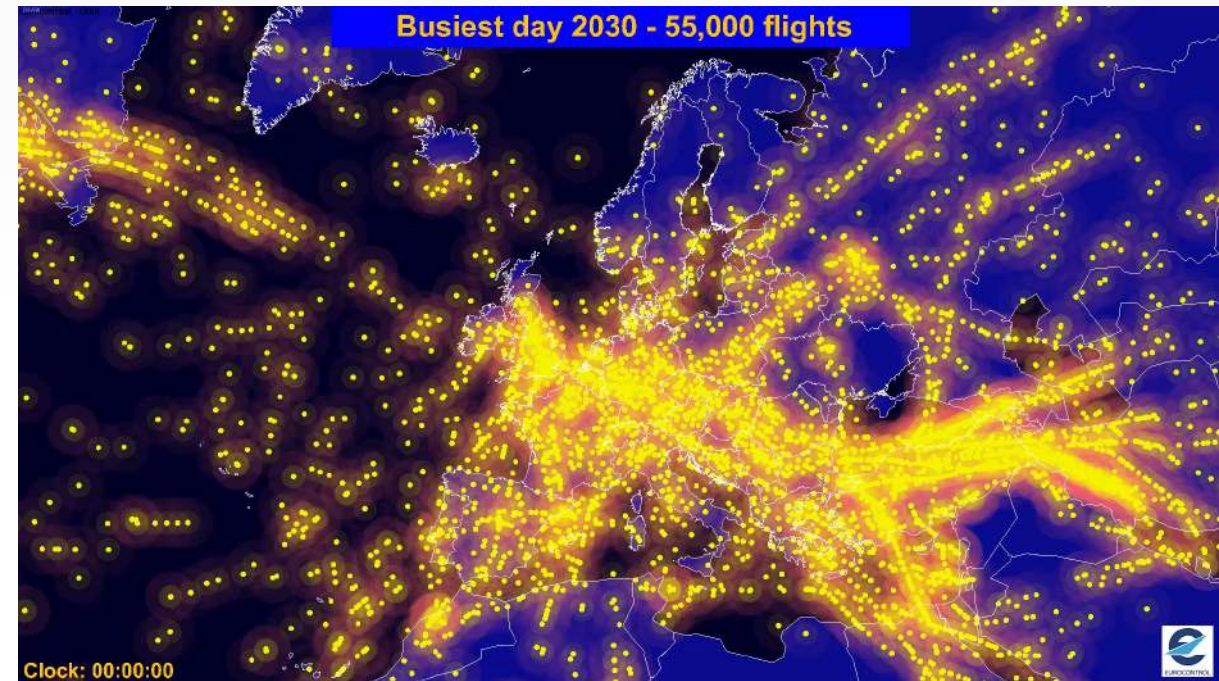
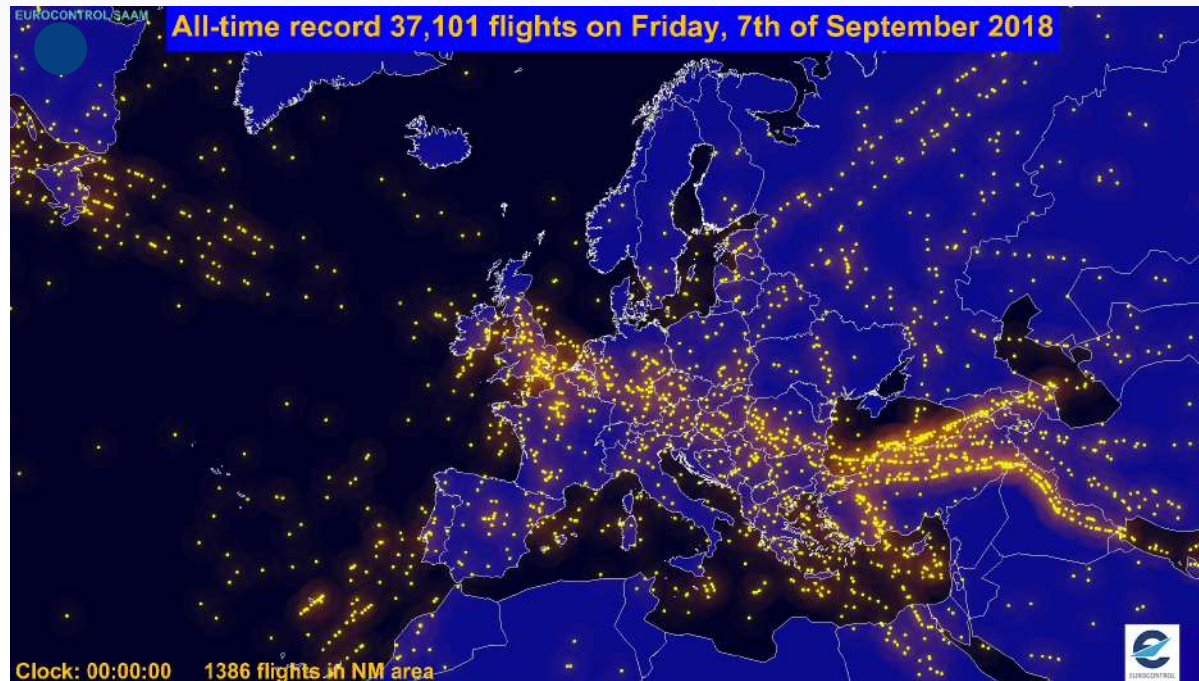


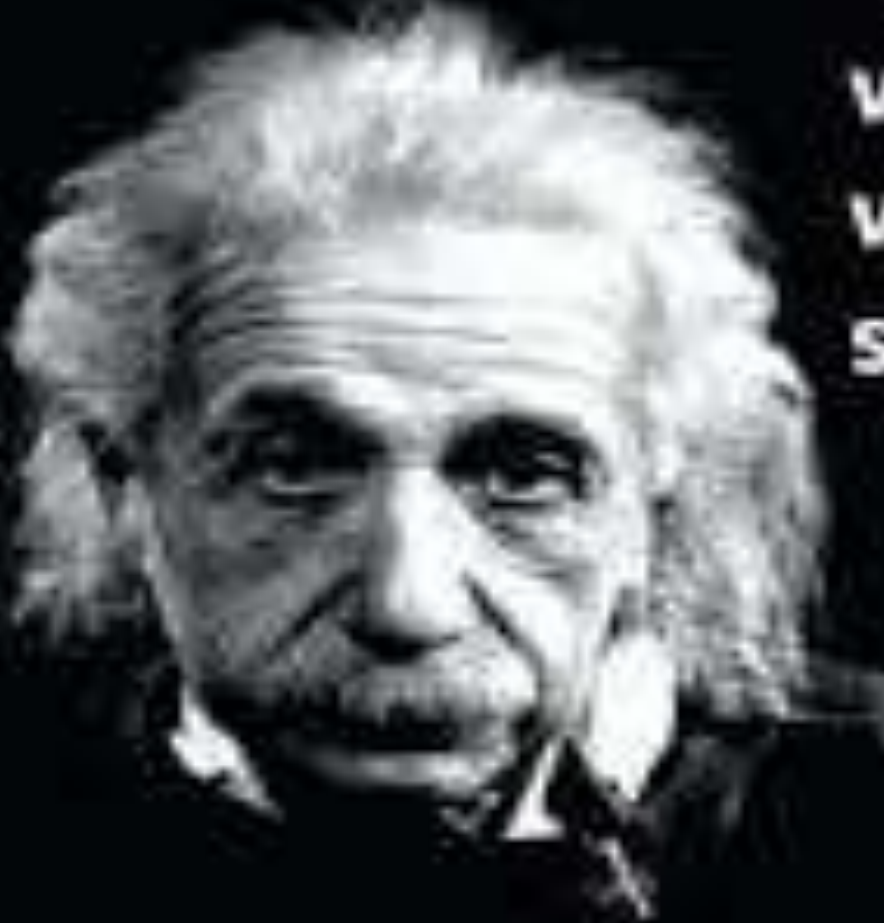
2x

IMPLEMENT



Today v 2030



A black and white portrait of Albert Einstein, showing his characteristic wild, white hair and a serious expression. He is wearing a dark jacket over a light-colored shirt.

**"I am afraid of that day
when people will post quotes
with my name which I never
said"**

-Albert Einstein"

SUPPORTING EUROPEAN AVIATION



Thank you

Eamonn Brennan, Director General

 @eurocontrolDG

Capacity – Accommodating growth today & tomorrow



Sylviane Lust

Director General
AIRE



Eamonn Brennan

Director General
Eurocontrol



Dick Benschop

President & CEO
Royal Schiphol
Group



Tanja Grobotek

Director Europe
Affairs
CANSO



Janusz Janiszewski

President
PANSO



Rafał Milczarski

CEO
LOT

NETWORKING COFFEE BREAK



Safety first, or when compromise is not an option



Tanja Harter

Technical Affairs
Director

ECA



Chris Kempis

Director of Flight
Operations

Cathay Pacific



Patrick Ky

Executive Director

EASA



Michael Romanowski

Aircraft Certification
Service Policy &
Innovation Division
Director

FAA



Yannick Malinge

Head of Product
Safety

Airbus

Safety First

When Compromise is Not an Option



Federal Aviation
Administration



Presented to: IATA

By: Dr. Michael C. Romanowski, Director
Policy and Innovation Division, Aircraft Certification Service

Date: November 19, 2019



Federal Aviation
Administration

Safety first, or when compromise is not an option



Tanja Harter

Technical Affairs
Director

ECA



Chris Kempis

Director of Flight
Operations

Cathay Pacific



Patrick Ky

Executive Director

EASA



Michael Romanowski

Aircraft Certification
Service Policy &
Innovation Division
Director

FAA



Yannick Malinge

Head of Product
Safety

Airbus

Cybersecurity – Are you prepared?

Esti Peshin

VP & General Manager Cyber
Division

Israel Aerospace Industries





Where Courage Meets Technology

WINGS OF CHANGE

A Blueprint for Civil Aviation Cyber Security



UNCLASSIFIED

This document contains proprietary information of Israel Aerospace Industries Ltd. and may not be reproduced, copied, disclosed or utilized in any way in whole or in part, without the prior written consent of Israel Aerospace Industries Ltd

2015-2019: Main Cyber Events



Cyber Aviation Landscape

TECHNOLOGY NEWS | JUNE 22, 2015 / 3:53 PM / 4 YEARS AGO

Polish airline, hit by cyber attack, says all carriers are at risk

Wiktor Szary, Eric Auchard | 4 MIN READ

WARSAW/FRANKFURT (Reuters) - No airline is safe from the type of cyber attack that grounded aircraft and hundreds of passengers at Poland's busiest airport at the weekend, the chief executive of Polish national carrier LOT [LOT.U] said on Monday.

HOME | PRINT EDITION | SHOW DAILY | SOCIAL | VIDEOS

Destination | Hotel | Transportation | Appointments | Features | Gallery | Trade Calendar | N

Home » Top News » Aviation still vulnerable to cyber attacks despite greater IT spend: SITA

Top News

Aviation still vulnerable to cyber attacks despite greater IT spend: SITA

By Pamela Chow / Posted on 18 February, 2019 10:08

While the aviation sector has demonstrated awareness of the rising threats to security and data privacy, companies are still lacking in resources and capabilities to beef up their cybersecurity systems revealed findings in a survey by SITA.

SITA's president of Asia-Pacific, Sumesh Patel, shared that 92 per cent of organisations have developed an IT security strategy, and cybersecurity spend is rising year-on-year.

agilent | Home | Services | Industries | About | Resources | Training | Articles | Contact Us

Last week's cyber-attacks against the airline industry in Vietnam have exposed serious systemic vulnerabilities and caused considerable reputational damage to the organisations hit.

Whilst scrambling efforts are being made to contain the fallout, the depth to which the attackers may have penetrated remains worryingly unclear.

On Friday 29 July, the computer systems of two major international airports, Noi Bai in Hanoi and Tan Son Nhat in Ho Chi Minh, were hacked and offensive messages were displayed on flight information screens about the South China Sea, Vietnam, and the Philippines.

At the same time the national carrier, Vietnam Airlines', website was hacked and defaced, and its VIP membership database was stolen. The private details of over 400,000 customers were leaked online for download and subsequent exploitation.

EN SIGN INFOSECURITY | About | Services | Contact | News | Careers

07 - 14 May 2019

Iranian APT Group Targets Airlines

TRANSPORT INDUSTRY

A previously unknown threat group of Iranian origin has been targeting the aviation industry for the past few years including airline companies in Southeast Asia such as the Malaysia Airlines, AirAsia, Philippine Airlines and Thai Airways. The espionage group dubbed Rana was discovered after an unknown hacker leaked a large set of documents via a user group on the Telegram app. In April, the attack resulted in...

MENU | GULF NEWS | PHILIPPINES

Cyber attack on Philippines government sites

Cyber attack on Philippines government sites

Pages were redirected to a banner carrying a statement on cybercrime law

Published: September 23, 2012 15:06
By Gilbert P. Felongco, Correspondent

Manila: A number of government websites have fallen prey to a wave of cyber attacks as pages were redirected to a banner carrying a statement opposing a newly-approved law on cybercrimes.

As early as Wednesday, Internet users trying to access the websites of the Bangko Sentral ng Pilipinas (BSP or Philippine Central Bank) as well as the Metropolitan Waterworks and Sewerage System, the Department of Environment and Natural Resources in Central Luzon Region, the Department of Health and two other websites; suddenly found themselves herded to a webpage titled "Anonymous Philippines."

5,889 views | Feb 25, 2019, 07:37am

Hackers Are Targeting Airlines In Record Numbers. Here's What That Means For You.

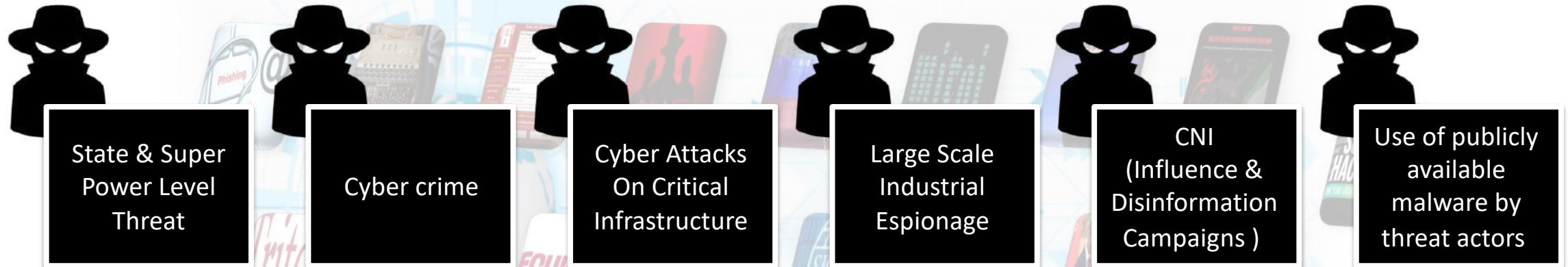
Christopher Elliott Contributor
I'm a consumer advocate. I write about customer service.

Hackers are targeting airlines as never before, and it could affect your next flight. That's the conclusion of a troubling new study of airline IT outages by Netscout, a provider of application and network performance management products.

Attacks against passenger air travel increased by more than 15,000% between 2017 and 2018, according to Netscout's research.

Cyber - A Strategic Threat

Strategic Trends



Weaponization of the cyber domain

Lack of attribution and accountability

The widening skills gap, and less trained experts to fill security roles

Attackers eyeing “New Technologies” - the cloud, IoT,..

National Grade Challenges Require National Grade Solutions

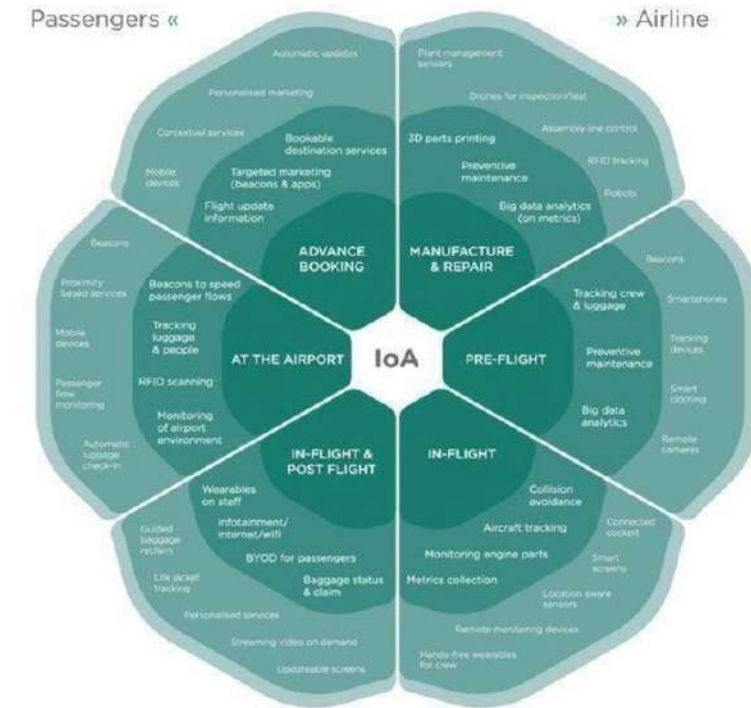
- Technology
- Methodology
- Constant Innovation
- Cooperation (national and international)
- Capacity Build-up and Maintenance



Aviation Cyber Security

Airlines, Operators and Airports

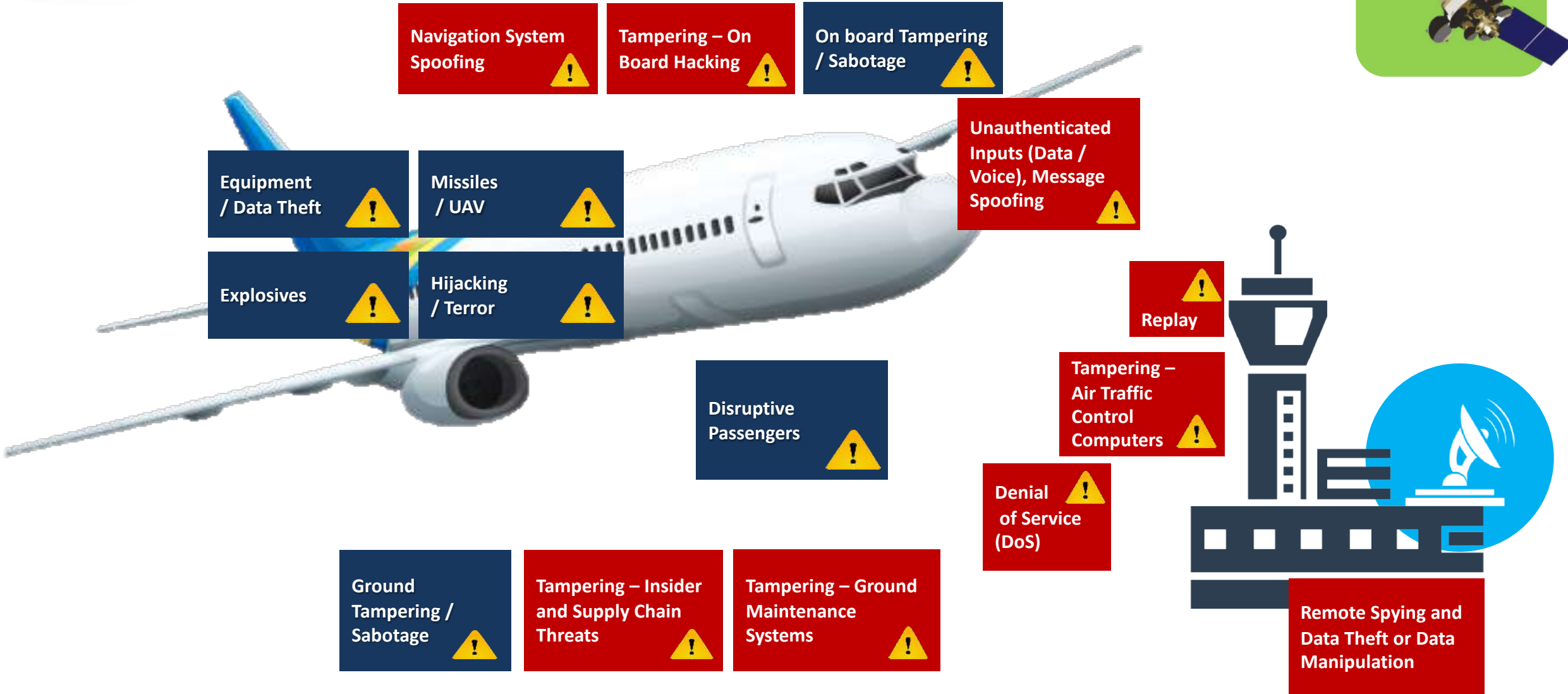
- All possible Tech domains and Risk domains combined
- A growing connectivity and interoperability
- Global compliance regulations
- High valued target
- Need to balance: safety, customers, regulation



Michael Fisher @Fisher85M 23 Aug 2017
#Internet of Aviation (Infographic)

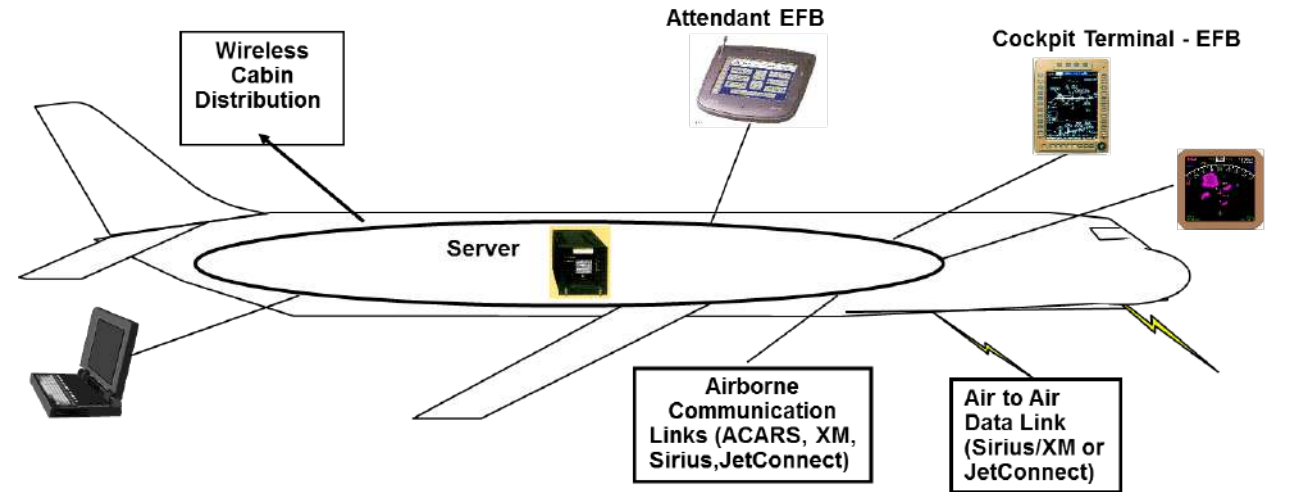
Now, just (try to) add Cyber...

The Threat Landscape

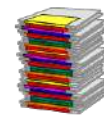


E-enabled aircraft

- Uploading and downloading large amounts of flight and system data
- **In-flight entertainment**
- Wireless technology
- Remote **maintenance testing and diagnostic**
- Equipping engines with “**call home**” **functions**
- Wireless communications
- **Software updates**



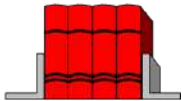
Typical Applications and Services



- Flight Ops**
- Weather
 - Electronic Manuals/Charts
 - Cabin Surveillance
 - Surface Moving Maps
 - Flight Papers/Data

- Onboard/Passenger**
- Rebooking/IRROPS
 - Customer Profiles
 - Buy On Board
 - Live Audio
 - Email/WAP Browsing

- Maintenance**
- *FIX
 - Flight Data Downloads
 - Electronic Logbook
 - Maintenance Data Collection
 - Electronic MEL





The Challenge

Multiple Interconnected Cyber Environments



Air Traffic Control



Ticketing Systems



Baggage Handling Systems



Airport IT Systems



Ground Transportation System



Aircraft On-board Systems



Police and Border Control



Passenger Screening



Radar Systems



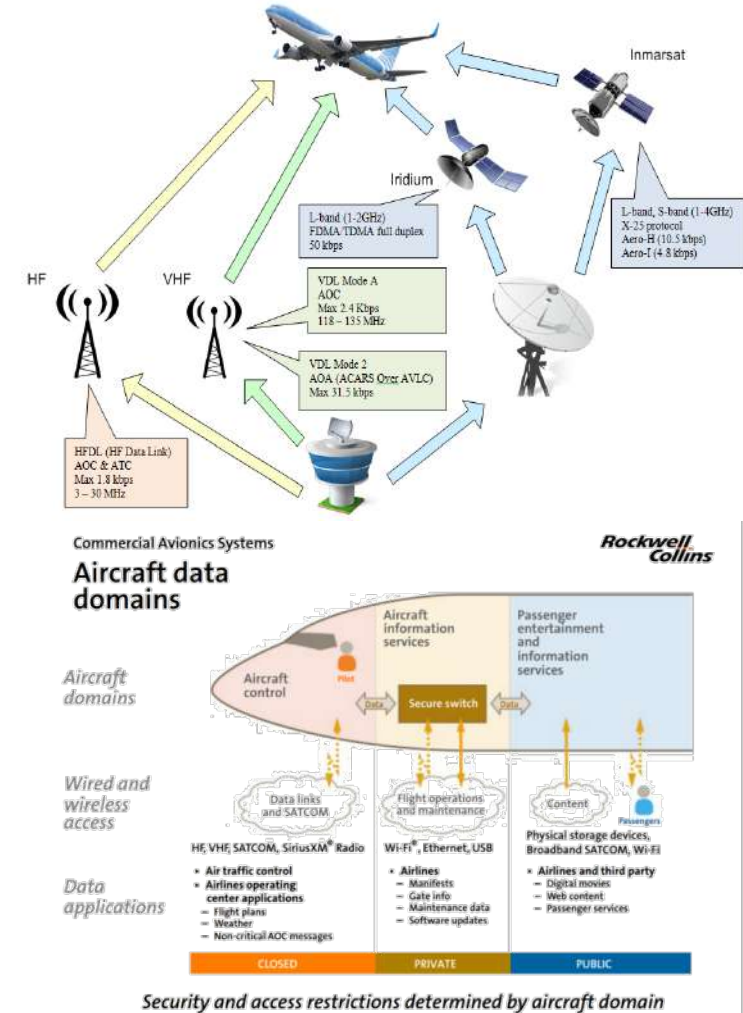
Passenger Wi-Fi Systems
(Bring Your Own Device)

A large number of "Cyber Environments" that affect airport security and operations

The Challenge II

Interconnectivity Between Systems

- More systems are being connected
- Passengers may see their gate information, flight delays etc. from the smartphones
- Pilots may upload navigation information from their tablets to their aircraft
- Cargo system may be accessible to airport personnel via the airport IT system



“Even if you think your system is not connected to the Internet – It usually is!”



The Challenge II

Protecting Mission Critical Systems

Critical National Infrastructure



Mission Critical Systems (MCS)



Airports are a Critical National Infrastructure with a proliferation of Mission Critical Systems

IT Security is Simply Not Enough !



IAI – Israel Aerospace Industries



Employees: ~15,000

Sales 2018: ~ \$3.7B

Export: 80% of total sales

Backlog: ~\$13.5B

Registered company - Tel Aviv
Stock Exchange

Largest Defense and Aerospace company in Israel

Government owned

Established in 1953

Cutting edge technologies and solutions for: Space, Air, Land, Sea and Cyber

Develops & manufactures
advanced systems for the Israel
Defense Forces and foreign
customers worldwide

Active in both the defense and
commercial markets

Active in over 90 countries

IAI - a Gate to Israel's Cyber Eco-System and Innovation

- IAI leads the best and finest of Israel's cyber eco-system & Innovation
- Reducing the risk of choosing novel technology and dealing with start-ups
- Israeli Cyber Companies Consortium (IC3)



Israeli Cyber Companies Consortium



IAC3 – Israeli Aviation Cyber Companies Consortium

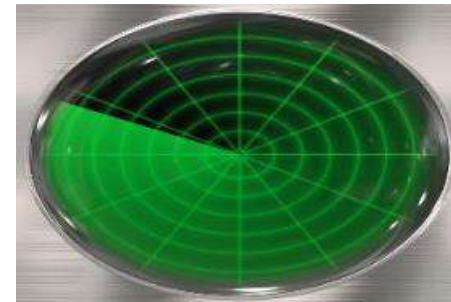
- ELTA leads a diverse group of Israel's leading cyber & aviation companies
- Integration of knowledge and experience of technological leaders in aviation industry
- Providing holistic, end to end, cyber solutions for commercial aviation



A Hybrid Full Scale Solution

IT Security is not enough

- Hardening - end to end cyber hardening process
- Monitoring - a Cyber Security Early Warning Centre including unique cyber threat intelligence
- Forensics and multiple source data analysis (SOC of SOCS)
- Collaboration - A-ISAC connectivity
- Intelligence - Cyber Intelligence Capabilities, augmenting the physical security
- Awareness and Training – tech teams, ops teams and managers/commanders



Cyber Eco-System

- Resilience
- Awareness
- Information sharing



- Resilience
- Awareness
- Information sharing

- Integration
- Methodology
- Domain Expertise
- Development Lab
- Fusion
- Automation
- Tailor made
- Risk reduction



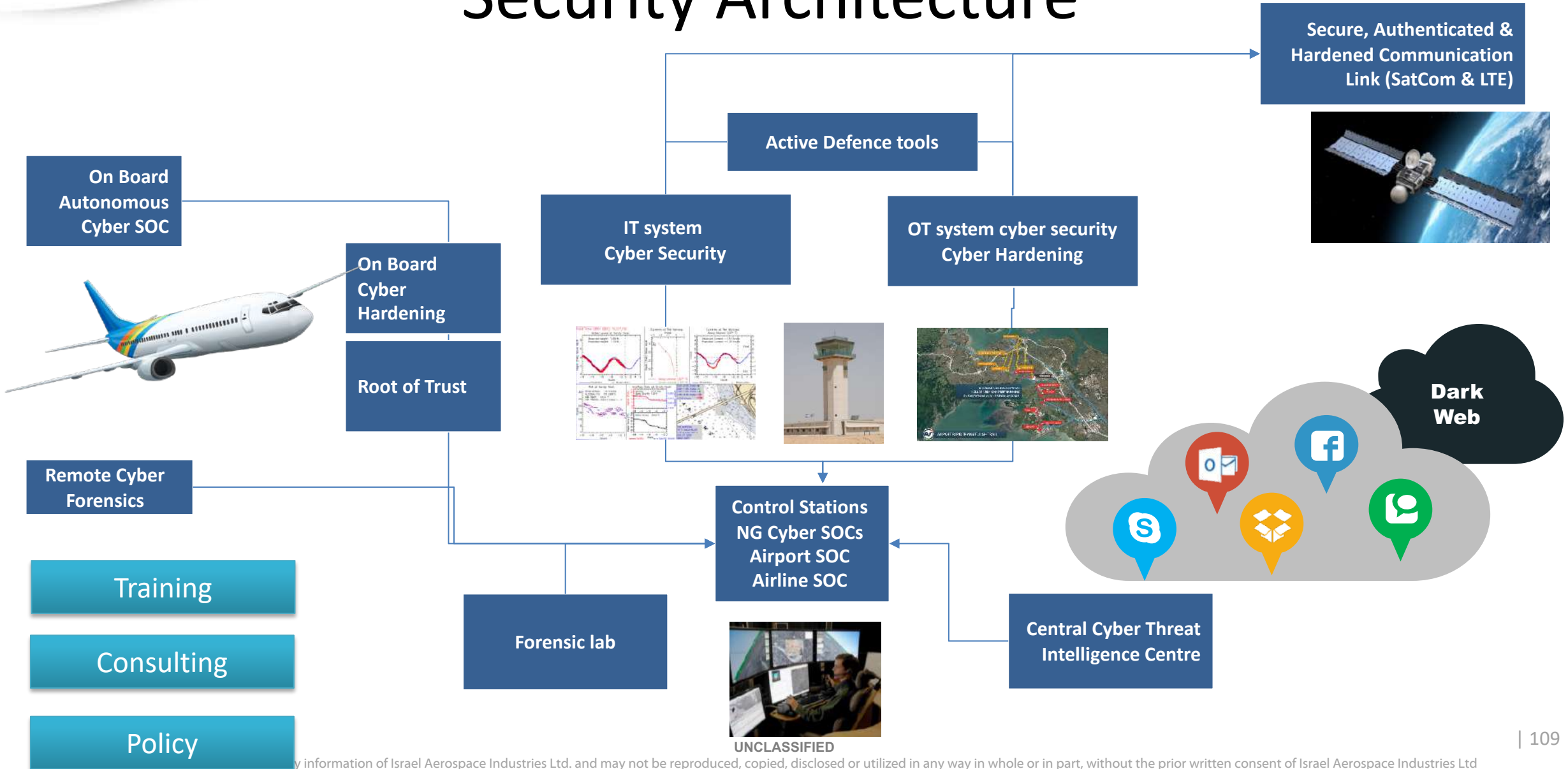
- Organizational structure
- Operational tools
- legislation & regulation
- National level tools and capabilities



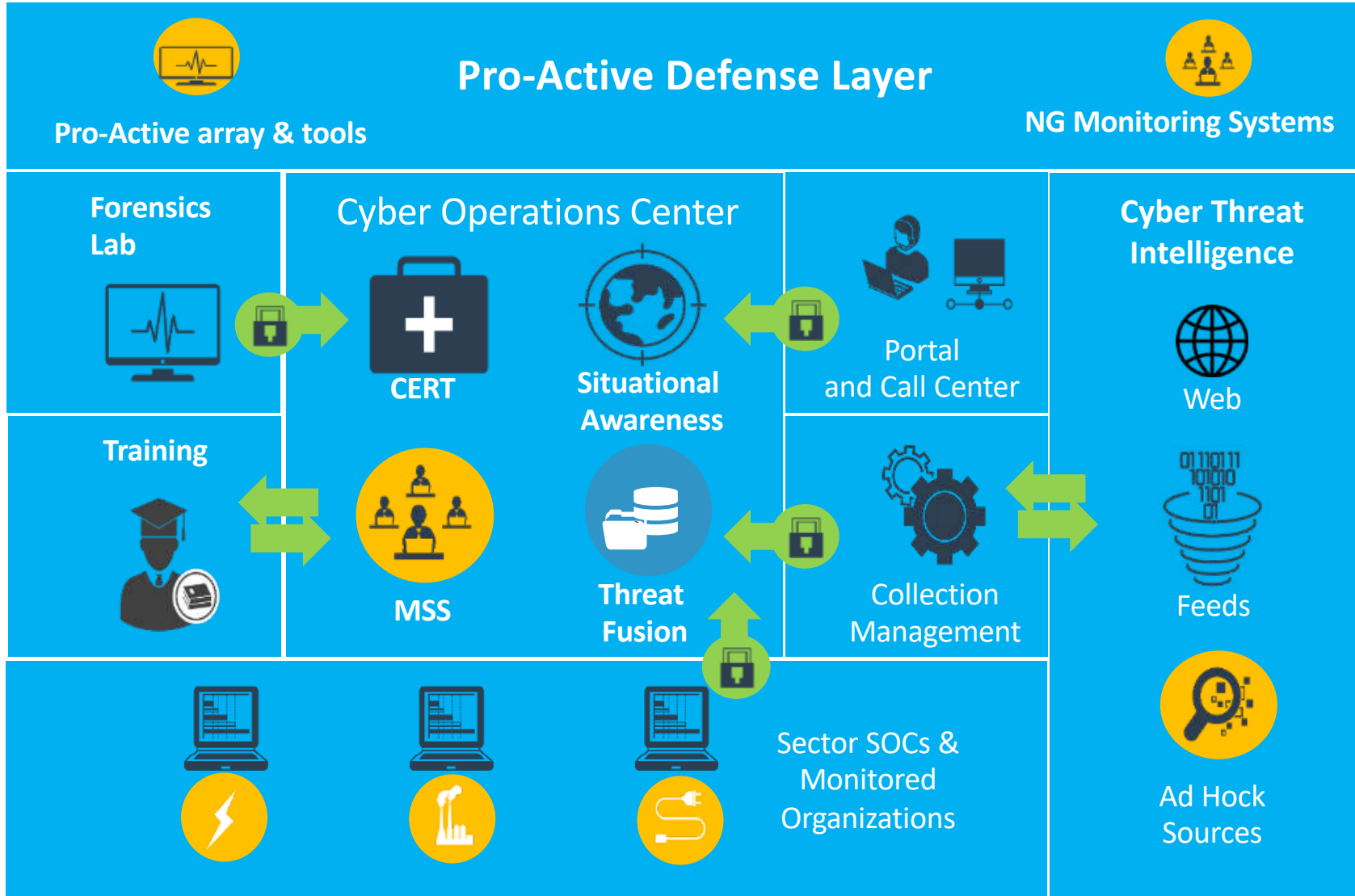
- Cyber professions
- Cyber education



Aviation System-wide Cyber Security Architecture



End to End Cyber Center





IAI - Unique Value Proposition

- Specialized, Industry (sector) specific NG SoC
- Aviation Ecosystem Hardening
- Aviation Cyber Range & Training
- Aviation Cyber Risk Analysis
- Aviation Cyber Lab
 - Forensics
 - R&D



UNCLASSIFIED

THANK YOU

UNCLASSIFIED

Master of ceremony

Bill Morrison

Author, trainer, consultant

Sandler



Networking Gala Dinner

Sponsored by

**LUFTHANSA
GROUP**

AT WASSERWERK

**Buses from 18:30
to 18:45**

Grand Hyatt Lobby



THANK YOU

