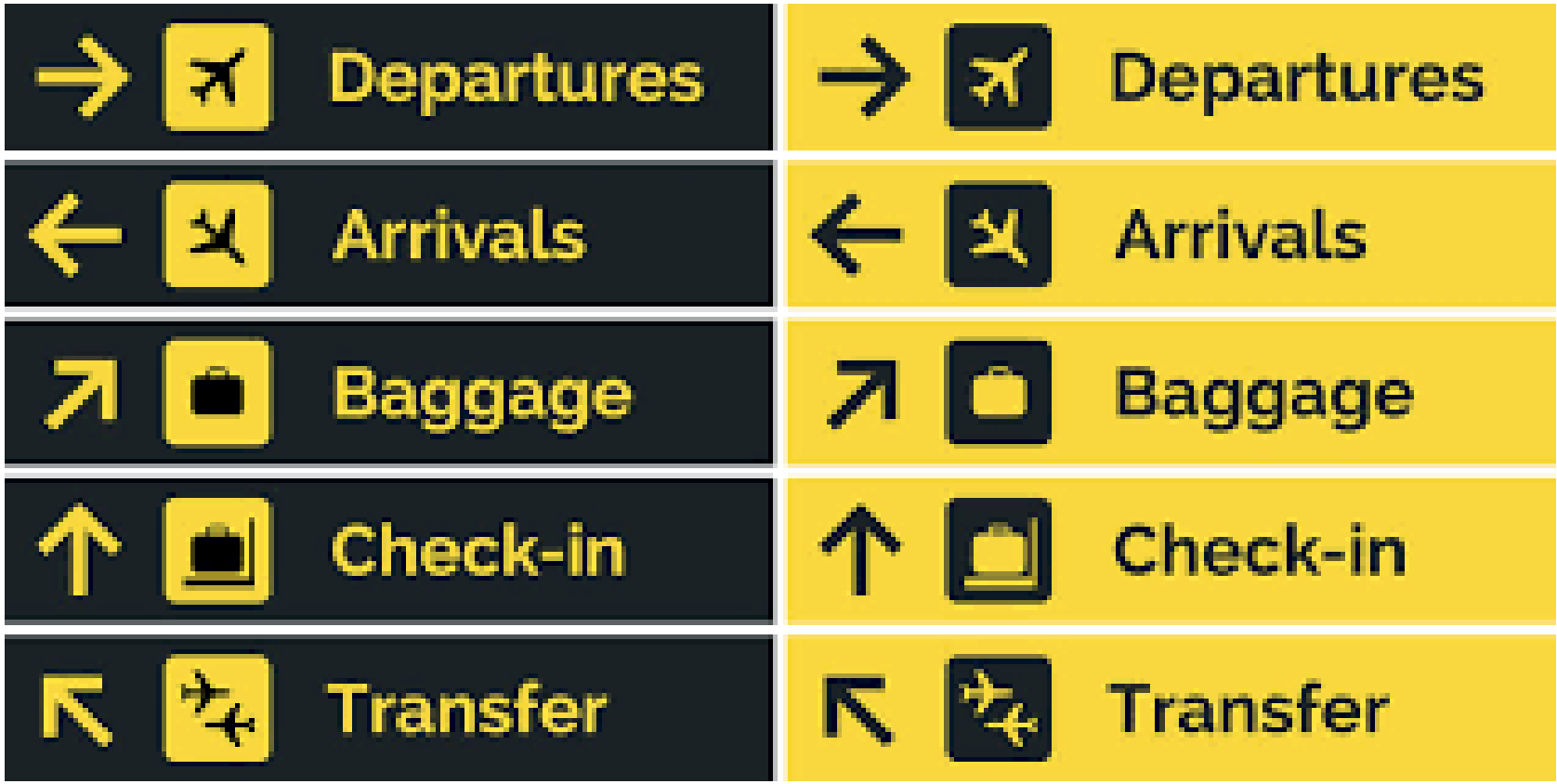
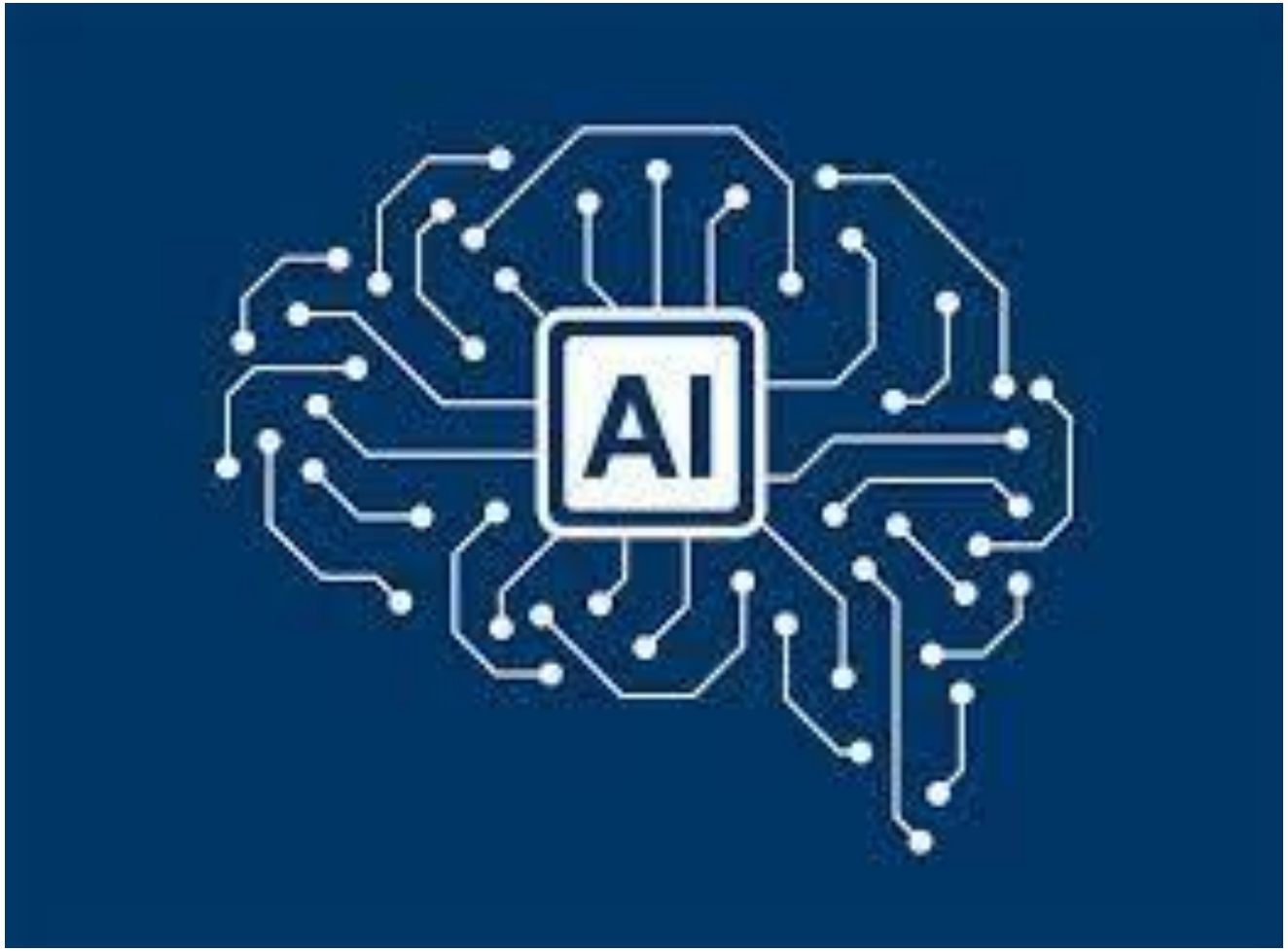
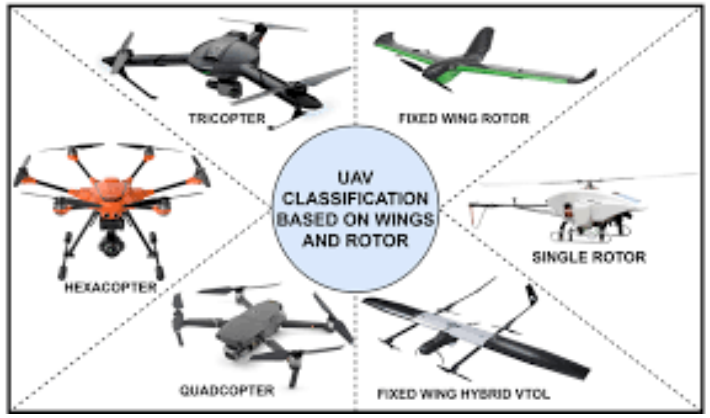


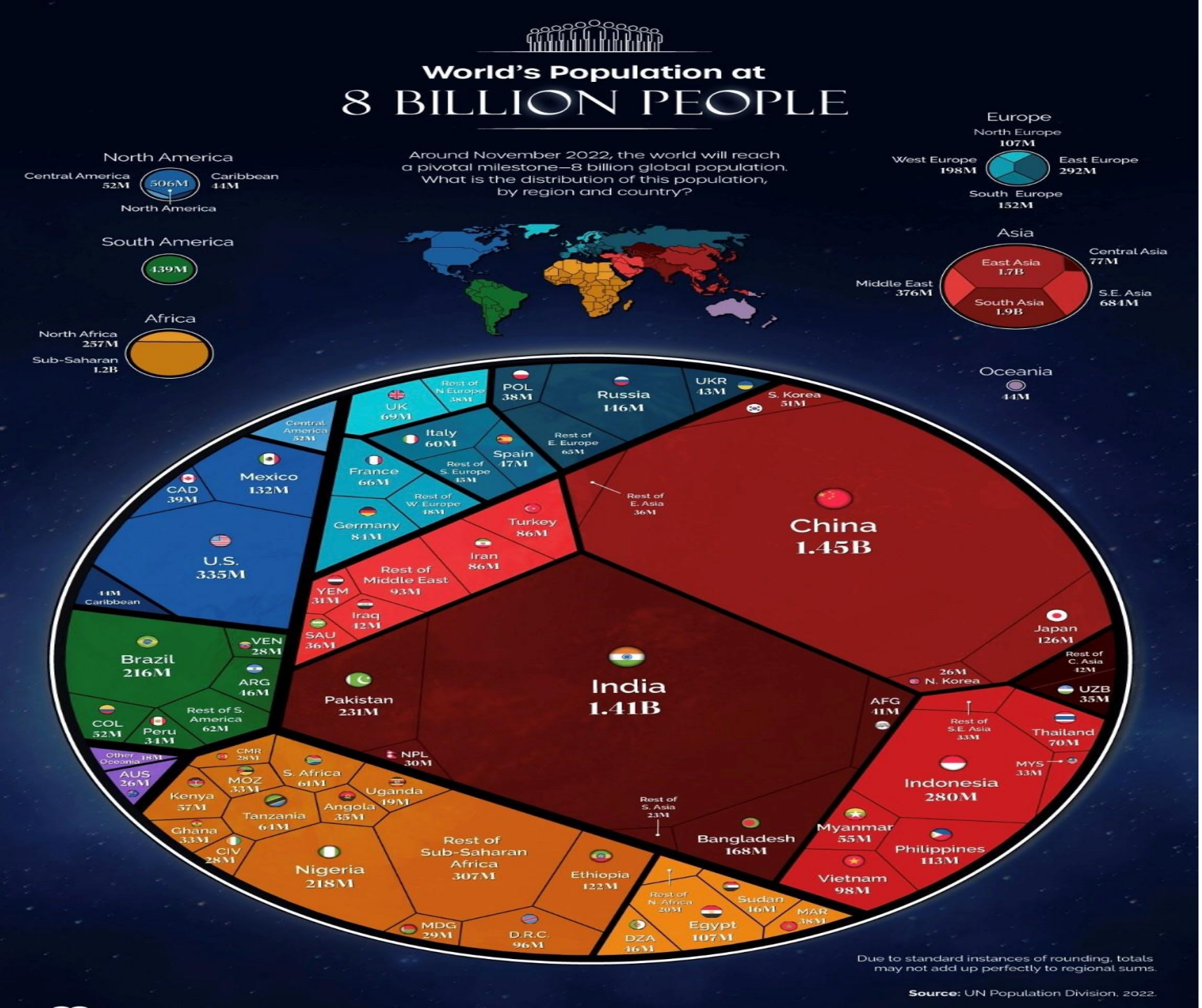
What got us to where we are today is not going to get us where we need tomorrow

Aviation Safety is core to the success of the industry


AI


TRICOPTER
FIXED WING ROTOR
UAV CLASSIFICATION BASED ON WINGS AND ROTOR
HEXACOPTER
SINGLE ROTOR
QUADCOPTER
FIXED WING HYBRID VTOL

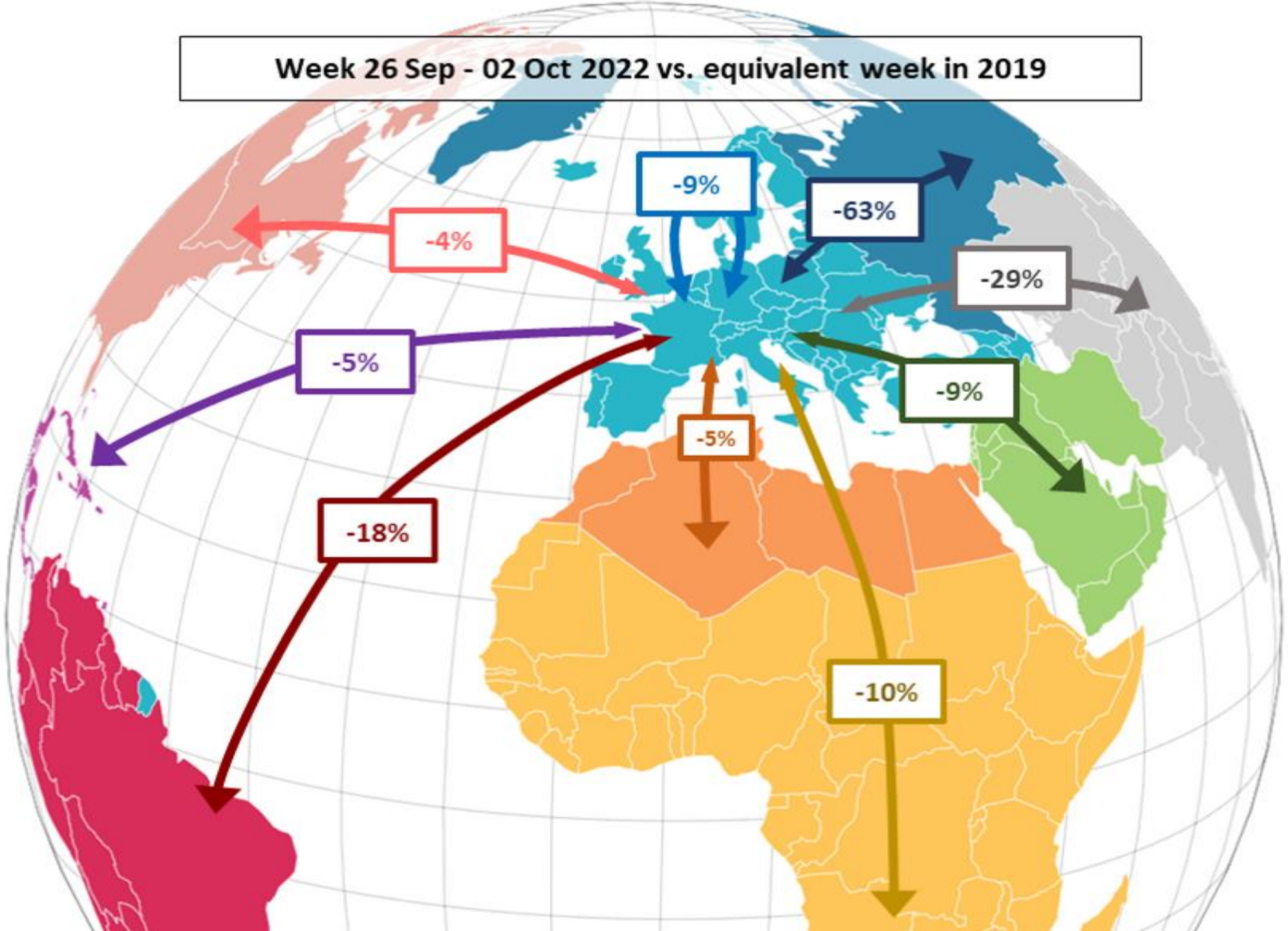

Cyber Security:
A New Challenge For
Aviation Industry



- The Centre of Aviation is Moving
- Rising Middle Classes -Income
- Climate Change
- Where does Europe fit ?

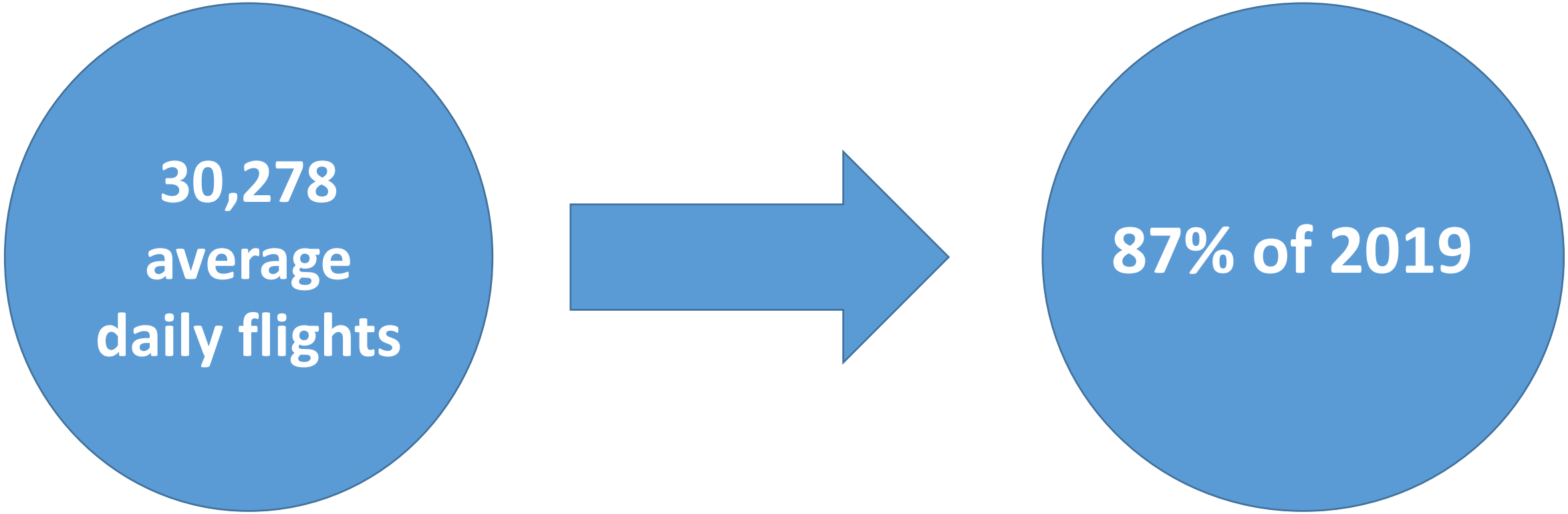
Aviation has not recovered !

Week 26 Sep - 02 Oct 2022 vs. equivalent week in 2019



EUROCONTROL

Summer 2022*



*June, July, August and September

Top 10 Aircraft Operators

on Week 26 Sep - 02 Oct 2022 (avg daily flights)

1. 

Ryanair Group

Operated **2 947 flights**

↑16%

vs same week in 2019

↓1% vs prev week

2. 

easyJet Group

Operated **1 600 flights**

↓14%

vs same week in 2019

↓3% vs prev week

3. 

Turkish Airlines

Operated **1 384 flights**

↓1%

vs same week in 2019

↑1% vs prev week

4. 

Lufthansa Airlines

Operated **1 174 flights**

↓25%

vs same week in 2019

↓1% vs prev week

5. 

Air France Group

Operated **1 057 flights**

↓14%

vs same week in 2019

↓1% vs prev week

6. 

KLM Group

Operated **795 flights**

↓16%

vs same week in 2019

↑4% vs prev week

7. 

Wizz Air Group

Operated **775 flights**

↑18%

vs same week in 2019

↓3% vs prev week

8. 

British Airways Grp

Operated **702 flights**

↓25%

vs same week in 2019

↑1% vs prev week

9. 

SAS Group

Operated **658 flights**

↓28%

vs same week in 2019

↑1% vs prev week

10. 

Vueling

Operated **649 flights**

↓4%

vs same week in 2019

↓1% vs prev week

PERFORMANCE OF MAJOR LONG-HAUL/LEGACY CARRIERS

for the week **26 September - 2 October 2022**

Lufthansa

OPERATED **1174 flights/day**

-25% compared to the equivalent week in 2019

TURKISH AIRLINES

OPERATED **1384 flights/day**

-1% compared to the equivalent week in 2019

AIRFRANCE

OPERATED **1057 flights/day**

-14% compared to the equivalent week in 2019

BRITISH AIRWAYS

OPERATED **702 flights/day**

-25% compared to the equivalent week in 2019

KLM

OPERATED **795 flights/day**

-16% compared to the equivalent week in 2019

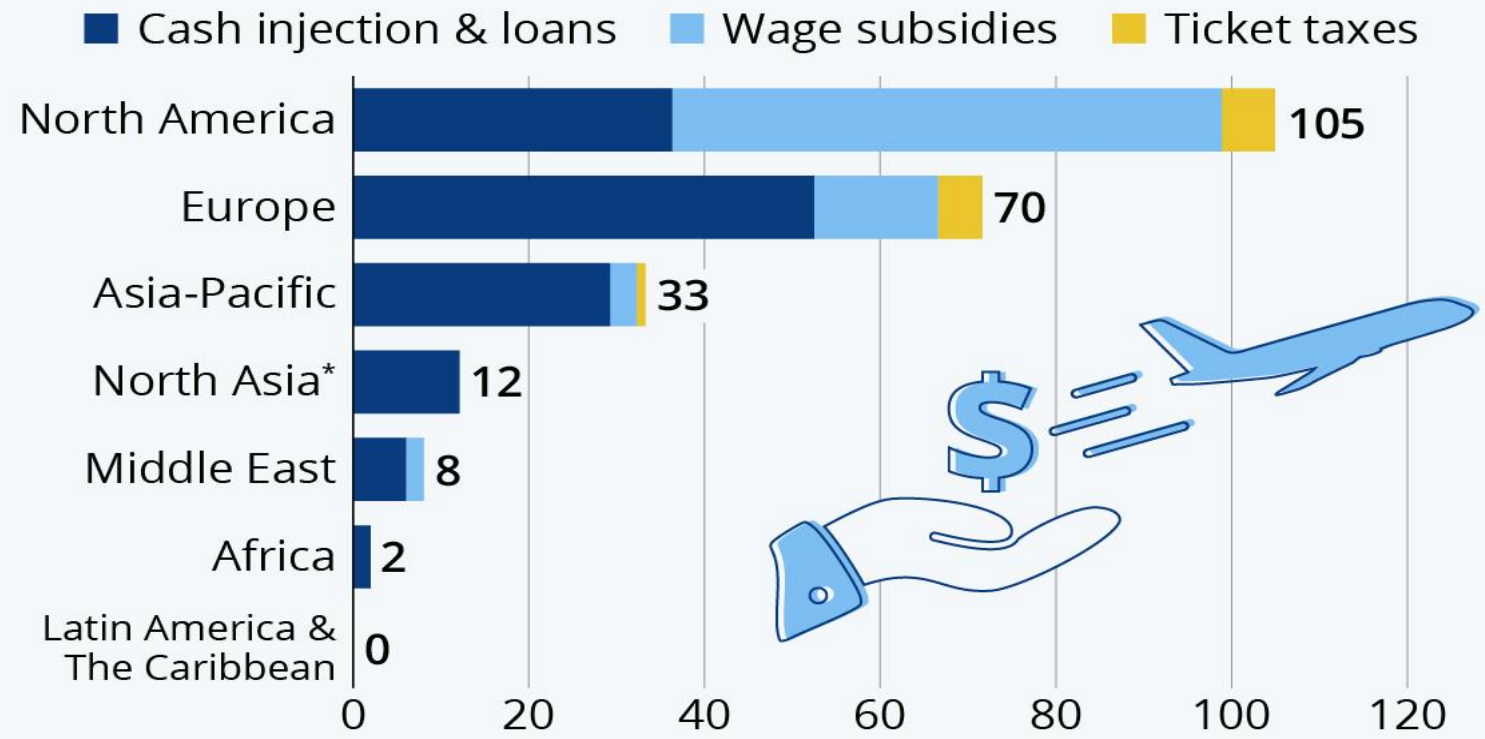
SAS

OPERATED **658 flights/day**

-28% compared to the equivalent week in 2019

Government Tailwind for Air Travel Recovery

COVID-19 relief pledged to airlines in 2020/2021 by region (in billion U.S. dollars)

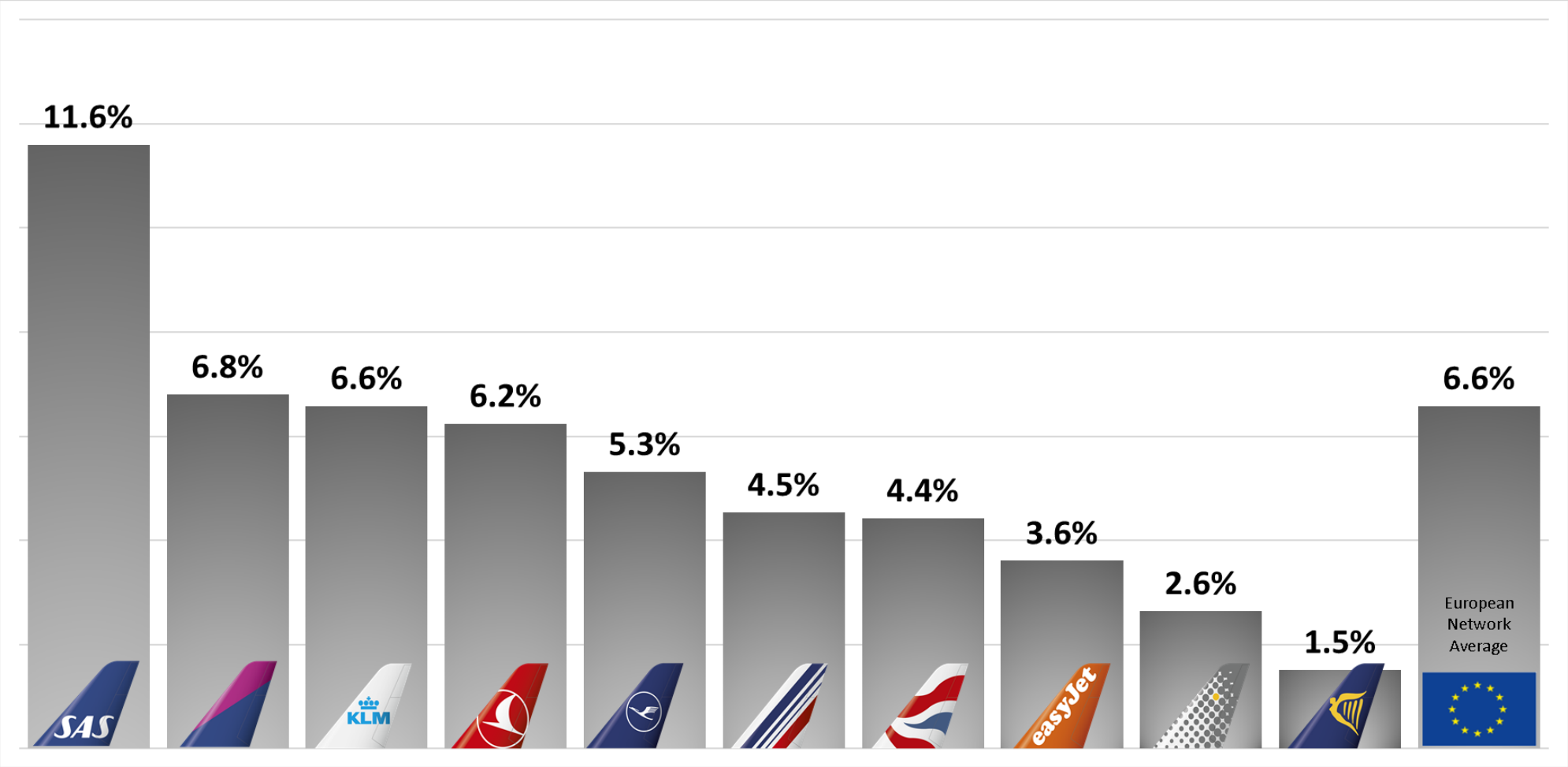


* Including Russia and China

Source: IATA

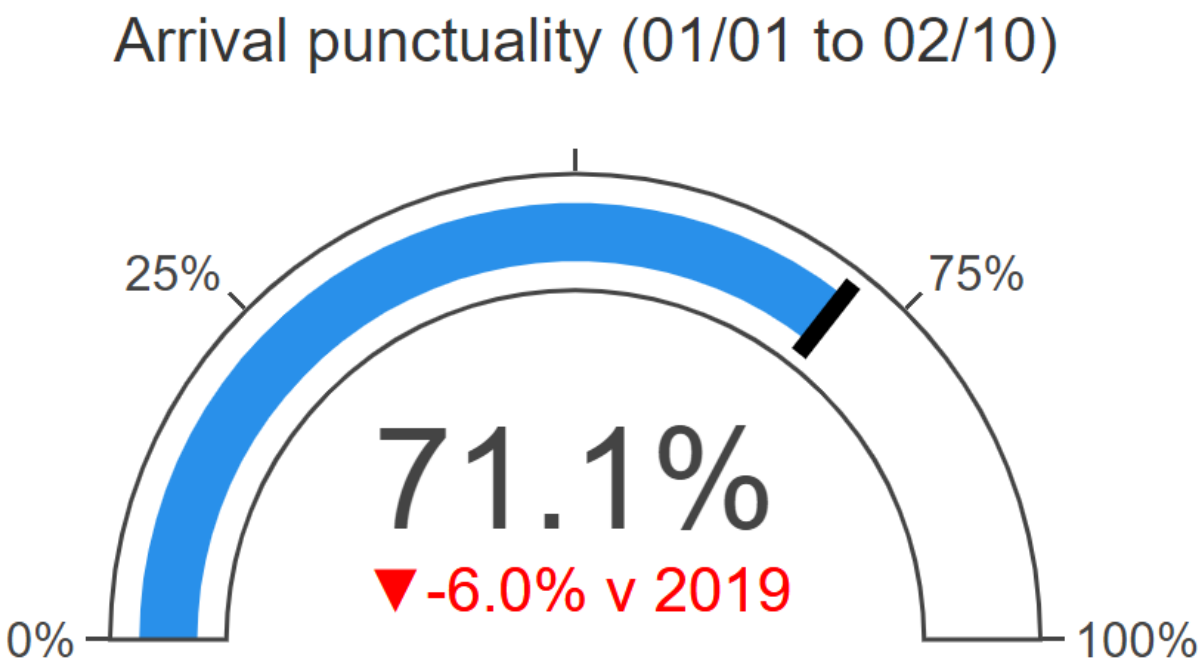
Aircraft operators: Non-Operated Schedules (June-September 2022)

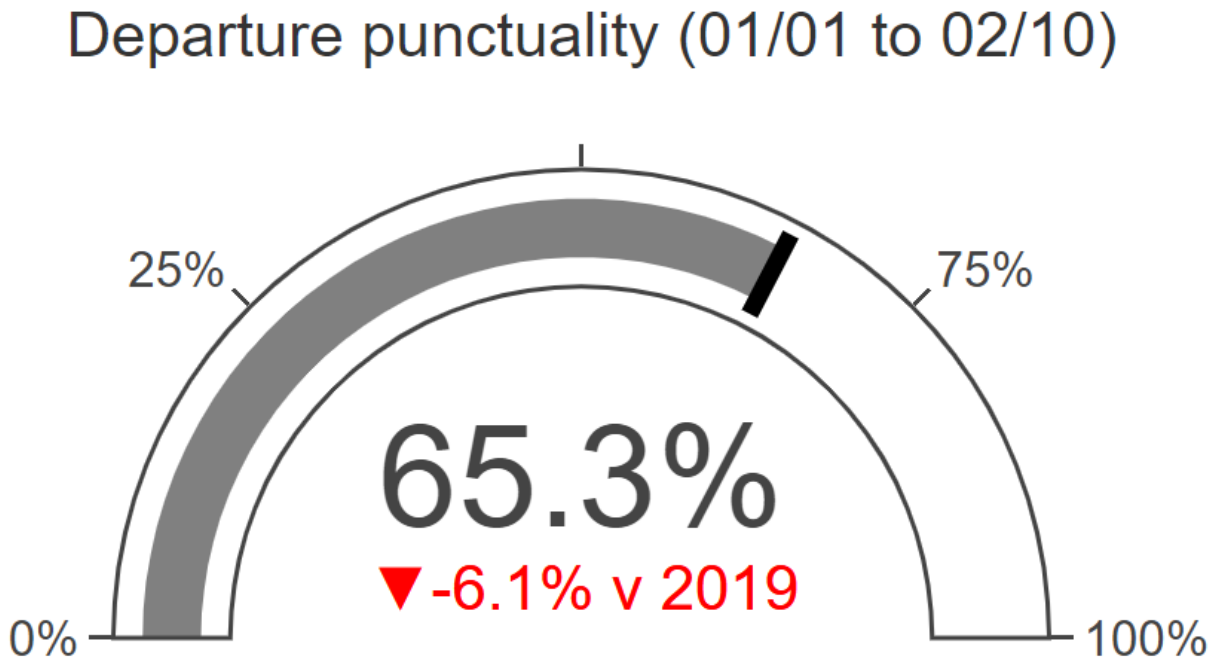
Top 10



Non-Operated schedules: *% of airline schedules for which no ATC flight plan was matched compared to the total number of expected flights.*

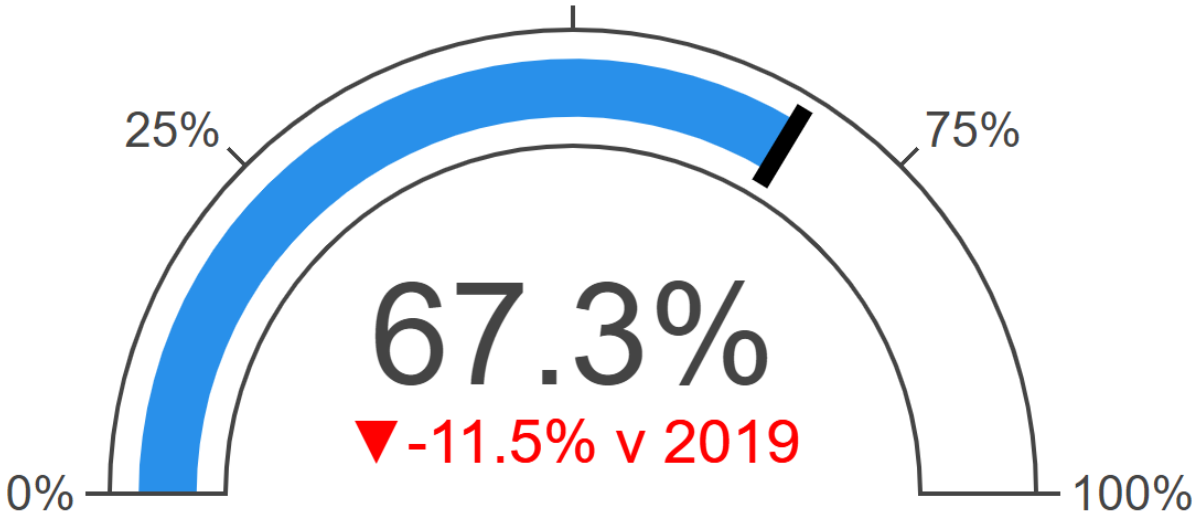
Punctuality (year to date and vs 2019)



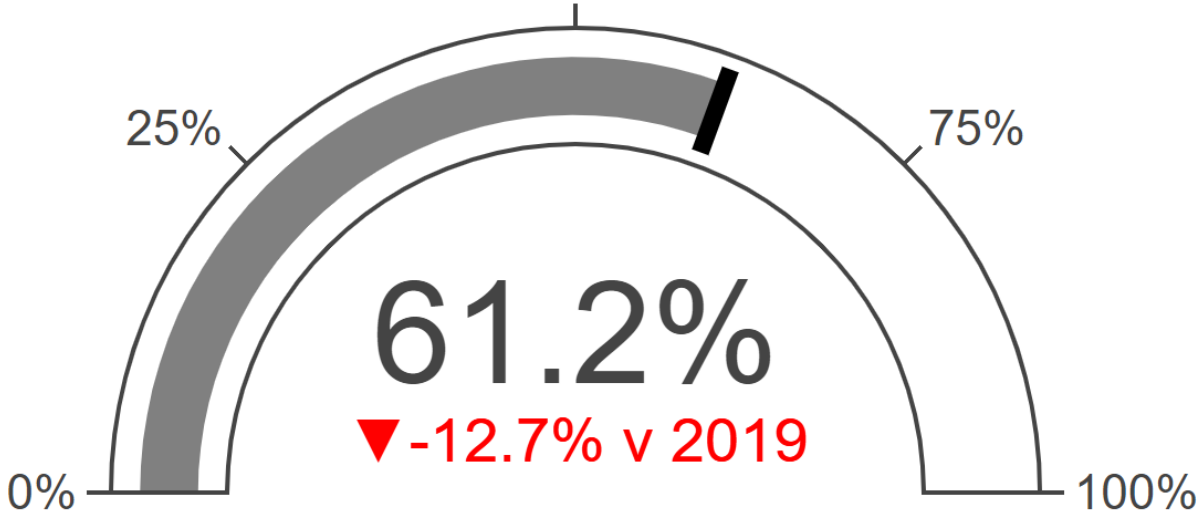


Punctuality (last week)

Arrival punctuality (26/09 to 02/10)



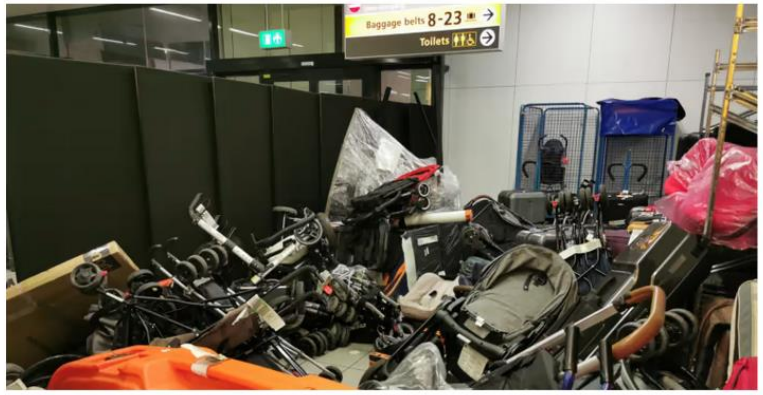
Departure punctuality (26/09 to 02/10)



Airport chaos: security guards and cleaners still key

MARK BERGFELD 4th July 2022

The 'key' workers of the pandemic need sustained recognition. The chaos at airports shows what happens otherwise.



Baggage going unhandled at Schiphol airport last week amid staff shortages (Fery Iswandy / shutterstock.com)

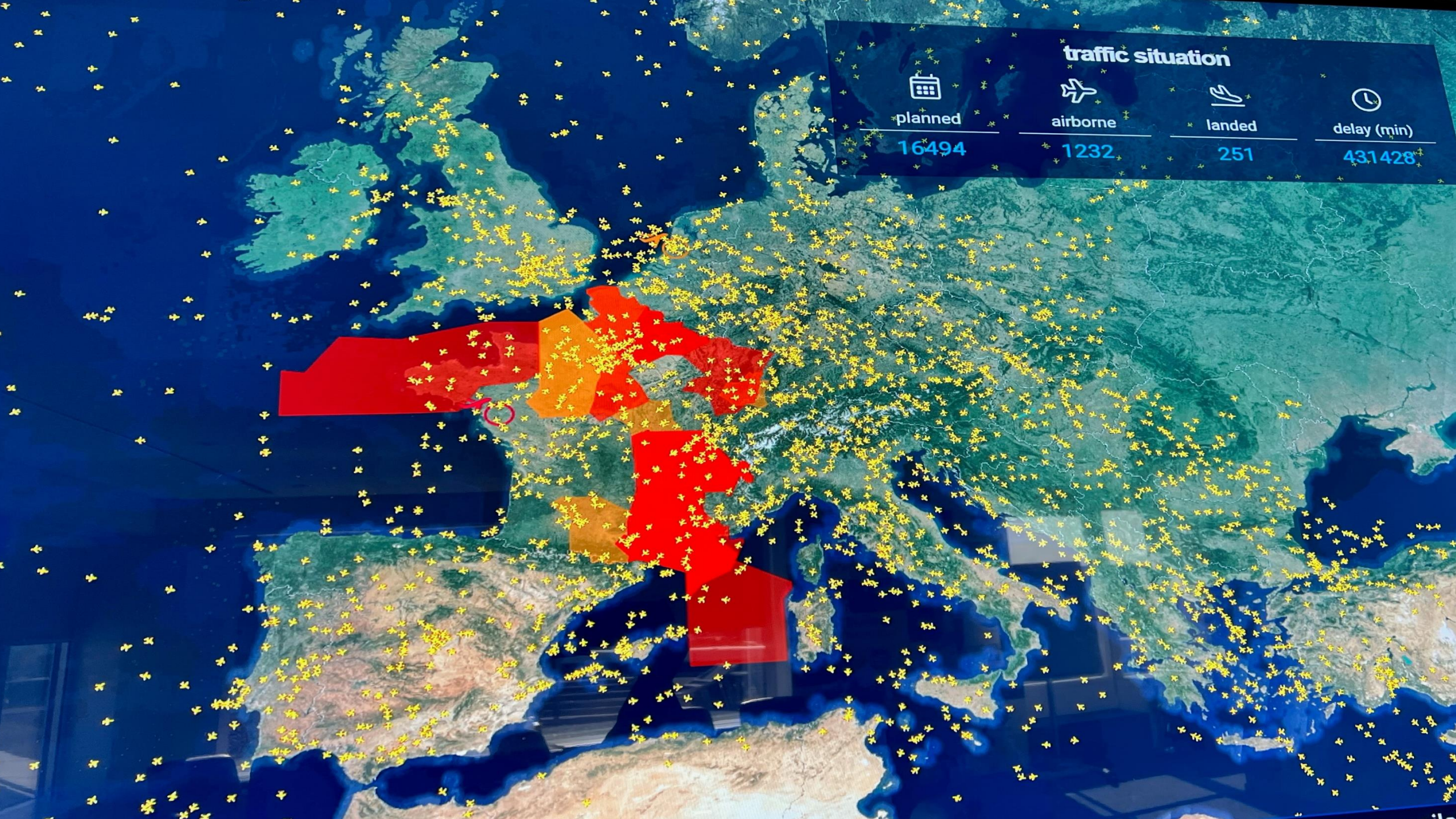
Airports in EUROCONTROL Network

(compared with equivalent days in 2019)

Daily Variation (IFR Dep/Arr Flights) - Sun 02 Oct 2022


Return of EU Slots Usage Rules Sparks Debate
www.a-ice.aero

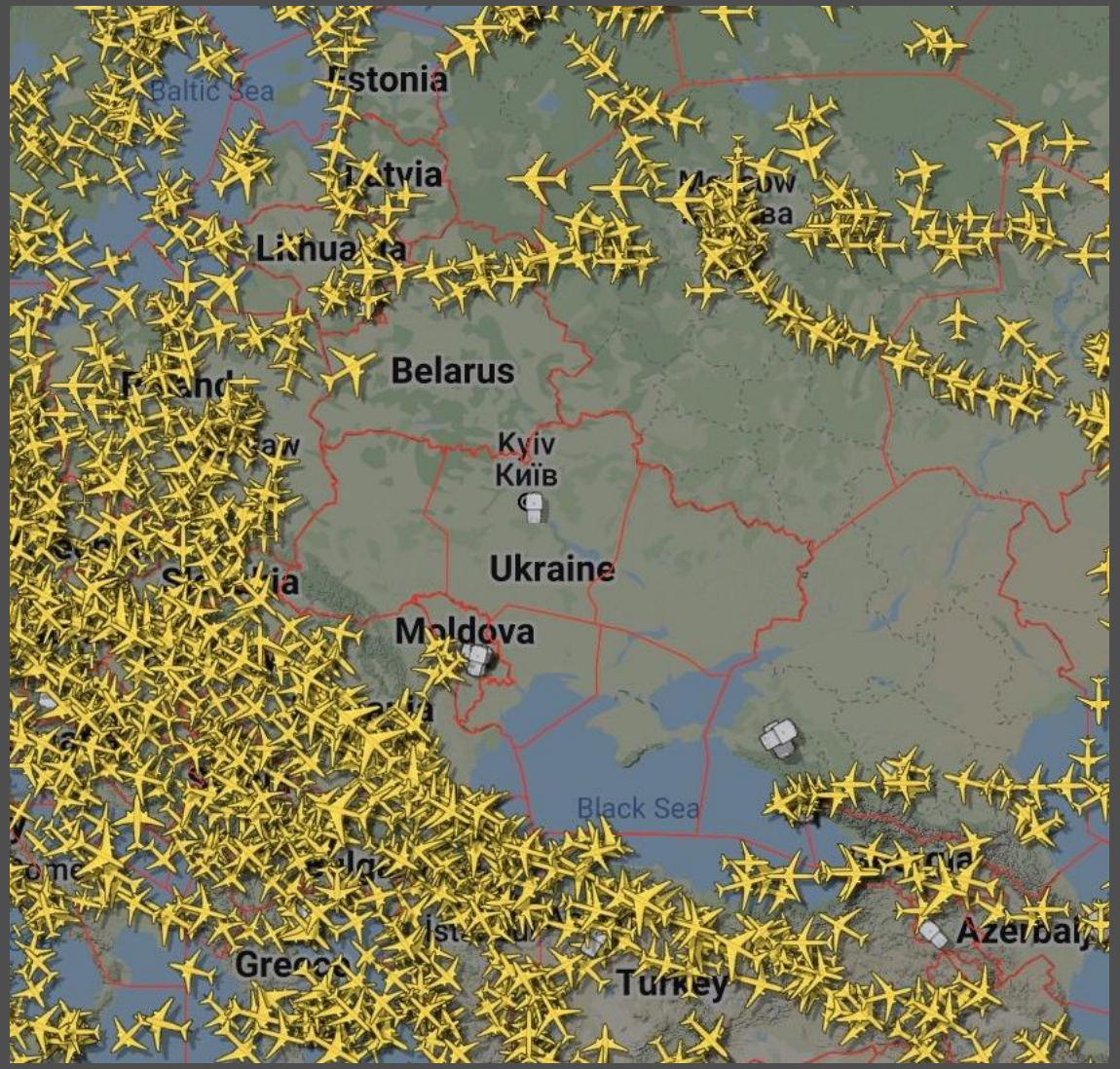
- Single European Sky Stalling ?
- Protection of Overflights – right of movement ?
- Right to Strike
- Cost v Capacity ?


traffic situation
planned
16494
airborne
1232
landed
251
delay (min)
431428


RUSSIA
ATTACKS UKRAINE
MGN


LVIV, UKRAINE
GULLIVER CRAIG, France 24 Correspondent
RUSSIA INVADES UKRAINE
RUSSIAN WARPLANES WIDEN ATTACK, HIT INDUSTRY HUB


The Washington Post
Russia invades Ukraine

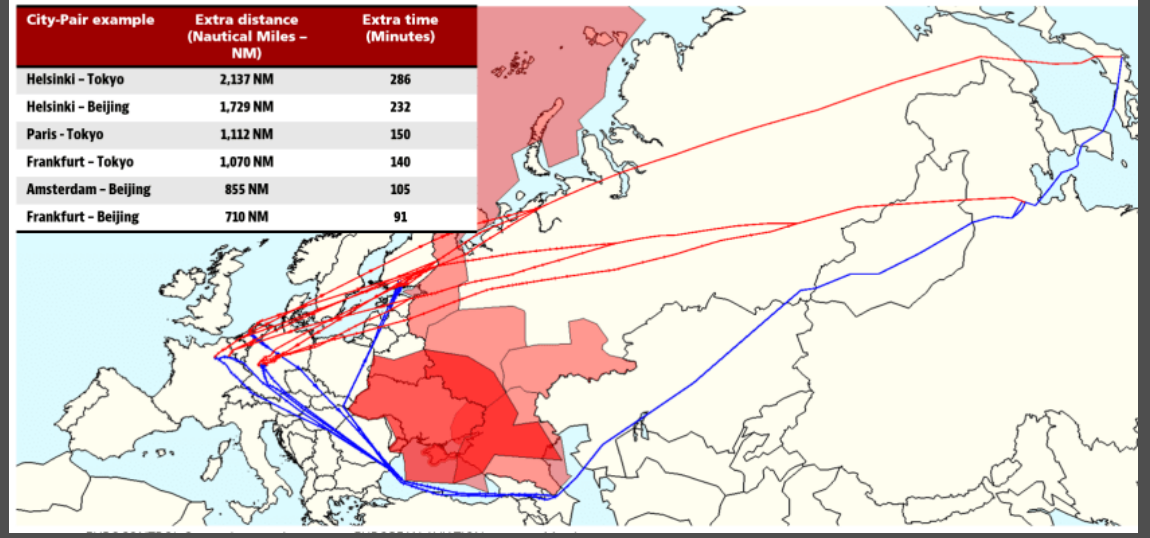


flightradar24

Impact of Russian airspace closure on EU Operators

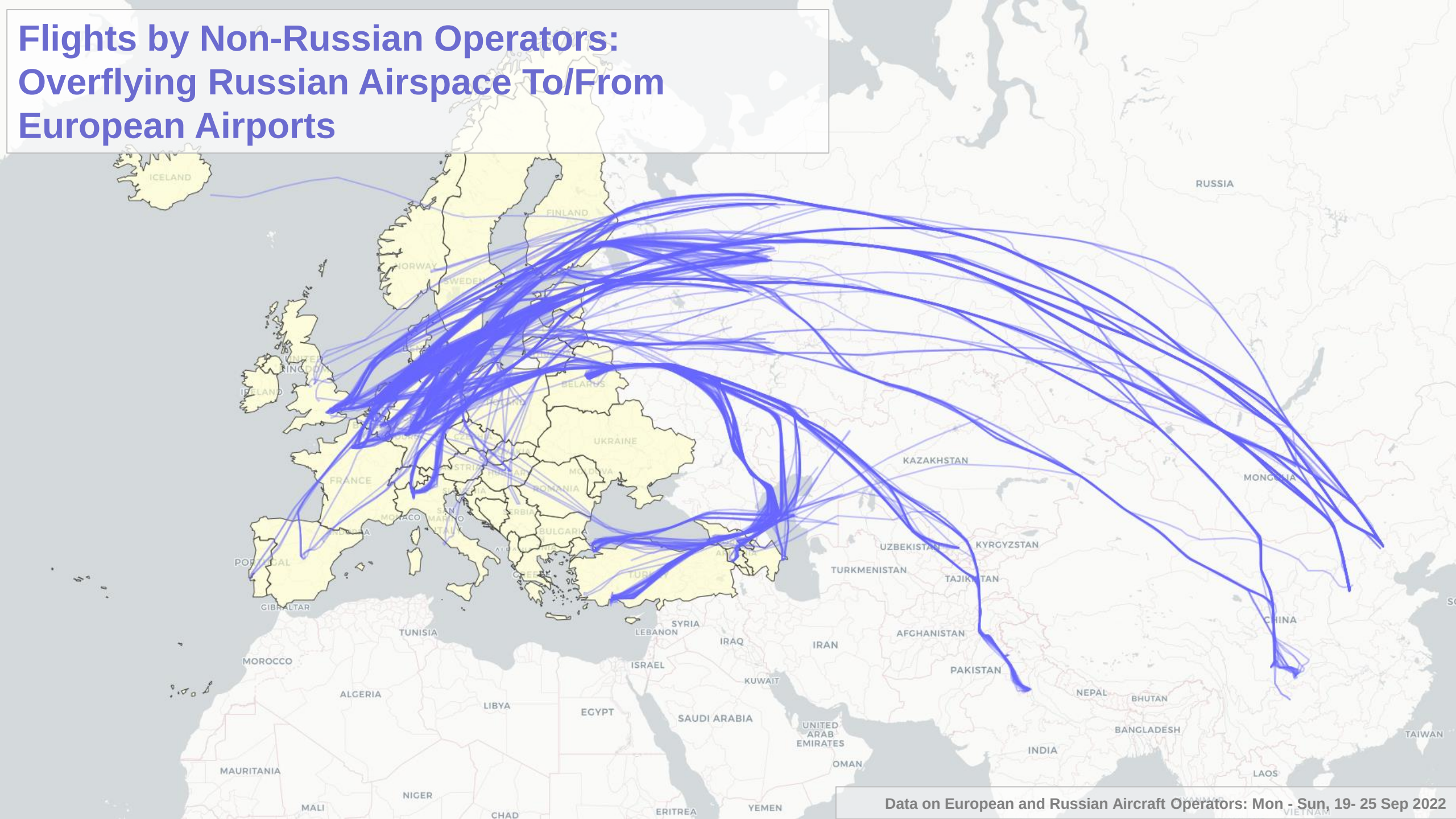
Sample route/time extensions

City-Pair example	Extra distance (Nautical Miles – NM)	Extra time (Minutes)
Helsinki – Tokyo	2,137 NM	286
Helsinki – Beijing	1,729 NM	232
Paris - Tokyo	1,112 NM	150
Frankfurt – Tokyo	1,070 NM	140
Amsterdam – Beijing	855 NM	105
Frankfurt – Beijing	710 NM	91




28
A400M

Flights by Non-Russian Operators: Overflying Russian Airspace To/From European Airports



Data on European and Russian Aircraft Operators: Mon - Sun, 19- 25 Sep 2022


HC
MMT
BJH
DF
←B↑
LINK58
LINK56→

- AerCap Holdings,is the world’s largest aircraft lessor, lost 113 planes when Russia seized them in response to sanctions triggered by the war in Ukraine.

- The seizures of the planes caused AerCap to take a $2.7 billion pre-tax charge causing the company to report a net loss of $2 billion rather than the $500 million profit it would have made

EFFECT on European ATM Capacity

- Operating 90% of 2019 with **80%** of the airspace
- **Congestion** – Long Haul in Short Haul Airspace

Supply Chain Issues – hitting all Sectors!


RYANAIR
EI-DWS
RYANAIR

BOEING (BA)

134.65

-2.10
(-1.54%)

EXTENDED HOURS

SUPPLY CHAIN WOES

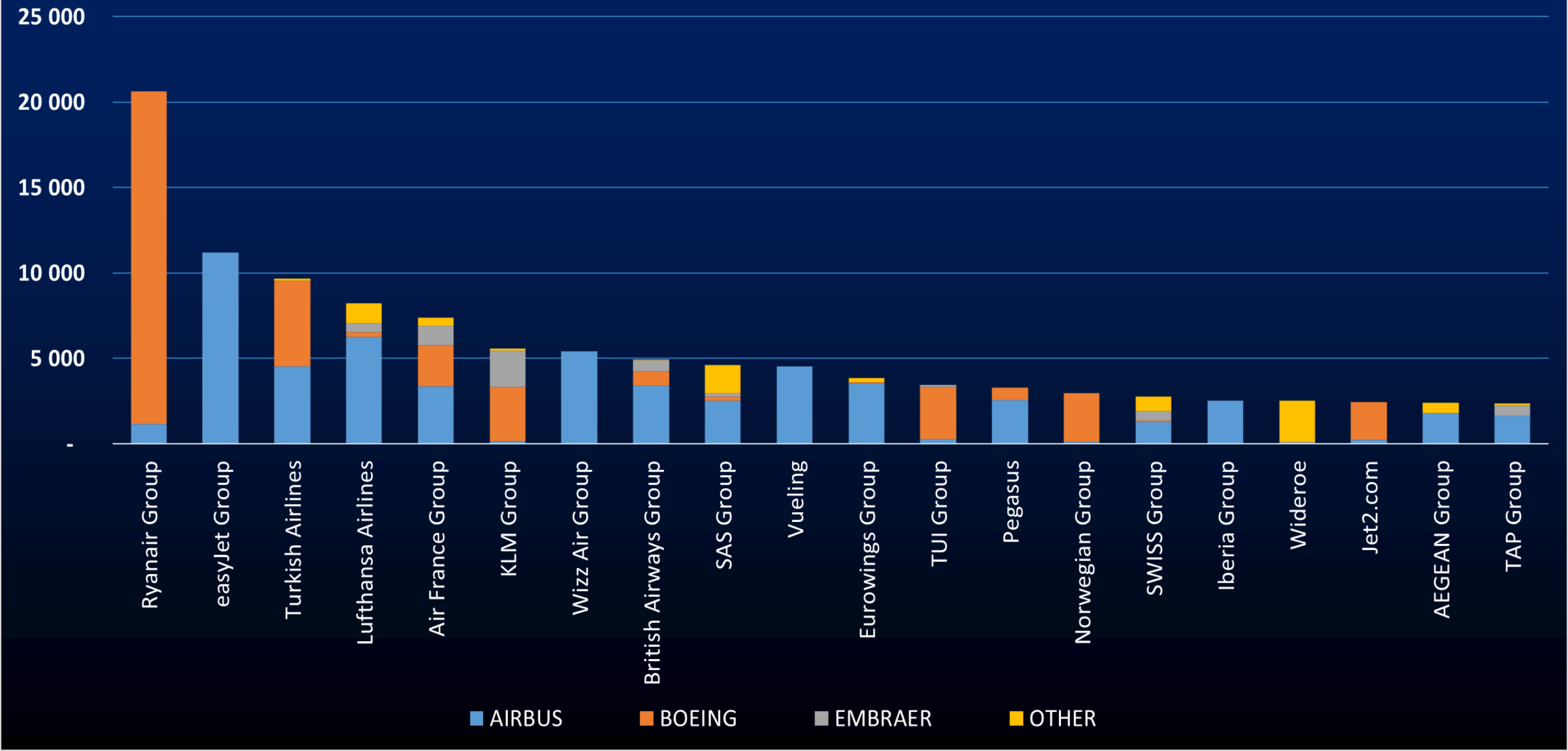
yahoo! finance

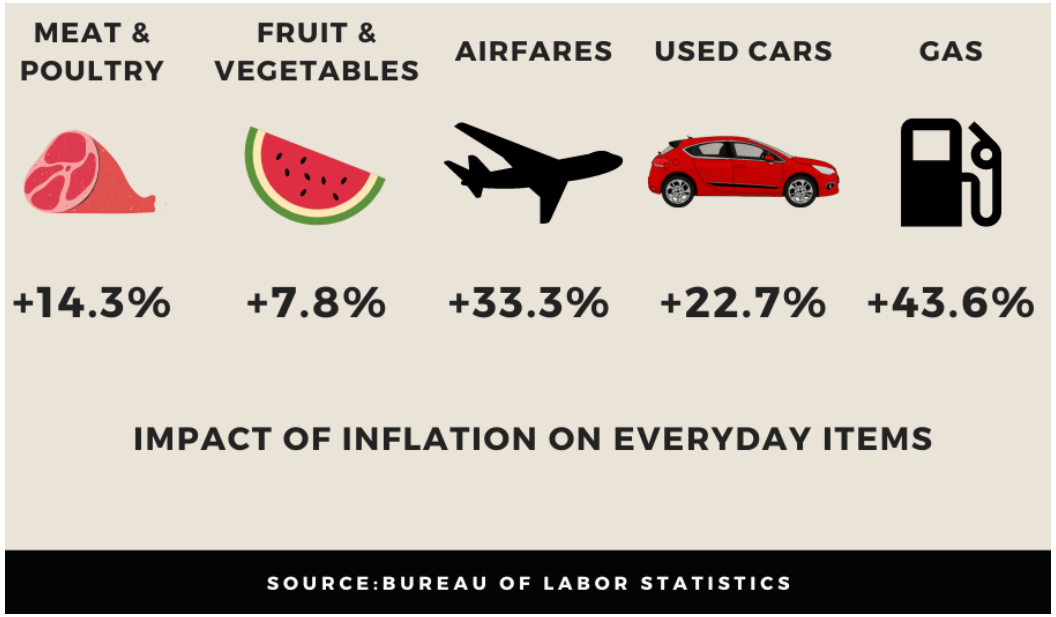
BOEING EXPECTING SUPPLY CHAIN ISSUES THROUGH MOST OF 2023

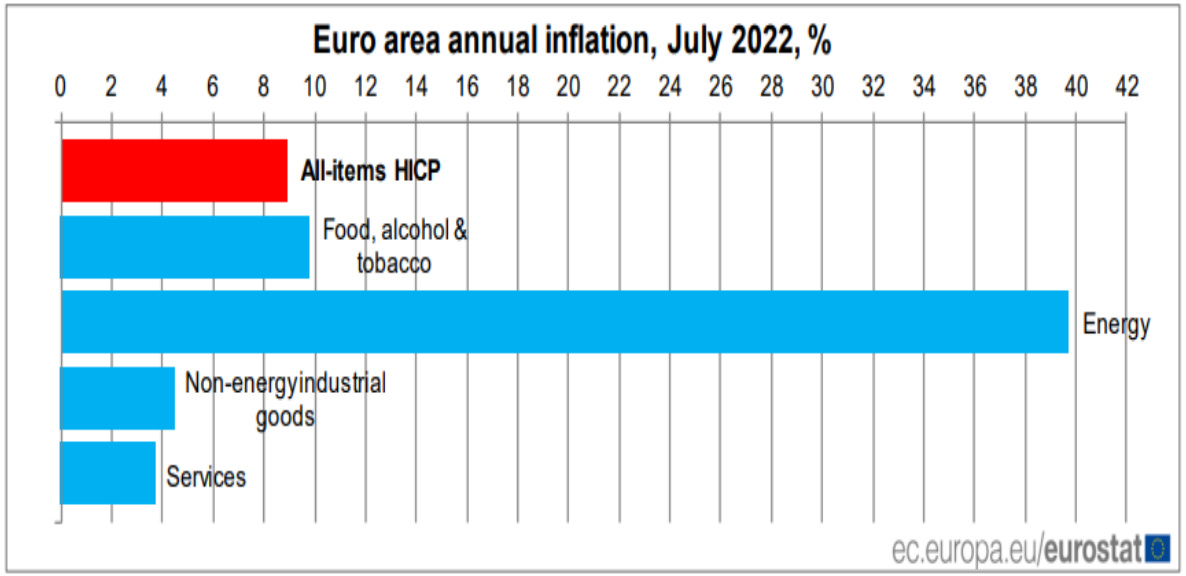
LIVE

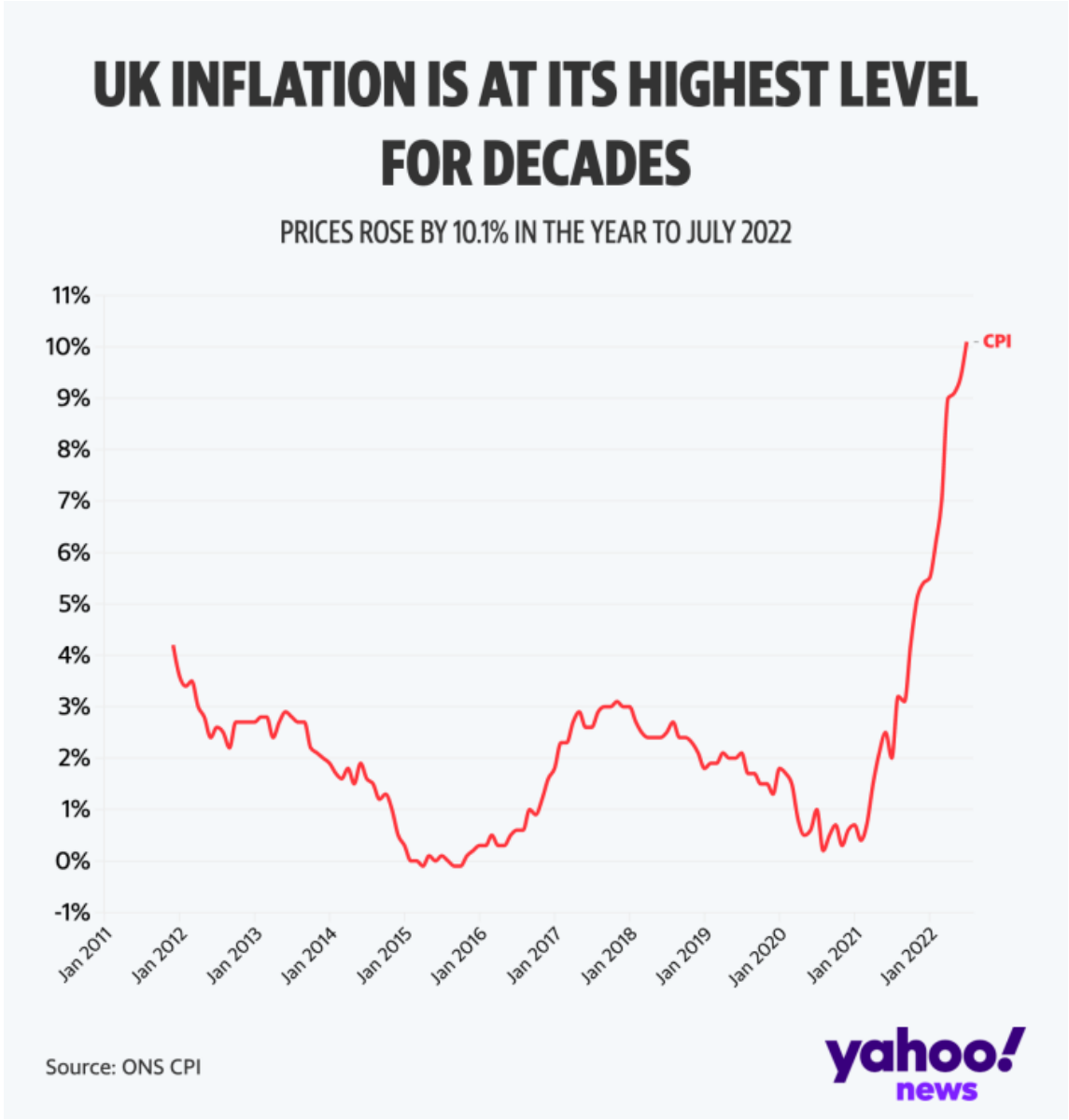
Flights of the top 20 aircraft operators by Aircraft Manufacturers

Week 26-SEP-22 -> 02-OCT-22

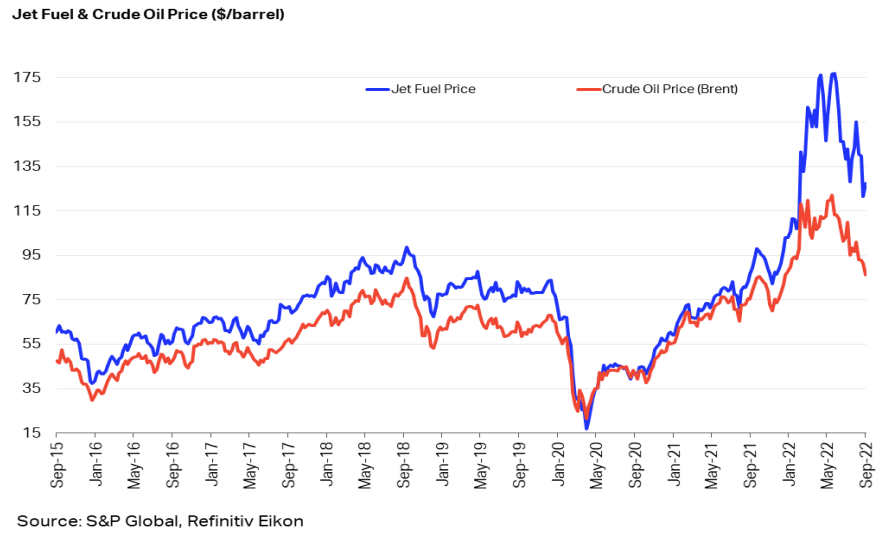



MEAT & POULTRY
FRUIT & VEGETABLES
AIRFARES
USED CARS
GAS
+14.3%
+7.8%
+33.3%
+22.7%
+43.6%
IMPACT OF INFLATION ON EVERYDAY ITEMS
SOURCE:BUREAU OF LABOR STATISTICS


Euro area annual inflation, July 2022, %
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42
All-items HICP
Food, alcohol & tobacco
Energy
Non-energyindustrial goods
Services
ec.europa.eu/eurostat


UK INFLATION IS AT ITS HIGHEST LEVEL FOR DECADES
PRICES ROSE BY 10.1% IN THE YEAR TO JULY 2022
11%
10%
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
-1%
CPI
Jan 2011
Jan 2012
Jan 2013
Jan 2014
Jan 2015
Jan 2016
Jan 2017
Jan 2018
Jan 2019
Jan 2020
Jan 2021
Jan 2022
Source: ONS CPI
yahoo! news

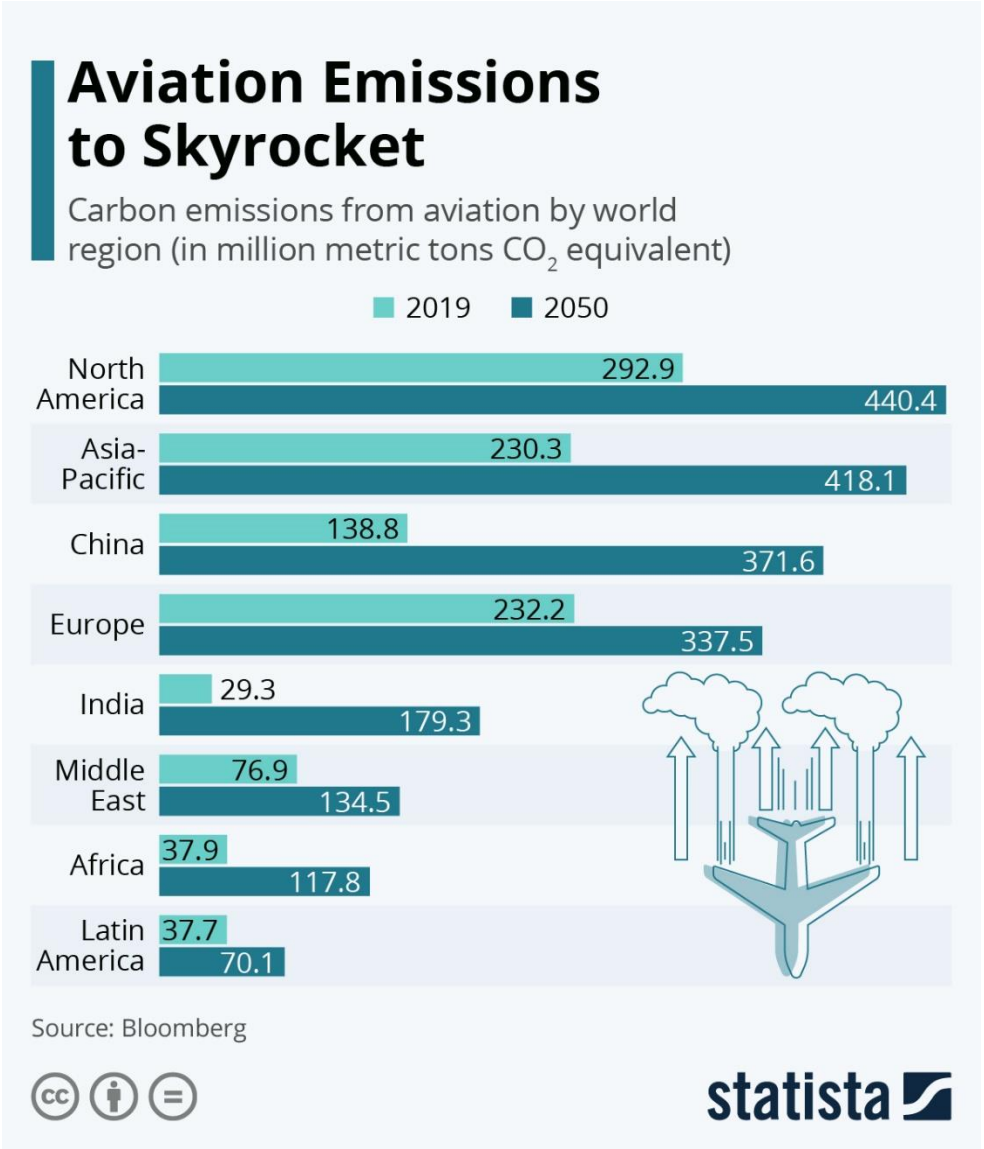
Oil Prices ?



Source: S&P Global, Refinitiv Eikon


easyJet
G-EZFI

So what's all this doing for Sustainability ?



Electric ?

Hydrogen ?


AIRFRANCE


WEBINAR
GREENWASHING AND
FALSE SOLUTIONS
NOVEMBER 6, 20-22H CET

Aviation Intelligence Unit
Think Paper #7 - October 2020

EUROCONTROL

Does **taxing aviation** really reduce emissions?

Headlines such as *"Airlines have enjoyed a free ride for too long – it's time they paid the price for their role in climate destruction"*[1] are increasingly common in the media, and there is growing consensus on the need to tax aviation more in order to reduce emissions to achieve the goal of zero emissions by 2050.

This "Think paper" is to help in the debate, takes a careful look at how best aviation emissions could be reduced, and aims to find answers to the following questions:

- Do taxes on aviation fuel or air tickets, or equivalent measures to compensate for the environmental impact of the emissions generated by aircraft movements, which are already being applied by many states, effectively contribute to reducing aviation emissions?
- Could aviation taxes help reduce the aviation sector's CO_2 emissions in the current COVID context, given the slow economic recovery?
- To what extent could CO_2 goals be met by decarbonising the aviation sector?

We seek to find answers to these questions by looking at the impact of factors such as travel restrictions, GDP, passenger demand, fuel prices and airfares. The paper analyses some of the instruments already in place that are designed to help reduce CO_2 emissions, as well as the impact that using aviation taxes to decarbonise the aviation sector could have.

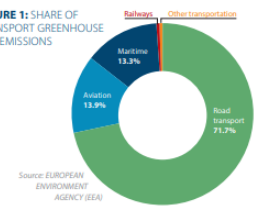
Main findings

1. While passenger numbers increased by 40% between 2009 and 2017, CO_2 emissions only increased by 15%, and noise levels remained stable.
2. There is little evidence that taxing aviation per se leads to lower CO_2 emissions; nor do raising fuel prices or ticket prices reduce CO_2 emissions.
3. Economic output is the main factor influencing demand, and hence higher or lower CO_2 emissions.
4. Long-distance air traffic dominates aviation emissions, drives their evolution, and hence must be targeted if a reduction in CO_2 emissions is to be achieved.
5. Decarbonisation measures should be strongly supported with substantial funding over the next 30 years, especially in relation to long-distance flying.
6. If a European tax to reduce aviation's CO_2 emissions were to be introduced, it should be ring-fenced to support decarbonisation measures for aviation.
7. To ensure long-term competitiveness in aviation, Europe should encourage the delivery of global aviation decarbonisation solutions.

EU CO_2 emissions in the aviation sector - Setting the scene

One of the key objectives of the **EU Green Deal** is to allow economic growth while reducing net EU carbon emissions to zero by 2050, including a 90% reduction in transport emissions[2] compared with 1990. In 2016, aviation produced 3.6%[3] of total EU28 greenhouse gas emissions and, as Figure 1 shows, 13.9% of emissions from transport[4].

FIGURE 1: SHARE OF TRANSPORT GREENHOUSE GAS EMISSIONS



Source: EUROPEAN ENVIRONMENT AGENCY (EEA)

THINK PAPERS are produced to stimulate debate and look at alternatives. They do not represent the official views of the Agency or its Member States.

SUPPORTING EUROPEAN AVIATION

FOUNDING MEMBER SESAR JOINT UNDERTAKING

NETWORK MANAGER

Objective Skygreen
Think Paper #16 - 10 May 2022

EUROCONTROL

EUROCONTROL Think Papers – designed to inform, stimulate debate & present alternative approaches

Reducing aviation emissions by 55% by 2030:
Can it be done – and if so, what are the extra costs of decarbonisation measures?

European aviation is determined to achieve carbon-neutrality by 2050, with the EU proposing an intermediate target of a 55% reduction by 2030 compared to 1990 levels. This Think Paper assesses what this would mean for aviation in practical terms, looking at the various strategies – new technologies, implementation of the Single European Sky as well as other operational improvements, increased production and uptake of sustainable aviation fuel (SAF) – and their cost. We find that merely reducing flying is not the solution: reducing emissions by the required amount is possible, but will require investment, and that needs a buoyant aviation sector. We also outline a number of additional options that could further accelerate Europe's aviation decarbonisation journey.

This Think Paper provides answers to the following questions:

- With Sustainable Aviation Fuels (SAFs) currently costing up to six times that of kerosene, exactly how much extra will flying with 4%, 5% or 10% SAF add to airlines' operating costs by 2030 – and how does that balance against rising taxes on kerosene by 2030?
- How will the phasing out of aviation's free emissions allowances from 2024 onwards impact airline balance sheets?
- By how much can industry-driven responses (fleet renewal, new technology, operational improvements, increased SAF usage) contribute to achieving the 55% reduction target?
- Which decarbonisation pathways have the greatest potential to drive emissions reduction as quickly and as cost-effectively as possible?
- Could policymakers take additional measures that would further accelerate decarbonisation?

In our analysis, we apply the three traffic scenarios – High, Base and Low – developed in our recent EUROCONTROL Aviation Outlook 2050, and provide a first estimate of the extra costs and implications of the various regulatory and industry-driven decarbonisation proposals for each scenario.

KEY FINDINGS OF THIS THINK PAPER

1. A 55% CO_2 emissions reduction target by 2030 is achievable in ALL scenarios, but the roles heavily on market-based measures.
2. The High scenario with the most traffic is counterintuitively the most efficient to reach net zero emissions by 2050 at lower cost, as higher revenues will drive increased investment in new technology.
3. Policy-driven decarbonisation measures will add €54.8-€62.8 billion in additional costs across the EUROCONTROL Network Manager area over the period 2022-2030 if all industry-driven actions are excluded, such as ATM optimisation (including SESAR), fleet update/renewal, and increased SAF usage.
4. ...but applying industry-driven measures can dramatically reduce the cost of decarbonisation measures by €32.2-€40.7 billion over the same period.
5. The most important industry-driven measure is increasing SAF usage; for this to become a reality, the ReFuelEU Aviation initiative is essential in enabling a swift ramp-up of SAF production and usage.
6. For the period 2022-2030, the extra cost of a 3% SAF blending share compared to 100% kerosene is estimated to be €58 billion in the base scenario, reaching €2.1 billion in 2030.
7. Industry-driven measures can deliver 33.4%-24.5% of the net emissions savings, depending on the pace of decarbonisation.
8. To reduce CO_2 emissions quicker, airlines should accelerate the pace of fleet renewal by 1-2 years to ensure they operate the most efficient new technology.
9. We need to accelerate aviation decarbonisation by prioritising actions, fostering the transition (e.g. by offering financial support and encouraging alliances), and balancing taxation with the need for aviation to recover.

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FOUNDING MEMBER SESAR JOINT UNDERTAKING

NETWORK MANAGER

CORSIA
CARBON OFFSETTING AND REDUCTION SCHEME FOR INTERNATIONAL AVIATION

Outlook – Summer 2023

- More Aircraft in System – majors adding capacity, increasing fleet
- Airspace Closures – still likely – capacity same , system changes
- Strikes ATC – will likely happen ?
- Airports?
- Common planning with ECTL -NM
- Disciplined execution

SUPPORTING EUROPEAN AVIATION

Thank you

Eamonn Brennan, Director General

@eurocontrolDG

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NETWORK MANAGER