AIRPORT INDUSTRY CONNECTIVITY REPORT 2022







INTRODUCTION

by Olivier Jankovec, ACI EUROPE Director General

More than two years into the pandemic, and as 2022 finally sees air traffic bouncing back closer to 2019 levels — at least over the Summer — this *Airport Industry Connectivity Report* shows that the recovery of air connectivity in Europe is anything but uniform or linear.

At the time of writing, whilst most European countries have finally eased cross-border travel on the back of much diminished public health risks, travel regimes are still far from being fully aligned and restrictions remain on many intercontinental markets. And of course, air connectivity in 2022 is also impacted by the war in Ukraine and the resulting international sanctions against Russia.

All this still holds back air connectivity — in particular indirect and hub connectivity. As a result, connectivity performance varies significantly between airports, national markets and airline business models. These variations also hint to more lasting — structural — changes in Europe's aviation market.

Looking ahead, air connectivity is set to be increasingly shaped by policy and regulatory interventions — in particular in relation to climate change. In the European Union, the 'Fit for 55' legislative package — which aims at reducing CO_2 emissions from all sectors of the economy (including aviation) by 55% by 2030 — has been proposed without any comprehensive assessment of its impact on air connectivity. Yet, by significantly changing the economics of aviation, it is bound to also affect air connectivity.

How we green aviation while safeguarding the unique economic, social and cultural benefits that come with physically connecting people across regions, nations and continents is a common challenge we all need to address.

The aviation sector both in Europe and globally is firmly committed to Net Zero CO_2 emissions by 2050, and we must progress on this hand in hand with all concerned stakeholders — both public and private.

Brussels, June 2022

EXECUTIVE SUMMARY



European total air connectivity still -29% below pre-pandemic (2019) levels in 2022 — back to the levels of the Great Recession (2009).



Amsterdam-Schiphol, Istanbul and London-Heathrow offering the highest levels of *direct connectivity* amongst European airports — although still below pre-pandemic (2019).



Direct connectivity between Europe and the Asia-Pacific region still less than half of what it used to be pre-pandemic (2019) — largely due to travel to China and

other Northern Asian markets remaining restricted.



Hub connectivity remains more than one-third below pre-pandemic (2019) — largely due to the slow recovery of direct connectivity to Asia-Pacific as well as the connectivity losses of Russian airports resulting from international sanctions.



Structural shift sees **Low Cost Carriers now delivering 40%** of **Europe's** *direct connectivity* — up from 27% pre-pandemic.

X

Significant performance variations amongst national markets across Europe, with Greece being the only country with total and direct air connectivity now exceeding pre-pandemic levels. *Direct connectivity* at -15% & *indirect connectivity* at -36%, reflecting a traffic recovery driven by leisure/VFR demand and fueled by ultra-LCC capacity expansion — and with travel restrictions still a reality on many intercontinental markets.

While **38% of smaller & regional airports** have recovered their pre-pandemic direct connectivity, **Palma de Mallorca** is the only large airport to have done so — with **Lisbon**, **Athens** and **Istanbul-Sabiha Gökçen** the closest to follow suit. This again reflects strong leisure/VFR recovery patterns.

The recovery in *direct connectivity* within Europe (-16%), to North America (-12%), Latin America (-13%), Africa (-13%) and the Middle East (-17%) is broadly similar — and ahead of *direct connectivity* to Asia-Pacific (-52%).

The re-opening of many international markets in particular the transatlantic market has enabled **European airports to top the global** *hub connectivity* index — with **Frankfurt, Istanbul and Amsterdam-Schiphol recording the highest level of hub connectivity** this summer. Istanbul is the only major hub having not only recovered but exceeded its pre-pandemic hub connectivity.

LCCs have increased their share of direct connectivity across all segments of the airport industry, reflecting their continuous drive to move upmarket and increase their presence at primary airports.

The war in **Ukraine** has erased all of the country's air connectivity, while international sanctions have resulted in **Russia's** *total air connectivity* falling by -62% and Belarus' by -78%.



CONTENTS

INTRODUCTION	3
EXECUTIVE SUMMARY	4
CONTENTS	5
PASSENGER PERSPECTIVE OF AIR CONNECTIVITY	6
1. EUROPEAN AIRPORT CONNECTIVITY	7
2. DIRECT CONNECTIVITY	11
3. CONNECTIVITY TO OTHER WORLD REGIONS	16
4. HUB CONNECTIVITY	18
5. CONNECTIVITY RECOVERY & AIRLINE BUSINESS MODELS	25
6. CONNECTIVITY RECOVERY & NATIONAL MARKETS	28
APPENDICES	31

PASSENGER PERSPECTIVE OF AIR CONNECTIVITY

The "Airport Connectivity Index" is created by SEO Amsterdam Economics using their proprietary NetScan model.

Air connectivity is best considered from the perspective of the air traveller. The one who wants to get from A to B. Or sometimes, from A to B to C. The following definitions describe them and together they provide a comprehensive picture of the air connectivity provided by an airport — and how it links its communities to the rest of the world.

AIRPORT GROUPS

(based on pre-pandemic (2019) traffic levels)

	MAJORS	Top 5 busiest airports in Europe
--	--------	----------------------------------

- **GROUP 1** Airports welcoming over 25 million passengers per year
- **GROUP 2** Airports welcoming between 10 and 25 million passengers per year
- **GROUP 3** Airports welcoming between 5 and 10 million passengers per year
- **GROUP 4** Airports welcoming below 5 million passengers per year

DIRECT CONNECTIVITY

These are the direct air services available from the airport — measured not just in terms of destinations, but also factoring in the frequency of flights to the same destination (so for example, an airport with 5 daily flights to another airport will register a higher score than one with only 4).

INDIRECT CONNECTIVITY

This measures the number of places people can fly to, through a connecting flight at hub airports, from a particular airport. For example, if you fly from Malaga, Spain to a hub airport such as Amsterdam-Schiphol, that's a direct flight from to A to B. But the large number of available onward destinations you can fly from there expands the range of destinations available (or indirectly connected) from Malaga. Indirect connections are weighted according to their quality, based on connecting time and detour involved with the indirect routing. For example, a flight from Hamburg to Johannesburg via Frankfurt will register a higher score than an alternative routing via Doha, which is geographically a longer diversion from the direct flight path.

AIRPORT CONNECTIVITY

As the name suggests, this is the most comprehensive metric for airport connectivity — taking into account both direct and indirect connectivity from the airport in question. Airport connectivity is defined as the sum of direct and indirect connectivity — thus measuring the overall level to which an airport is connected to the rest of the world, either by direct flights or indirect connections via other airports.

HUB CONNECTIVITY

Hub connectivity is the key metric for any hub airport, big or small. It measures the number of connecting flights that can be facilitated by the hub airport in question — taking into account a minimum and maximum connecting time, and weighting the quality of the connections by the detour involved and connecting times.

Find out more about the methodology applied in this report at: https://www.aci-europe.org/air-connectivity.html Airports missing from the ranking are either not ACI EUROPE members or are excluded.

1. EUROPEAN AIRPORT CONNECTIVITY



•

EUROPEAN AIRPORT CONNECTIVITY BACK TO 2009 LEVELS

More than 2 years into the COVID-19 pandemic — and despite a dynamic air traffic recovery finally taking hold thanks to the lifting of travel restrictions by many countries since early spring 2022 — **air connectivity across the European airport network still remains -29% below 2019 levels.**

This means as of June 2022, air connectivity in Europe is still back to where it was back in 2009 — when the Great Recession hit.

While **direct connectivity** is finally getting closer to prepandemic levels at **-15%**, **indirect connectivity** stands much behind at **-36%**. This reflects the distinctive patterns of the recovery in air traffic — which has been driven by leisure/VFR demand and fueled by ultra-LCCs capacity expansion, and with travel restrictions remaining in place on many intercontinental markets.

While the non-EU+ market¹ was clearly outperforming in 2021 — with Russian and Turkish airports recovering their connectivity much faster than those in the EU+ bloc², this year the war in Ukraine and the international sanctions against Russia are clearly impacting connectivity levels in the area.

² EU, EEA, Switzerland and the United Kingdom

¹Albania, Armenia, Belarus, Bosnia and Herzegovina, Georgia, Israel, Kosovo, Moldova, Montenegro, North Macedonia, Russian Federation, Serbia, Turkey, Ukraine and Uzbekistan

CHART 1: DIRECT, INDIRECT & AIRPORT CONNECTIVITY (EU+, NON-EU+ AND ALL EUROPEAN AIRPORTS — JUNE 2022 VS. JUNE 2019)











10 | AIRPORT INDUSTRY CONNECTIVITY REPORT 2022



2. DIRECT CONNECTIVITY

TOP 20 RANKING

- AMS | IST | LHR on top
- Fastest recovery at PMI | LIS | ATH | SAW & smaller/regional airports

*Unless stated otherwise, all data reported below is compared to pre-pandemic (2019) levels.

Amsterdam-Schiphol (-10%) this year again holds the **top spot** in terms of direct connectivity. The airport has been the top performer throughout the pandemic, helped by a diversified airline portfolio combining a strong based network airline and a significant presence of LCCs and leisure airlines.

The Dutch hub is followed by ever-resilient **Istanbul** (-5%) holding on to **2nd** position again this year, and **London-Heathrow** (-13%) moving up to the **3rd** position from the 7th.

Palma de Mallorca (+2%) is the only airport in the top 20 league which has fully recovered and even exceeded its pre-pandemic direct connectivity. This is again a reflection of a recovery largely driven by leisure demand and intra-European traffic.

Together with Istanbul, **Lisbon** (-4%), **Athens** (-6%) and **Istanbul-Sabiha Gökçen** (-6%) have almost recovered their pre-pandemic direct connectivity. **London-Gatwick** (-8%) and **Dublin** (-7%) are also coming close, having rejoined the top 20 league after dropping off last year.

Conversely, **Rome-Fiumicino** (-29%) is lagging behind - a result of the demise of Alitalia, now replaced by a much downsized ITA Airways, along with the Lufthansa Group hubs of **Munich** (-25%), **Vienna** (-22%) and **Zurich** (-22%).

CHART 3: DIRECT CONNECTIVITY — TOP 20 AIRPORTS IN EUROPE IN 2022 (JUNE 2022 VS. JUNE 2019 | RANKINGS 2022, 2021 & 2019)

2022

2019

2021

CODE



2019



SMALLER AIRPORTS RECOVERING FASTER

The chart below reveals that while **38% of smaller & regional airports** (Group 4 category — less than 5 million passengers) had recovered their pre-pandemic **direct connectivity** levels as of June 2022, **only one of the largest airports** (Group 1 category — more than 25 million passengers) had done so.

CHART 4: % OF EUROPEAN AIRPORTS WITH FULLY RECOVERED DIRECT CONNECTIVITY COMPARED TO 2019 (JUNE 2022)



*1 airport

Indeed, in terms of **direct connectivity** recovery levels across the different segments of the airport industry, the best performances come from **smaller & regional airports (-11%)** — which have a greater reliance on intra-European and domestic traffic and also a greater dependence on LCCs. The progressive alignment and lifting of most travel restrictions within the EU+ area since March 2022 boosted their recovery both as regards passenger traffic levels and connectivity. The fact that these airports have a smaller base of flights/destinations to recover also contributed to their performance.

However, their recovery has been far from uniform. While insular airports and those serving popular tourism destinations, as well as secondary airports home to major LCCs (Low Cost Carriers) have seen their direct connectivity exceeding pre-pandemic levels, many other smaller and regional airports are still struggling to recover and fully rebuild their connectivity.

Examples of best performing small/regional and secondary airports in terms of direct connectivity include: Tirana (+35%), Chania (+28%), Funchal (+24%), Rhodes (+23%), Paphos (+16%), Torino (+14%), Trondheim (+14%), Milan-Bergamo (+9%) and Brussels-Charleroi (+8%).

Along with smaller & regional airports, **the top 5 European airports**² (-14%) did noticeably better than other larger airports, benefiting in particular from the *'critical mass advantage'* afforded by their large based network airlines — in the wake of the reopening of the transatlantic market.



CHART 5: DIRECT, INDIRECT & AIRPORT CONNECTIVITY (EUROPEAN AIRPORTS BY TRAFFIC CATEGORIES — JUNE 2022 VS. JUNE 2019)

²Based on 2019 passenger traffic : London-Heathrow, Paris-CDG, Amsterdam-Schiphol, Frankfurt and Istanbul.

3. CONNECTIVITY TO OTHER WORLD REGIONS

• Significant recovery in all markets — except Asia-Pacific

Direct air connectivity between Europe and other World regions has improved significantly over the past year, with **direct connectivity to Africa** (-13%), **Latin America** (-13%) and **North America** (-12%) having even recovered slightly better than direct connectivity **within Europe** (-16%) — compared to the pre-pandemic (2019) benchmark. Direct connectivity to the **Middle East** (-17%) comes next.

But direct connectivity to **Asia-Pacific** (-52%) still remains less than half of what it used to be — predominantly due to the permanence of tight travel restrictions to China and other Northern Asian markets.

CHART 6: DIRECT CONNECTIVITY FROMCHART 7: DIRECT CONNECTIVITY FROM2019EUROPEAN AIRPORTS — INTRA-EUROPEEUROPEAN AIRPORTS BY WORLD REGION2021





2022

4. HUB CONNECTIVITY

STILL SLOWER HUB CONNECTIVITY RECOVERY

- Weaker recovery but European airports dominate global hub ranking
- FRA | IST | AMS in top 3 positions & LIS | SAW above pre-pandemic hub connectivity levels

Hub airports bring the virtues of air transport networks. For an airport that has a wave of 10 flights leaving at 9 am, one additional flight arriving at 8 am increases its hub connectivity score by 10, reflective of the onward connecting options for passengers on that additional arriving flight.

The re-opening of the transatlantic market in November 2021 and the progressive lifting of travel restrictions within Europe and easing of these restrictions on many other intercontinental markets has finally allowed **hub connectivity** to start recovering.

However, **Europe's hub connectivity still remains -34% below pre-pandemic (2019) levels** — predominantly due to the slow recovery of direct connectivity to Asia-Pacific, as well as the connectivity losses of Russian airports as a result of international sanctions.

CHART 8: DIRECT & HUB CONNECTIVITY FROM EUROPEAN AIRPORTS (APRIL 2020, SEPTEMBER 2021, JUNE 2022 VS. 2019)

CHART 9: DIRECT & HUB CONNECTIVITY FROM EU+ & NON-EU+ AIRPORTS (JUNE 2022 VS. JUNE 2019)





NON-EU+



20 | AIRPORT INDUSTRY CONNECTIVITY REPORT 2022

GLOBAL HUB CONNECTIVITY PERFORMANCE

While the closure of most intercontinental markets had resulted in North American airports largely dominating the top 20 league of global hubs in 2021 — thanks to their reliance on a vast and largely unconstrained domestic market — European airports are back on top of the league this year. **9 out of the top 10 global airports for hub connectivity are in Europe.**

Frankfurt (-29%) has regained its pre-pandemic (2019) position as the **top global airport** for hub connectivity. **Istanbul** comes to the **2**nd position, having actually increased its hub connectivity by +11% compared to pre-pandemic (2019). The Turkish hub is followed by **Amsterdam-Schiphol** (-33%), which also regains the **3**rd position it held before the pandemic.

Paris-CDG (-34%), **Munich** (-34%), **London-Heathrow** (-31%), **Madrid** (-32%), **Zurich** (-40%) and **Vienna** (-52%) are all amongst the top 10 global hubs — together with **Dallas Fort Worth** (-83%), the only non-European in that league.

Lisbon (+1%) and **Istanbul-Sabiha Gökçen** (+14%) have both fully recovered and even increased their hub connectivity compared to their pre-pandemic (2019) levels. Together with **Helsinki** (-70%), they have joined the top 20 league of global hubs this year. Helsinki's recovery in hub connectivity clearly lags behind that of other European airports — due to its exposure to the Asia-Pacific market and the impact of the war in Ukraine.

As was the case last year, **Doha** (-73%) remains the only Middle Eastern airport included in the top 20 global league, which also features no Asian airport.

CHART 10: HUB CONNECTIVITY — TOP 20 AIRPORTS GLOBALLY IN 2022 (JUNE 2022 VS. JUNE 2019 | RANKINGS 2022, 2021 & 2019)



2019

EUROPEAN HUB CONNECTIVITY PERFORMANCE

Major hubs (-26%) showed significantly more resilience than both **secondary hubs** (-51%) and **niche & small hubs** (-35%) — thanks to the critical mass of their based network airlines and their diversified route network.

Amongst European hubs, **LCC & Self connectors** (-5%) have experienced the lowest decrease in hub connectivity compared to their pre-pandemic (2019) levels — although from a very low base (i.e. their aggregate level of hub connectivity has been rather marginal — at 1% of the hub connectivity offered by the major hubs). Nevertheless, it is worth noting that **Brussels-Charleroi** (+79%) and **Milan-Bergamo** (+38%) both significantly increased their hub connectivity levels compared to 2019.

Amongst secondary hubs, the hub connectivity levels of **Rome-Fiumicino** (-75%) and **Helsinki** (-70%) have decreased the most — to the point that niche & small hubs like **Lisbon** (+1%) and **Istanbul-Sabiha Gökçen** (+14%) have now surpassed these airports in terms of hub connectivity levels.

While **Athens** (+1%) has also recovered its pre-pandemic hub connectivity and **Dublin** (-25%) benefitted from its reliance on the re-opened transatlantic market, most other niche & small hubs remain below 60% of their 2019 hub connectivity levels. The most extreme cases are **Prague** (-83%), **Dusseldorf** (-81%) and **Moscow-Domodedovo** (-76%).



CHART 11: HUBS: MAJORS | SECONDARY | NICHE & SMALLER | LCCs & SELF-CONNECTORS (HUB CONNECTIVITY CHANGE BY GROUPS — JUNE 2022 VS. JUNE 2019)



Structural shift sees LCCs now delivering 40% of Europe's direct connectivity — up from 27% pre-pandemic

Low Cost Carriers (LCCs) and in particular ultra-LCCs led by Ryanair and Wizzair have used the COVID-19 pandemic as an opportunity to expand and gain market shares, while Full Service and Other Carriers (FSOCs) have generally retrenched.

As a result, the European market has experienced a structural shift, with **LCCs** now accounting for **40%** of **direct air connectivity** up from 27% pre-pandemic (2019) and **FSOCs'** share decreasing from 73% to **60%**.

This increasing direct connectivity share of LCCs has happened not just at smaller & regional airports, but across all segments of the airport industry, except at the top 5 busiest airports where it has remained stable. This reflects the continuous drive of LCCs to move upmarket and increase their presence at primary airports.



FSOC

LCC







All this reflects a changed market landscape, where competitive pressures are increasing across the board for airports as footloose pan-European LCCs intensively bargain with them. This is also pointing to the increasing importance of slot allocation rules as a system that needs to better reflect the connectivity needs of airport communities, while ensuring fair and open market opportunities.

6. CONNECTIVITY RECOVERY & NATIONAL MARKETS

- Significant performance variations across Europe, with Greece the only country with total and direct air connectivity now exceeding pre-pandemic levels
- Ukraine's air connectivity erased Russia's & Belarus' hit hard by international sanctions

Looking at national markets, **Greece** is the only country in Europe that as of June 2022 has achieved a full recovery in its **total air connectivity** compared to pre-pandemic (2019) levels.

Turkey follows closely (-3%), along with smaller non-EU+ markets: **Albania** (-5%), **Kosovo** (-6%) and **Bosnia & Herzegovina** (-10%). Meanwhile **Ukraine** has lost all of its air connectivity, while **Russia**'s and **Belarus**' **air connectivity** have come down to **-62%** and **-78%** compared to pre-pandemic (2019) levels — the result of international sanctions.

Within the **EU+ area**, apart from Greece, the best recovery performances have come from **Norway** (-12%), **Portugal** (-15%), **Ireland** (-17%) and **Romania** (-18%). Conversely, the worst performing countries are the **Czech Republic** (-52%), **Slovenia** (-47%), **Slovakia** (-47%), **Finland** (-43%) and **Austria** (-40%).

Amongst the larger EU+ markets, **Spain** (-23%) is best performing, followed by the **UK** (-28%), **Italy** (-32%), **France** (-34%). **Germany** (-39%) comes last.

As regards **direct air connectivity**, EU+ countries whose economies rely on tourism and inbound visitors tend to be the best performing.

Accordingly, **Greece** (+6%) now exceeds its pre-pandemic (2019) direct connectivity levels, followed by **Portugal** (-2%), **Spain** (-8%), **Croatia** (-8%) and **Ireland** (-9%). The worst performing EU+ countries for direct air connectivity are **Slovenia** (-57%), the **Czech Republic** (-41%), **Latvia** (-38%) and **Finland** (-34%).

Amongst larger EU+ markets, **Spain** (which also boasts the highest level of direct connectivity amongst all European countries) is followed by **Italy** (-13%), the **UK** (-16%), **France** (-20%) and **Germany** (-27%). It is worth noting that the differences in direct connectivity performance amongst these countries somewhat mirror differences in the degree of penetration of LCCs.

With regards to direct connectivity **outside the EU+ area**, the best results came from the smaller markets of **Bosnia & Herzegovina** (+46%), **Albania** (+35%) **North Macedonia** (+12%) as well as **Turkey** (-6%). The worst performing non-EU+ markets were **Belarus** (-71%), **Georgia** (-40%), **Moldova** (-36%) and **Russia** (-35%).

FIGURE 14: RANKING OF EUROPEAN COUNTRIES BASED ON TOTAL AIR CONNECTIVITY CHANGE (JUNE 2022 VS. JUNE 2019)

	Country	2022 vs 2019		Country	2022 vs 2019
1	Greece	0%	19	Bulgaria	-33%
2	Norway	-12%	20	Sweden	-33%
3	Portugal	-15%	21	France	-34%
4	Ireland	-17%	21	Malta	-34%
5	Romania	-18%	22	Hungary	-35%
6	Spain	-23%	23	Switzerland	-36%
7	Iceland	-24%	24	Germany	-39%
8	Croatia	-25%	25	Latvia	-39%
9	Lithuania	-25%	26	Austria	-40%
10	Estonia	-27%	27 Finland -43%		
11	Poland	-27%	28	28 Slovenia -47%	
12	United Kingdom	-28%	29	Slovakia	-47%
13	Netherlands	-28%	30	Czech Republic	-52%
14	Luxembourg	-29 %			
15	Cyprus	-29 %			
16	Denmark	-30%			
17	Belgium	-31%			

EU+

NON-EU+

	Country	2022 vs 2019
1	Turkey	-3%
2	Albania	-5%
3	Kosovo	-6%
4	Bosnia & Herzegovina	-10%
5	Serbia	-18%
6	North Macedonia	-21%
7	Israel	-27%
8	Georgia	-36%
9	Montenegro	-44%
10	Moldova	-57%
11	Russian Federation	-62%
12	Belarus	-78%
13	Ukraine	-100%

-32%

Italy

18

Want to know more about YOUR airport's connectivity performance?

Additional appendices detailing individual airport data on air connectivity are available to download. Simply scan the QR code below to access the webpage storing the data:



Or download the file from: https://www.aci-europe.org/air-connectivity.html



For the 9th year running, ACI EUROPE releases its annual European Airport Industry Connectivity Report — a comprehensive analysis of airport connectivity measured in many dimensions. This Report describes the impact of the COVID-19 pandemic and other ensuing crises on the direct, indirect and total airport connectivity as well as hub connectivity in comparison to previous years, based on SEO's NetScan connectivity methodology.

ACI EUROPE is the European region of Airports Council International (ACI), the only worldwide professional association of airport operators.

ACI EUROPE represents over 500 airports in 55 European countries. Our members facilitate over 90% of commercial air traffic in Europe. In response to the Climate Emergency, in June 2019 our members committed to achieve Net Zero carbon emissions for operations under their control by 2050, without offsetting.

www.aci-europe.org

Released on the eve of the 32nd ACI EUROPE Annual Congress & General Assembly in Rome, Italy.

Designed by Agata Łyżnik | Illustrations by Jack Hudson © Copyright ACI EUROPE 2022.



seo amsterdam economics